Far North District Council

# Asset Management Plan

# 2012 – 2022

# Part C

# Managing Our Assets

# Transportation

Private Bag 752, Memorial Ave, Kaikohe 0440, New Zealand, Freephone: 0800 920 029,
Phone: (09) 405 2750, Fax: (09) 401 2137, Email: ask.us@fndc.govt.nz, Website: www.fndc.govt.nz

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# PART C: MANAGING OUR ASSETS

## 3 SUMMARY

### 3.1 Activity Description

The Far North transportation network is the third largest roading network in New Zealand. There is approximately 3,000 km of maintained roads in the district, for which Council is responsible for 2,543.2 kms. The balance is State Highway roading under the control of the New Zealand Transport Agency (NZTA). Transportation is Council's largest asset group. The roading, footpaths and car park assets account for 76% of Council's total fixed assets of $1.137 billion. 35% of the roading network is sealed.

The network is well established. However, a combination of increased heavy traffic loadings and some low cost seal extensions in the early to mid 1990's may potentially create an escalating level of deterioration over the next 20 years. Increased expenditure is likely to be consequence, in order to cost-effectively maintain and rehabilitate the road network assets over the life of this Asset Management Plan.

**Table 1: Overview of the Transport Activity**

| Asset | Sub Group | Unit | Quantities | GRC | ODRC | AD |
|---|---|---|---|---|---|---|
| Pavement | Formation | m3 | 13,001,533 | 377,008,131 | 376,719,668 | 0 |
| | SubBase | m3 | 3,107,387 | 189,030,979 | 122,051,951 | 539,154 |
| | Basecourse | m3 | 1,938,966 | 129,502,850 | 105,379,755 | 3,169,106 |
| | Surfaces | m2 | 14,582,131 | 87,687,043 | 30,099,656 | 5,344,720 |
| Drainage | Culverts / Catchpit Leads | m | 249,420 | 68,882,130 | 48,004,980 | 840,029 |
| | Catchpits & manholes | no | 2,939 | 5,368,559 | 3,662,127 | 59,975 |
| | Surface Water Channels | m | 2,224,261 | 11,834,178 | 11,109,379 | 7,113 |
| | Kerb & Channel | m | 269,621 | 18,411,441 | 10,171,035 | 340,740 |
| | Dams | no | 2 | 77,416 | 71,857 | 1,548 |
| Streetlights | Streetlights | no | | 5,219,815 | 2,474,819 | 124,693 |
| Bridges & Large Culverts | Bridges & Large Culverts | no | 701 | 163,793,399 | 89,379,582 | 1,775,646 |
| Minor Structures | Retaining / Sea Walls | no | 520 | 36,025,624 | 24,058,643 | 863,509 |
| Traffic Facilities | Railings | m | 38,691 | 6,668,489 | 3,297,478 | 205,662 |
| | Edge Marker Posts | no | 10,093 | 272,486 | 91,797 | 33,388 |
| | Roadmarking | | | 2,567,998 | 2,565,370 | 124 |
| | Traffic Islands | m | 11,800 | 550,133 | 378,385 | 9,607 |
| Signs and Posts | Signs | no | 26,649 | 3,733,038 | 1,533,216 | 306,298 |
| Quarries incl Fences | Quarries incl Fences | no | | 505,748 | 455,584 | 18,192 |
| Footapths | Footapths | m2 | 275,207 | 23,912,390 | 9,996,418 | 532,248 |
| Carparks | Carparks | no | 21 | 1,761,086 | 917,787 | 72,109 |
| Ferry | Ferry | no | 1 | 3,889,448 | 1,359,892 | 80,466 |
| **TOTAL** | | | | **1,136,702,381** | **843,779,379** | **14,324,330** |

Excludes Land, Buildings, Vehicles, and Memorials.

# 4 OVERVIEW OF THE ASSETS

The focus of this section is on the physical assets that deliver roading services to customers. It describes the assets, how they work and their condition. A critical look is taken at the key assumptions and confidence in the asset data. This detailed knowledge is needed to gain an understanding of how the roading system functions and how the required levels of service for customers are met in the most cost effective and affordable manner.

## 4.1 Managing the Assets

### 4.1.1 How the network works

The road network is a vital part of the district that enables safe and comfortable access for employment, personal/social activities and recreation, and the movement of goods and services. The transport network is essential to the functioning of the district's economy, benefiting residents and the district as a whole. Maintaining and improving roads are regarded as 2 of the core functions of Council. The District also benefits from other users of the transport network such as visitors, tourists, emergency service vehicles, postal services, etc.

### 4.1.2 Contract Management, Scope and Terms of Major Contracts

The Far North District Council has numerous contracts covering different aspects of the road network. The main operative contracts are detailed below as at June 2012:

**Physical Works Contracts:**

- Northern Area Road Maintenance Contract (Fulton Hogan Ltd)
- Eastern Area Road Maintenance Contract (Transfield Services Ltd)
- Western Area Road Maintenance Contract (Downers Ltd)
- Vehicular Ferry Contract (Transfield Services Ltd)

**Professional Services Contracts:**

- Professional Engineering Services for Bridge & Road Structure Asset Management (Opus International Ltd)

### 4.1.3 Customer Service Requests and Complaints

Council uses a Pathway Customer Service Request system for its Request for Service (RFS) and Correspondence processes.

Fulton Hogan Ltd is the first point of call for all customers' Roading and Drainage requests for service (RFS). The call redirects from the Council' system to Fulton Hogan who have experienced staff to answer the call and accurately determine the problem. They then allocate the RFS either to themselves as the Northern Maintenance Contractor or to Transfield Services Ltd and Downers Ltd. Non related RFS are referred back to Council's Customer Services Officer.

The process for written correspondence is similar. The correspondence is scanned and logged by the mail clerk and emailed directly to the staff member responsible. The primary objective of the Correspondence RFS System is to trace correspondence that requires a written response.

RFS statistics are graphed and are shown in further detail under the Routine Maintenance Plan section of this AMP. The categories for customer requests are shown in the table below.

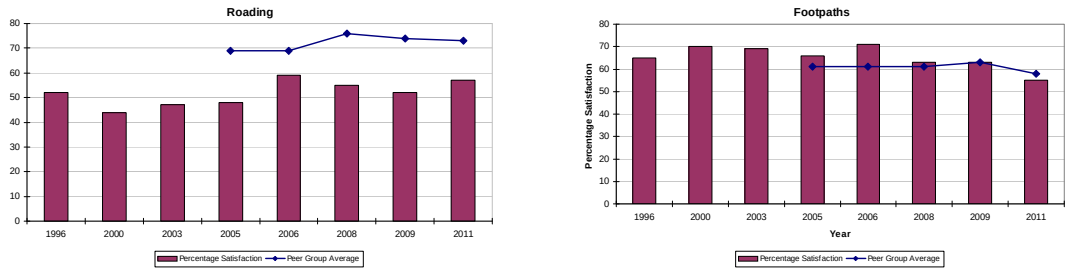
**Table 2: RFS Categories for Transport**

| Categories | Categories |
|---|---|
| Bridges (RBR) | Dead Animals (RDA) |
| Emergency Roads (REM) | Rural Drainage (RDG) |
| Flooding (RFL) | Drainage-Watertables (RDR) |
| Service Lanes (Hard Surfaces) (RLN) | Rural Litter (RRL) |
| Metal Roads (RMG) | Street lighting (RSL) |
| Sealed Roads (RSD) | Emergency Works Flooding threat to buildings (2005 only) |
| Signs, Markings, Barriers (RSN) | Roading Miscellaneous (RMI) |
| Tree Across Road (RTA) | Roading Drainage Development (RDD) |
| Unformed Roads (RUF) | Roads & Stormwater Correspondence (RDGC) |
| Vegetation (RVG) | Roading Works (RWX) |

#### 4.1.3.1 Versus Research Limited Communitrak Survey

The latest available data is from the 2011 Communitrak Survey. The survey provides Council with robust statistically valid data. The results in Figure 1 show an increase of approximately 5% in the overall satisfaction rating for roading (57%) and a decrease of approximately 8% in the overall satisfaction rating for footpaths (55%) from the previous survey. The survey questions were developed to gain an understanding of levels of satisfaction around a number of core roading related areas.

**Figure 1: Overall Roading and Footpath Satisfaction Results**




### 4.1.4 Asset Condition and Monitoring

Council gains a better understanding of the remaining life of its assets or components through condition assessments. This understanding drives future expenditure patterns. By conducting regular condition and performance monitoring, maintenance strategies and/or rehabilitation strategies can be updated and refined, and ultimate replacement programmes can be determined more accurately.

It is critical to have clear knowledge of the condition of the assets and how they are performing. All management decisions regarding maintenance, rehabilitation and renewal revolve around these two aspects. Not knowing the current condition or performance level of an asset may lead to premature failure of the asset. Any unforeseen failure of an asset could have consequences that constitute a public liability or potential loss to the organisation. The development and continued use of condition assessment data allows preparation of verifiable predictive decay curves for particular asset types and consequently, the remaining life of the asset can be predicted. Economic influences will still need to be considered for the adopted life for the asset type.

Table 3 below reflects the reliability of asset data for the transportation assets.

**Table 3: Overall Confidence Data**

| Asset Type | Highly Reliable | Reliable | Uncertain | Very Uncertain |
|---|---|---|---|---|
| Road Pavements – Sealed and Unsealed | ✓ | ✓ | | |
| Bridges and Large Culverts | ✓ | ✓ | | |
| Minor Structures | | ✓ | | |
| Traffic Facilities | | ✓ | | |
| Drainage | | | ✓ | |
| Street lighting | | ✓ | | |
| Quarries | ✓ | | | |
| Vehicular Ferry | ✓ | | | |
| Footpaths | ✓ | | | |
| Car parks | ✓ | ✓ | | |

**Table 4: Condition and Performance for Critical and Non Critical Assets**

| Asset Type | Highly Reliable | Reliable | Uncertain | Very Uncertain |
|---|---|---|---|---|
| Road Pavements – Sealed and Unsealed | | ✓ | | |
| Bridges and Large Culverts | | ✓ | | |
| Minor Structures | | ✓ | | |
| Traffic Facilities | | ✓ | | |
| Drainage | | ✓ | | |
| Street lighting | | ✓ | | |
| Quarries | | ✓ | | |
| Vehicular Ferry | ✓ | | | |
| Footpaths | ✓ | | | |
| Car parks | ✓ | | | |

Table 5 below provides the confidence framework (NAMS IIMM) used to determine the confidence in the transportation asset data.

**Table 5: Asset Data – Confidence Grades**

| Confidence Grade | General Meaning |
|---|---|
| **Highly Reliable** | Data based on sound records, procedure, investigations and analysis, documented properly and recognised as the best method of assessment. |
| **Reliable** | Data based on sound records, procedures, investigations and analysis, documented properly but has minor shortcomings, for example the data are old, some documentation is missing, and reliance is placed on unconfirmed reports or some extrapolation. |
| **Uncertain** | Data based on sound records, procedures, investigations and analysis which are incomplete or unsupported, or extrapolated from a limited sample for which grade highly reliable or reliable data are available. |
| **Very Uncertain** | Data based on unconfirmed verbal reports and/or cursory inspection and analysis. |

The condition assessment model in Table 6 is the basis for assessing the asset condition of FNDC assets.

**Table 6: Typical Condition Rating Model**

| Grade | Condition | Description of Condition |
|---|---|---|
| 1 | **Excellent** | Sound physical condition. Asset likely to perform adequately without major work for 25 years or more. |
| 2 | **Good** | Acceptable physical condition; minimal short-term failure risk but potential for deterioration in long-term (15 years plus). Minor work required. |
| 3 | **Average** | Significant deterioration evident; failure likely within the next 5 years but further deterioration likely and major replacement likely within the next 15 years. Minor components or isolated sections of the asset need replacement or repair now but asset still functions safely at adequate level or service. |
| 4 | **Poor** | Failure likely short-term. Likely need to replace most or all of assets within 5 years. No immediate risk to health or safety but works required within 3 years ensuring asset remains safe. Substantial work required in short-term, asset barely serviceable. |
| 5 | **Very Poor** | Failed or failure imminent. Immediate need to replace most or all of asset. Health and safety hazards exist which present a possible risk to public safety or asset cannot be serviced/operated without risk to personnel. Major work or replacement required urgently. |

### 4.1.5 Maintenance Decision Making Processes

Operations and maintenance strategies determine how the local transportation network will be operated and maintained on a day-to-day basis in order to achieve the optimum use of the asset.

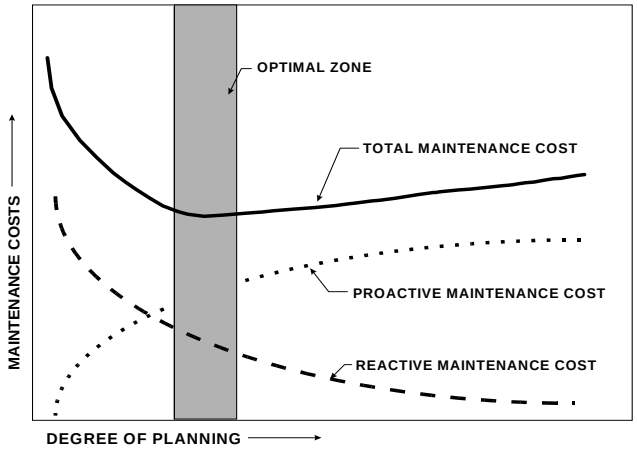
The lifecycle management work categories identified in Table 7 are defined as follows:

**Table 7: Maintenance Categories**

| | |
|---|---|
| **Routine (General) Maintenance** | Routine maintenance is the regular ongoing day-to-day work that is necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again. This work falls into two broad categories as follows: |
| **Proactive** | Proactive inspection and maintenance works planned to prevent asset failure. |
| **Reactive** | Reactive action to correct asset malfunctions and failures on an as required basis. |

A key element of asset management planning is determining the most cost-effective blend of planned and unplanned maintenance as illustrated in Figure 2.

**Figure 2: Balancing Proactive and Reactive Maintenance**



### 4.1.6 Process for identifying the range of options to deliver levels of service including demand management

Council provides a level of service matched to the community's ability and willingness to pay. Information associated with the service is attained from the community in regard to expectations on quality, delivery and costs. This information is collected via a number of mechanisms, including:

- Communitrak Survey
- Submissions on the Annual Plan
- Analysis of Request for Service database
- Community consultation

Consistency is needed between the levels of service provided by the Transportation Activity and the expectations of the communities. The communities' willingness to pay determines the level of service (LoS). High community expectations need to be matched to both a willingness and ability to pay. Both LoS and willingness to pay will differ between communities.

### 4.1.7 Selection Criteria for Asset Creation or Upgrading Projects

Investment in new or upgraded assets is based on:

- Demand
- Growth
- Maintaining LoS
- Regulatory requirements (refer to Section 4.8 for list of key legislation)

Projects to develop new assets are ranked on a business risk basis prior to inclusion in the Councils long term plan (LTP).

The selection criteria for the prioritising and programming of transport asset development projects are a function of Council preference, consideration of risk, costs and benefits, affordability and ranking with other projects. The following criteria are taken into consideration when prioritising projects:

- Access to Community, Infrastructure: Tourist Destinations
- Dust – Social and Health Impact: Dwellings and Public Facilities
- Environmental Sustainability
- Growth Rate
- Seasonal/Holiday Traffic
- Land-Use Zoning/Activity
- Route Security – Alternative to Strategic Links
- Safety
- Strategic Link Function
- Traffic Type and % Heavies
- Traffic Volume
- Travel Demand Management

### 4.1.8 Asset Management Systems

The table below sets out Council's IT applications used by the Transportation group.

**Table 8: Asset Management (AM) Systems**

| Function | Systems Used | Description |
|---|---|---|
| **Asset Management System** | RAMM (2011) | • RAMM supports hierarchical definition of assets and has defined components.<br>• RAMM assigns a unique ID number to each asset (also used in GIS Bizeassets)<br>• RAMM is used for most assets with the exception of car parks and quarries |
| **Financial System** | Finance One V11 | • Finance One is used to make payments to contractors for general maintenance and capital work<br>• Finance One records valuation data at summary level<br>• It is used also for forward programming |
| **Plans and Records** | Objective / RAMM | • RAMM is the main source of Data<br>• Hard copy of as-builts are scanned and kept in Councils system<br>• From 2010 records are saved also into Objective which is Council's Document Management System |
| **Complaints (Request for Service)** | Call Centre (Pathway V3.02) | • Council uses Pathways RFS (request for service) module which records and tracks complaints and service requests |
| **Capacity Modelling** | RAMM | • Traffic volumes and classification |
| **Maintenance Management** | RAMM contractor | • RAMM contractor is a contract management program that is available through RAMM |
| **Works Orders** | Pathways V3.02 | • Pathways provides full functionality for generating works orders |
| **Geographical Information System (GIS** | Map Info | • GIS is available, but is not fully used for Transport |
| **Project Management** | Finance One V11 / Microsoft Project & Excel | • Finance One has the ability to capture project timelines and manage projects and financial data, this feature is not widely used for Transport<br>• Microsoft Project and excel spreadsheets are the most common tool used for project management |
| **Condition Survey** | RAMM | • RAMM holds condition data for all assets except car parks, wharves, airports and quarries |
| **Capital Renewal Modelling** | RAMM | • RAMM is currently used to do predictive modelling for pavements. Council has started collecting data for dTIMS deterioration modelling |
| **Network Auditing** | Microsoft Excel | • Network Auditing is done quarterly and is entered into Excel spreadsheets |
| **Crash Analysis System** | CAS (via NZTA/Police) | • CAS records all police accident records for further evaluation regarding road safety |
| **Microsoft** | Microsoft 2003 | • For all other daily tasks Word, Excel, Outlook, Project, Access, PowerPoint |

### 4.1.9 Asset Management Data

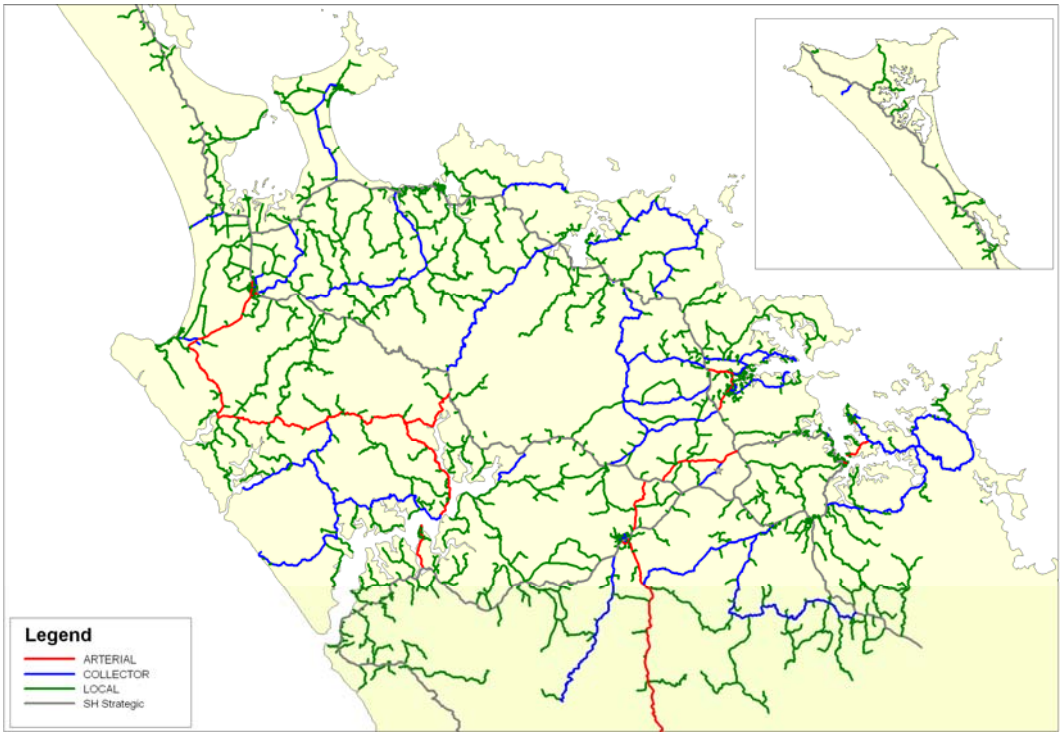
The table below sets out Council's process and current practices used by the Transportation group.

**Table 9: Asset Management Data**

| Process | Current Practice |
|---|---|
| **Condition Data** | • These include RAMM Road Condition Surveys, High Speed Data surveys, RAMM Footpath Condition Surveys, Structures General Inspections, and Structures Detailed Inspections |
| **Asset data and information** | • Pocket RAMM is being used by the contractors to update asset data in the field e.g. signs |
| **Spatial Data** | • Aerial photos available<br>• Road centre lines on GIS |
| **Project Management** | • Finance One has the ability to capture project timelines and manage projects and financial data, this feature is not widely used for Transport |
| **Maintenance Data** | • RAMM Contractor is used to capture all known faults with treatment cost estimates, filter and programme selected faults for treatment, and to record actual treatment and costs |
| **Performance / Capacity** | • Average knowledge of traffic patterns and future demand<br>• Bridge capacity loadings are currently being reviewed which includes structural integrity of high risk bridges (weight restricted bridges) |
| **Asset Age / Lives** | • Asset creation dates are recorded in RAMM and the useful lives are assigned to all assets through the valuation process based on the valuation and depreciation guidelines which are held in Pathways system |

Figure 3 illustrates the extent of the Transportation Network within the Far North District.

**Figure 3: Summary of Roading Network**



### 4.1.10 New Zealand Transport Agency

The New Zealand Transport Agency (NZTA) is a Crown entity established on 1 August 2008, under the amended Land Transport Management Act 2003, bringing together the former functions of Land Transport New Zealand and Transit New Zealand to provide an integrated approach to transport planning, funding and delivery.

The NZ Transport Agency contributes to an integrated, safe, responsive and sustainable land transport system, in support of the updated New Zealand Transport Strategy.

The NZ Transport Agency is focused on delivering four key outcomes:

| | |
|---|---|
| • Integration | • Safety |
| • Sustainability | • Value for Money |

#### 4.1.10.1 Procedural Audits

Procedural audits are carried out by NZTA in terms of Section 95 (1) (e) (ii) of the Land Transport Management Act 2003 with a 2008 Amendment. The objectives of the audits are generally as follows:

- To review any issues arising from previous procedural audit(s)
- To review final claims for the period being audited
- To assess the audit trail of transactions for financially assisted works
- To assess compliance with NZTA's approved procurement procedures
- To review contract management procedures
- To review Council's professional services provider/network manager/business unit for compliance with NZTA's requirements
- To recommend measures for improved practice if appropriate

The last FNDC Procedural Audit was carried out in June 2011. Audits have typically been carried out on a two-yearly cycle with the next one due in 2013. A copy of the 2011 review is attached in Appendix A.

#### 4.1.10.2 Technical Audits

Technical audits are carried out by NZTA in terms of Section 95 (1) (e) (ii) of the Land Transport Management Act 2003 with a 2008 Amendment. Factors that determine the frequency include the size of NZTA's financial contribution, the complexity of each organisation's programme, network condition (pavement and safety) and the outcome of previous audits. The objectives of the audits are generally as follows:

- To review any issues arising from previous technical audit(s)
- To assess whether the level and quality of roading maintenance being carried out by the Council is realistic and acceptable
- To determine the extent to which Council's structural and corridor maintenance programme is meeting (not exceeding) maintenance needs
- To determine the extent to which Councils RAMM database is able to provide reliable reports and treatment selections
- To determine in light of the answers to the above, that there is progress towards achieving a least cost, long-term, maintenance programme

The latest Technical Review for the Far North District was carried out in 2008, with the next one due in 2013. A copy of the 2008 review is attached in Appendix A.

## 4.2 The services we provide

### 4.2.1 Management of the Activity

The Council Management Structure for the Transport Group is shown in Figure 4 and Figure 5 below.

**Figure 4: Council Staff Structure Supporting Transportation**

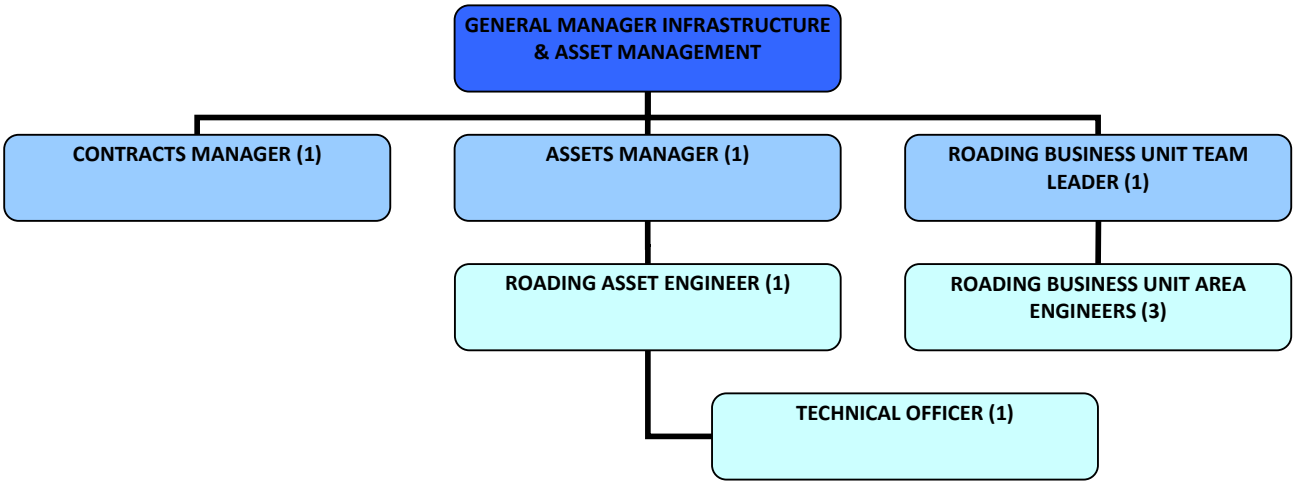
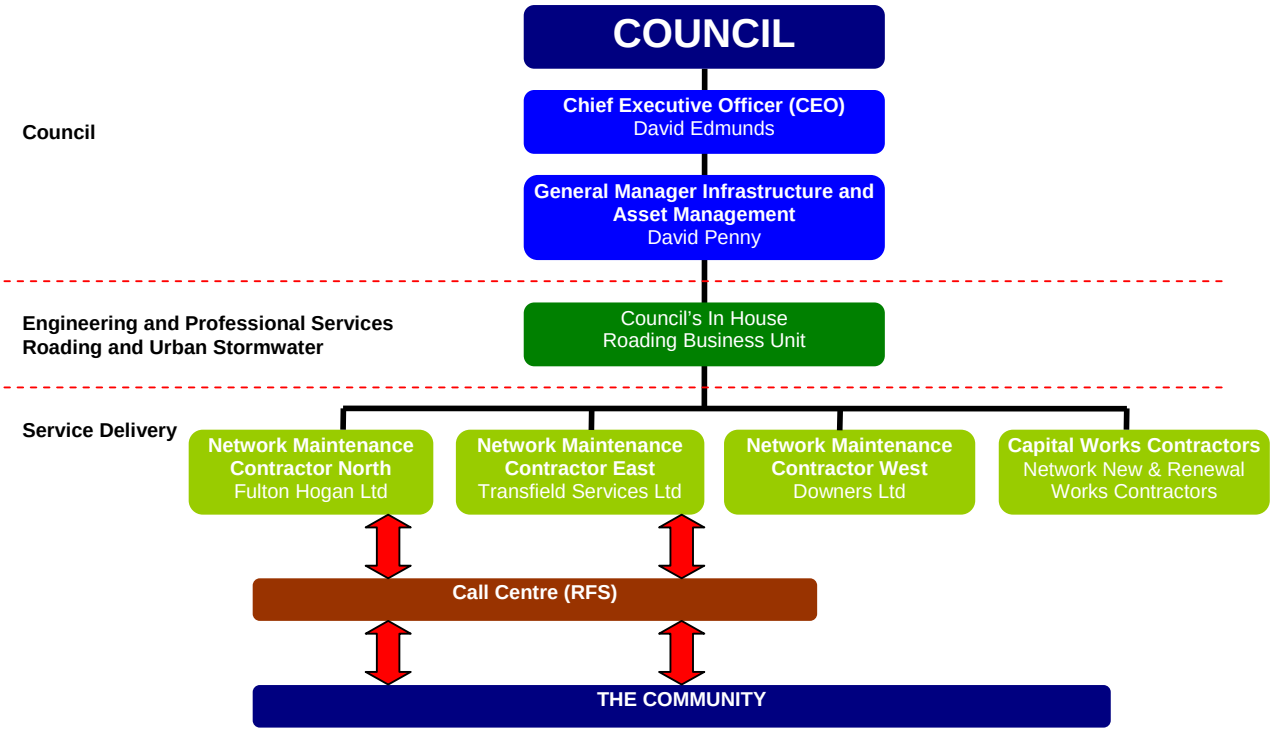



**Figure 5: Staff Structure, Relationships with Contractors and the Interfaces with the Community**



#### 4.2.1.1 Roles and Responsibilities

The transportation assets are managed, monitored and maintained by a number of parties as shown in the Table below.

**Table 10: Transportation Network Service Providers**

| Party | Role | Specific Responsibilities |
|---|---|---|
| **GM Infrastructure and Asset Management** | Responsibility for overseeing the management of Assets and Services | |
| **Contracts Manager** (FNDC) | Responsibility for the management of Assets and Services | • Financial control<br>• Strategic Performance Monitoring<br>• Customer Service |
| **Engineering Professional Services Roading** (FNDC's in house Roading Business Unit) | Provision of professional services to Infrastructure & Asset Management Department | • Roading network operations and management<br>• Management of capital and renewal works<br>• Design |
| **Northern Network Maintenance Contractors** (Fulton Hogan Limited) | Completion of the majority of day to day operations, maintenance and renewal works within the road network. The completion of the annual remark and various new marking as required. | • As detailed in Contract 7/12/100 |
| **Southern Network Maintenance Contractors** (Transfield Services Limited) | | • As detailed in Contract 7/12/101 |
| **Western Network Maintenance Contractors** (Downers Limited) | | • As detailed in Contract 7/12/102 |
| **Capital Works Contractors** (various contractors) | Responsible for implementation of capital new and renewal projects. | • Physical construction of specified road improvements |
| **Vehicular Ferry Operator** (currently Impact Services Limited) | Day to day operations and maintenance of the ferry. | • As detailed in Contract 7/02/186<br>• Management<br>• Planned major maintenance<br>• Unplanned maintenance |
| **Call Centre** (Fulton Hogan Ltd) | Call Centre, Customer Contacts | • Recording of RFS complaints<br>• Customer interactions |
| **Quarries** (FNDC) | Responsible for the management of the quarry asset. | • All quarry sites not operational<br>• Compliance with resource consent conditions<br>• Strategic Planning |

### 4.2.2 Pavements

***Roads are safe to use and provide a comfortable and reliable means of travel***

#### 4.2.2.1 Operation of activity

The purpose of pavement assets (formation, base layers and surface) is to provide a pavement network suitable for:

- The effective and efficient movement of vehicles
- All year round access
- A safe suitable all-weather surface that is appropriate to location and function in terms of skid resistance, noise reduction, smoothness, and has a structure suitable for legal traffic loading requirements.

This is accomplished through a renewals programme and a day to day maintenance programme. The renewals programme addresses the lifecycle of the road surface and road base. Road surfaces that are either approaching, or at the end of their service life, are resurfaced. Roads where the road base is approaching, or at the end of its service life, are reconstructed. Day to day maintenance is managed through the three road maintenance contracts.

#### 4.2.2.2 Physical Parameters

Council has a total of 2,543.2 km of roads within its roading network. Table 11 below shows the distribution between the sealed and unsealed networks.

**Table 11: Length of Sealed and Unsealed Roads**

| Road Type | Urban | Rural | Total |
|---|---|---|---|
| Unsealed Roads | 11.5km | 1655.5 km | **1667.0 m** |
| Sealed Roads | 196.2 km | 680.0 km | **876.2 km** |
| **Total** | **207.7 km** | **2335.5 km** | **2543.2m** |

The roading network is classified using the hierarchical asset categories shown in Table 12, which are aligned to the RAMM system.

**Table 12: Roading Network Distribution**

| Hierarchy | Description | Sealed (km) | Unsealed (km) | Total Network (km) |
|---|---|---|---|---|
| Arterial | Roads of regional importance | 157.6 | - | **157.6** |
| Collector | Roads of local significance | 327.9 | 207.9 | **535.8** |
| Local | All other roads maintained by Council | 389.2 | 1,459.0 | **1,848.2** |
| Service Lane | Road that provides the public with a side or rear access for vehicular traffic to any land | 1.5 | .1 | **1.6** |
| **Total** | | **876.2** | **1,667.0** | **2543.2** |

The information set out in Table 13 provides an overview of the pavement assets as recorded in Councils asset register.

**Table 13: Asset Information – Road Carriageway**

| Asset | Length (m) | ORC | ODRC | AD |
|---|---|---|---|---|
| Formation | 13,001,533 | 377,008,131 | 376,719,668 | 0 |
| Subbase | 3,107,387 | 189,030,979 | 122,051,951 | 539,154 |
| Basecourse | 1,938,966 | 129,502,850 | 105,379,755 | 3,169,109 |
| Surface | 14,582,131 | 87,687,043 | 30,099,656 | 5,344,720 |
| **TOTAL** | **32,630,017** | **783,229,002** | **634,251,031** | **9,052,980** |

### Key Issues and Strategies

Key issues and actions relating to the management of pavements are set out below.

**Table 14: Pavement Key Issues & Strategies**

| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Demand for roads to be sealed | • Use alternative methods for dust nuisance |
| • Weak subgrades, poor geology – traffic loadings, drainage | • Continue to monitor key pavement Key Performance Indicators (KPIs) – condition / FWD.<br>• Continue with a well focused and adequately funded renewals programmes – dTIMS.<br>• Maintain a high standard of surface water channels – programme (Network). |
| • Narrow carriageway with poor alignment and inadequate sight distance (safety) | • Monitor crash reports for trends and black spots.<br>• Proactively complete sight benching and vegetation removal and corner improvements via Minor Improvements.<br>• Proactively continue with culvert extensions.<br>• Carry out regular crash reduction studies, RISA, SMS. |
| • Unsealed pavement conditions being very reactionary to weather conditions | • Continue to maintain and develop metal structural layers and shape to allow surface water runoff, continue to improve drainage. |
| • Maintain required Levels of Service and appropriae to Road Hierarchy | • Further analyse deterioration rates and monitor pavement condition KPIs to more confidently define extent of issue.<br>• Closely monitor maintenance needs and the timing of reseals on pavements which have low traffic volumes and have passed their forecast seal life, but are not yet showing signs of surface cracking or distress, i.e. extend reseal cycle times. |
| • Impacts of forestry traffic, affecting main routes of the network | • Continue to work with forestry groups on how to best manage on road by road basis. |
| • Limited sources of quality aggregate | • Proactively assess the supply and demand of aggregate and implement recommendations where appropriate. |
| • Quality of RAMM Pavement data | • Continual improvements of the RAMM data to improve quality and outputs (currently underway). |

### Assumptions & Confidence Levels

- External influences are likely to have the most impact on projections i.e. inflation, timber prices, oil prices, construction cost escalations and the re-tendering of the Maintenance Contracts;
- The current LoS are being reviewed in accordance with Road Hierarchy needs;
- Confidence levels are high with regard to the techniques for assessing the operational pavement maintenance activity.

#### 4.2.2.3 Asset Capacity/Performance

Carriageway pavements comprise three major asset components as follows:

**Formation (subgrade):** The Formation layer is essentially the natural ground material that the carriageway structure is formed upon. Formation is considered to have an indefinite life and is therefore not depreciated over time.

**Subbase:** The subbase is the compacted material (AP65) that sits above the subgrade. The thickness of this layer is determined by the strength of the subgrade.

**Basecourse:** The basecourse is the compacted granular material (AP40) that sits above the subbase. Basecourse has a much longer life, and therefore the renewal profile varies differently to that of the surface materials.

**Modified Basecourse:** This may include lime or cement dependant on the quality of aggregates.

**Top Surface:** This layer can comprise a variety of materials as shown below:

**Table 15: Top Surface Layers**

| Layer Type | Description |
|---|---|
| Chipseal | Layer of sprayed bitumen with a stone chip spread on top as a running surface. The life cycle for a chipseal surfacing varies dependent on the chip size used (small chip means less bitumen that can be sprayed as the waterproofing membrane) and by traffic volume. |
| Asphaltic Concrete | Mix of graded aggregate and asphaltic binder laid in a 25 - 50 mm layer. Primarily used at roundabouts, busy intersections, central business areas and high traffic stress areas (i.e. cul-de-sac heads), and where road noise is an issue. |
| Unsealed | Metal surface, or have a clay bound wearing course surface. |

These layers typically have very short lives and are renewed through resealing.

#### 4.2.2.4 Asset Condition

**Pavement Condition**

A considerable amount of pavement condition data is collected through bi-annual roughness and rating assessments, and through the network maintenance contracts. The information presented in this AMP is a summary of the Pavement Renewal Strategy attached in Appendix B. The following areas are discussed:

- Surface Condition Index
- Pavement Integrity Index
- Roughness

**Sealed Surfacing Condition**

Skid resistance measurement is a primary resurfacing driver on the State Highway network. Council does not currently measure skid resistance. Council will consider surveying skid resistance on arterial roads when NZTA has the required machine in the area.

**Surface Condition Index (SCI)**

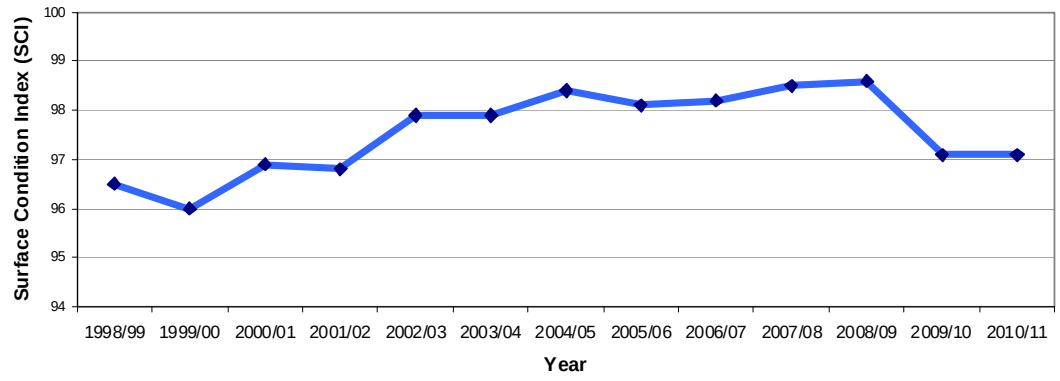
The SCI is a composite index that describes the network surface condition and allows easy comparison of historical and future surface conditions. Results shown graphically are very quick to interpret. SCI has two key components:

- The Condition Index (CI) which is based on RAMM condition rating data, and

- The Age Factor Index (AI) of the surface, which uses the surfacing remaining life held in RAMM.

The SCI is used to trigger resurfacing or reseal treatments. Figure 6 shows that the SCI levels of the network decreased from 2008/09 through to 2010/11. This may be attributed to continued poor weather and heavy rain that the Far North experienced over previous years. The next round of condition rating is being carried out in the 2011/2012 year.

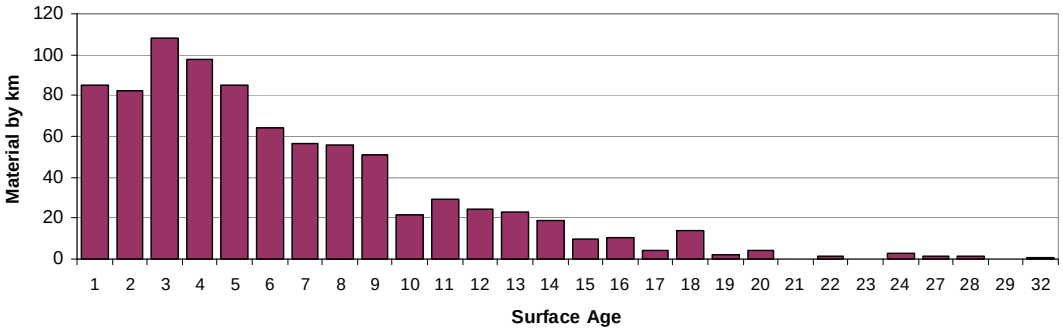
**Figure 6: Surface Condition Index**




### Surface Age

Figure 7 below shows the Surface Age using the information from the RAMM database.

**Figure 7: Surface Age**




### Pavement Failure Modes

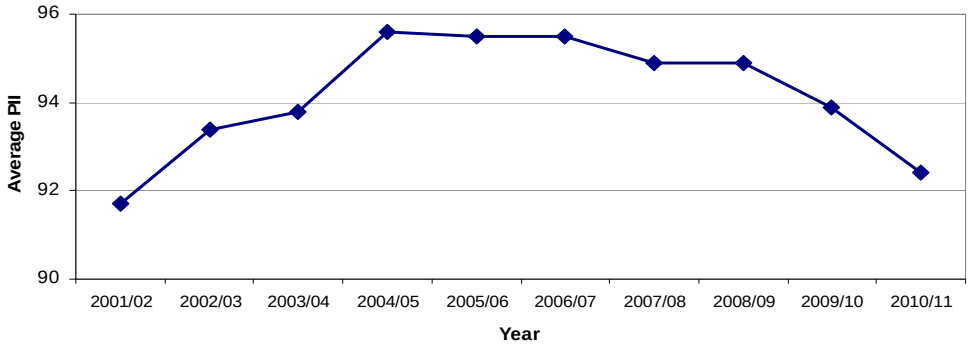
Surveys looking at scabbing, rutting and shoving on the Far North's roads have generally over the last ten years shown a downward trend indicating improvement to the overall condition of pavement throughout the network. However, over the previous year, these values have started to increase; giving early indication that the condition of the network may be starting to deteriorate. This could be due to the wet winters experienced by the Far North, taking into account the volume of rain experienced. Future results will require monitoring and if the upward trend continues remedial action will be initiated, i.e. increased levels of renewals to improve the condition of the network.

**Pavement Integrity Index**

The Pavement Integrity Index (PII) is a combined index of the pavement faults in sealed road surfaces. It is a 'weighted sum' of the pavement defects divided by the total lane length. PII combines surface faults with rutting and shoving. Using a scale of 0 to 100 – the higher the number the greater the pavement integrity.

Figure 8 below shows a downward movement from 2007/08 which may be a result of the continued poor weather and heavy rain that the Far North has experienced in previous years. A deteriorating trend does not always indicate that corrective action should be taken. However, future values should be monitored closely to ensure that this is not an ongoing trend.

**Figure 8: Pavement Integrity Index**




RAMM has a key output, which identifies treatment selections. This function is used to identify road sections that require treatment either now or within the next year. Key triggers (i.e. roughness) are used in the process and the quality of outputs is often directly related to the completeness and accuracy of the RAMM database.

**Sealed Pavement Layer Condition**

The condition of the road pavement is represented by the following measures:

- Roughness – average National Association of Australian State Road Authorities (NAASRA) % above threshold levels and smooth travel exposure (STE).
- Rutting - % of network measured in each wheel path, greater than 20 mm rut depth.

**Roughness**

Roughness is a measure of aspects of the longitudinal profile of a pavement. The NAASRA count is the commonly used unit for the measurement of roughness. Smooth Travel Exposure (STE) is also used to determine the overall roughness of the road network.

Table 16 below provides the NAASRA Roughness Condition Grading, the values from the NLTP maintenance guidelines have been used as a reference, however due to the low volume nature of FNDC roads some interpretation of the guidelines have been used.

**Table 16: NAASRA Measurements**

| Hierarchy | Target NAASRA | Excellent | Good | Moderate | Poor | V Poor |
|---|---|---|---|---|---|---|
| Arterial | 90 | ≤ 75 | 75-100 | 100-120 | 120-150 | >150 |
| Collector | 105 | ≤ 90 | 90-100 | 100-130 | 130-150 | >180 |
| Local | 120 | ≤ 100 | 100-120 | 120-150 | 150-180 | >180 |

Figure 9 illustrates the trend analysis for roughness using NAASRA averages since measurements began. The declining trend shows that the renewal programmes in place are displaying positive results, despite increasing traffic demand.

**Figure 9: Trends in Network Roughness**

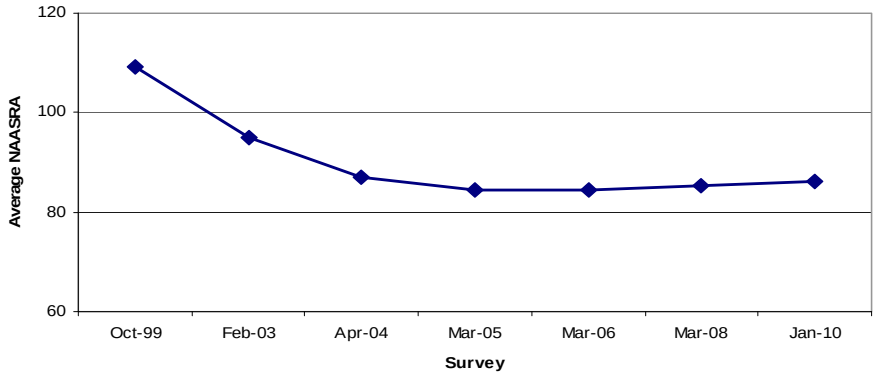
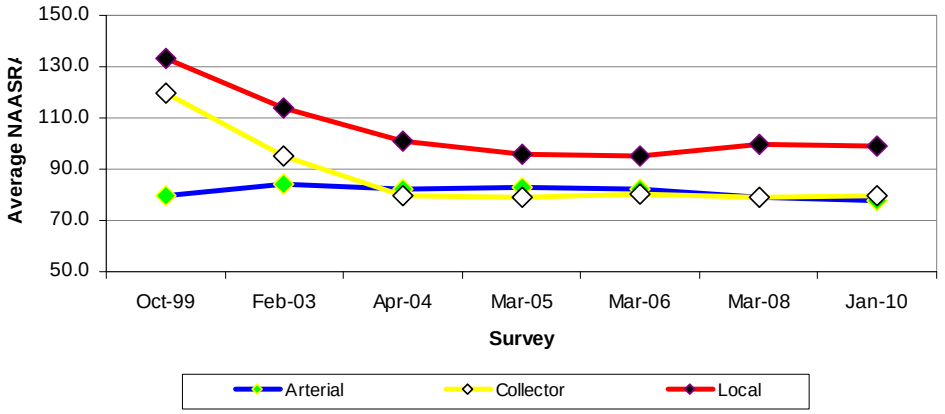



**Figure 10: Trend of Network Roughness Based on Hierarchy**




The trends illustrated in Figure 10 above show that the overall network roughness is consistent in comparison to the NAASRA threshold values shown in Table 17. The important message from the above graphs is that arterial and collector roads remain steady, yet the local road network over the last 2 years has become rougher.

**Table 17: Average Roughness Trend**

| Hierarchy | Average Threshold NAASRA | 2004/2005 | 2005/2006 | 2006/2007 | 2007/2008 | 2009/2010 |
|---|---|---|---|---|---|---|
| Arterial | 90 | 83 | 83 | 82 | 79 | 78 |
| Collector | 105 | 79 | 79 | 80 | 79 | 80 |
| Local | 120 | 92 | 96 | 95 | 100 | 99 |
| **Average** | **105** | **85** | **86** | **86** | **86** | **86** |

### Smooth Travel Exposure (STE)

STE is defined as the proportion of vehicles travelling on roads each year with condition above the targeted conditions for those roads. An increase in STE means that fewer vehicles are travelling on roads above the target roughness. For the purpose of the NZTA reviews, the

target roughness is generally taken as 150 NAASRA. A roughness greater than 150 NAASRA usually indicates poor road condition.

**Unsealed Surface and Pavement Condition**

The condition of the unsealed road network is formally audited quarterly by the maintenance contractors and Network Management Consultant. For unsealed pavements, the audit focuses on the following:

- Potholes
- Corrugations and rutting
- Low aggregate

### 4.2.3 Bridges and Large Culverts

***Bridges and large culverts are designed and maintained to provide safe access across the network***

#### 4.2.3.1 Operation of activity

Bridges and large culverts (>3.4m² which corresponds to NZTA asset categories) are an integral part of the transport network. Council has 701 bridges/large culverts held in the asset inventory. Council regularly carries out routine and planned maintenance (e.g. repairing bridges). Bridges have been identified as one of Councils risk asset areas, based on cost, importance to the network and consequences of failure. All bridges that are sign posted for weight restrictions and overweight vehicle movements are monitored to ensure bridges are not damaged.

#### 4.2.3.2 Physical Parameters

Bridges (concrete, timber and steel structures) have an overall value of $163,793,400. The annual depreciation for this asset group is $1,775,646. After pavements, this is the largest asset group in the Transportation network. The information set out in the Tables below, provides an overview of the bridge assets recorded in Council's asset register.

**Table 18: Asset Information Bridges**

| Asset | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Concrete | 335 | 100,957,723 | 57,864,264 | 1,009,145 |
| Concrete/Steel | 135 | 30,862,109 | 15,151,996 | 327,653 |
| Concrete/Steel/Timber | 32 | 3,191,588 | 1,572,251 | 37,216 |
| Steel/Timber | 44 | 8,435,127 | 4,885,118 | 108,462 |
| Timber | 2 | 190,202 | 31,000 | 2,305 |
| **TOTAL** | **548** | **143,636,749** | **79,504,629** | **1,484,781** |

**Table 19: Asset Information Large Culverts**

| Asset | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Aluminium | 18 | 1,202,047 | 744,400 | 19,998 |
| Armco | 20 | 1,875,773 | 1,050,992 | 24,226 |
| Concrete | 107 | 5,998,691 | 4,010,539 | 60,004 |
| Steel | 6 | 562,957 | 372,003 | 7,046 |
| Underpasses | 2 | 142,418 | 124,181 | 1,424 |
| **TOTAL** | **153** | **9,781,886** | **6,302,115** | **112,698** |

**Table 20: Asset Information Timber Decking**

| Asset | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Decking | 78 | 10,374,765 | 3,572,838 | 178,167 |
| **TOTAL** | **78** | **10,374,765** | **3,572,838** | **178,167** |

### Key Issues and Strategies

Key issues and actions relating to the management of bridges are set out below.

**Table 21: Bridges Key Issues and Strategies**

| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Review and clarification of Council's policy and responsibilities; particularly in regard to bridges that are not on the roading network (ownership). | • Develop a new bridge policy and obtain clear legal opinions to some of the generic problems. |
| • Lack of load carrying capcity information on bridges. | • Bridge Management Strategy and load capacity information. |
| • Funding for replacements. | • Identification, assessment and prioritisation of works. |

### Assumptions & Confidence Levels

There are a number of areas that require further investigations and improvements. The majority of these areas relate to improving the current level of knowledge of bridge assets, allowing council to:

- Clearly understand its responsibilities
- Prepare long-term forward planning programmes; based on accurate information and analysis
- Accurately assess overweight load requests.
- The Bridge Management Strategy was updated in 2011 and highlights some key areas of focus for the future specifically around maintenance and renewals.

**Figure 11: Histogram of Bridge Construction Dates**

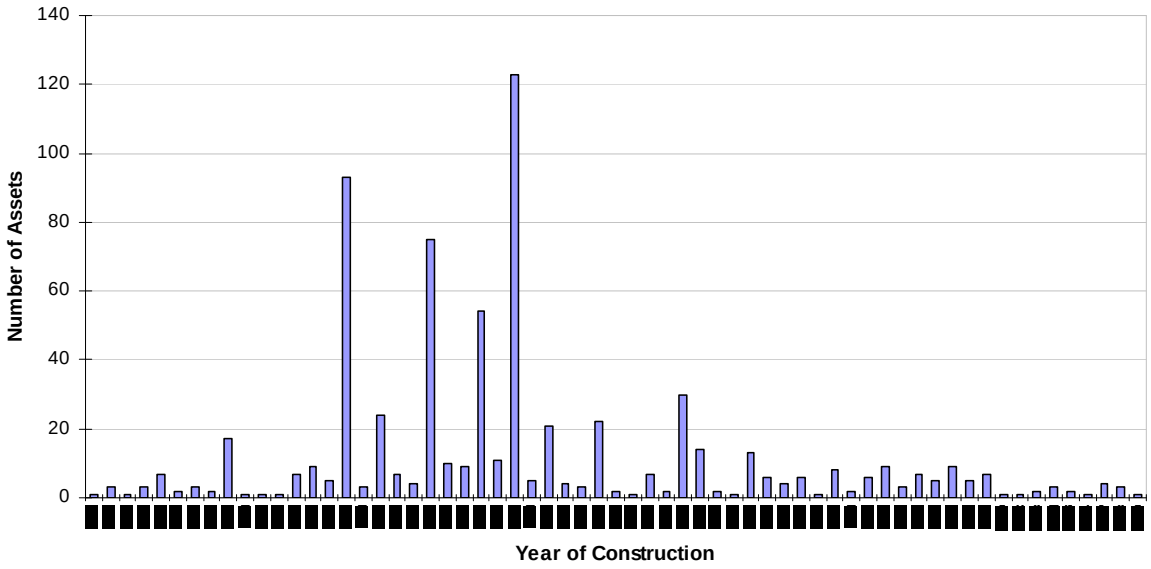
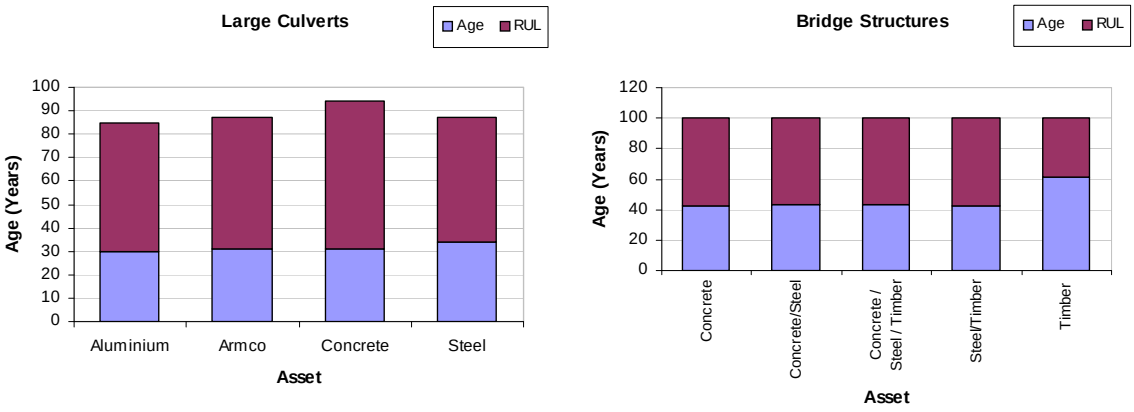


Figure 11 overleaf shows the development of the bridge and large culvert stock. The large numbers represented by the spikes through the 10 year period from 1960 to 1970 indicate a peak that will require careful planning and management with regards to future renewals and replacement as required.

The graphs below show a further breakdown of large culvert and bridge structure assets by age and remaining useful life.

**Figure 12: Asset Age Large Culverts and Bridge Structures**




### 4.2.3.3 Asset Capacity/Performance

Council has 37 weight-restricted bridges. Strengthening and/or replacement are a priority to address this issue where appropriate. Structural assessments of the existing weight restricted bridges occurs annually to determine deterioration and the load carrying capacities, relative to the maximum permitted loads which are specified in the Transit New Zealand Bridge Manual as 100% Class 1.

A 100% Class 1 heavy vehicle represents the maximum legal load for heavy vehicles of various axle configurations. The structural assessment and weight restriction of an existing bridge includes safety factors to ensure undue over-stressing of the structure. A vehicle exceeding the weight restriction on a bridge may over-stress the bridge but not necessarily cause failure. Repetitive over-stressing of the bridge structure will ultimately lead to failure.

A new Council bridge policy is required to allow for an upgrading and/or renewal programme to be developed. A Bridge Management Strategy has been completed which prioritises upgrades and/or renewals for programming purposes.

### 4.2.3.4 Asset Condition

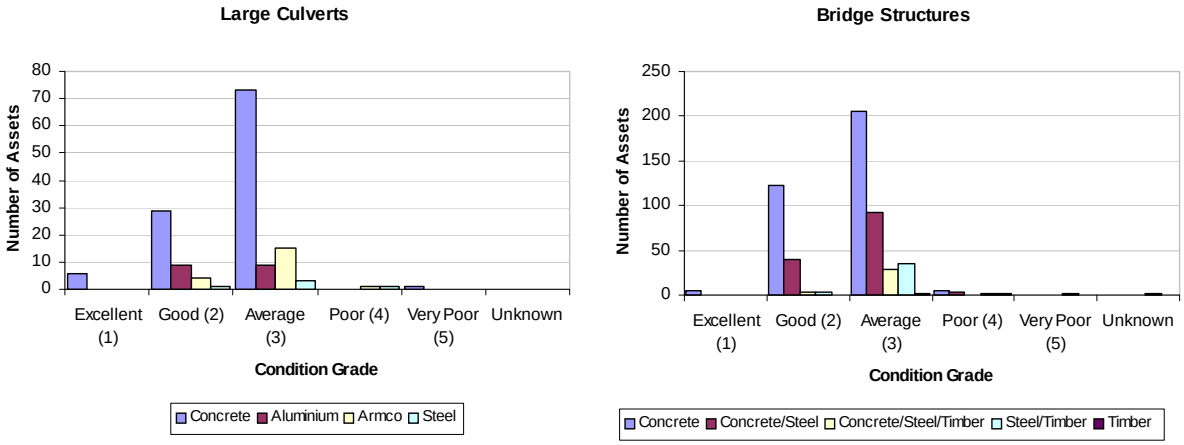
There are financial implications to upgrade these bridges. In most situations, it will mean the renewal or upgrading of the structure.

**Figure 13: Bridge Condition**

Bridge condition is inspected every 2 years. The majority of bridges fit into the average condition (grade 3). 13 structures at condition grade 4 and 2 structures at condition grade 5.

Figure 14 shows a further breakdown of the condition by type for large culverts and bridge structures.

**Figure 14: Large Culverts and Bridge Structures Condition**




### 4.2.4 Footpaths

***The footpaths network is considered to be safe, accessible, and well maintained***

#### 4.2.4.1 Operation of activity

Council manages the lifecycle of existing footpaths through an annual renewals programme, based on a 10 year programme developed for this AMP. The ongoing maintenance programme addresses footpath defects caused by inclement weather, wilful damage, or arising from health and safety issues and public complaints.

#### 4.2.4.2 Physical Parameters

Council has a total of 182.9 km (275,207 m²) of footpath within its network. Table 22 provides an overview of the footpath assets as recorded in Council's asset register. The asset was valued at 30 June 2011.

**Table 22: Asset Information – Footpaths**

| Footpath Types | Area (m²) | ORC | ODRC | AD |
|---|---|---|---|---|
| AC | 6,195 | 315,960 | 173,486 | 10,705 |
| Concrete | 235,680 | 21,446,898 | 8,879,673 | 454,545 |
| Coloured Concrete | 9,500 | 1,130,488 | 711,973 | 21,917 |
| Interlocking Blocks | 3,378 | 409,484 | 141,049 | 19,982 |
| Metal | 7,479 | 102,163 | 9,919 | 6,772 |
| Seal | 9,947 | 159,154 | 16,323 | 7,744 |
| Timber | 3,028 | 348,243 | 63,995 | 10,583 |
| **TOTAL** | **275,207** | **23,912,390** | **9,996,418** | **532,248** |

**Key Issues and Strategies**

Key issues and actions relating to the management of footpaths are set out below.

**Table 23: Key Issues**

| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Unsafe footpaths need to be identified and priortised for renewal | • Identify and programme planned maintenance or renewals |
| • New footpaths need to be identified, with first priority being footpaths within 2 km from primary schools and 3.8 km to high schools, where applicable | • New footpaths will be provided in accordance with a policy that gives priority to children walking safely to school |
| • An assessment is needed for the footpath requirements of an aging population, to determine how well their needs are currently met, and identification of any required actions | • New footpaths will be provided in accordance with a policy that prioritises the aged and special needs |
| • Footpaths are to be condition assessed | • Footpaths that are assessed as being grade 3 or worse are to be prioritised for renewal |
| • Facilities for blind and vision-impaired pedestrians | • Implement Road and Transport Series 14 – Guidelines for facilities for blind and vision impaired pedestrians |
| • Footpath funding and management will need to be prioritised on a district wide basis | • Implement a strategy that prioritises funding and management |
| • Injuries as a result of footpath, trip hazards,etc. | • Ensure Council contractors are available to ensure the footpath is repaired or made safe within 24 hours |

**Assumptions & Confidence Levels**

As indicated in the key issues section above, there are a number of areas that require further investigations and improvements. These will allow council to:

- Clearly understand its responsibilities;
- Prepare long-term forward programmes based on accurate information and analysis;
- Prioritise improvements, maintenance and upgrades.

### 2.2.4.3 Asset Capacity/Performance

Council monitors the need for footpaths and, where affordable, build new ones. In prioritising where to build new footpaths, Council takes into account:

- The location (e.g. areas close to hospitals and schools have higher priority)
- The traffic density in the area
- Whether the berm is suitable for pedestrians without a formed footpath.

The community, especially children and the aged, need safe routes to use as they move to and from places in their community.

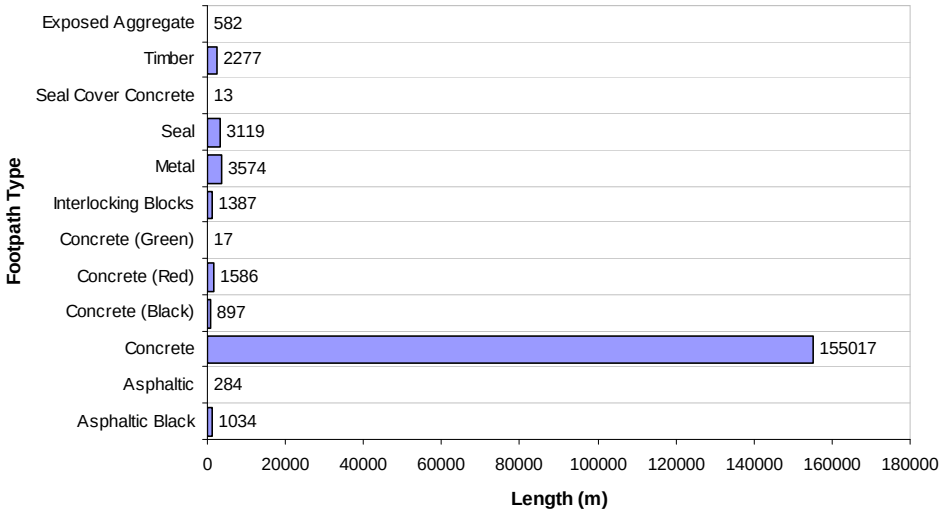
### 2.2.4.4 Asset Condition

Council has carried out condition and capacity assessments of the footpath network to determine the current status of footpath assets. The assessment of the networks condition and performance is in accordance with the condition grade rating system which ranges from Very Poor (5) to Excellent (1). Figure 15 below indicates that the majority of this asset is classed as average condition.

The information provides an overall picture of the footpath network which links into the Long Term Plan for renewals.

**Figure 15: Footpath Condition**


**Figure 16: Footpath Length by Material**




### 4.2.5 Twin Coast Cycle Trail - Pou Herenga Tai

The main objectives of the National Cycleway concept are:

- To create jobs through design, construction and maintenance of the cycle network;
- To create a high quality tourism asset which enhances New Zealand's competitiveness as a tourism destination and provides employment and other economic development opportunities for regional economies;
- To maximise the range of complimentary benefits that the cycle network provides to a wide range of New Zealanders.

**Stage 1 – Kaikohe to Okaihau (13.8 km)**

This stage opened to the public in May 2011 and is 100% complete.

**Stage 2– Kaikohe to Kawakawa (34 km)**

To date, 6 km of construction has been completed to Mangakahia Road.

**Stage 3 – Okaihau to Horeke (25 km) (0%)**

Scoping of this section has occurred and public consultation is now required to update local community of the route to Horeke. Work will begin once consultation is complete.

**Stage 4 - Kawakawa to Opua (11 km - Kawakawa Vintage Rail)**

This section will remain in "live rail" cycle trail users will enjoy a vintage rail experience on "Gabriel" which currently provides excursions between Kawakawa and Taumarere Railway Station (a round trip of approx 8 km). The long term plans include a rail extension of a further 7 km to an intended terminus point at Colenso's Triangle (close to Opua). Whilst FNDC would be happy to assist the railway to develop or to extend to Opua the funds provided by the Government can not be used for this work and any surplus, if there is any, will need to be repaid to go towards the 17 cycleway projects currently under construction or future development of other trails. Before this money is returned FNDC will make representation to government to have a decision whether these monies can be directed toward the railway.

**Assumptions**

The Pou Herenga Tai - Twin Coast Cycle Trail is currently owned and managed by Council. Once a governance entity is formed, day to day operations will be transferred

### 4.2.6 Car Parks

***Car parks are strategically located to meet the needs of visitors and the travelling public***

Council provides and maintains 21 off street car parks in main urban centres. Far North Holdings Ltd (FNHL) owns and operates car parks in Redan Road (Kaitaia), Williams Road (Paihia) and in the Opua marina development. FNHL charges fees for the Williams Road car park; all other car parks are free. Table 24 below shows where the car parks are located around the district.

**Table 24: Far North District Council owned carparks**

| | | |
|---|---|---|
| Commercial Street Kawakawa | Hobson Road, Kerikeri | Homestead Road, Kerikeri |
| Hundertwasser Toilet Car park, Kawakawa | Johnson Park Lay-By, Kawakawa | Kent Bay (North and South), Whangaroa |
| Kerikeri Bowling Club | Kerikeri Domain | Marsden Road, Paihia |
| Melba Street, Kaitaia | Memorial Avenue Car park, Kaikohe | North Road, Kaitaia |
| Opononi Leasehold, Opononi | Ratcliffes Bay Boat Ramp, Whangaroa | Redan Road, Kaitaia |
| Taronui Bay Carpark, Whangaroa | Te Corner, Ohaeawai | Julian Carpark, Kerikeri |
| Whangae Road, Whangae | York Street, Russell | Butler Road Car park, Kerikeri |

#### 4.2.6.1 Physical Parameters

The information set out in Table 25 gives an overview of the car park assets recorded in Council's asset register. Car parks were valued at 30 June 2011.

**Table 25: Car park Network Distribution**

| Asset Type | No | ORC | ODRC | AD |
|---|---|---|---|---|
| Carparks | 21 | 1,761,086 | 917,787 | 72,109 |
| **TOTAL** | **21** | **2,446,315** | **1,506,626** | **83,944** |

**Key Issues and Strategies**

Key issues and actions relating to the management of car parks are set out below.

**Table 26: Car Parks Key Issues & Strategies**

| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Sufficient number of car parks are available | • Monitor demand and supply during peak periods (i.e. weekends and Summer) |
| • Car parks are adequately designed to avoid delay and or potential for accidents or damage | • Ensure that car parks are designed to Council's Engineering Standards and Guidelines |
| • Adequate signage and markings are in place | • Ensure compliance with Council's Engineering Standards and Guidelines |
| • Adequate number of disabled car parks are available and adequately signed and marked | • Ensure compliance with the provisions in the District Plan and liaise with stakeholders |

**Assumptions & Confidence Levels**

As indicated in the key issues section above, there are a number of areas that require further investigations and improvements. These will allow council to:

- Clearly understand its responsibilities;
- Prepare long-term forward programmes based on accurate information and analysis;
- Prioritise improvements, maintenance and upgrades;
- Determine demand and supply in urban areas.

#### 4.2.6.2 Asset Capacity/Performance

An issues and options paper for a Car Parking Strategy for the Far North was adopted by Council in 2010. The next step is to work collaboratively with the District Plan Team to draft up the strategy. This will be complete over the next 1-2 years dependant on resourcing.

#### 4.2.6.3 Asset Condition

Data capture was undertaken on Council's car parks in conjunction with the footpath data capture earlier in 2011 in order to obtain better knowledge and records on the condition of the car park assets. The surface condition for all car parks is assessed as good.

### 4.2.7 Traffic Services

***Traffic services are maintained to enable safe and efficient access across the network***

#### 4.2.7.1 Operation of activity

The traffic services assets include all road furniture and traffic control devices that promote a safe and efficient roading system. Traffic services include the provision and maintenance of:

| | | |
|---|---|---|
| • Road Marking | • Signs | • Edge Marker Posts |
| • Guardrails and sight rails | • Traffic Islands | |

Council manages road marking, signs, guardrails and sight rails, edge marker posts and traffic islands through the three road maintenance contracts.

Traffic signs include regulatory, warning and information signs. Road marking includes painted line marking and Reflective Raised Pavement Markers (RRPM). To qualify for subsidies from NZTA, all work must conform to the Manual of Traffic Signs and Markings.

#### 4.2.7.2 Physical Parameters

Council maintains 26,649 traffic signs and posts, 10,093 edge marker posts, approximately 38,691m of railings and road marking. The traffic facilities (including traffic islands) assets

have been valued with a current replacement cost at $13,792,144. Annual depreciation has been assessed at $555,079. Damage, theft and vandalism are the cause for most renewal of these assets; as opposed to normal deterioration. Road marking is not depreciated.

Performance issues for signs and road marking relate to coverage, accuracy of placement, visibility and conformity with standards. The information set out in Table 27 and Table 28 provides an overview of the traffic services assets as recorded in Councils database.

**Table 27: Traffic Facilities**

| Asset | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Signs | 16,140 | 2,166,988 | 835,159 | 198,132 |
| Posts | 10,509 | 1,566,050 | 698,057 | 108,166 |
| Edge Marker Posts | 10,093 | 272,486 | 91,797 | 33,388 |
| Guard/Sight Rails | 38,691 | 6,668,489 | 3,297,478 | 205,662 |
| Roadmarking | | 2,567,998 | 2,565,370 | 124 |
| **TOTAL** | | **13,242,011** | **7,487,861** | **545,472** |

**Table 28: Traffic Islands**

| Island Type | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Bus Bay Island | 4,845 | 146,359 | 88,868 | 2,577 |
| Median | 1,545 | 92,968 | 61,429 | 1,845 |
| Pedestrian | 275 | 17,288 | 8,237 | 310 |
| Rotary | 2,903 | 133,542 | 105,486 | 2,154 |
| Splitter | 1,602 | 129,392 | 98,517 | 2,097 |
| Threshold | 630 | 30,584 | 15,850 | 624 |
| **TOTAL** | **11,800** | **550,133** | **378,385** | **9,607** |

#### 4.2.7.3 Asset Condition

The condition of signs and rails is assessed through routine inspections undertaken by the Contractors, and quarterly audits completed by the Network Manager and Contractors.

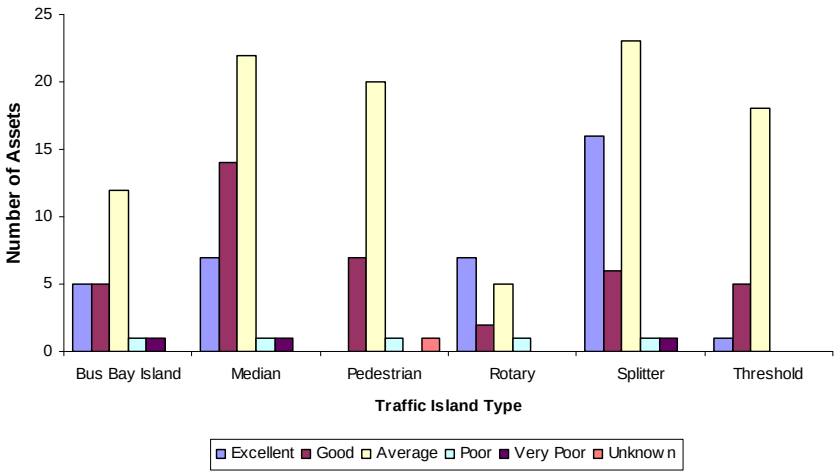
Many signs are replaced due to damage resulting from vandalism and vehicle accidents. Loss of reflectivity through weathering is a significant cause of deterioration. Street name signs are, on average, in good condition, but the condition of road name and destination signs on the rural roads vary.

Road markings are renewed annually. The extent of deterioration of road markings depends on age, traffic volumes, the materials used and the condition of the road (oil and grit reduce life).

**Traffic Islands**

Condition of the traffic islands is provided below and shows that the majority of traffic islands are in average condition. Three islands currently have a Condition Grade 5. These assets require closer inspection and then programmed for renewal.

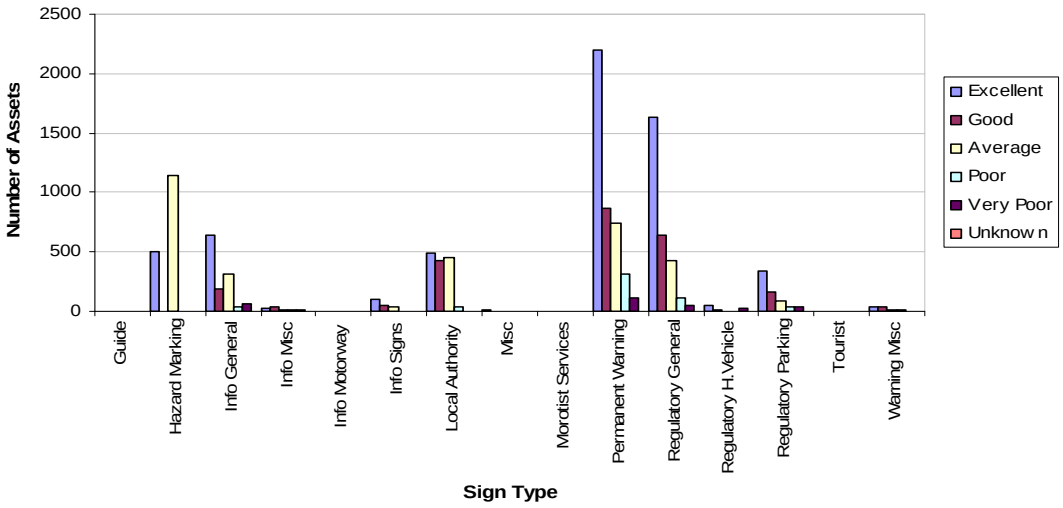
**Figure 17: Traffic Islands Condition Grade**




### Signs

Condition of signs is provided in Figure 18 below. The graph shows that the majority of signs are Condition Grade 1.

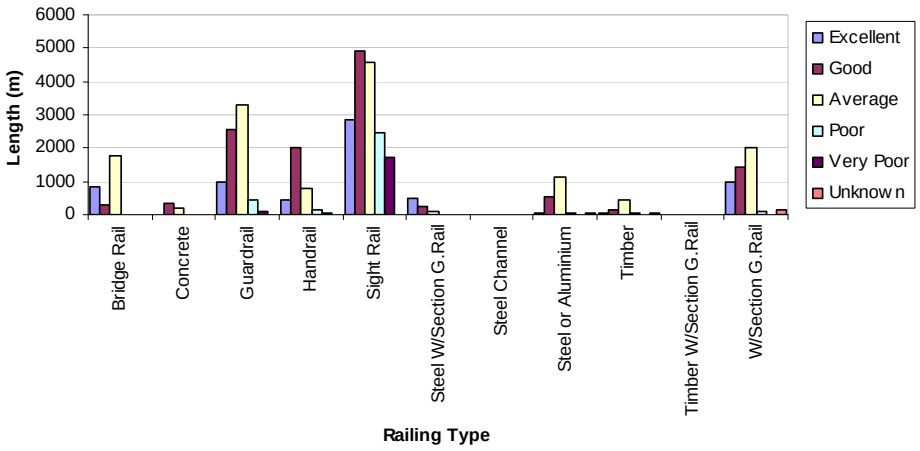
**Figure 18: Signs Condition Grade**




### Railings

Condition of railings is provided in Figure 19 below, shows that the majority of railings are Condition Grade 3.

**Figure 19: Railings Condition Grade**




### Edge Marker Posts

Edge marker posts do not have individual condition. The economic life was assigned at eight years and as only 37 assets have construction dates, assets without installation dates were deemed to be half way through their lives (2010 Roading Valuation).

## 4.2.8 Street lighting

***Adequate street lighting is maintained to enable safe and easy driving on all urban roads***

### 4.2.8.1 Operation of activity

Council's carriageway lighting includes provision for the maintenance and power costs associated with the operation of lighting on Council roads. This includes the provision and maintenance of, and power costs associated with Belisha beacons and floodlighting at pedestrian crossings. This asset group also includes the cost of conversion of existing mercury vapour and fluorescent fittings to more long life power efficient lanterns that will typically be twin arc high pressure sodium, metal halide or LED lights; or the renewal of an existing luminaire to required standards as the existing lamps become due for replacement. The Street Light Maintenance Contract 2010-2013 has helped to develop a more accurate streetlight inventory in RAMM to reflect the assets on the network.

*Amenity lighting is not included in this plan, as it does not relate to the operation of a road.*

### 4.2.8.2 Physical Parameters

The information set out in Table 29 provides an overview of the street lighting assets as recorded in Council's asset register. Street lighting was valued at 30 June 2011.

**Table 29: Asset Information – Street lighting**

| Lamp Make | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Fluorescence | 4 | 1,280 | 175 | 51 |
| High Pressure Sodium | 898 | 303,013 | 132,434 | 11,524 |
| Incandescent Lamps | 15 | 5,400 | 737 | 216 |
| Mercury Vapour | 775 | 280,900 | 36,386 | 11,202 |
| Unknown | 8 | 2,560 | 861 | 103 |
| **TOTAL** | **1,700** | **593,153** | **170,592** | **23,096** |

| Bracket Type | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Double Curved Bracket | 16 | 18,768 | 7,318 | 467 |
| Double Mitered Bracket | 3 | 3,519 | 1,678 | 88 |
| Double Straight Bracket | 31 | 36,363 | 17,059 | 909 |
| Post Type Bracket | 84 | 57,960 | 18,746 | 1,478 |
| Single Curved Bracket | 713 | 493,350 | 231,346 | 13,111 |
| Single Mitered Bracket | 35 | 24,150 | 13,001 | 646 |
| Single Straight Bracket | 647 | 446,430 | 137,365 | 11,486 |
| Triple Curved Bracket | 3 | 3,519 | 2,059 | 88 |
| Upward Curved Bracket | 20 | 13,800 | 4,829 | 416 |
| **TOTAL** | **1,552** | **1,097,859** | **433,403** | **28,689** |

| Pole Make | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Bollard | 6 | 13,080 | 7,095 | 394 |
| Galv Pipe Standard | 24 | 52,320 | 21,261 | 1,365 |
| Lighting Pole | 439 | 957,020 | 480,002 | 21,529 |
| Oclyte Standard | 703 | 1,531,924 | 852,096 | 35,724 |
| Unknown | 12 | 26,160 | 16,810 | 945 |
| Utility Fibreglass Pole | 1 | 2,180 | 98 | 70 |
| Utility Pole 10m Concrete | 384 | 837,120 | 447,453 | 11,442 |
| Utility Pole 9m Concrete | 50 | 109,000 | 46,010 | 1,439 |
| **TOTAL** | **1,619** | **3,528,804** | **1,870,824** | **72,908** |

### Key Issues and Strategies

Key issues and actions relating to the management of street lighting are set out below.

**Table 30: Street Lighting Key Issues & Strategies**

| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Approximately 20% of the lantern technology is out of date and energy inefficient (mercury vapour lanterns) | • A new strategy has been developed and is being implemented |
| • Developers use a variety of columns, fittings and lanterns in new subdivisions leading to difficulties with maintenance, obtaining spare parts, etc., and Council incurs high costs for ongoing repairs | • Review current streetlight design and quality standards. Implement clear standards and guidelines for developers and where light fail replace with luminaires that are standard in the inventory. |
| • No streetlight database managed by Council (Top Energy maintains streetlight database) | • Develop and implement streetlight inventory management (RAMM/SLIM) using this as the official registry |
| • Potential for rising energy costs | • Move progressively to LED luminaires and replace low efficiency lamps with more efficient lamps that deliver higher lumens/watt |
| • Lack of urban street lighting | • Develop a priority programme |

### Assumptions & Confidence Levels

Confidence levels for street lighting are based on currently available information and have high - medium confidence. The following assumptions are made:

- Routine inspections
- Repair/replacement of faulty/failed components within specified timeframes

- Moving to an asset management strategy with lanterns replaced according to their recognised effective lives and in logical blocks within an area to improve service efficiency. (Inefficiency is caused by mobilisation costs in getting plant and personnel to locations to service the lanterns)
- Identification, prioritisation and programming of improvements and ordered works
- Updating of the streetlight database.

#### 4.2.8.3 Asset Capacity/Performance

**Light Intensity**

Street lighting design is based on NZS 1158.1.3: 1997, which sets out the following lighting standards for light intensity:

- Arterial Roads 9 lux
- Collector Roads 6 lux
- Local Roads Specification sub-standard

A significant proportion of the District does not meet the standards above.

**Colour -** Light colour is an important consideration in selecting light fittings. High pressure sodium vapour luminaries are used in urban areas with light levels being adjusted by spacing, height and wattage luminaries. A mixture of lanterns on any one street should be avoided to mitigate light pooling. However the intent is to move to lanterns that have light output that is 4500 kelvin and above since white light has been demonstrated as providing improve resolution to the human eye along with improving the feeling of pedestrian security.

**Reliability -** The performance of floodlights and Belisha beacons at pedestrian crossings are a concern. It is Council's intention to replace the Belisha beacons with a more suitable alternative as failure occurs.

**Safety -** There may be safety issues associated with older poles throughout the district. Council needs to assess these and gradually replace. In addition, Council will investigate flag lighting at major intersections.

#### 4.2.8.4 Asset Condition

A contractor has completed condition grading, therefore the actual condition of the network is more accurately documented, but performance grading was not measured.

### 4.2.9 Drainage Facilities

***Ensure that Stormwater is removed efficiently from the road surfaces***

#### 4.2.9.1 Operation of activity

The purpose of drainage is to protect the road substructure from stormwater egress and to divert stormwater into the main system. Drainage includes culverts (<3.4m²), surface water channels, kerb and channel, catchpits and catchpit leads. Regular maintenance is carried out by the maintenance contractors on roadside drainage including cleaning catchpits, sweeping channels, cleaning watercourses and open drains.

#### 4.2.9.2 Physical Parameters

The information set out in the Tables below provides an overview of the drainage assets recorded in Council's asset register.

## Table 31: Asset Information - Culverts

| Catchpits/Culverts/Manholes | Length/No | ORC | ODRC | AD |
|---|---|---|---|---|
| Catchpit Leads | 35,920 | 7,779,638 | 5,244,338 | 73,000 |
| Catchpits | 2,863 | 5,146,958 | 3,475,092 | 57,628 |
| Culverts | 213,081 | 60,900,530 | 42,562,558 | 764,273 |
| Manholes | 76 | 221,601 | 187,035 | 2,347 |
| Headwalls | 419 | 201,962 | 198,084 | 2,756 |
| **TOTAL** | | **74,250,689** | **51,667,107** | **900,004** |

| K&C | Length (m) | ORC | ODRC | AD |
|---|---|---|---|---|
| Dished Channel (Asphalt) | 672 | 45,696 | 14,823 | 1,071 |
| Dished Channel (Concrete) | 24,007 | 1,637,236 | 743,669 | 36,997 |
| Dished Channel (Half pipe) | 562 | 38,216 | 17,739 | 871 |
| Dished Channel (Sealed) | 168 | 11,424 | 3,290 | 370 |
| K & C (Concrete) | 184,674 | 12,708,647 | 7,059,120 | 227,510 |
| K & C (Stone) | 579 | 39,372 | 19,894 | 843 |
| K & DC (Concrete) | 1,565 | 106,420 | 47,580 | 2,502 |
| Kerb Only (Concrete) | 3,810 | 190,500 | 109,521 | 3,378 |
| Kerb Only (Stone) | 120 | 6,000 | 2,474 | 110 |
| Kerb Only (Wood) | 53 | 2,650 | 1,182 | 55 |
| Mountable K & C (Concrete) | 44,296 | 3,012,128 | 1,727,995 | 58,041 |
| Mountable Kerb Only (Concrete) | 106 | 5,300 | 2,514 | 133 |
| U-Shaped Concrete Channel | 658 | 44,744 | 20,548 | 895 |
| K & C (Other Type) | 7,149 | 486,132 | 349,764 | 7,001 |
| K & C (Unknown) | 1,132 | 76,976 | 50,923 | 963 |
| **TOTAL** | **269,621** | **18,411,441** | **10,171,035** | **340,740** |

| SWC | Length (m) | ORC | ODRC | AD |
|---|---|---|---|---|
| SWC (Deep) | 1,785 | 80,325 | 35,805 | 3,118 |
| SWC (Deep, >200 Below Seal) | 977,128 | 6,839,896 | 6,177,549 | 0 |
| SWC (Lined) | 565 | 44,568 | 43,150 | 892 |
| SWC (Shallow) | 2,873 | 114,920 | 98,406 | 3,103 |
| SWC (Shallow, <200 Below Seal) | 1,130,269 | 4,408,049 | 4,408,049 | 0 |
| SWC (Unlined) | 111,641 | 346,420 | 346,420 | 0 |
| **TOTAL** | **2,224,261** | **11,834,178** | **11,109,379** | **7,113** |

### Key Issues and Strategies

Key issues and actions relating to the management of drainage are set out below.

## Table 32: Drainage Facilities Key Issues & Strategies

| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Flooding due to under capacity drainage or inadequately designed drainage assets | • Need to identify the high risk assets, review LoS and RFS data. Implement improvement works in priority areas |
| • Excess runoff causing erosion and scour | • Inspection programme and investigate methods to reduce impacts |
| • Silt/sediment/debris blocking assets and causing flooding | • Maintenance contracts (street cleaning) and identify priority areas to programme suitable response |

**Assumptions & Confidence Levels**

Good drainage is one of the key aspects needed to ensure the integrity and serviceability of the district's pavement assets. To date, the emphasis has been on rural stormwater channels (SWC) and although this needs to continue, a greater focus on urban road drainage is required to increase the overall confidence in the performance of the road drainage facilities. Overall the confidence level for the asset is considered to be at a medium level.

**Asset Age**

The graphs below compares asset age with the average expected asset base life.

**Figure 20: Asset Age Catchpits & SWC**

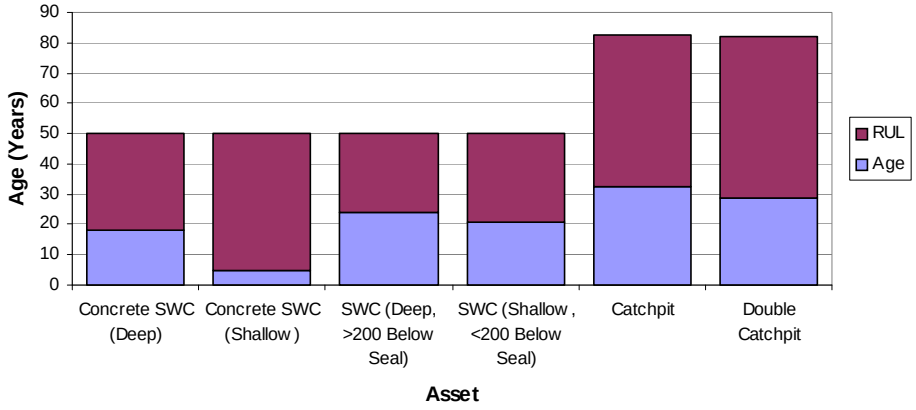
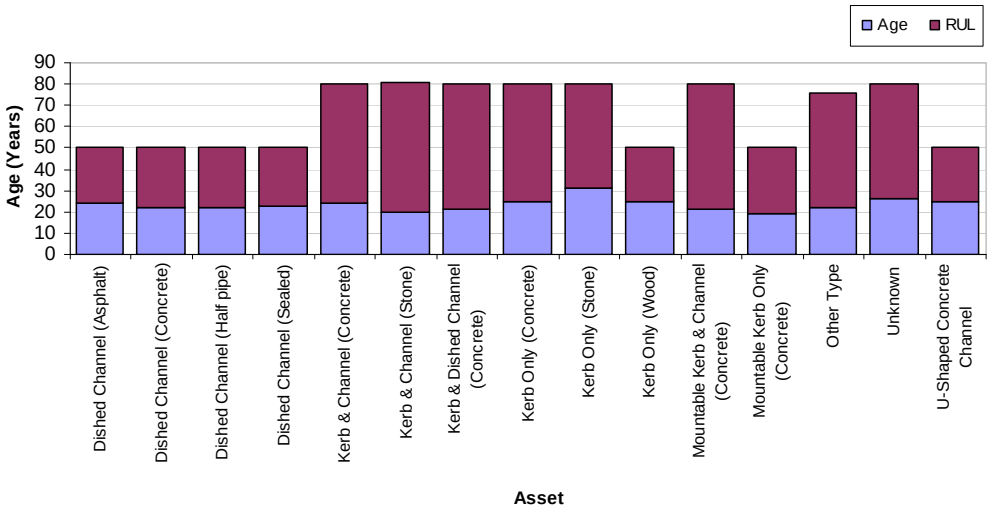



**Figure 21: Asset Age Kerb & Channels**



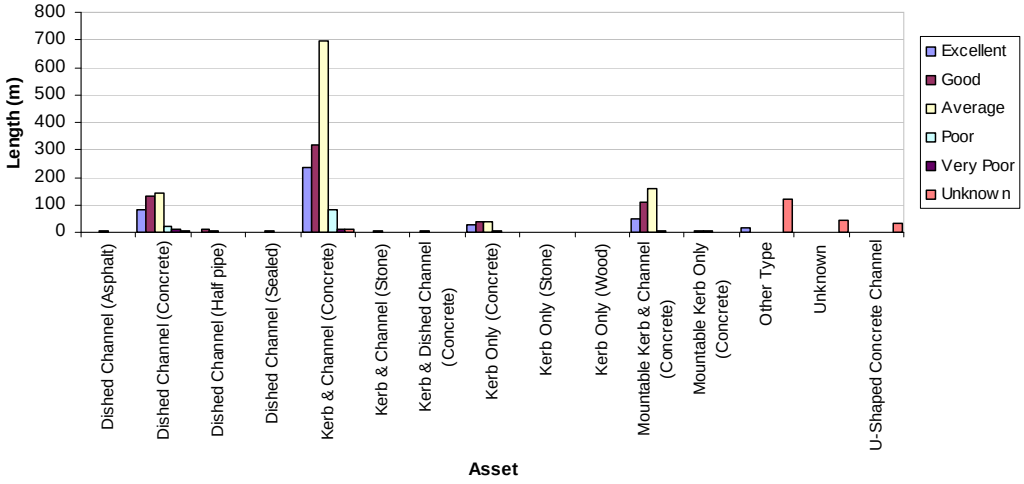

### 4.2.9.3 Asset Condition

The main indicators that determine condition and performance of the drainage facilities are:

- The annual RAMM Condition Rating Survey
- Surface water channels, including kerb and channel and catchpits are audited 3-monthly. It is a requirement in both the North and South Road Maintenance Contracts.

Figure 22 shows the condition grades given per length of asset taking into account all asset types.

**Figure 22: Average Condition Result – Kerb & Channel Assets**




## 4.2.10 Minor Structures

***Minor structures are designed and maintained to ensure roads are protected and are safe across the network***

### 4.2.10.1 Operation of activity

Minor structures cover all seawalls and retaining walls related to road protection. These walls are inspected on a two yearly basis as required by Engineering Professional Services Bridge Maintenance and Replacement Contract 7/11/195.

The last round of inspections were completed in the 2010/2011 financial year and any repairs that were identified have been prioritised and programmed. The inventory has been completed in alignment with the RAMM database to ensure an up to date record of all walls is established within this central system.

### 4.2.10.2 Physical Parameters

Minor structures include seawalls and retaining walls have been constructed using a variety of materials such as timber, rock, stone, gabions, and concrete. Based on the latest inspections, these assets are in relatively good condition. These assets have a replacement value of $36,025,624 and an annual depreciation valued at $863,509. The Table below provides the breakdown of seawalls and retaining walls and was valued at 30 June 2011.

**Table 33: Asset Information**

| Category | Quantity | ORC | ODRC | AD |
|---|---|---|---|---|
| Retaining Wall | 439 | 19,867,660 | 16,928,535 | 384,896 |
| Seawall | 81 | 16,157,964 | 7,130,108 | 478,613 |
| **TOTAL** | **520** | **36,025,624** | **24,058,643** | **863,509** |

### Key Issues and Strategies

Key issues and actions relating to the management of minor structures are set out below.

**Table 34: Minor Structures Key Issues & Strategies**

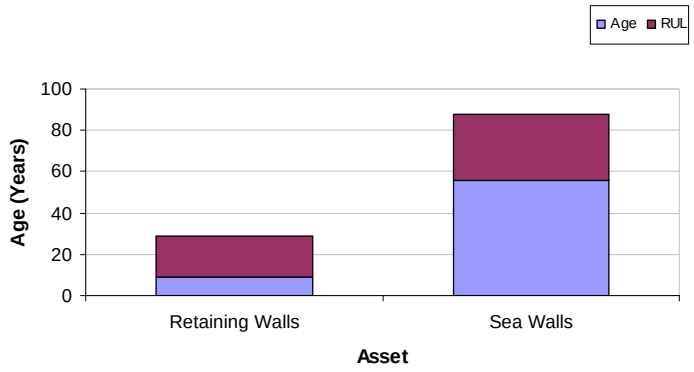
| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Lack of funding for maintenance | • Put forward a works programme to NZTA for maintenance of structures |
| • Retaining wall failure due to ground movement and/or poor drainage | • Monitor and inspect and remediate where necessary |

### Assumptions & Confidence Levels

Detailed As-Built plans are not available for many of the walls; therefore assumptions need to be made regarding design and overall stability. There is high confidence in the inventory that has been developed in recent years, based on the inspection programme.

Figure 23 shows the age and remaining useful life (RUL) of the Minor Structure assets.

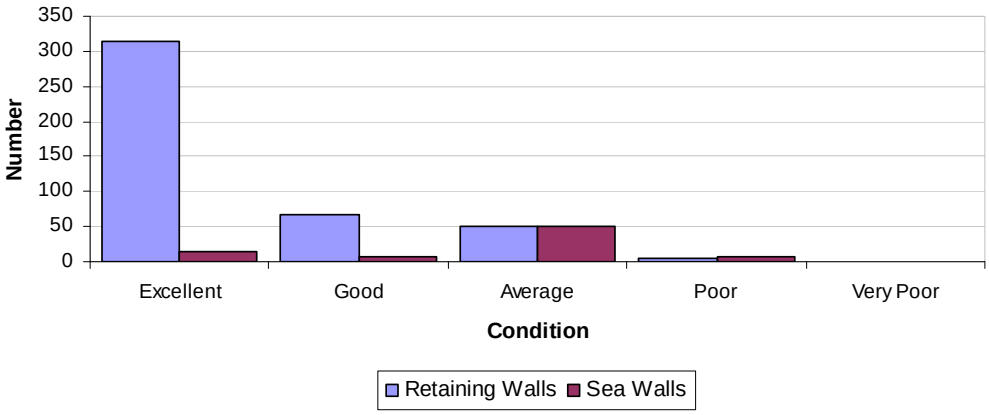
**Figure 23: Asset Age Sea and Retaining Walls**




#### 4.2.10.3 Asset Condition

Figure 24 shows the condition of the minor structure assets. Approximately 95% of the assets are condition grade 1, 2 or 3. For those assets currently graded 4 or 5, further inspections need to be programmed to determine future renewal requirements.

**Figure 24: Average Condition Result**



**Flood Damage/Emergency Reinstatement**

During any calendar year, the district may have a flood event or another type of event of such magnitude that the effect on the network necessitates emergency works. NZTA provides Emergency Reinstatement funding under the categories of Immediate Response and Permanent Reinstatement.

**Immediate Response** covers the work necessary to open a road, where practicable to at least a single lane facility for safe use by traffic or to minimise risk of further damage. This work may include:

- Slip clearance
- Construction of temporary detours
- Temporary reinstatement
- Restoration of roadside drainage

**Permanent Reinstatement** involves the work required to restore the road to its former or similar condition. As the work is of a long-term nature, it generally involves an engineering appraisal of options and may require design input.

For permanent reinstatement, the majority of works require retaining structures, from spalling through to an engineered retaining structured for either over or under slips.

Emergency reinstatement works adds considerable pressure to the resources available to the network from both professional services provision through to the availability of contractors.

Over the past 2 – 3 years several events have occurred necessitating the assistance of NZTA funding. The permanent repairs have included the design and construction of timber retaining walls, gabion walls, rock spalls, column mixing and the use of shot rod technology. These features are added to the inventory upon completion and capitalised where appropriate.

## 4.2.11 Quarries

### 4.2.11.1 Operation of activity

Council has seven non-operational quarries (Dangens, Paranui, Whakarara, Waihapa, Hicks, Blacks, Rangiahua). The majority of these quarries contain aggregate that is of a low quality and would only be suitable for sub-grade material or in some cases, metal for unsealed pavements. Council obtains metal via maintenance and construction contracts; sourcing the aggregate from privately owned and operated quarries. The sustainable supply of quality aggregate for the Far North is a key issue.

### 4.2.11.2 Physical Parameters

At present there are seven quarries under Councils Ownership.

**Table 35: Council Owned Quarries**

| Quarry Name | Area (ha) | Rock Type | Land Value | Extraction Value 20yr life | Status |
|---|---|---|---|---|---|
| Dangens Quarry | 7.2759 | Shale | 75,000 | $ - | No further abstractions as being closed. Resource consent expired |
| Paranui Quarry | 16.5921 | Shale | 125,000 | $77,534 | No abstractions until 2013. Resource consent expired 31/10/07 |
| Whakarara Quarry | 6.6944 | Shale | 120,000 | $168,750 | No abstractions until 2013. Resource consent withdrawn |
| Waihapa Quarry | 15.8369 | Shale | 160,000 | $77,534 | No abstractions until 2013. Resource consent expired 31/08/08 |

| Quarry Name | Area (ha) | Rock Type | Land Value | Extraction Value 20yr life | Status |
|---|---|---|---|---|---|
| Hicks Quarry | 8.4685 | Blue/Brown Rock | 250,000 | $ - | No further abstractions as use opposed by Te Rarawa. Resource consent expired 31/10/08 |
| Blacks Quarry | 1.7570 | Shale | 60,000 | $ - | No further abstractions due to hydrocarbon content. Resource consent expired 31/10/07 |
| Rangiahua Quarry | | Shale | | $ - | No further abstractions due to theft of material. Resource consent expired 31/10/07 |
| **TOTAL** | | | **$790,000** | **$323,818** | |

| Other Quarry Assets | ORC | ODRC | AD |
|---|---|---|---|
| Fencing | 181,930 | 131,766 | 18,192 |

**Key Issues and Strategies**

Key issues and actions relating to the management of quarries are set out below.

**Table 36: Quarries Key Issues & Strategies**

| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Consultation and obtaining resource consents | • Further investigations are required to quantify the issue and make recommendations |
| • Quality and quantity (remaining volume of metal) available from the quarries to manage the roading network | • Further investigations are required to quantify the issue and make recommendations |

**Assumptions & Confidence Levels**

The Far North road network is reliant on quality aggregate to supply a variety of roading projects. Preliminary investigations in regards to the current and future status of available quantities have been carried out on the quarries around the district. Further investigations need to be completed. At the current time, the confidence in the assets is considered to be relatively low.

There is a shortage of operational high quality aggregate quarries across the Far North District. The RDF programme has highlighted this shortage, particularly in the North Hokianga area. Further investigation of this issue across the entire District is needed to gain a greater understanding of the significance of this problem in order to develop appropriate solutions.

### 4.2.11.3 Asset Capacity/Performance

GHD Limited completed a report to bring together historic Council quarry information to ensure existing quarries are appropriately maintained and/or utilised. They carried out a site inspection of the Council owned or leased Quarries in the latter part of 2003 to ascertain the viability of each quarry. This was updated in 2006 with the inclusion of various river sources that could potentially assist with the supply of aggregate around the district. Further work is required to substantiate supply requirements. Planning for viable sources is a definite requirement for the long term sustainability of the network sealed and unsealed.

Detailed inspections have been completed for each of the Council quarries based on the following information:

- Usage
- Fenced / Gates
- Material type / quality / remaining volume

- Basic Resource consent details
- Vegetation
- Silt control
- Maintenance requirements and estimated costs

The report indicated that the majority of quarries have not been worked or maintained for some time. This has resulted in some soil erosion in the weaker soils and some revegetation on the batters.

The material in most of the quarries would only be suitable for sub-grade build up or in some cases, metal for unsealed pavements.

#### 4.2.11.4 Asset Condition

**Table 37: Council Quarries**

| Name | Rock Type | Location | Condition | Capacity | Use |
|---|---|---|---|---|---|
| Dangens | Shale | SH 10 Lake Ohia | Average | Unknown | In use |
| Paranui | Yellow Shale | Paranui Road, 3 or 4 kms up from Paranui Dump, LH Side | | Unknown | Not used much by FNDC |
| Whakarara | Shale | Wainui Road 0.7km from Matauri Junction – opp school set back into paddocks | Average | Unknown | Good maintenance quality shale |
| Waihapa | Shale | Waihapa Road, RH side at end of formed road, accessed through farm land not ideal access | | Unknown | Not used much by FNDC |
| Hicks | Good Quality Metal | Broadwood Road, 800m up from Mangamuka/Kohukohu Road junction, RH side | Bad | Unknown | In an area where there is very little resource |
| Blacks | | Lake Ohia, SH1 approx 1km east of Inland Road intersection | Average | 1,000 | Closed because of the hydrocarbon content and proximity to the coast |
| Rangiahua | Poor Quality Shale | | | | Closed because of issues with theft of material, which is still an ongoing issue |

### 4.2.12 Vehicular Ferry

***The ferry service is reliable and provides a 7-day a week service between Rawene and the Narrows***

#### 4.2.12.1 Operation of activity

The vehicular ferry (Kohu Ra TuaRua) provides a strategic link from South Hokianga (Rawene) to North Hokianga (Rangiora) within the roading network, and has 14 scheduled return trips per day, 7 days a week.

#### 4.2.12.2 Physical Parameters

The Kohu Ra TuaRua is a doubled ended monohull flat-deck vehicle ferry specifically designed and built for operating on the Hokianga Harbour. Boarding access to the vehicle deck is via hydraulically operated ramps at both ends of the vessel. The ferry has a carrying capacity of 25-27 cars or equivalent heavy vehicles.

Council carried out an assessment of impairment for the ferry for valuation purposes in June 2011, which determines if a revaluation needs to be performed. Generally there were no significant changes to the condition, use, location of the ferry or its equipment. The asset is valued at $3,889,448 with annual depreciation valued at $80,466.

#### 4.2.12.3 Asset Capacity/Performance

The superstructure is located on the nominated port side and contains the wheelhouse, enclosed seating for pedestrian passengers, the ship's office, storage space and a toilet.

The hull is welded steel construction; the superstructure is aluminum. The ferry is maintained under an Safe Ships Management (SSM) programme managed by Survey Nelson Ltd and has a Certificate of Survey issued by Maritime New Zealand, valid until 1 October 2014, to operate within Hokianga Harbour.

| | |
|---|---|
| Length overall | 33.6m |
| Waterline length | 31.38m |
| Breadth | 12.3m |
| Depth | 2.0m |
| Draft | 0.9m |
| Lightship displacement | 146 tonne |
| Deadweight capacity | 131 tonne |
| Capacities | Fuel 10,300 / Freshwater 3,000 / Lube Oil 500/ |
| Engines | 4 x MAN model 2866, TE each developing 186 kw |
| Propulsion | 4 x Schottel model SST 602 Pump Jets with Co-pilot 2,000 integrated controls |

#### 4.2.12.4 Asset Condition

Duffill Watts & King Ltd (DWK) carried out a condition assessment of the Kohu Ra TuaRua on 31 January 2005. The overall condition at that time was considered to be very good, considering that the vessel hadn't been docked or taken out of service for a major overhaul since commissioning in June 1998. At the time of the 2007 valuation, DWK concluded that there had been no major changes to the vessels structure or outfit since the last valuation. A copy of the valuation is attached in Appendix C.

**Hull**

An evaluation of records indicates that the servicing and the maintenance procedures, and standards which were evident at the time of the previous valuation inspection have been maintained.

There is no record of any outstanding or pending survey requirements.

There has not been any major change to the vessel's structure or outfit since the last valuation.

The slipping in October 2005 provided the opportunity for blasting and recoating of the exterior hull.

On this basis, there are no extraordinary matters to be taken into account when assessing the effect of the condition of the ferry on its valuation.

**Machinery**

The following factors were taken into account in assessing the present condition of the engines and propulsion equipment.

Engine operating hours at 35,841, 30,698, 30,155 and 35,936 are reasonably well shared over the currently installed four engines. The spare engine has been completely rebuilt and is ready for installation as a replacement when needed.

Each of the propulsion units (Schottel Pump Jet) has been rebuilt at least once in the past 9 years. One unit is now due for replacement for which a complete new unit has been purchased. When the worn unit is removed, it will be rebuilt using a new impellor that has been already purchased.

### 4.2.13 Environmental Maintenance

***Ensure vegetation alongside the road carriageway is free from hazards to the public***

#### 4.2.13.1 Operation of activity

For the purposes of this AMP, environmental maintenance refers to vegetation control alongside road carriageways. Maintenance includes roadside mowing, removal of fallen trees, drain clearing, reinstatement, bank stability etc to improve safety, reduce fire risk, and maintain amenity values and to protect Councils assets. This Council activity is subsidised to approximately 55% by NZTA.

**Key Issues and Strategies**

Key issues and actions relating to the management of environmental maintenance are set out below.

**Table 38: Environmental Maintenance Key Issues & Strategies**

| Key Issue | Strategies to Address Key Issues |
|---|---|
| • Loss of amenity value | • Review maintenance programme and audits |
| • Spread of noxious weeds to neighbouring properties | • Work with Regional Council and educate the public |
| • Impeded driver sight lines | • Regular control of vegetation as required |

#### 4.2.13.2 Asset Capacity/Performance

Vegetation control is a serious issue for Council. The number of RFS to remove trees from road reserve that are considered dangerous, vegetation control and noxious plant pest control have increased over the past 3 years. Council's policy (Tree and Vegetation Policy) is to have any trees assessed by an arborist, mostly resulting in a recommendation for removal. This creates affordable issues as Council does not allocate funding and it is not subsidised by NZTA.

**Maintenance Planning**

Environmental maintenance is carried out by Council's North and South Maintenance contractors as per the conditions of the contract. Regular audits are carried out by the Network Manager to ensure that appropriate maintenance is being carried out to the required standards. There is an element of reactive maintenance including:

- Responding to public enquiries or RFS
- Removal of material that poses a significant risk
- Removal of material following a large storm event or flood

### 4.2.14 Waitangi Trust Road

#### 4.2.14.1 Operation of activity

The Waitangi Trust Road (Tau Henare Drive) is classified by NZTA as a Special Purpose Road. The road is maintained by Council but is 100% funded by NZTA. The road was accepted as a special purpose road in terms of Section 104 of the Transit NZ Act 1989 (now the Government Roading Powers Act).

### 4.2.15 Community Programmes

#### 4.2.15.1 Operation of activity

Far North REAP is the agency responsible for safety community programmes. There is a full-time road safety coordinator who coordinates all the different trusts responsible for the at risk communities within the Far North District. The programmes they deliver are:

- **Reducing Alcohol/Drug Impaired Driving:**
  - Alcohol Education Checkpoints
  - Marae Based Recidivist Drink Driver Programme
  - Alcohol Awareness Community Expos
  - Train-the-trainers Alcohol Strategy Workshops
  - Host Responsibility Roadshow
  - Slow Da Flow Social Messaging
  - SADD - Social messaging and alcohol education activities
  - Fatal Vision curriculum, messaging, and resources
  - Ongoing Alcohol Advertising Campaign Via Local Resourcing
- **Maintaining The Level of General Restraint Use Increasing the Level of Child Restraint and Commercial Drivers Restraint Use:**
  - Restraint Educational Checkpoints & Checking Clinics
  - Restraint Awareness Community Expos
  - Train-the-trainers Restraint Strategy Workshops
  - Ongoing Restraint Advertising Campaign Via Local Resourcing
- **Safer Speeds:**
  - Safer Speeds Awareness Community Expos
  - Train-the-trainers Speed Strategy Workshops
  - Ongoing Safer Speeds Advertising Campaign Via Local Resourcing
- **Reducing The Impact of Fatigue:**
  - Fatigue Awareness Community Expos
  - Ongoing Fatigue Advertising Campaign Via Local Resourcing
- **Increasing The Safety of Young Drivers (Driver Education and Licensing):**
  - Young Drivers Awareness Community
  - Train-the-trainers Young Drivers Strategy Workshops
  - District Rotary Youth Drivers Awareness Programme

There is an expectation that Council's share of expenditure is 34% with the remainder being provided by New Zealand Transport Agency. It is becoming more difficult in delivering the programme due to New Zealand Transport Agency no longer accepting "in kind" volunteer work.

## 4.3 Activity Rationale

The rationale for Far North District Council involvement in the ownership of transportation assets is as follows:

***The road network provides access for people and for the movement of goods and services. It significantly benefits residents, businesses and the district as a whole.***

For further details on Council's Community Outcomes, refer to Part B – Corporate Management, Section 2.3.4.

**Transport's Contribution to Community Outcomes**

The Community Outcomes the Transport activity contributes to are below:

***A safe and healthy district***

- The district is easy to get around with a safe and well maintained roading network
- Public buildings, carparks, parks and reserves are accessible by all
- All footpaths are safe and functional
- The district's elderly, young and disabled citizens are valued
- Appropriate lighting is provided for parks, reserves, roads and public places

***A sustainable and liveable environment***

- Growth is encouraged at a rate and in locations beneficial to the district
- The district's natural assets, landforms and waterways are protected
- Council supports environmental initiatives that enhance the district

***A vibrant and thriving economy***

- The district encourages a wide range of sporting, cultural and community activities and local events.

There are a number of legislative requirements that this activity needs to action and comply with these are explained in more detail under Section 4.8 Statutory Requirements within this AMP.

Refer to Section 4.7 Strategic and Corporate Goals to find a list of council policies and strategies this activity contributes to.

## 4.4 Key Service Drivers

The transport assets are the largest asset group owned by Far North District Council, and accordingly the management of these assets is of critical concern to both the Council and the community alike.

### 4.4.1 Delivery of Transport Services

Levels of Service (LOS) define the levels to which Council provides services to the community. Some LoS are defined by statutory requirements which are outlined in detail under Section 4.8, others in conjunction with the community, and some with key stakeholders. These LoS provide a basis for determining whether assets need to be constructed, replaced, remanufactured, or maintained. The performance measures have been defined to enable Council's performance to be measured and reported against and are covered in detail under Section 5.3 Levels of Service of this AMP.

## 4.4.2 Policies, Strategies and Bylaws

### 4.4.2.1 FNDC Policies and Strategies

Council has developed various policies and works in partnership with many other agencies and organisations throughout the district to fulfil its role and align the activities. This means that in establishing its programmes, Council must be aware of the following policies, strategies and guidelines. A number of Policies and Strategies have been identified for review as indicated in Table 39 and Table 40 along with a target completion date.

**Table 39: Council Policies**

| Policy No | Policy Name | Status | Target Completion |
|---|---|---|---|
| 4103 and 4103a | Limits of Responsibility for Formation/Maintenance of Roads | (Under Review) | June 2015 |
| 4104 | Maori Road Lines | (Under Review) | June 2015 |
| 4105 | Private Roads and Right of Ways | Current | |
| 4106 | Road Maintenance | Current | |
| 4106a | Restricted Bridges Policy | (Under Development) | June 2015 |
| 4107 | Quarry Ownership and Management | (Under Review) | June 2014 |
| 4108 | Kerbing and Channelling | Current | |
| 4109 | Safety Footpath Construction and Maintenance | Current | |
| 4110 | Street and Flag Lighting | Current | |
| 4111 | Unsubsidised Seal Extension | Current | |
| 5001 | Community Facilities (local car parks, service lanes) | Current | |
| 5004 | Safety Footpath Construction | Current | |
| 5102 | Vegetation Policy and *Guideline* | Current | |
| 2104 | Procurement Policy | Current | |
| | Road Prioritisation Policy | (Under Development) | 2013/2014 |
| | Dust Suppression Policy | (Under Development) | 2013/2014 |
| | Traffic Count Policy | (Under Development) | 2013/2014 |
| | Road Marking and Delineation Policy | (Under Development) | June 2014 |
| | Access to Landlocked Land | (Under Development) | June 2014 |
| | Road Stopping | (Under Development) | June 2014 |

**Table 40: Council Strategies**

| Strategy Name | Status | Target Completion |
|---|---|---|
| Road Hierarchy | Current | |
| Car Parking Strategy | (Under Development) | June 2014 |
| Safety Management System | Current | |
| Roading Targeted Rate | (Under Development) | June 2014 |
| Traffic Calming Guidelines | Current | |
| Road Opening Notice | Current | |
| Walking and Cycling Strategy | Current | |
| Road Improvement Strategy | Current | |
| Pavement Management Strategy | Current | |
| Bridge Management Strategy | Current | |
| Road Signage Guideline | Current | |

#### 4.4.2.2 External Policies, Strategies and Guidelines

| Strategy Name |
|---|
| Far North District Council's Procurement Strategy 2010-2013 for Activities Funded through the National Land Transport Programme (NZTA) |
| New Zealand Transport Strategy 2010 |
| Regional Land Transport Plan for Northland 2003-2008 (NRC) |
| Land Transport Safety Authority Northern Regional Road Safety Programme |
| Transit New Zealand's 10-year State Highway Plan |
| Mangakahia Forestry Study |
| Northland Integrated Strategy 2002 |
| Land Transport Management Act 2003 |
| NRC's Regional Coastal Plan for Northland |
| NRC's Regional Water and Soil Plan |
| GPS on Land Transport Funding |
| Transport Strategy for Northland |

#### 4.4.2.3 Bylaws

Council bylaws can be found on Council's website www.fndc.govt.nz. Bylaws relating to the transportation activity are:

| Bylaw | Status |
|---|---|
| Control of Vehicle Crossings Bylaw | Current |
| Stock Droving Bylaw | (Under Development) |
| Speed Limits Bylaw | Current |
| Chapter 20 – Parking and Traffic Control Bylaw | Current |

## 4.5 Significant Negative Effects on the Activity

Identifying significant negative effects ensures that Council activities are conducted in accordance with the principles of sustainability. The Transport activity has the potential to have a negative effect on community well being. Possible negative effects are outlined in the Table below:

**Table 41: Significant Negative Effects**

| Significant Negative Effect | Cultural | Social | Economic | Environmental | Performance Measure | Reporting Procedure |
|---|---|---|---|---|---|---|
| Transportation development may impinge on culturally significant lands | ✓ | ✓ | | | • Tracking and recording consultation procedures and results for each affected Māori group(s) for all projects outside the existing road reserve | • Monthly Report to GM Infrastructure and Asset Management |
| Road factors which contribute to fatal and/or serious crashes, such as those that involve loss of control. | | ✓ | ✓ | | • Working with NZTA who monitors and records through the Crash Analysis System (CAS) the percentage of accidents caused by loss of control<br>• Undertaking crash reduction studies (CRS) every 2 years and recommending solutions | • Annual Report from NZTA<br>• Report to GM Infrastructure and Asset Management with CRS results<br>• CRS undertaken every 2 years, last one completed |

| Significant Negative Effect | Cultural | Social | Economic | Environmental | Performance Measure | Reporting Procedure |
|---|---|---|---|---|---|---|
| | | | | | • Road Infrastructure Safety Assessments (RISA) carried out by NZTA | 2009<br>• RISA to be done when offered by NZTA |
| Failure to respond effectively to the particular needs of cyclists and pedestrians and their conflicts with other forms of traffic | | ✓ | ✓ | | • Working with NZTA who monitors and records through the Crash Analysis System (CAS) the percentage of accidents caused by loss of control<br>• Undertaking crash reduction studies (CRS) every two years and recommending solutions<br>• Road Infrastructure Safety Assessments (RISA) carried out by NZTA | • Annual Report from NZTA<br>• Report to GM Infrastructure and Asset Management with CRS results<br>• CRS undertaken every 2 years, last one completed 2009<br>• RISA to be done when offered by NZTA |
| The quality of surface runoff from roads that discharges into adjacent coastal or other waters | ✓ | ✓ | | ✓ | • Compliance with Stormwater discharge consent conditions | • NRC Monitoring |
| Dust nuisance on unsealed roads | | ✓ | ✓ | ✓ | • Actively investigate and trial methods for mitigating dust<br>• Track and record RFS and Communitrak data | • Report seasonally or as required to the GM Infrastructure and Asset Management |
| New road construction and / or improvement works may lead to a degree of environmental degradation and/or delays to travel times | | ✓ | ✓ | ✓ | • Ensuring Road Construction sites comply 100% with environmental best practice and Regional Council guidelines<br>• Track and record RFS complaints | • Annual Report |
| The impacts of forestry harvesting on local roads | | ✓ | ✓ | ✓ | • Monitoring and addressing the deterioration of roads affected by heavy forestry traffic<br>• Seek compensation from forestry operators and block owners | • Report annually or as required to the GM Infrastructure and Asset Management |
| Economic damage caused by the perception of inadequate car parking | | ✓ | ✓ | | • Continuing to monitor that sufficient car parks are available for the majority of time<br>• Work closely with Business Associations and other stakeholders so that parking is well sign posted; both long term and short term | • Monitoring / Enforcement |
| Economically, the cost of desired roading infrastructure improvements may exceed the community's ability to pay | | ✓ | ✓ | | • Consulting with the community on all costs and options for levels of service through the LTP process | • LTP submissions<br>• Annual Report |

## 4.6 Significant Changes for the Activity

The only foreseeable significant change in the next 10 years is the way public roads and related public land transport matters are managed and operated. It is possible there will be a move to reduce the present number of significant Road Controlling Authorities (or Approved Organisations) in Northland from four to a maximum of one or two.

## 4.7 Strategic Goals

Goals to be achieved for roading include:

- **Priority 1:** Carry out improvements to the network to meet current and future traffic demands and encourage appropriate land use development in areas of population growth by:
  - Completing the link road between Kahikatearoa Road and Waipapa Loop Road (Klinac Lane) to alleviate pressure from the State Highway intersection
  - Completing the alternative route between Butler Road and Clarke Road
  - Continuing to work with NZTA towards upgrading the intersection of State Highway 10 (Waipapa Road / Waipapa Loop Road) to a roundabout
  - Continuing investigating the options for a new road linking the Kerikeri south eastern light industrial area with Kerikeri Road, west of the Kerikeri CBD
  - Investigating the feasibility of introducing a one-way system in Kaikohe
- **Priority 2:** Maintain and renew all road assets to provide a level of service that is affordable and meets community expectations by:
  - Carrying out a minimum of 1.3% (approximately 11 km) of sealed road pavement rehabilitation (with associated improvements where applicable) per annum (in accordance with the pavement management strategy)
  - Carrying out a minimum of 9% (approximately 80 km) of reseals per annum
  - Maintaining and improving Tau Henare Drive, which is on Waitangi National Trust land
  - Completing a comprehensive audit of all bridges and other structures on the road network to establish an accurate forward works programme for repairs and replacements
  - Carry out replacement of the structural components of other bridges on an as required basis, in accordance with current known priorities, during the term of the Long-Term Plan
  - Review whether Council should continue to maintain bridges that serve less than 5 properties
- **Priority 3:** Reduce the number of fatal and serious injury crashes, especially those where the road factors, alcohol and excessive speed are contributory factors by:
  - Completing a minimum of 20 minor safety improvements on the network each year targeted at reducing the number of crashes and severity of loss of control on bends (the most common type of crash on the network)
  - Identifying and coordinating for Safer Journeys (safe roads and roadsides, safe speeds, safe vehicles, safe road use) interventions with Police, NZTA, Roadsafe Northland and community groups.
- **Priority 4:** Achieve value for ratepayers by:
  - Maximising the amount of funding assistance for the Far North District from the National Land Transport Fund and other sources as may become available

- Supporting sealing projects, subject to affordability, where an element of local community contribution is available and where the proposed project is in line with the relevant Council policy
- Continuing to operate the Council's ferry, Kohu Ra Tuarua, 7 days a week, 365 days a year and reviewing fares to reduce operating losses and to meet unavoidable cost increases
- Introducing a Road Hierarchy setting appropriate levels of service for each road and establishing performance based maintenance contracts that are specifically designed to achieve the levels of service set.

- **Priority 5:** Improve Road Safety by:
  - Pursuing community programmes to raise awareness and educate communities about high risk issues such as drink driving, crashes on bends, speed, child restraint compliance and fatigue.
  - Identifying and coordinating for safer journeys (safe roads and roadsides, safe speeds, safe vehicles, safe road use) interventions with Police, NZTA, Roadsafe Northland and community groups.

Goals to be achieved for footpaths include:

- **Priority 1:** Maintain and renew footpath assets to provide a level of service that is affordable and meets community expectations by:
  - Maintaining and renewing existing footpaths
  - Ensure developers include a footpath on at least one side of the road in each new subdivision.

Having a 10 year asset management plan in place that has been independently audited and reviewed at 3 yearly intervals supports the key goals of this policy. The direction of this policy is also reflected in Level of Service measures.

## 4.8 Statutory Requirements

Statutory requirements impact on the way in which Far North District Council operates to meet its obligations to its customers. The key legislation relating to the management of transportation assets are listed below:

### 4.8.1 National

- **Land Transport Management Act 2003,** which requires council 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 Regional Land Transport Strategy (RLTS).
- **Traffic Regulations Act 1976 and Land Transport (Road User) Rules** – this legislation details Road Rules and Regulations to be adhered to and monitored. This affects the

operation and use of transportation assets e.g. signage, speed limits, parking restrictions, installation of traffic signals (if appropriate in the future), and school patrols.

- **National Standards for Transport** - Council refers to the relevant documents contained with Transit New Zealand Standards and Guidelines Manual SP/M/021 Version 2 – August 2005 (Now NZTA). This document contains up-to-date standards and guidelines in current use throughout New Zealand, including international documents.

### 4.8.2 Regional

Northland Regional Council is responsible for ensuring the natural and physical resources of the region such as the land, air, water and coastal resources are managed in a sustainable manner under the Resource Management Act 1991.

This includes the following responsibilities in relation to Land Transport:

- Prepare regional land transport strategies
- Chair regional land transport committees
- Issue air and water discharge consents under the Resource Management Act 1991

The purpose of the Regional Land Transport Strategy (RLTS) is to provide a planning framework for the development of land transport in the region for the next 10 years.

***Regional Vision***

*"Northland has an integrated, equitable, responsive, safe and sustainable land transport system"*

The Strategy has been developed in accordance with the requirements of Section 175 of the Land Transport Act, 1998. It must also align itself with the following objectives of the Land Transport Management Act 2003, which are to:

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

Two additional objectives, considered important to Northland, have also been added. These are:

- Integration of land use and transport planning
- Ensuring an affordable and financially sustainable transport network

Through the development and review of the RLTS a number of determinants were identified that impact on the transport system. These are as follows:

- A low and geographically dispersed population base and therefore a high private vehicle dependency for inter and intra regional trips (although passenger transport usage has increased in Whangarei);
- Some economically deprived rural communities (particularly in the Far North);
- Strong rural-based and manufacturing economy comprising pastoral farming, forestry, fishing and tourism;
- Diverse socio-economic patterns – high growth in the south (largely as a result of Auckland's growth) compared to the north which is relatively remote and sparsely settled.
- The east coast is characterised by high recreational use and coastal subdivision. The west coast has few settlements and has a slower population growth;

- Northland region continues to remain a favourable holiday destination with strong growth in coastal development areas such as Mangawhai, Marsden Point/Ruakaka, Paihia, Kerikeri, and Coopers Beach area. This has an impact on traffic congestion at weekends and holiday periods.

**Key Transport Issues**

In addition, a number of key transport issues were identified in the review process:

- **Road design, maintenance and investment in infrastructure:** The basic roading network is currently in place but requires significant upgrading to provide an efficient network.
- **Funding:** Northland's low population and socio-economic base has resulted in less funding to match the local authority share required to receive Land Transport New Zealand (now NZTA) funding for transportation projects.
- **Transportation of Freight:** Major sources of freight transported on Northland's roads include forestry, dairy products, livestock, fertilizer, quarried material and other general freight. The size and capacity of heavy vehicles has increased over time, resulting in frequent and often severe pavement and bridge damage.
- **Land use Planning:** The need to integrate transportation planning and land use in the Region.
- **Rail Network:** A strong and reliable rail network is desirable. There is need for rail access to Marsden Point to transport freight to increase the current rail system usage.
- **Passenger Transport Services:** Increasing passenger transport services connecting key destinations and improving passenger transport infrastructure (e.g. accessible buses on all routes, shelter, and lighting).
- **Travel Demand Management:** Reduce private vehicle use by promoting alternative travel behaviour – for example: work with schools to promote children walking and cycling to school (Northland is a car dominated society).
- **Cycling and Walking:** Safe cycle and pedestrian networks/facilities are likely to create demand.
- **Road Safety:** A strong need for a more streamlined approach to delivering road safety initiatives.
- **Tourism:** Increased road-side facilities for tourists/visitors to Northland.

**Regional Water & Land Management Plan**

Northland Regional Council (NRC) has developed a Regional Water and Land Management Plan, which outline the rules and regulations regarding earthworks and discharges. Under these rules and regulations, certain types of transport related development require Land Use Consents, such as:

- Earthworks
- Roadworks
- Reclamation
- Any proposed activity within the bed of a lake, river or stream such as the construction of structures (culverts, bridges, crossings)
- Any activity which results in discharges of stormwater containing contaminants into water or onto land

Land Use Consent applications will invariably include an Erosion and Sediment Control Plan. The purpose of these plans is to illustrate erosion and sediment control measures intended for the development.

**Regional Coastal Management Plan**

NRC's Regional Coastal Management Plan outlines the rules and requirements regarding earthworks, structures and discharges to the coastal environment from transport related development (amongst others). As such, NRC issues coastal permits to control such activities.

### 4.8.3 District

**The Far North District Plan** assists Council to carry out its functions under the Resource Management Act 1991. The purpose of the Act is to promote the sustainable management of natural and physical resources.

In this context, the Far North District Plan outlines the rules, objectives, policies and requirements for land based activities above Mean High Water Springs (MHWS). This includes earthworks, roadworks, and stormwater works (drainage) associated with transport related development. The District Plan also sets out the standards and controls for lighting, noise, hazardous substances (spill management), and contaminated land.

### 4.8.4 Councils Vision for Roads and Footpaths

*"An effective and sustainable road and footpath network that supports community strengths and wellbeing"*

### 4.8.5 Key Issues

In addition, a number of key issues and challenges were identified in the review process:

**Table 42: Key Issues and Challenges**

| Key Issues | Implications |
|---|---|
| Climate Change | Increases exposure to road closures and widespread damage to the road network caused by severe storms |
| Limited sources of good quality road aggregate | Increases maintenance and construction costs |
| Reducing ability to attract New Zealand Transport Agency (NZTA) funding assistance, especially for improvements and new works | Reduces ability to carry out improvements and new projects, including seal extensions |
| NZTA have signalled funding cuts to the Local Government sector. However, the quantum of the funding cuts is still uncertain | The impact on levels of service is difficult to predict until the funding provisions are released by NZTA but could range from minor to significant dependant on what budget categories are reduced. In order to retain the current levels of service, with decreased NZTA funding, will mean that the shortfall will need to be made up from unsubsidised sources. This would mean ratepayers or private road users will pay more |
| Increasing demands on the road network from heavy vehicles | Increases maintenance and renewal costs |
| Large geographic spread of the network, low population density and uneven distribution / expansion of population growth | Decreases affordability of the road network and to build new footpaths |
| Lack of data relating to bridge load carrying capacities | Increases exposure to bridge failures |
| Maintained length of network is based on out-of-date data | Results in dissatisfaction where roads exist outside of maintained length |
| Increasing costs (labour, fuel and materials e.g. price of bitumen rose 84% between June 2010 and June 2011) | Reduces maintenance levels of service and number of improvements and new projects that can be carried out for the same amount of money |
| Difficulties attracting and retaining appropriately skilled personnel | Reduces the ability to maximise funding assistance and consistently deliver good quality work on time and at the right price |
| Inspections of all bridges have identified some structures which require more detailed investigation | Level of uncertainty on how much this could potentially cost |

| Key Issues | Implications |
|---|---|
| Lack of anticipated funding for footpaths from development contributions | Decreased funds available for new footpath construction |
| Ensuring sufficient number of car parks are available with adequate signs and markings | Requires monitoring of demand and supply during peak periods (i.e. weekends and summer peak period) and compliance with Council's Engineering Standards and Guidelines. Council currently carries out parking enforcement in Kerikeri (Monday – Friday) and Paihia (Labour weekend – Easter weekend inc'). Council's monitoring officers enforce the instant infringements offences (e.g. parking in disability parking, parking on yellow lines etc.) throughout the district all year round |
| Ensuring adequate number of disabled car parks are available, adequately signed and marked, and facilities for blind and vision-impaired pedestrians | Requires compliance with the provisions in the District Plan, Road and Transport Series 14 – Guidelines for facilities for blind and vision-impaired. Continued liaison with stakeholders from the disability forums |

## 4.9 Resource Consents

Resource consents are a requirement for most transportation based development, particularly the formation of roads, bridges, culvert crossings and or the control of discharges from development or drainage works (to streams, rivers or the coast).

An Assessment of Environmental Effects (AEE) is required to support the resource consent applications to the respective Councils when seeking approval to implement transportation projects.

The AEE process involves the identification and assessment of both the potential and the perceived physical, social and cultural impacts that the proposed works may have on the existing environment, and includes the examination and comparison of options and alternatives for mitigating any identified adverse effects, and the confirmation and recommendations on the preferred options and methodology to carry out the works.

The critical environmental factors requiring consideration include geological and geotechnical effects of land movement (cut and fill), the ecological and biological effects of crossing water-courses, and the cultural, archaeological and social effects on the environment as the works cross the landscape, together with noise, air quality, and visual effects; a number of which may require specialist inputs and consultation with the local communities.

Positive effects including major reductions in traffic congestion and travel times and the resultant improvements in air quality, noise levels and general visual amenity within the urban areas will need to be balanced against the adverse effects identified in the AEE.

Council has a database of consents relating to transport activities. These are listed in Table 43 below. In accordance with both Regional and District Plans, there are a number of requirements that must be met during the life of the consent. These requirements stipulate monitoring conditions in the consent. The consent holder is required to report on compliance with the monitoring conditions.

**Table 43: Transport Related Consents**

| Area Description | Expiry Date | Purpose | Issue Date |
|---|---|---|---|
| Narrows Ferry Ramp, Kohukohu | 30/08/2040 | To place, use & occupy space with three fender piles | 16/09/2005 |
| Hokianga Ferry Ramp, Kohukohu | Complete | Abrasive blasting | 9/07/2005 |
| Narrows Ferry Ramp, Kohukohu | | Coastal permit to extend an existing ramp and construct a slipway thereon | |

| Area Description | Expiry Date | Purpose | Issue Date |
|---|---|---|---|
| Kohukohu Road Upgrade | 31/01/2040 | To place, use & occupy space with four outfall energy dissipation structures & two rock spall embankment slip remediation structures | 25/05/2005 |
| West Coast Road, Hokianga | 31/08/2020 | Retaining wall | 21/04/2005 |
| Kohukohu Road Upgrade | 31/01/2040 | To place, use & occupy space with four outfall energy dissipation structures | 3/03/2005 |
| Rongopai Place, Kaitaia | 30/06/2037 | Earthworks, divert floodwater, dam floodwater | 22/12/2003 |
| Pawarenga Road | 31/08/2020 | Excavate gravel from bed & align the Rotokakahi River BLKS XI & XII Whangape SD for river bank protection and Pawarenga Road | 17/12/2002 |
| Hokianga Ferry Ramp Extension, Kohukohu | 30/08/2040 | | 2/10/2006 |
| Dangens Quarry | 31/10/2017 | To remove & place overburden & fill, discharge stormwater runoff to ground & to an unnamed tributary of Aurere Stream via sediment detention ponds & divert stormwater | 15/02/2006 |
| Kerikeri Heritage Bypass | | Ford restoration and water main pipeline at Kerikeri | |
| Kerikeri Heritage Bypass - s127 change consent for Earthworks | 31/03/2015 | Earthworks including within the Riparian Management Zone and deposition of excess fill material associated with construction of the bypass. Vegetation clearance within the Riparian Management Zone. Discharge stormwater to land and to the Kerikeri River associated with land disturbance activities. Divert stormwater. Placement of a bridge on the bed of and over the Kerikeri River. Removal of an existing bridge known as Kerikeri Basin Bridge | 13/06/2006 |
| Kerikeri Heritage Bypass - change | 31/03/2015 | Earthworks including within the Riparian Management Zone and deposition of excess fill material associated with construction of the bypass. Vegetation clearance within the Riparian Management Zone. Discharge stormwater to land and to the Kerikeri River associated with land disturbance activities. Divert stormwater. Placement of a bridge on the bed of and over the Kerikeri River. Removal of an existing bridge known as Kerikeri Basin Bridge | 6/07/2006 |
| Kerikeri Heritage Bypass - s127 change | 31/03/2015 | Earthworks within Riparian Management Zone | 6/07/2006 |
| Kerikeri Heritage Bypass | 31/03/2015 | Construct temporary coffer dams within the bed of the river to facilitate construction of bridge piers. Divert river water around bridge pile construction activities. Construct temporary staging within the bed of the river to enable machinery access for bridge construction. Place permanent rock protection works on the bed of the river. | 11/10/2006 |
| Kerikeri Heritage Bypass | 50 year life | 3 Span Bridge (Kerikeri Heritage Bypass) | 5/09/2006 |
| Narrows Vehicular Ferry Ramp | 30/08/2040 | Monitoring, Navigation and Safety Bylaw | |
| Rawene Vehicular Ferry Ramp | 30/08/2040 | Monitoring, Navigation and Safety Bylaw | |
| Kohukohu Road | | 3 x Stormwater Outfall Energy Dissipation devices on Kohukohu Road MCO1278201 | 15/03/2005 |
| West Coast Road | | Reclamation within CMA West Coast Road MCO838401 | 17/12/1997 |
| Te Ti Beach Paihia | | Repair of existing seawall on Te Ti Beach Paihia MCO830201 | 15/09/1998 |
| Hihi Beach | | Seawall Hihi Beach Mangonui MCO825701 | 7/08/1997 |
| Waipiro Bay | | Reclamation as part of seawall Manawaroa Road, Waipiro Bay MCO814001 | 30/01/1997 |
| Rangitane Loop Road | | Erosion protection works Rangitane Loop Road MCO806304 | 21/10/1996 |

| Area Description | Expiry Date | Purpose | Issue Date |
|---|---|---|---|
| Foreshore Road Ahipara | | Rock Revetment Foreshore Road Ahipara MCO805101 | 10/08/1996 |
| Oruru Road Taipa | | Rock Seawall Oruru Road Taipa MCO802201 | 19/09/1996 |
| West Coast Road | | Reclamation – Mangrove clearance West coast Road between Panguru and Waihou Bridge MCO791301 | 26/03/1996 |
| Tapuwai River Bridge | | Road Works Tapuwai River Bridge MCO786201 | |
| Kohukohu Ferry | | Ferry Ramp Narrows MCO768201 | 30/08/1991 |
| Ahipara | | Seawall Ahipara MCO715601 | 18/07/1994 |
| Rauto Road, Ratcliffes Bay | | Reclamation to widen Rauto Road, Ratcliffes Bay MCO618701 | 24/01/1992 |
| Waikare Inlet | | Bridge Waikare Inlet MCO604001 | 6/07/2002 |
| Waipapakauri Boat Ramp | | Waipapakauri Boat Ramp MCO577701 | 30/09/1991 |
| Mangoinui Wharf | | Sealwall, footpath, carparking base of Mangonui Wharf MCO534601 | 30/09/1991 |
| Russell | | Protection Works Russell MCO538901 | 6/06/2002 |
| Rawene | | Reconstruct up to 1500 metres of stopbank including road protection Rawene MCO1481001 | 4/12/2005 |
| West Coast Road | | Placement of a road retaining wall in the CMA West Coast Road MCO1304801 | 4/12/2005 |
| Awaroa Road | | Landuse consent Awaroa Road MCO1260901 | |
| Matawera Road | | Landuse consent Matawera Road MCO1252001 | |
| Iwiatua Road | | Landuse consent Iwiatua Road MCO1199501 | |
| West Coast Road (Near Huahua) | | Landuse consent West Coast Road (Near Huahua) MCO1185801 | |
| West Coast Road (Stage 3) | | Landuse consent (Stage 3) West Coast Road MCO1082691 | |
| West Coast Road | | Landuse consent West Coast Road MCO1082501 | |
| Rawene Ferry Coastal Permit | | Ferry Ramp and 3 fender piles Rawene MCO768202 | 12/06/2005 |
| Rawene Vehicular Ferry Ramp | | Rawene Vehicular Ferry Ramp MCO768301 | |
| Kohukohu Road | 31/07/2044 | Three reclamations (RCA's) MCO2244601 | 22/01/2009 |
| Kohukohu Road | 31/07/2044 | Three reclamations not RCA's (85 metres north of Rakatapu Road) MCO2244603 | 22/06/2009 |
| Waitangi Bridge | 31/08/2012 | Waitangi Bridge Upgrade Works | 03/08/2010 |
| Otaua Road Bridge Streamworks | 31/08/2020 | Carry out channel improvement works, including removal of debris & silt, & rock protection, earthworks & vegetation removal | 23/11/2001 |

### 4.9.1 Consent Monitoring & Compliance

A significant number of the resource consents provided in Table 43 relate to the occupation of a structure over a river, stream or watercourse. The nature of these consents is to charge the consent holder an annual fee to be able to occupy the area for a specified duration (normally 35 – 40 years). During the construction, there will be requirements to monitor the release of sediment into waterways, or disturbance to the bed of the watercourse, which again may entail the need to assess the nature of the stream ecology and the impacts imposed by the development. At the end of the consent period, Council will need to apply to have the consents renewed, or will need to apply for new consents.

## 4.10 Potential Issues

There are a number of adverse environmental effects that can occur in the process of undertaking transportation related development, particularly major construction projects. The potential effects of the transportation activity can be generated during both the construction phase and the operational use of the network. The information provided below outlines these issues and associated mitigation measures.

### 4.10.1 Dust

Dust can affect vegetation health along the edge of the earthworks area, can be a nuisance to the surrounding public, and can contribute to sediment loads by being deposited in areas without sediment control measures. Sediments deposited on sealed public roads can also result in a dust nuisance. Similarly, unsealed roads can be a dust nuisance during periods of prolonged drought.

#### 4.10.1.1 Mitigation Measures

The following mitigation measures may be considered for the control of dust emissions:

- Wheel washing for trucks leaving development sites
- Spraying down areas (with water) to control dust emissions
- Monitoring at site boundaries

### 4.10.2 Sediment Runoff

Sediment runoff from development works is generally controlled via sediment control techniques and administered by the Regional Council. Sediment from exposed areas of land can enter waterways, streams and rivers, potentially causing adverse effects to fauna and flora.

#### 4.10.2.1 Mitigation Measures

The following mitigation measures may be considered in the control of sediment runoff:

- Effective sediment control techniques such as cut-off drains, ponds, and silt fences retain sediment and prevent it from entering water systems
- Compliance with an approved sediment and erosion control plan

### 4.10.3 Noise

The District Plan contains the standards for noise and the restrictions imposed on construction, such as hours of operation and the decibel limits to be adhered to. Monitoring typically takes place to establish background noise levels against which construction and traffic noise can be measured against. In respect to noise, Council shall have regard to:

- NZS 6806: 1993 Road Traffic Sound.
- "Guidelines for the Management of Road Traffic Noise – State Highway Improvements" by Transit New Zealand 1994.

#### 4.10.3.1 Mitigation Measures

The following mitigation measures may be considered in the control of noise emissions:

- Hours of permitted work
- Monitoring at site boundaries
- Compliance with standards
- Community consultation

### 4.10.4 Landscape Values

The district contains five broad landscape types. Each of these landscapes has an identifiable character based predominantly on geomorphologic characteristics. Landscape values also include natural and cultural heritage features, which need to be taken into account with any proposed developments.

#### 4.10.4.1 Mitigation Measures

The following mitigation measures can be considered when taking into account landscape values:

- Review District Plan maps
- Community consultation

### 4.10.5 Cultural Heritage

Places of particular cultural heritage value have been scheduled and identified on the District plan maps so that location is known and can be taken into account when considering development and applying for resource consents. The scheduled sites are those that are registered under the Historic Places Act 1993, or those requested to be scheduled after consultation with Iwi. Not all sites are recorded and for major developments it is important that consultation be undertaken with tangata whenua, registered archaeologists, NZ Historic Places Trust (NZHTP) and NRC. Protocols can be developed in the event of discovery.

### 2.10.10 Landscape Values

The following mitigation measures may be considered when taking into account cultural heritage values of sites:

- Consultation with key stakeholders
- Development of protocols
- Due diligence prior to development

### 4.10.6 Stormwater Discharges

Stormwater discharges need to be managed to prevent pollutants from entering waterways. Roads provide a number of potential contaminants such as metals (from vehicles), hydrocarbons, gross pollutants (litter) and herbicides (from vegetation control). These can cause adverse effects to flora and fauna in receiving waters. In addition, stormwater pipes/culvert outlets can cause scour during large flows.

#### 4.10.6.1 Mitigation Measures

The following mitigation measures may be considered in the control of stormwater discharges:

- Retention dams, swales, and outfall structures to dissipate flows. Any number of options can be evaluated prior to consent approvals.
- Evaluate receiving waters to determine background water quality
- Monitoring of the mixing zone (if appropriate)
- Specialist advice

## 4.11 Hazards

The Far North District and surrounding region are exposed to a number of natural hazards. From an activity point of view, hazards have the potential to cause major disruption and need to be taken into account.

### 4.11.1 Coastal Erosion/Inundation

The process of coastal erosion results in the loss of land as the shore retreats inland. Wave, wind and tidal action over a number of years contributes to the long-term erosion of the shoreline; however storm events can have acute and very damaging effects.

### 4.11.2 Flooding

Flooding is a commonly occurring natural hazard that occurs when the natural and modified drainage systems fail in a particular rainfall event. The risk of flooding is influenced by a number of factors such as:

- Weather systems;
- Hydrological factors (catchment size, rainfall intensity and infiltration);
- Hydraulic factors;
- Soil type;
- Land use;
- Ground saturation.

Storm events and the resulting flooding can result in significant adverse effects on both residents and the environment. These effects may include:

- Personal injury or loss of life, property and possessions or livelihood.
- Disruption of utilities and transportation networks.
- Impacts on the environment including vegetation and habitat loss, erosion, sedimentation in waterways, and soil and water contamination.

The district has had to manage the after effects of severe flooding on numerous occasions on both the east and west coasts.

### 4.11.3 Landslides

Landslides are generally caused by slope saturation and can include mudslides, debris flow or avalanches, rock falls and rock slides. Increased ground saturation can be caused by intense rainfall, changes in groundwater and water level changes in rivers, earth dams, lake banks and the coastline. Generally, flooding and landslide events are closely linked as they both result from heavy rainfall, stormwater runoff and ground saturation.

The risk of flooding is influenced by a number of factors such as:

- Underlying geology;
- Proximity to rivers, lakes and the coast;
- Past and present land use including vegetation changes;
- Infrastructure development.

Landslides can result in significant adverse effects on both residents and the environment. These effects may include:

- Personal injury or loss of life, property and possessions or livelihood;
- Disruption of utilities and transportation networks;
- Impacts on the environment may include vegetation and habitat loss, erosion and sedimentation in waterways.

## 4.12 Future Requirements

The main consideration needing to be addressed is the tracking of resource consents and the conditions that they contain. Tracking legislation will also need to occur, specifically in relation to Climate Change and the impacts this might have on the transport network. In addition to this, constant monitoring of natural hazards and their impacts needs to be ongoing.

# 5 LEVELS OF SERVICE

Asset Management (AM) planning enables the relationship between levels of service and the cost of the service (the price/quality relationship) to be determined. This relationship is then evaluated in consultation with the community to determine the levels of service they are prepared to pay for.

Defined Levels of Service (LoS) can then be used to:

- Inform customers of the proposed LoS
- Develop AM strategies to deliver LoS
- Measure performance against defined LoS
- Identify the costs and benefits of services offered
- Enable customers to assess reliability, simplicity, quality, friendliness, and convenience.

In this context, LoS define the quality of delivery for a particular activity or service against which service performance can be measured.

**Establishing Core Values**

Core Values provide the cornerstone to the development of LoS from both a customer and technical point of view. The "Developing Levels of Service and Performance Measures" Manual describes Core Values for Council activities. It is important for customers and Council to consider which of these are most important; as these priorities flow into the final required levels of service. Through the Communitrak consultation process and feedback received via Annual Plan submissions, Council has determined that the following core values are key to the Transport Activity.

- Accessibility
- Safety
- Efficiency/Responsiveness
- Sustainability/Whole of community benefits
- Quality

## 5.1 Existing Level of Service

Our current levels of service do not, generally, adequately reflect measures to demonstrate good stewardship of the assets. For example, the KPI to reduce the number of fatal and serious crashes each year. This has been amended to include "where the road is a contributing factor".

The following graphs represent the key Transport Levels of Service that have been monitored since 2006/16 and 2009/19 AMPs.

This LOS is still valid.
There has been a change to the KPI as previously the target was set to GHD Ltd performance in responding to a RFS on time. With the contract change in 2011 for all RFSs to be directly sent to internal Engineers and not GHD.

**Figure 25: Percentage of roading RFS responded to in set time**

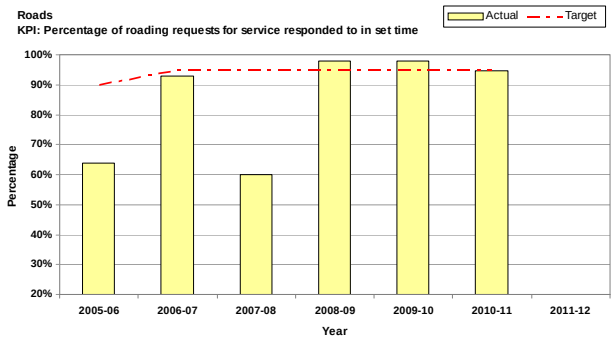


**Figure 26: Extend the existing sealed network**

This LoS is now redundant.
This LoS shows the length of sealed network over years. Due to reduced funding received from NZTA, the targets were reduced in the 2nd and 3rd year of the LTCCP and Council does not foresee any major seal extensions to be done in the next term of the LTP.

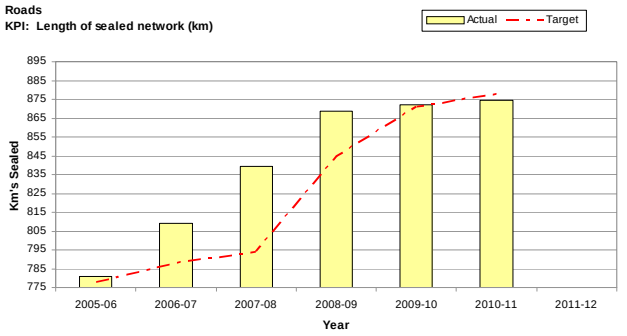



**Figure 27: Area Wide Pavement Treatment**

This LOS is still valid.
The percentage was amended in the 3rd year of the LTCCP due to Council not achieving Pavement Rehabilitation to 2% of the network.

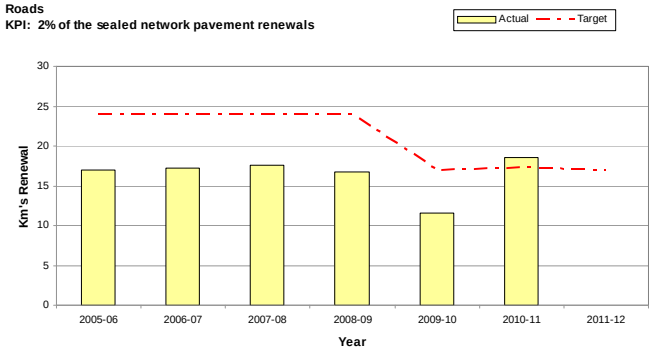
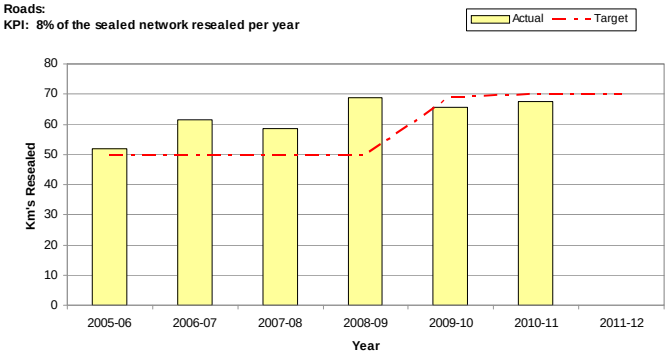



**Figure 28: Reseal 50 km or road per year**

This LOS is still valid.
This has been largely achieved due to the target KPI being set too low. In theory, reseals need to be at least 10% per annum.
This was the new target Level of Service from 2008/09 onwards.




## 5.2 Changes to Level of Service

A change in LoS will either be reflected as either an increase or decrease in the LoS. Any change will need to be consulted on with key stakeholders and the community. The outcomes will then incorporated into the decision making process.

The following table outlines the current KPIs in our LTCCP and the proposed changes and / or deletions for the LTP.

**Table 44: Current KPI's in the 2009-19 LTCCP**

| Key Project(s) / Initiative(s) | How the project(s) / initiative(s) will impact on LoS | Community Outcome | Measure | What to be changed | Why to be changed |
|---|---|---|---|---|---|
| Safety | By improving the safety of road users | Public Safety<br>Transportation | Reduce the % of fatal and serious crashes each year | Measure to be amended | To include "where the road is a contributing factor". |
| Extending the sealed network | By maintaining an effective, sustainable, and integrated transport network | Transportation<br>Public Safety<br>Services that Support Communities | Extend the existing sealed network by at least 7 km per year | Measure to be deleted | Changes to the Government Policy Statement for Transport (GPS) and the emphasis placed by Central Government on investment in its nominated Roads of National Significance (RONS), it has limited the availability of Central Government funding assistance for seal extensions. |
| Maintaining the sealed network | By maintaining an effective, sustainable, and integrated transport network | Transportation<br>Public Safety<br>Services that Support Communities | At least 8% of the network resealed per year | Measure to be amended | Has been increased to approximately 9% of the network resealed per year (approx 80 km) to maintain the average seal life of 10.5 years and to reduce the backlog of approx 200 km and to maintain the SCI of the network. |
| Maintaining the sealed network | By maintaining an effective, sustainable, and integrated transport network | Transportation<br>Public Safety<br>Services that Support Communities | At least 2% of the network Pavement Renewals | Measure to be amended | Field inspections of sites indicated that the target measure of 2% was too high. This measure has been reduced to 1.3% (approx 11 km) per annum. A robust data collection programme will be implemented with a maturity of modelling (dTIMS) over the next 3-5 years. |
| Safety<br>Bridge Renewals | By maintaining an effective, sustainable, and integrated transport network | Transportation<br>Public Safety | At least 3 bridge renewals per year | Measure to be amended | To also include bridge upgrades. |

| Key Project(s) / Initiative(s) | How the project(s) / initiative(s) will impact on LoS | Community Outcome | Measure | What to be changed | Why to be changed |
|---|---|---|---|---|---|
| | | Services that Support Communities | | | |
| Responsiveness/ Effectiveness | By maintaining an effective, sustainable, and integrated transport network | Transportation<br>Services that Support Communities | % of request for service (RFS) responded to in set time and to the appropriate standard. | Measure to be retained | No change |
| Providing a sustainable network | By maintaining an effective, sustainable, and integrated transport network | Transportation<br>Public Safety<br>Services that Support Communities | The % of respondents indicating they are very/fairly satisfied as measured by the Communitrak Survey is not less than 55%. | Measure to be retained | No change |

## 5.3 Level of Service

### 5.3.1 Levels of Service, Performance Measures and Reporting

Community outcomes: A safe and healthy district, a sustainable and liveable environment, a vibrant and thriving economy

**Table 45: Levels of Service**

| Customer Value | Levels of Service | Customer Performance Measure | Measurement Method | Technical Performance Measure | Measurement Method | Performance Measure Procedure |
|---|---|---|---|---|---|---|
| **Safety** | Reduce the number of fatal and serious crashes per year where the Council roads is the contributing factor | No more than 2 fatal and 12 serious crashes per year | Crash Analysis Database | • Review the current Safety Management System (SMS) | • 100% Compliance | • Formal review of the SMS every two years |
| | | | | • Engineering reports to be completed for fatal or serious accidents as requested | • 100% Compliance | • Reports completed as required<br>• Reported annually to GMT |
| | | | | • Crash Reduction Studies to be undertaken every two years with NZTA | • Achieve recommendations of the CRS in the 2 year period | • 5 year monitoring and reporting |
| | | | | • Participation in Road Safety Action Plan<br>• Participation in the Road Safety Forum | • Bi Monthly meetings | • Reports completed as required |
| | | | | • All traffic restraining devices (bridge side rails, guardrails, wire rope barriers, terminal ends) are maintained in an effective operating condition | • Achieve contract inspection targets | • Routine maintenance inspections in accordance with the road specification |

| Customer Value | Levels of Service | Customer Performance Measure | Measurement Method | Technical Performance Measure | Measurement Method | Performance Measure Procedure |
|---|---|---|---|---|---|---|
| | | | | • All regulatory and permanent warning signs and devices are maintained in an effective operating condition | • Achieve contract inspection targets | • Routine maintenance inspections in accordance with the road specification |
| **Accessibility** | Roads are accessible all year round | >57% of respondents indicating that they are very / fairly satisfied | Annual community feedback survey results | • Following storm events and in relation to slips access to be restored in accordance with response time (within 12 hours), or reopened to at least a single lane 90% of the time to isolated communities | • 100% Compliance | • Reporting as required by the nature of the emergency<br>• Reports to GMT as appropriate |
| | | | | • Proactively investigate alternative access during flood events and make the site safe | • 100% Compliance | • 1 hour reporting during major events<br>• Event debrief |
| | | | | • Work with Police at crash sites to open roads as soon as practicable | • 100% Compliance | • Reports completed as required |
| | | | | • Maintain access during road works and compliance with Traffic Management Plans | • 100% Compliance | • Network Manager Monthly reports |
| **Efficiency / Responsiveness** | The ferry service will run in accordance with the advertised timetable | Customers | Contractor compliance reports monitored monthly | • In accordance with ferry contract | • 95% Compliance | • Monthly reporting by the Ferry Operator |

| Customer Value | Levels of Service | Customer Performance Measure | Measurement Method | Technical Performance Measure | Measurement Method | Performance Measure Procedure |
|---|---|---|---|---|---|---|
| | % of requests for service (RFS) responded to in set time for the road network | 95% | Data collected and monitored through the internal RFS system | • Reduce the number of Road Fault related RFS | • Reduction of >5% per annum | • NRB Customer Satisfaction Survey<br>• Monthly reporting via Pathways<br>• Annual Report by General Manager Roads and Stormwater |
| | | | | • Implement recommendations from the Walking and Cycling Strategy | • % complete as per programme | • Annual Report by General Manager Roads and Stormwater |
| | For 90% of the time, people are able to find a convenient car parking space in the CBD that is within 5 minute walk to their destination within 2 minutes of looking | New Measure TBA | TBA | • Survey 4 times per year | • Monitoring / Enforcement | • Survey results |
| | Parking spaces are managed in the CBD area to ensure as many people as possible can access them | Car park areas, have clear signage and are well maintained | Data collected and monitored through the internal RFS system | • Maintenance requests are responded to within 7 days | • RFS Systems | • Monthly reporting via Pathways |
| **Value for Money** | Customers believe the transport system provided is good value for money | >57% of respondents indicating that they are very / fairly satisfied | Annual community feedback survey results | • Comply with Councils Procurement Policies/Procedures | • 100% Compliance | • NZTA Procedural Audit |

| Customer Value | Levels of Service | Customer Performance Measure | Measurement Method | Technical Performance Measure | Measurement Method | Performance Measure Procedure |
|---|---|---|---|---|---|---|
| | | | | • Maximise the % available of external funding | • % available per annum | • Annual Funding application to NZTA<br>• Annual budget report |
| | | | | • Fulfil the requirements of the NZTA/FNDC Annual Agreement | • 100% Compliance | |
| | | | | • Achieve -3% / +1% on annual budgets | • 100% Compliance | |
| **Quality** | % of respondents indicating they are very / fairly satisfied | >57% of respondents indicating that they are very / fairly satisfied | Annual community feedback survey results | **OPERATIONAL EXPENDITURE**<br>• Maintenance Contract Audits | • 10% Sealed Roads<br>• 10% Unsealed Roads<br>• % Bridges | • Monthly audit inspections<br>• NRB Communitrak Survey |
| | | | | **CAPITAL IMPROVEMENTS**<br>• Completion of the minor works programme<br>• Sealing urban unsealed roads | • 100% Completion of the three year proegramme | • Annual Report |
| | | | | • Seal widening /upgrades | • 100% Completion of the three year programme | |
| | | | | • Urban safety improvements (intersections, traffic calming) | • 100% Completion of the three year programme | |
| | | | | **RENEWALS**<br>• At least 1.3% (of the network) resealed per annum | • At least 1.3% | • Annual Report |

| Customer Value | Levels of Service | Customer Performance Measure | Measurement Method | Technical Performance Measure | Measurement Method | Performance Measure Procedure |
|---|---|---|---|---|---|---|
| | | | | • At least 9% (of the network) resealed per annum | • At least 9% | |
| | | | | • At least 3 bridge renewals / upgrades undertaken per annum | • At least 3 | |
| **Quality** | % of respondents indicating they are very / fairly satisfied | >58% of respondents indicating that they are very / fairly satisfied | Annual community feedback survey results | • Footpaths are maintained in accordance with maintenance contracts | • 100% Compliance | • Annual Report<br>• NRB Communitrak Survey |
| | | | | • Footpaths are constructed to Council's Engineering Standards | • 100% Compliance | |
| | | | | • Compliance with stipulated response times for RFS via Councils Pathways System | • 95% compared to 2011/12 Baseline | • NRB Customer Satisfaction Survey<br>• Monthly reporting via Pathways<br>• Annual Report by General Manager Roads and Stormwater |
| **Community Programmes** | Customers believe that the transport network is managed sustainably for current and future generations | >55% of respondents indicating that they are very / fairly satisfied | Annual community feedback survey results | • Comply with environmental requirements for Transport projects | • 100% Compliance | • Resource consents applied for where required and tracked |
| | | | | • Consideration given to impacts of Climate Change for new developments (adaption) | • In accordance with Sustainability Strategy (once developed) | |

### 5.3.2 Risks to Delivery of the Levels of Service

**Table 46: Risks to Delivery of the Levels of Service**

| Level of Service | Risk | Likelihood 1 - 3[1] | Consequences 1 - 3 | Action | Priority Yr 1 - 3 |
|---|---|---|---|---|---|
| Reduce the percentage of fatal and serious crashes/year where the road is the contributing factor | Expected loss of life | 3 | 3 | Review the current Safety Management System (SMS). Engineering reports to be completed for fatal or serious accidents as requested. Participation in Road Safety Action Plan and Road Safety Forum | 1, 2, 3 |
| Roads are accessible all year round | Potential threat to life due to emergency services unable to access communities | 2 | 3 | 100% compliance. Following storm events access to be restored in accordance with response time (within 12 hours), or reopened to at least a single lane 90% of the time to isolated communities | 1, 2, 3 |
| The ferry service will run in accordance with the advertised timetable | Potential threat to life due to accessibility to health providers and facilities | 1 | 3 | 95% compliance with the advertised timetable. | 1, 2, 3 |
| % of requests for service (RFS) responded to in set time and to appropriate standard | RFS system fails to alert operational staff of failures in the roading network | 1 | 2 | Respond in accordance with specified timeframes and continual review of RFS procedures | 1, 2, 3 |
| For 90% of the time, people are able to find a convenient car parking space in the CBD that is within 5 minute walk to their destination within 2 minutes of looking | Dissatisfied people not being able to park close to town which could reflect dissatisfaction in the communitrak survey | 2 | 1 | Survey to be undertaken 4 times per year | 2 |
| Parking spaces are managed in the CBD area to ensure as many people as possible can access them | Dissatisfied people not being able to park close to town which could reflect dissatisfaction in the communitrak survey | 2 | 1 | Respond in accordance with specified timeframes | 2 |

[1] 3 – High, 2 – Medium, 1 - Low

| Level of Service | Risk | Likelihood 1 - 3[1] | Consequences 1 - 3 | Action | Priority Yr 1 - 3 |
|---|---|---|---|---|---|
| Customers believe the transport system provided is good value for money | Higher than anticipated capital costs impacting on budgets | 2 | 2 | FNDC tendering process improved to ensure lowest capital costs for new works | 1 |
| | Increase in operational costs beyond expectations | 2 | 2 | Operational procedures are continually reviewed and ensure greatest efficiency | 1, 2, 3 |
| % of respondents indicating that they are very / fairly satisfied as measured by the Communitrak Survey | | | | Evaluating of potential options when renewing or upgrading to minimise costs. Consider all alternatives (innovation). | 1, 2, 3 |
| % of respondents indicating that they are very/fairly satisfied as measured by the Communitrak Survey for Footpaths | | | | Evaluating of potential options when renewing or upgrading to minimise costs. Consider all alternatives (innovation). | 1, 2, 3 |
| Customers believe that the transport network is managed sustainably for current and future generations. | | | | 100% compliance with Council's Procurement Policies/Procedures | 1, 2, 3 |

### 5.3.3 Performance measures looking forward over the 10 yr LTP

The following summary reflects those Levels of Service to be presented in the LTP.

Community Outcome

a safe and healthy district

Develop and maintain a safe and affordable transport network to enable access to, from and within the district.

**ACTIVITY PERFORMANCE INDICATORS**

| KPI Focus | Definition | Performance Measure | Measurement Method | Baseline 2010/11 | Target | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 12/13 | 13/14 | 14/15 | 15/22 |
| Accessibility | Maintain an effective, sustainable, and integrated transport network | [2]The ferry service will run in accordance with the advertised timetable | Contractor compliance reports monitored monthly | 95% | 95% | 95% | 95% | Remains at 95% for the remaining years |
| Accessibility | Maintain an effective, sustainable and integrated transport network | Roads are accessible all year round or access restored within response times | Contractor compliance reports monitored monthly | New | 100% | 100% | 100% | Remains at 100% for the remaining years |
| Maintaining the sealed network | Maintain an effective, sustainable and integrated transport network | At least 9% (approximately 80 km) of the network is resealed per year (subject to NZTA confirmation of funds available) | Annual achievement report from contractor reports | 8% | 9% | 9% | 9% | Remains at 9% for the remaining years |
| Overall satisfaction with the road network | Maintain an effective, sustainable and integrated transport network | Percentage of requests for service (RFS) responded to in set time for the road network | Data collected and monitored through the internal RFS system | 93% | 95% | 95% | 95% | Remains at 95% for the remaining years |
| Overall satisfaction with the road network | Maintain an effective, sustainable and integrated transport network | Percentage satisfied with the roading network | Annual community feedback survey results | 57% | 57% | 57% | 57% | Remains at 57% for the remaining years |

[2] In line with the contractual arrangements "no backlogs" in seasonal peak periods

| KPI Focus | Definition | Performance Measure | Measurement Method | Baseline 2010/11 | Target | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 12/13 | 13/14 | 14/15 | 15/22 |
| Safety bridge renewals | Maintain an effective, sustainable, and integrated transport network | At least 3 bridge renewals / upgrades undertaken per year | Annual achievement report from contractor reports | 0 | 3 | 3 | 3 | Remains at 3 for the remaining years |
| Safety | The district is easy to get around with a safe and well maintained roading network | Reduce the number of fatal and serious crashes per year where the Council roads is the contributing factor | Crash analysis database | 2 fatal and 12 serious accidents | 2 fatal and 12 serious accidents | 2 fatal and 12 serious accidents | 1 fatal and 11 serious accidents | Remains 1 fatal and 11 serious accidents for the remaining years |

Community Outcome

a safe and healthy district All footpaths are safe and functional.

**ACTIVITY PERFORMANCE INDICATORS**

| KPI Focus | Definition | Performance Measure | Measurement Method | Baseline 2010/11 | Target | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | 12/13 | 13/14 | 14/15 | 15/22 |
| Maintain and extend the footpath network as resources permit | Maintain an effective, sustainable, and integrated footpath network | Percentage satisfied with footpaths | Annual community feedback survey results | 57% | 58% | 58% | 58% | Remains at 58% for the remaining years |
| Maintain and extend the footpath network as resources permit | Maintain an effective, sustainable, and integrated footpath network | Renew footpath network by 3km per annum | Data collected and monitored through internal systems | 1.2km | 3km | 3km | 3km | Remains at 3km for the remaining years |

# 6 ASSET MANAGEMENT PLAN ASSUMPTIONS

## 6.1 Assumptions

The following assumptions and confidence levels have been made in preparing this AMP:

- The asset inventory reflects the information recorded in RAMM
- Renewal programmes are based on available condition and performance information and treatment selection programmes from RAMM and field validation
- Assumptions have been made regarding the average useful life and average remaining life of the asset groups
- Levels of Service will remain constant and be reviewed annually or as circumstances dictate
- Council will remain in ownership of the assets
- The 10 year forecasts are based on current maintenance levels
- Council funding approval is required for all work programmes identified in this plan. The timing and scope of the works may differ from that shown in this plan, once the community consultation/engagement cycle(s) has been completed
- An improvement programme for asset management will be undertaken to inform the decision making, the knowledge of assets and customer expectations, and accuracy of financial projections.

## 6.2 Confidence Levels

Confidence in the data presented in this AMP is Medium. This level is based on the accuracy and completeness of the data required to achieve a “Core” AMP as per the requirements of the LGA 2002. The completeness of information varies from asset group to asset group and has triggered improvements that if Council so desires can be implemented over time to achieve the “Advanced” AMP status.

The following Transport Asset Management assumptions have been made in preparing the 10-year expenditure forecasts:

- Minimum remaining useful life (RUL) has been assumed as 5 years.
- Asset information is as complete as possible at 30th June 2011. This is based on the RAMM and asset data.
- Only Transport assets have been valued.
- The determination of asset replacement value, depreciated value, and renewal projections are based on the valuation data as at 30th June 2010.
- All projected expenditure is stated in dollar values as at 1st July 2011.
- Operational costs are largely based on historical expenditure
- Maintenance and operations allocations are largely based on maintaining current service levels.
- Depreciation has been calculated on a straight-line basis.
- Council has internally developed this programme. No formal consultation has been undertaken with the public.
- It is assumed that regulations relating to transport will remain essentially the same over the planning period

# 7 IMPROVEMENT PLAN

The purpose of the Improvement Plan is to:

- Identify and develop implementation of Asset Management (AM) planning processes. This includes:
  - The cycle of AMP monitoring, review, revision and audit to improve the effectiveness of AMP outputs and compliance with audit criteria, legislative requirements, and best appropriate practice
  - The AMP is used to identify service standard options and costs, and the delivery of the adopted service standards is a key objective of asset management planning
  - Identify and prioritise ways to cost-effectively improve the quality of the AM plan
  - Identify indicative time-scales, prioritise, and determine human and financial resources required to achieve AM planning objectives.

The development of this AMP is based on existing levels of service, the best available current information and the knowledge of Council' staff. The development of this plan is part of an ongoing process and the document will be reviewed and updated regularly. This review process involves using improved knowledge of customer expectations (community consultation) and information from Asset Management Systems and databases, enabling Council to optimise decision-making, review outputs, develop strategies, improve risk management and extend the planning horizon.

This section describes:-

- The improvements undertaken since the 2009/10 AMP
- The specific improvements proposed over the next three years.

## 7.1 Improvements to Asset Management Planning

The improvement programme to enhance practices and improve the future level of confidence in the AMP strategies and financial projections is detail in this section.

An improvement plan was included in the 2008/09 Asset Management Plan and identified possible improvements that could have been made to aspects of the plan. The Improvement Plan was derived from gaps identified utilising GHD's TEAMQF (Total Enterprise Asset Management Quality Framework). This process enabled the gaps to be quantified and prioritised within a programme for implementation. The following lists of improvements have been undertaken, or are currently being actioned.

## Table 47: Improvements undertaken since 2008/2009

| Improvement Project/Tasks | Action Taken | Completed |
|---|---|---|
| Review asset effective and remaining useful lives for each asset type | Effective and remaining useful lives reviewed with the annual valuation of the Transportation Assets. | Full valuations completed in 2008/09 and 2009/10 and part valuation completed in 2010/11 |
| Review Unit Rates | Carry out a review of unit rates for the year and look to benchmark against similar organisations | Full valuations completed in 2008/09 and 2009/10 and part valuation completed in 2010/11 |
| Safety | Road Information Sheets in relation to serious and fatal accidents to identify whether or not the road is the significant contributing factor | Ongoing. When a fatal or serious crash occurs, Council's Engineering staff visit the site and write a report determining if the road was a contributing factor. If the road was a contributing factor, it is entered into Council's deficiency database and works are programmed. |
| Street lighting Maintenance Contract | Prepare and issue for tender a street lighting maintenance contract | Contract let in 2010/11 |
| Bridge ownership | Clarify Councils ownership of the bridge stock | Completed as part of Contract 7/11/195 |
| Migrate Footpath Data to RAMM | Assess footpath data and migrate across to RAMM | Completed 2010/11 |
| Review Footpath data | Run a gap analysis of the data, accuracy, completeness | Completed 2010/11 |
| Footpath Attribute Collection | Cary out data collection based on findings above | Completed 2010/11 |
| Condition Assessment | Undertake a condition assessment of the footpath assets | Completed 2010/11 |
| Carpark Attribute Collection | Carry out data collection for footpaths | Completed 2010/11 |
| Risk Management | Review Risk Register | Completed annually, major review done in 2010/11 |
| Levels of Services | Options and Costs and LoS | Completed annually, major review done in 2010/11 |
| Review growth scenarios for the transportation network and evaluate impacts on infrastructure every 3 years prior to the commencement of the LTP review | The Growth Management Strategy was completed in 2006, and the Planning for Growth was completed in 2008. The Growth is currently being reviewed. | Covec completed for Council for 2012/22 LTP |
| Determine future renewal liabilities forecast for 20 years | Pavement Renewal Strategy (PRS) and Bridge Renewal Strategy (BRS) have been developed to assess renewal requirements for the network. In addition the Road Improvement Strategy (RIS) is being reviewed and updated. | Completed. BRS was reviewed and updated in 2011 |
| Develop and implement long-term optimised decision making strategy (renewal, maintenance and development works) and programme | Refer to PRS, BMS and RIS | Ongoing with annual reviews, updates required |
| Develop process for working with customers, regulators and other stakeholders to develop long term strategic planning | Key relationships are developed regionally with the NRC, Whangarei DC, and Kaipara DC. In addition to this FNDC is required to sign an annual agreement with NZTA in relation to the LTP. | Continual development |

| Improvement Project/Tasks | Action Taken | Completed |
|---|---|---|
| Process for evaluating supply of services | Roading & Drainage has developed a procurement strategy in accordance with NZTA's guidelines and framework, | Completed. Adopted by Council in August 2010 |
| Develop a policy for the evaluation of all business risk exposure on an organisation wide basis | A corporate risk register was implemented with key risks from the Roading and Drainage department incorporated and responsibility for actions assigned. | Completed |
| Activity based risk management will be in accordance with the Actions and Monitoring/Reporting as set out in Table 8.3 of the AMP | Risk Tables have been reviewed with 2011/12 AMP. Key risk actions will be incorporated into the corporate register. | Completed |
| Reporting progress and implementing AM improvement plan | Improvements have been worked through since the 2008/09 AMP. No formal reporting structure has been implemented. | Completed |
| Determine which assets warrant the tracking of performance<br>Monitor asset performance and tracking of costs | Performance is tracked on key assets within the network. Pavement performance is the main KPI and this is reported to NZTA. | Ongoing – reported annually |
| Increase accessibility to RAMM by training staff | Staff have access (editing and read only) and have undergone additional training using RAMM | Completed and assessed as and when required |
| Develop process to ensure renewal strategies are identified and funding requirements predicted | Strategies have been developed for Pavements and Bridges, Councils largest asset group. In addition a Road Improvement Strategy is also completed. | Ongoing |
| Kerikeri Basin Footbridge project | This project was constructed following the completion of the Kerikeri Heritage Bypass and was an original condition of receiving 100% Government Subsidy when the Kerikeri Heritage Bypass was Constructed.<br>The 63 metre footbridge crosses the Kerikeri River, and is situated upstream from where the old bridge used to be, it connects the south side of the river where the Mission House and Kemp House is situated to the north side of the river to the DoC reserve area. | Completed December 2009 |
| | Construction of the $1 million or $800 thousand project commenced in July 2009 with the project completed in December 2009. The official opening of the footbridge was held on 21 December 2009. The government fully funded the project through the ministry and through Land Transport NZ. | |
| Pavement Resealing Programme | The current budget has delivered an average of 59.5 kilometres of resurfacing over the last two years, with the Surface Condition Index showing trends that would be expected for a healthy network. The Level of Service target for reseals was 50 km per annum, this has been achieved. The target has been revised with this AMP | Completed annually and reported on in the Annual Report |

| Improvement Project/Tasks | Action Taken | Completed |
|---|---|---|
| Pavement Renewals Programme | Approximately 25 km of sealed pavement renewal have been completed per year for the last two years. Over the last two years more than 11 km of sealed pavement renewal has been undertaken annually via AWPT, with the remainder completed via the Regional Development Programme (RDF). The RDF programme continues to provide an essential element to the ongoing development of roads in the district.<br>The LoS target for pavement renewals (or AWPT) was set at 17 km per annum. Although ambitious, Council has nonetheless achieved, approximately 20 km per annum. The target has been revised to reflect a minimum of 2% of the sealed network requires renewal p.a. | Completed annually and reported on in the Annual Report |
| Seal Extension Programme | Council to identify priority roads for seal extension and undertake detailed investigation to maximise available subsidy from the New Zealand Transport Agency (formerly LTNZ). With the district having a high proportion of unsealed roads with low traffic volumes, few roads meet the requirements. Nonetheless, since 2008/09 Council has added approximately 6 km of seal extensions.<br>The LoS target was to extend the sealed network by 7 km per annum. This has not been achieved due to lack of funding from NZTA and the current economic climate | Completed annually and reported on in the Annual Report |
| Funding | The ability of Council to achieve satisfactory levels of seal extension and renewals is buoyed by the provision of funding via the RDF the Regional Distributed R Fund from NZTA | Completed annually and reported on in the Annual Report |
| Road Safety | The seal extension and pavement renewal programmes are focused on improving road safety. In addition to this, Council has undertaken approximately 60 Minor Safety projects over the past couple of years. These include intersection improvements, geometric improvements, guardrail installation, site benching (improving visibility), and lighting improvements | Completed annually and reported on in the Annual Report |
| Slip Repair | The district has had significant weather events over the past 3 years. Sustained wet weather and flooding lead to slips that cause major disruption to the transport network. Council's contractors mobilise quickly to clear a large number of sites; however in some cases engineered structures such as retaining walls are needed to secure the roads integrity and performance. Over the past three years Council has completed 601 permanent repairs, much of the cost was subsidised through NZTA | Completed and Ongoing |
| Stock Effluent Disposal Site | In partnership with the New Zealand Transport Agency (NZTA), a Stock Effluent Disposal Site was constructed in Pakaraka in June 2011, as part of a national network of such sites to eliminate the impact of stock effluent spills on roads | Completed and opened September 2011 |
| Footpaths | Achieved 3 footpath schemes in the Western ward, 4 footpath schemes in the Eastern ward, 3 footpath schemes in the Northern. Schemes included a mixture of capital and renewal work. | Completed |

## 7.2 2012 Asset Management Review

The management of the transportation activity and associated infrastructure assets is a continual improvement process. The programme reflects the overall objectives for improving asset management practices, and delivering the service at lowest long-term cost to the community. The highest priority improvement tasks focus on:

- The strategic objectives
- Developing levels of service options and costs while consulting with the community to ensure they have input into selecting the best option
- Monitoring and reducing activity risk
- Incorporating growth scenarios for each transportation management area to meet community expectations
- Ongoing improvements of processes and practices that support the activity.

The three-year asset management improvement programme has been developed based on an assessment of asset management practice and the current status of the previous improvement programme. Council' staff have assessed the roading business practices, assessed current practice and set a 3 year target for improvements, dependant on the availability of resources and funding allocation by Council.

### 7.2.1 Improvement Plan Status

Council has initiated the update of the Transportation Asset Management Plan. The current plan is considered to reflect an Intermediate level.

### 7.2.2 2012/2013 – 2014/2015 Improvement Plan

Review of current practices, processes, data and system has identified the following key projects (Tables 48, 49 and 50) that need to be implemented over the next three years. Some of these improvements are already underway and will continue to be progressed during 2012/13.

### 7.2.3 Three Year Improvement Plan

**Table 48: Improvement Plan 2012 / 2013**

| Project No. | Task | Description | Priority | Internal/ External | Dependencies | Costs (Estimate) | Responsibility |
|---|---|---|---|---|---|---|---|
| T 1 | Business Risk | Build a risk evaluation process for the analysis of capital and operational expenditure, monitoring and reporting processes, and linkages to corporate risk profiles. Ensure processes are in place to record, monitor and manage risks. | High | Internal | Resources | | Asset Manager |
| T 2 | Personell Matters | Develop process for the management of knowledge throughout the group/Council (database) | Medium | Internal | Resources | | Asset Manager |
| T 3 | Knowledge of Assets | Develop process for determining assets to collect data on | Low | Internal | Resources | | Asset Manger |
| T 4 | dTIMS implementation for pavements | Determine accurate information for the remaining life of road pavements, and the timing of major renewal works programmes in the future.<br>Review backlogs in the rehabilitation of road pavements, aided by predictive modelling software (dTIMS) which enables better assessment of long-term needs. | High | Internal / External | Resources and Budgets | | Asset Manager |

**Table 49: Improvement Plan 2013 / 2014**

| Project No. | Task | Description | Priority | Internal/ External | Dependencies | Costs (Estimate) | Responsibility |
|---|---|---|---|---|---|---|---|
| T 1 | Asset Maintenance | Create a process that reviews current maintenance activities to ensure an efficient service is being provided and that there is an optimum balance between planned and unplanned maintenance costs | High | Internal | Resources | | Asset Manager |
| T 2 | Strategic Planning – Business Goal Linkages | Develop process to develop links between capital/operating expenditure programmes and business goals | Medium | Internal | Resources | | Asset Manager |
| T 3 | Asset Accounting and Costing | Develop reporting for historical costs by critical assets | Low | Internal | Resources | | Asset Manager |
| T 4 | Asset Mangement Plan | Develop process to ensure consequences of failure if assets are not maintained or renewed | Medium | Internal | Resources | | Asset Manger |

**Table 50: Improvement Plan 2014 / 2015**

| Project No. | Task | Description | Priority | Internal/ External | Dependencies | Costs (Estimate) | Responsibility |
|---|---|---|---|---|---|---|---|
| T 1 | Transport Network Valuation | Undertake a yearly valuation of the transport assets and review of unit rates; and look to benchmark against similar organisations | Medium | External | Funding / Resources | $25,000 | Asset Manager |
| T 2 | Asset Data | Develop a process to capture spatial plans of facilities, geographical data for networks and risk assessment data when | Medium | Internal | Resources | | Asset Manger |
| T 3 | Rationalism and Disposal | Develop a process for rationalising the existing asset portfolio | Low | Internal | Resources | | Asset Manger |
| T 4 | Asset Maintenance / Asset Information Systems | Create process for developing and maintaining maintenance manuals and quality framework | Low | Internal | Resources | | Asset Manger |

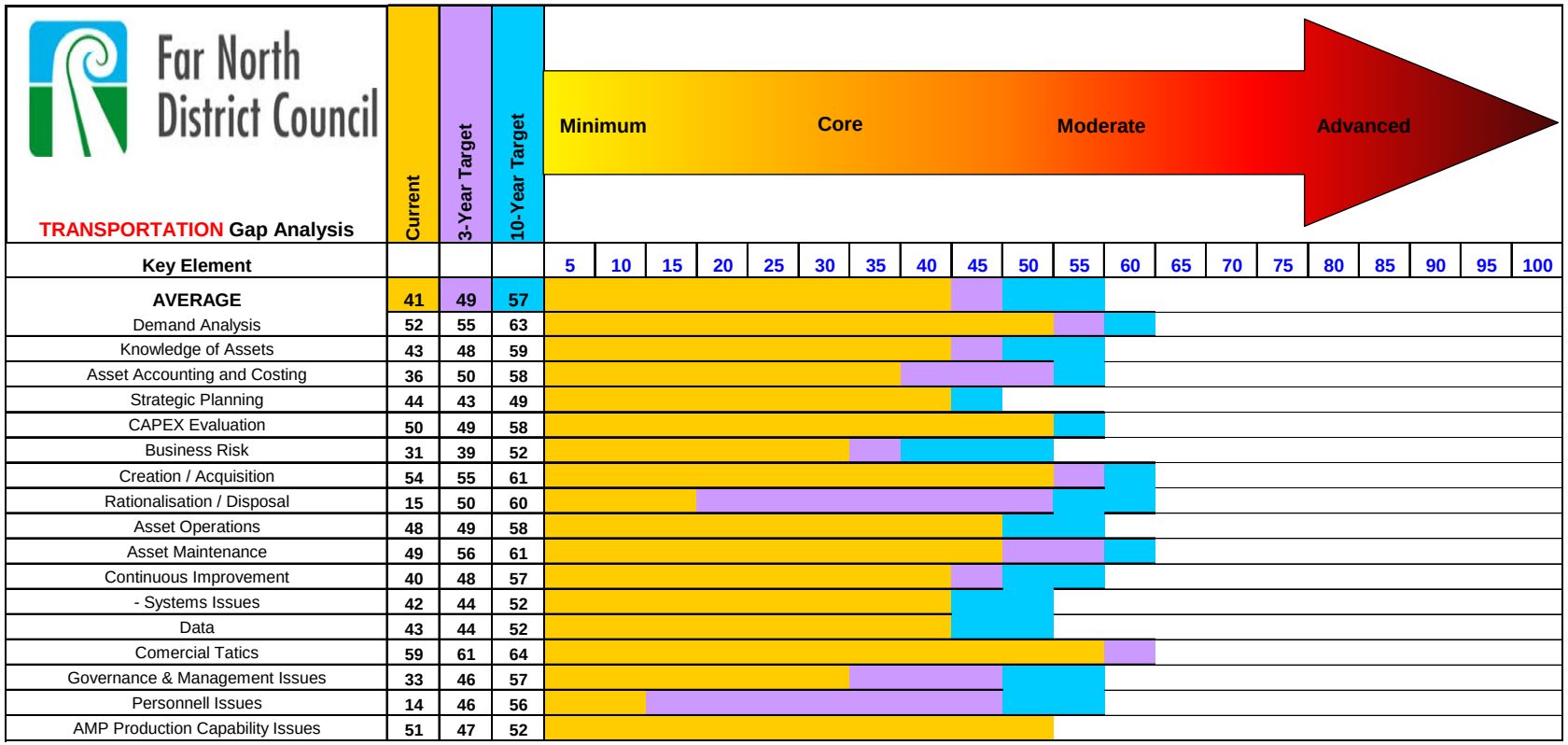
## *IMPROVEMENT PLAN REVIEW*

Council has completed a number of projects and improvements since the previous AMP, and it is important that this level of activity is maintained. It is important to review the Improvement Plan and Council's progress against it on an annual basis. Items may need to move from one year to another or their priority may change.

### 7.2.4 GAP Analysis

A GAP analysis was undertaken for the transport activity and is shown in Figure 29. The analysis indicates that the current AMP falls in the 'core-moderate' area for asset management. It is Council's intent to continue progress to a 'moderate' level over the next ten years. To progress to a higher level would be prohibitively expensive for an activity of this size.

**Figure 29: Transportation GAP Analysis**



# 8 FUTURE DEMAND

The Local Government Act 2002 requires that growth and demand be considered as part of asset management planning to ensure that future requirements are identified and planned for. This will ensure that the needs of individuals, the community and the District can be maintained over the long-term.

This section outlines management options and strategies that Council utilises with regards to growth and demand for transportation infrastructure. The key demand drivers that influence growth and demand are assessed in detail and are investigated. In addition, the impacts and management are assessed with a view to forward planning, ensuring that the needs of individuals, communities, the District and the wider Region contribution can be sustained.

## 8.1 Planning for Growth

The Review of Growth Assumptions (June 2011) document has a review of the growth assumptions used by the Far North District Council for the 2009-2019 LTCCP, and puts forward new assumptions for the 2012-2022 LTP (Appendix D).

### 8.1.1 Overview of Key Demand Drivers

The key demand drivers influencing the growth and the demand on the FNDC's transportation assets are summarised in the sub-sections below:

- Population Considerations
- Residential & Commercial Development
- Primary Industries

### 8.1.2 Population & Development Considerations

#### 8.1.2.1 Population Overview

For further details on Growth, refer to Part B – Corporate Management Section 2.3.9.1.

#### 8.1.2.2 Impacts on the Transportation Activity

The projections displayed in Part B; section 2.3.9.1 is that growth in population will be experienced in the foreseeable future. Increased population can impact on the transportation network in a number of ways.

- An increase in housing and business activity may require new roads (and associated assets) to be developed and vested to Council.
- Existing roads may need to be upgraded, which could involve realignments, the sealing of metal roads or seal extensions (dependant on attraction of subsidy in some cases).
- Potential new routes may need to be investigated to avoid congestion; or new links between communities such as Paihia and Kerikeri.
- Increased pressures on existing services such as increased sailing times associated with the Hokianga Ferry.
- Increased demand for public transport such as buses

### 8.1.3 Residential & Commercial Development

#### 8.1.3.1 Residential Development

For further details on Growth, refer to Covec Report, attached in Appendix D.

#### 8.1.3.2 New Lots

For further details on Growth, refer to Covec Report, attached in Appendix D.

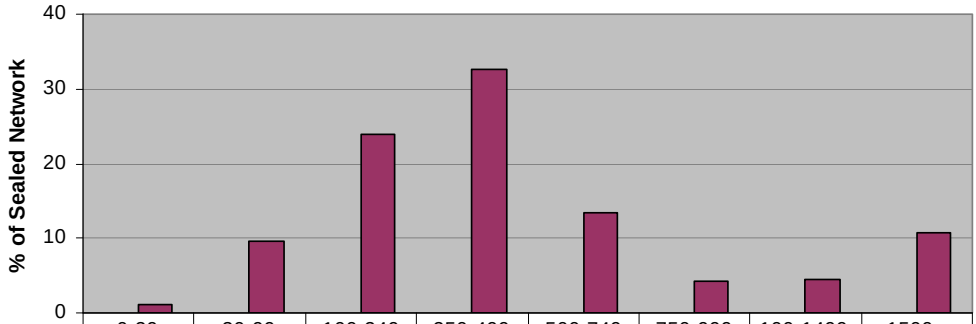
#### 8.1.3.3 Impacts on the Transport Activity

- Increased business development will invariably translate to increased traffic movements
- Increased vehicle loadings in and around commercial/industrial hubs
- Decreased travel time during peak demand periods
- Increased pressure to either complete or extend the seal on some unsealed roads

#### 8.1.3.4 Traffic Demand - Sealed network

FNDC has 876.2 km of sealed roads, 35% of the total network, and carrying 66% of the networks traffic volumes. Figure 30 uses information extracted from FNDC's RAMM (Roading Asset Maintenance Management) database and shows the percentage of the sealed network and its relationship with road use. Around 67.2% of the FNDC's sealed roads carry less than 500 vehicles per day, and only 10.8% of the roads have an AADT (Annual Average Daily Traffic) greater than 1,500 vehicles a day.

**Figure 30: Sealed Network Distribution**



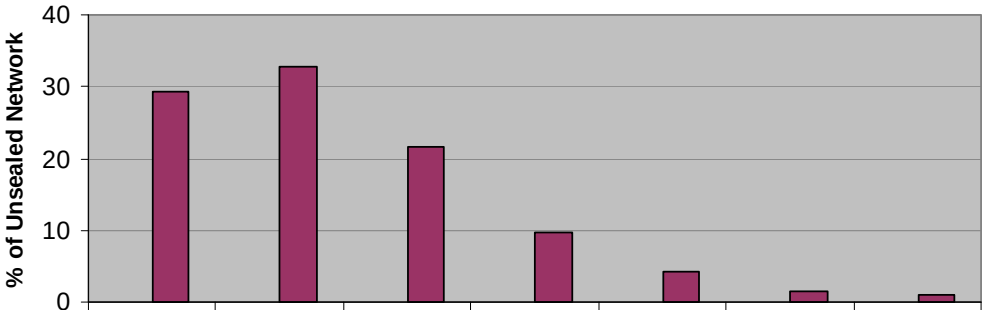

| | 0-29 | 30-99 | 100-249 | 250-499 | 500-749 | 750-999 | 100-1499 | 1500+ |
|---|---|---|---|---|---|---|---|---|
| km | 9.5 | 84.5 | 208.6 | 286.0 | 117.0 | 37.1 | 38.7 | 94.8 |
| % | 1.1 | 9.6 | 23.8 | 32.6 | 13.4 | 4.2 | 4.4 | 10.8 |

**AADT Range**

#### 8.1.3.5 Traffic Demand - Unsealed Network

The remaining 34% of FNDC's traffic volumes are carried on the 1,667 km of unsealed roads; 65% of the total network. The graph below in Figure 31 uses information extracted from the RAMM database and shows the unsealed networks relationship with road use. It can be seen that most of FNDC's unsealed roads carry fewer than 100 vehicles per day; 62.1% of the total unsealed network.

**Figure 31: Unsealed Network Distribution**




| | 0-49 | 50-99 | 100-149 | 150-199 | 200-249 | 250-299 | 300+ |
|---|---|---|---|---|---|---|---|
| km | 489.6 | 545.4 | 359.0 | 161.1 | 69.8 | 23.8 | 18.3 |
| % | 29.4 | 32.7 | 21.5 | 9.7 | 4.2 | 1.4 | 1.1 |

**AADT Range**

From the two graphs in this section it can be seen that the Far North has no general issues with providing a constant level of service relating to carriageway capacity (with the majority of its roads considered as low volume), but it is noted that AADT gives no indication of the seasonal highs, or the volumes of heavy vehicles associated with industry.

### 8.1.3.6 Primary Industries

The Far North environment is dynamic with key industry sectors integral to providing employment and a sustainable economy to communities and the district. Growth projections within these industries places greater pressures to the existing road network and highlight areas that require new or upgraded assets to cater for increased traffic loadings.

This section identifies the key drivers for traffic loading growth within the north:

| | |
|---|---|
| • Forestry | • Agriculture |
| • Tourism | • Aquaculture |
| • Horticulture | |

### 8.1.3.7 Forestry

The volume of forestry wood flow in Northland, including logs and wood products, is forecast to increase from 1.5 million tonnes per year (2002) to 4 million tonnes (2011). This equates to approximately 420 log truck movements per day[3]. Longer-term forecasts predict a second major increase in production after 2030 that will more than double the 2005output levels[4]. Forestry and logging made the largest contribution to growth in the Far North in the year to March 2010 which saw the industry grow by 12.2%[5].

Northport at Marsden Point was developed as a fully functional log export port. Primary and secondary processing of raw logs into finished wood products is presently undertaken at Kaitaia and Kerikeri.

Traffic to the Kaitaia Triboard Mill is relatively localised as the wood product is supplied primarily from the Aupouri and Otangaroa forests.

[3] GHD, Integrated Transport Strategy 2002
[4] FNDC External Environment Overview Review 2001.
[5] Far North Annual Economic Profile 2010

#### 8.1.3.8 Agriculture

The Agriculture industry growth in the Far North for 2009 to 2010 grew by 2.4%[6]. The agricultural industry is expected to grow approximate 4 – 5% annually. The 2 – 3% increase in milk production experienced over the last few years is expected to continue as confidence in the industry continues.

It is unlikely that new milk processing plants would be established outside of Kauri or Maungaturoto. This is based on the assumption that no alternative means of transport of bulk goods would be available. The trend appears to be a minor reduction in available land for dairying or farming in general, however productivity is expected to increase. The number of truck movements is expected to remain relatively stable to coincide with seasonal fluctuations in product. Roads that are in particular need of upgrading with issues such as width, or bridge width/weight restrictions will need to be programmed for future works.

There is potential to lift the farming sectors economic performance 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.

#### 8.1.3.9 Tourism

Tourism is a major economic provider in the Far North and the trend is for continued growth. Traditionally, the Bay of Islands has been the major recipient, however, with the development of the Twin Coast Discovery route, the west coast is also benefiting from increased tourist numbers.

Further to this, The Tourism Flows Model (TFM)[7], funded by the Ministry of Tourism, provides spatial analysis that helps tourism stakeholders understand the impact of tourism growth on publicly provided infrastructure. The majority of travel is undertaken on State Highways, nonetheless, the impacts of increased seasonal flows of traffic generated by the international and domestic market; need to be taken into account. The road flows in Northland get progressively smaller as the distance from Auckland increases. This reflects that a significant proportion of tourism traffic on Northland roads is generated by residents of the Auckland region.

#### 8.1.3.10 Aquaculture

Aquaculture is a growth industry in the Far North; doubling its total turnover in the past decade. There is excellent potential for the expansion of aquaculture due to the favourable growing conditions, existing infrastructure and candidate species based on an established local industry. The Aquaculture industry in Northland has been growing at about 10% per annum. This growth is expected to lead to further employment of approximately 1,300 people and generate a further 700 jobs indirectly (Source: NIWA, Assessment of the Potential for Aquaculture Development in Northland).

The Northland Regional Council has identified 19 potential Aquaculture Management Areas (AMA) for the Northland Region. Final formal designation of AMA will require a change to the Northland Regional Council's Proposed Regional Coastal Plan (Plan Change 4). Submissions have been received in relation to the proposed AMA's and a decision will follow once any hearings are complete. Impacts considered are mainly due to localised traffic or restrictions to main arterial routes.

[6] Far North Annual Economic Profile 2010
[7] The Tourism Flows Model Summary Document, August 2007

### 8.1.3.11 Horticulture

Horticulture production is expected to increase in the District. Areas identified for potential horticulture development are predominantly in Kerikeri and its wider surrounds. Avocados are the largest crop and mandarins have shown significant growth. The area planted in kiwifruit and oranges has declined. Traffic is mainly localised or restricted to main arterial routes. The Far North shifts approximately 2,500 tonnes of avocados between the months of October and January.

### 8.1.3.12 Impacts on the Transport Activity

**Forestry:** As the majority of product for the forestry industry in the Far North is transported by road, the anticipated increase in volumes will have substantial effects on the operation of the road network. The two major issues for Council are the large proportion of unsealed roads and the increasing number of heavy vehicles using the road network. The standard of unsealed roads is such that any increase in heavy vehicles will cause rapid deterioration of the carriageway.

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

There will be continued stock truck movements to the Kaikohe, Broadwood and Peria saleyards from around the District and to the AFFCO plant at Moerewa. However, the majority of the processing will remain outside the Far North.

There will be a minor increase in road transport of milk to factories other than Kauri and Maungaturoto in the peak season and the increase in finished product from Kauri and Maungaturoto will be transported by rail.

Local roads will continue to be impacted by the tanker movements. Council will continue to monitor heavy vehicle usage on known routes and plan maintenance and renewals accordingly.

**Tourism:** A high proportion of visitors to the Far North are “free independent travellers”, which includes tour buses, campervans, and rental cars.

**Aquaculture:** In addition to existing farms, 19 AMAs have been identified as locations for new farms, as long as resource consents are gained.

Although the industry has been on hold, 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. AMA areas include:

- Parengarenga Harbour
- Houhora Harbour
- Mangonui Harbour
- Te Puna Inlet (Bay of Islands)

In addition, there are offshore areas identified for long line fishing that will likely utilise fish processing plants such as Houhora and Mangonui.

**Horticulture**: The annual horticulture production rates do not contribute significantly to cargo movements in the District. Growth will likely translate to an increase in localised truck and vehicle movements but it is not expected to significantly impact on the main routes.

*A copy of the 2010 Annual Economic Profile for the Far North is available at* www.fndc.govt.nz

### 8.1.4 Management Strategies

#### 8.1.4.1 Management Strategies – Population Growth

Council monitors growth in order to better plan for infrastructure requirements. This requires investigating the cultural, social, economic and environmental implications associated with providing the service. The costs of any new services need to spread fairly and equitably between developers, rate payers and Council. In addition, Council will seek to maximise funding available from central government. Development will not occur for developments sake. The willingness and ability of the community to pay will always need to be taken into account with regard to future planning.

#### 8.1.4.2 Management Strategy - Commercial and Residential

Subdivisions and development trends are not expected to have a major effect on the Districts main transport routes for some years as most of the impacts are localised. Some additional traffic will be generated on the main district arterial routes on the weekends and during holiday periods as typically unoccupied properties (holiday homes) are utilised.

Kerikeri, Waipapa and Kaitaia are three areas where commercial development is taking place. The increase in growth causes traffic congestion on the main streets. Management is usually through land use zonings in the District Plan. This determines where commercial/industrial development may take place and the conditions or restrictions placed on the development, including any requirement for service lanes. The use of alternative routes and bypasses is one way to mitigate traffic congestion in built up areas.

#### 8.1.4.3 Kerikeri-Waipapa Strategic Road Network Plan

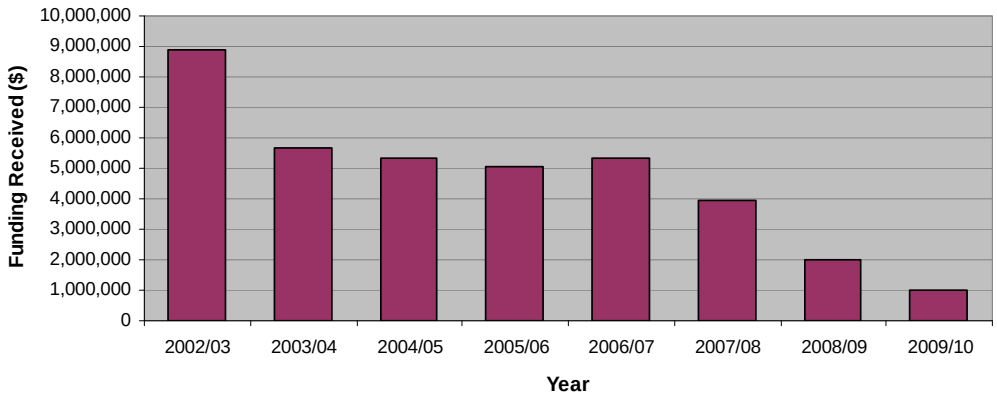
- Provision for walking and cycling facilities within the identified area to connect the Kerikeri and Waipapa centres.
- Provision of a 'Pedestrian Friendly' town centre

#### 8.1.4.4 Management Strategies – Primary Industries

**Forestry:** Collaborative work is being undertaken between the forestry industry, Northland Regional Council, Ministry of Agriculture and Fisheries and AgriQuality to collate a database of harvest intentions. The database contains location of forests, expected harvest dates and routes required for transportation of the logs.

Roads identified as important routes for the forestry industry can request funding under the Regional Development Fund (RDF). RDF was established to encourage regional economic growth via additional investment in wood processing, provide access to forests to facilitate harvesting, improve safety of logging routes and to significantly reduce travel costs. The RDF fund will no longer continue after 2011/12. Figure 32 below shows the funding received from the New Zealand Transport Agency.

## Figure 32: RDF Funding Received by FNDC




Tables 51 to 55 outline the contracts undertaken as part of the RDF programme from 2006/07 to 2010/11.

## Table 51: 2006/07 RDF Programme

| Road Name | Year | Contract No. | Description | Funding |
|---|---|---|---|---|
| Rangiahua | 2006/07 | 7/06/250 | 2 sections RP 1615m – 2075m<br>RP 2620m – 4230m | $474,708 |
| Mangakahia | 2006/07 | 7/07/252 | RP 21531m – 24237m | $1,052,015 |
| Kohukohu | 2006/07 | 7/07/251 | RP 340m – 670m | $1,723,763 |
| Mangamuka | 2006/07 | 7/07/250 | RP 5420m – 6520m<br>RP 9020m – 9680m | $747,123<br>$364,224 |
| West Coast | 2006/07 | 7/03/100 | RP 14400m – 15760m | $500,000 |
| Whangatane Rd | 2006/07 | | | $233,000 |
| **TOTAL** | | | | **$5,094,833** |

## Table 52: 2007/08 RDF Programme

| Road Name | Year | Contract No. | Description | Funding |
|---|---|---|---|---|
| Rangiahua | 2007/08 | 7/08/253 | RP 0m – 800m<br>RP 5560m – 6430m<br>RP 1615m – 2075m | $8,292<br>$406,000<br>$372,219 |
| Mangakahia | 2007/08 | 7/07/252 | RP 26420m – 26730m | $866,000 |
| Mangakahia | 2007/08 | 7/07/252 | RP 21531m – 24237m | $188,985 |
| Mangamuka | 2007/08 | 7/07/250 | RP 5420m – 6520m<br>RP 9020m – 9680m<br>RP 6500m – 7780m | $14,877<br>$90,776<br>$906,000 |
| West Coast | 2007/08 | 7/03/100 | RP 20274m – 21680m | $990,000 |
| Kohukohu | 2007/08 | 7/07/251 | RP 340m – 670m | $80,237 |
| **TOTAL** | | | | **$3,923,386** |

## Table 53: 2008/09 RDF Programme

| Road Name | Year | Contract No. | Description | Funding |
|---|---|---|---|---|
| Kohukohu | 2008/09 | 7/08/251 | RP 13380m – 15120m | $767,834 |
| Mangakahia | | 7/07/252 | RP 26420m – 26730m | $100,000 |
| Mangakahia | 2008/09 | 7/08/254 | RP 19904m – 21366m | $363,999 |
| Mangamuka | | 7/07/250 | RP 6500m – 7780m | $50,000 |
| Mangamuka | 2008/09 | 7/08/250 | RP 1720m – 3260m | $717,291 |
| **TOTAL** | | | | **$1,999,124** |

**Table 54: 2009/10 RDF Programme**

| Road Name | Year | Contract No. | Description | Funding |
|---|---|---|---|---|
| Mangamuka | 2009/10 | 7/09/250 | RP 4650m – 5390m (740m) | $344,164 |
| **TOTAL** | | | | **$344,164** |

**Table 55: 2010/11 RDF Programme**

| Road Name | Year | Contract No. | Description | Funding |
|---|---|---|---|---|
| Kohukohu | 2010/11 | 7/10/251 | RP 16280m – 16800m (520m) | $453,934 |
| Mangamuka | 2010/11 | 7/10/252 | RP 3260m – 4650m (1390m) | $542,955 |
| **TOTAL** | | | | **$996,889** |

#### 8.1.4.5 Development Contributions

The LGA 2002 Section 101 (2) requires councils to have a policy on development contributions or financial contributions. These policies enable councils to collect funds (or land) from developers when the impact of their development creates the need for new or additional assets to accommodate the expected growth. These payments are called Development Contributions.

This Council has adopted a Development Contributions Policy in accordance with the provisions of the Act, allowing the authority to collect contributions for network infrastructure, including roading. The policy sets out the basis of calculation and defines how and when Council collects the contributions.

The current policy was adopted as part of the 2009-2019 Long-Term Council Community Plan and will next be reviewed as part of the 2012-2022 Long-Term Plan.

The policy objective is:

- To ensure that development contributions are obtained for the purpose of meeting the capital expenditure needed for extra demands placed on roading, waterworks, wastewater services, and stormwater services by growth
- To ensure that the costs of providing services or the upgrading of those services as a result of subdivision and development, are met by the subdivider/developer
- To ensure that developers utilise spare growth related capacity that has been built into existing infrastructure and meet the costs for the provision of that capacity
- To assure that the development contributions are fair and equitable, while keeping transaction costs to a minimum
- To provide necessary services to subdivided lots and developments in anticipation of the likely effects of land use activities on those lots and within the developments
- To improve the efficiency and capacity of services
- To enhance sustainable development

## 8.2 Demand Management Plan

Demand management is a broad term, which encompasses the following:

- Transport demand management - a transport system approach which seeks to achieve modal shift (to low impact modes, e.g. cycling).
- Traffic demand management – a single network approach which seeks to optimise or reduce traffic flows.
- Travel demand management – focuses on the individual traveller and seeks to change travel behaviour through various initiatives (e.g. education and marketing tools).

Demand management involves providing people with options for travel other than simply constructing more roading infrastructure. It involves giving people realistic options for making trips, that do not involve using a car, and/or making best use of the road capacity available, including altering the times of day when people choose to make vehicle trips.

Demand management seeks to balance infrastructure for walkers, public transport users and drivers, and to reduce travel demand. For example, demand management initiatives can include measures such as improving the level of mode share for public transport, improving network functionality, upgrading pedestrian and cycle facilities, identifying freight corridors, promoting rural taxi services, integrating transport and land use planning.

Importantly, demand management does not necessarily remove the need to provide more capacity over time, but works together with new infrastructure provision by providing a more sustainable approach to transport.

While some demand management options may reduce the need to travel, or reduce the distances required to make trips, the focus is on providing people with increased choices to 'live, work and play'.

Demand management is more effective if different initiatives are integrated so that together they provide more benefits than if completed in isolation. For example, success in attracting people onto a new bus service is maximised if all-weather bus stops/shelters are provided, the buses have priority at congested points on the route, and marketing is available to promote the service (RLTS 2007).

Changes in technology or the way in which work is contracted can influence asset management practices, tactics and outcomes. Examples include:

- The use of recyclable materials for pavements may reduce the life cycle costs associated with owning and maintaining those assets
- Sign technology and paint materials (long life)
- Lighting technology and energy efficient fittings (LED)
- Procurement strategy - a strategic approach to procurement is essential to ensure best value for money is obtained.

Awareness of change is necessary to most effectively predict future trends and their impact on transport infrastructure assets.

### 8.2.1 Demand Management Strategies

Demand management strategies provide alternatives to the creation of new assets in order to meet demand and looks at ways of modifying customer demands in order that the utilisation of existing assets is maximised and the need for new assets is deferred or reduced.

Continuous demand management is needed to maintain the total demand at reasonable and sustainable levels. The components of demand management are shown below:

| Demand Component | Description |
|---|---|
| Regulation | o Compliance with national standards for pavement development<br>o Compliance with NZ Transport Agency funding requirements<br>o Introduction of Bylaws and Policies |
| Education | o Safety<br>o Walking/School buses<br>o Sustainable transport |

| | |
|---|---|
| Incentives | o Funding to aid in development of significant projects that aid in community/district/regional development |
| Operation | o Ensuring a safe and reliable network<br>o Continual improvements to the network<br>o User charges (where appropriate) |
| Demand Substitution | o Alternative transportation modes (bicycles, public transport)<br>o Traffic controls and parking in main urban areas |

# 9 SUSTAINABILITY

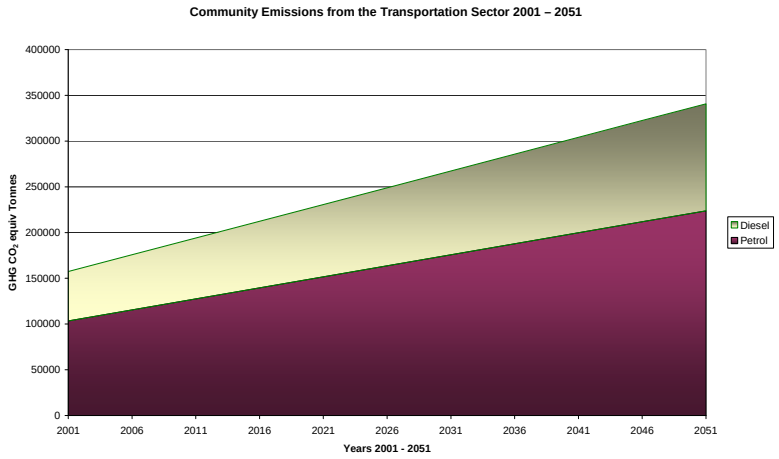
In relation to the Transport AMP the following criteria were taken into account:

- Generic overview of Sustainability refer to Part B
- The effects of Climate Change on the Transport Activity
- Sustainable Service Provision
- Procurement
- Aggregate Supply
- Bitumen Index

**Community Transportation Emissions Profile**

Figure 33 provides an estimate of predicted carbon emissions from the community transport sector up to 2051. As can be seen, a steady increase in the amount of petrol being consumed adds the most to greenhouse gas emissions from the community. This represents a business as usual increase in carbon emissions for the sector from a baseline 2001 level of 157,392 tonnes C02-e through to a final 2051 total of 340,717 C02-e. Disregarding agriculture, this represents the largest overall set of emissions from any sector considered under the Far North District's CCP programme. The near doubling of emissions has wide implications for emissions targets set in the Far North.

**Figure 33: Far North District Community Emissions from the Transportation Sector 2001 – 2051**




It should be highlighted that the figures available for the transportation sector only include those associated with road transport. Air transport and Sea transport emissions are not currently included within the Far North Emissions Inventory under CCP.

**Community Transportation Emissions Reductions**

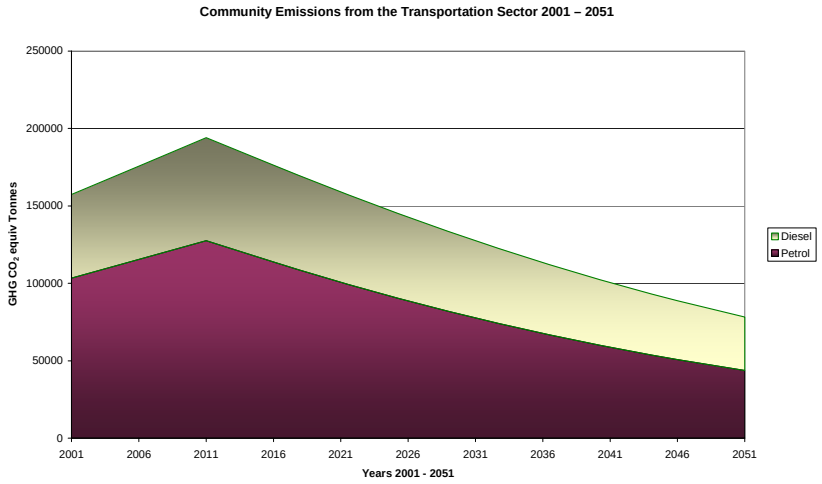
The Government's energy strategy outlines a low carbon scenario to 2050 and indicates many of these variables for reducing transport emissions by over 50% compared to current levels[8]. In addition to the energy strategy, the Government's Transport Strategy (2008) contains a number of significant targets for achieving reductions in emissions from this sector. These include the following[9]:

[8] 2007 New Zealand Energy Strategy pp31
[9] 2008 New Zealand Transport Strategy 2008 pp05

- Halve per capita greenhouse gas emissions from domestic transport by 2040
- Increase coastal shipping's share of inter-regional freight to 30 percent of tonne-kilometres by 2040
- Increase rail's share of freight to 25 percent of tonne-kilometres by 2040
- Become one of the first countries in the world to widely use electric vehicles
- Reduce the kilometres travelled by single occupancy vehicles, in major urban areas on weekdays, by ten percent per capita by 2015 compared to 2007
- Reduce the rated carbon dioxide (CO2) emissions per kilometre of combined average new and used vehicles entering the light vehicle fleet to 170 grams CO2 per kilometre by 2015, with a corresponding reduction in average fuel used per kilometre
- Increase the area of Crown transport land covered with indigenous vegetation.

A range of options for reducing carbon emissions from the transport sector in the Far North District are provided below. Collectively it has been estimated that they achieve an emissions reduction of 4% for petrol and 3% for diesel per annum for the sector. The options outlined have a potential to reduce carbon emissions by a total of 262,422 tonnes C02-e by 2051 compared with a business as usual scenario. This equates to a reduction in emissions of approximately 77% compared with the earlier estimates; see Figure 34. When compared with the baseline year of 2001 (157,392 tonnes C02-e) the options lead to a total reduction of 79,097 tonnes C02-e from the 2001 baseline, representing a 50.25% reduction of carbon emissions by the target date of 2051.

**Figure 34: Far North District Community Emissions from the Transport Sector 2001 - 2051 showing impact of options for emissions reduction**




Suggested options include the following:

- Encourage more home based working by upgrading broadband and providing council based office/corporate facilities such as central meeting rooms and work spaces
- Consider plan changes to encourage intensification of development around existing town centres – amend district plan to provide for medium and high density mixed use development around Kerikeri, Kaikohe, Paihia, Kaitaia and other transport nodes.
- Assist current servicing centres to provide free emissions testing and advice on increasing efficiency of vehicles and driving efficiency
- Encourage greater cycling and walking

**Climate Change**

Key considerations are (a) the impacts from flooding and subsidence associated with more intense rainfall events, and (b) the impact on road infrastructure associated with sea level rise and increased storm surge. This would identify the extent of roads that would be at risk under different sea level rise scenarios, options for re-routing, raising and associated cost/benefit analysis.

**Far North Weather Impacts**

The frequency and severity of climate related events in the Far North is being felt across the district, stretching the resources of emergency services, contractors, Council and the districts population. The impact of these events on transport infrastructure causes disruption to large areas of the network.

At the time of the July 2007 event around 70 Far North roads were closed by various events, and often combinations of events including fallen trees, deep flooding, under and over slips and damaged bridge approaches, during the severe wind and rain event. Most of the road damage was in the northern part of the district. In addition to this, a backlog of works was still being worked through from the May 2006, February 2007 and March 2007 rain events.

Following a prolonged period of rainfall in the 2008 winter, a major event occurred towards the end of July. Hundreds of slips (under/over) were reported mostly requiring immediate response, however approximately 46 sites have been identified as requiring permanent repairs. Again the cost to repair is significant, not only from a funding perspective, but also from the contributing local share.

*Addressing the effects of climate change is most likely to be effective and cost-efficient if it is integrated into local government standard work programmes, rather than planned for in isolation*".

**Sustainability of Service Delivery**

**Procurement**

The New Zealand Transport Agency (NZTA) introduced a new Procurement Support Guide to replace its Competitive Pricing Procedures (CPP) in order to improve procurement practices consistent with the requirements of the Land Transport Management Act (LTMA).

Funded agencies such as Far North District Council will need to demonstrate consideration of:

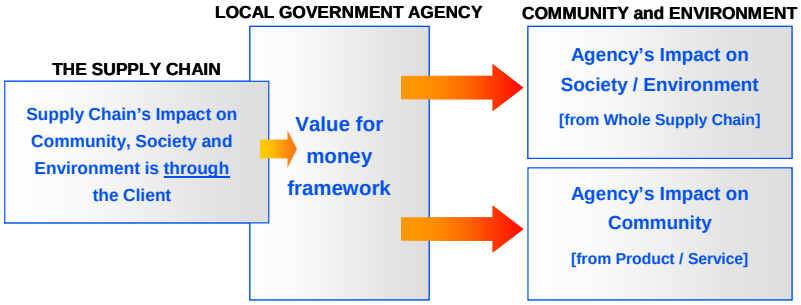
1. A Procurement Strategy
    - Alignment of forward supply and demand, including the acquisition of market resource and commitment

- Understanding market interdependencies and the active management of risk and opportunity
- Robust and efficient prioritisation and decision-making processes

2. A Value-for-Money Framework
   - Whole-life costs assessment
   - Supporting a sustainably competitive market

Figure 35 illustrates that procurement decisions taken by local authorities are accountable for direct and indirect impacts (e.g. sustainability and value) both on the community and on the wider supply chain, underlining the importance of aligning procurement to clear organisational goals over an extended time horizon.

**Figure 35: The Wider Impact of Procurement Decisions**




True value optimisation can be judged by taking holistic account of all factors related to a procurement decision in the extended supply chain, including compliance with specification, innovation, performance, the elimination of waste, and impact on the community.

Far North District Council needs to consider management through procurement in respect of transport asset, to deliver sustainability and value.

- Supply Market Interface
  - Increasing knowledge of the market
  - The exchange of programme information and adoption of collaborative techniques
  - Maximising levels of commitment to the market
- Programme Approach
  - The management of project resource, bundling and sequencing at a higher, 'programme' level, unconstrained by a 12-month budgeting cycle (e.g. managing maintenance in conjunction with asset creation / renewal contracts, or allocating minor works to maintenance agreements)
  - Integration of Capex, Opex and Service Delivery in procurement and asset management processes (e.g. budgeting) to enable management of 'best-for-lifecycle' outcomes
  - Heightening predictability and visibility of the programme
  - Consideration of materials or service supply for products associated with a range of assets or programmes (e.g. piping and trenching works for water as well as roads)

- Bid Evaluation
  - A bid process that is designed to select the most capable supplier as opposed to avoiding the worst (e.g. via a rigorous pre-qualification process that gives weight to past performance, commitment, capability and capacity)
  - The inclusion of 'price-related' factors such as scoring price on schedules of rates and margins and an assessment of event-based cost escalation management, in addition to traditional 'price' and 'non-price' factors
  - Allowing non-conforming tenders in order to capture innovation

**Supply of Aggregate**

A study was carried out into potential aggregate sources for roading projects in the North Hokianga area covering a five year period, initially in 2003 and then reviewed in 2005.

At the time of investigation Hollands Quarry on Runaruna Road was reported to be close to commencement of quarrying operations and was noted as a possible source for subbase aggregates with an estimated available volume of 700,000m3. However, proof through testing would be required to confirm suitability. Bradleys Quarry, located on Broadwood Road had a current consent for operation. The source is not as convenient as Hollands Quarry, with longer haul distances, but higher quality aggregate was a possibility.

River gravels sources were also investigated and are projected to comprise 20% of total aggregate requirements. It is considered that these sources would be best suited to the supply of drainage aggregate and a programme of investigation and trials was recommended to confirm quantities and costs of extraction and processing.

There was found to be no current specification being used specific to the Northland regional roads. It was felt the Transit NZ M/4 specification for basecourse was too strict for the area and that road deterioration was typically due to inadequate thicknesses of aggregate and underlying instability problems rather than unsuitable aggregate. Subbase specifications currently in use have been based on those used in other regions and again are not specific to the Hokianga area and the available aggregate resources. Research into defining a suitable relaxed specification and methods of treatment is recommended to maximise available local aggregate resources.

Projected quantities of aggregates for NZTA projects and by local logging companies will require detailed compilation if supply is not guaranteed through the letting of contracts. This is a key issue for the Far North and the long term sustainability of the roading network, maintaining levels of service, and achieving the specific goals and objectives of the Council.

**Predicting Gravel Loss**

Within the FNDC network there are a total of approximately 8.1 million square metres of unsealed roads. By assuming an annual gravel loss based upon best practice, it is possible to predict an annual metal renewal quantity. Table 56 below shows the consequences of using various average predicted gravel losses for the total unsealed network.

**Table 56: Annual Unsealed Road Metalling Requirements**

| **FNDC Unsealed Roads** | **8.1 million sq.m** | **8.1 million sq.m** | **8.1 million sq.m** |
|---|---|---|---|
| Annual Gravel Loss Scenario | 10 mm | 12 mm | 15 mm |
| **Annual Unsealed Road Metalling Requirement** | **81,000 $m^3$** | **97,200 $m^3$** | **121,500 $m^3$** |

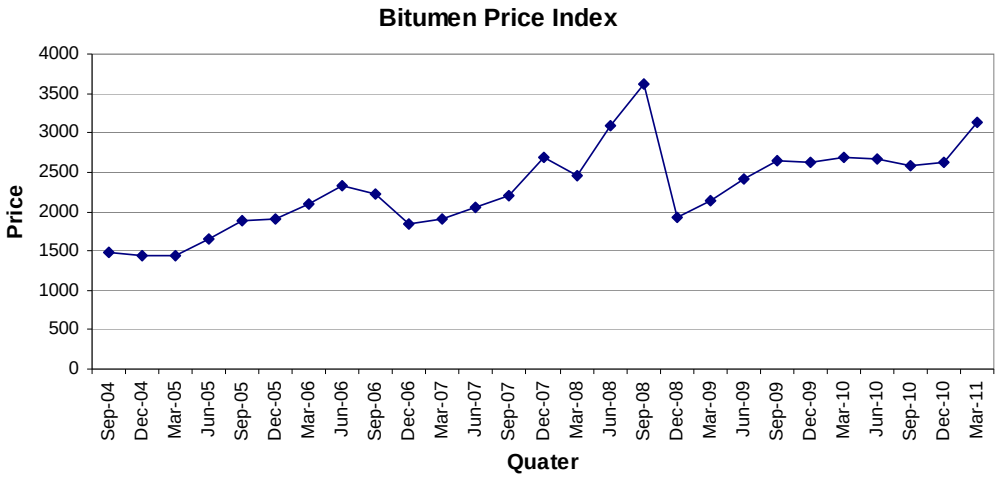
Approximately 12mm of gravel loss per year is currently thought to be occurring on average throughout the Far North network (Note: This does vary widely when considering heavily

trafficked forestry routes to very low volume unsealed no exit roads). Currently, approximately 100,000m3 of metal renewal is being targeted for 2010/11, in line with the predicted loss. This highlights the need for sustainable supplies of aggregate given the length of the unsealed network and the need to maintain appropriate levels of service in alignment with network goals and objectives.

**Bitumen Supply/Price**

Figure 36 indicates the trend in the bitumen price index from October 2004 to March 2011, resulting in a 112% increase in the price index over this period. If this trend continues, then the cost of resurfacing in future years may result in reductions in the length of resurfacing achieved or an increase in the rates.

**Figure 36 : Bitumen Price Index**




**Summary**

This sustainability section has presented a discussion on a number of areas relevant to FNDC. Local authorities are investigating the implementation of incorporating a Sustainability Decision Making Framework into the development of capital works programmes. This is essentially a Quadruple Bottom Line (QBL) / Multi Criteria Analysis (MCA) approach that takes into account the social, cultural, economic and environmental factors but also takes it a step further to weigh up decisions against each other. Potentially, depending on the direction of Council's Sustainability Strategy, currently being researched and developed, an MCA could be a viable decision making tool. Once Council's Sustainability Strategy has been developed, this section will need to be reviewed and aligned to suit.

## 9.1 Provision for effects of failure

Transportation has an Emergency Management Plan which outlines responsibilities from staff and contractors. The contractor's plans are located within the Road Maintenance Contracts.

## 9.2 Business Continuity Plan

For further details on the Business Continuity Plan, refer to Part B - Corporate Management, Section 2.3.10.4.

**Business Interruption Insurance**

For further details on Business Interruption Insurance, refer to Part B - Corporate Management, Section 2.3.10.5.

**Information Technology (IT)**

For further details on Information Technology, refer to Part B - Corporate Management, Section 2.3.10.6.

**Intranet/Internet**

For further details on the Intranet/Internet, refer to Part B - Corporate Management, Section 2.3.10.7.

**Civil Defence Emergency Management**

It has been recognised for some years that emergency management needs to improve its ability to manage these hazards, respond to and recover from disasters, and to better coordinate limited emergency management resources. There is also an unrealistic level of expectation of what can be done for communities in a time of disaster. Communities need to be aware of the hazards and the potential consequences of these so that they are able to appropriately prepare for, respond to, and recover from a hazard event.

For further details on Civil Defence Emergency Management, refer to Part B - Corporate Management, Section 2.3.10.8.

**Lifelines**

Staff from within the roading team attends these meetings, there are 3 per year which discusses forward planning at a regional level for emergency events such as tsunamis, major cyclones and flooding. At these meetings action items are assigned to the working group to progress with over the period until the next meeting.

For further details on Lifelines, refer to Part B - Corporate Management, Section 2.3.10.9.

**Incident Response**

Civil Defence Managers Coordinate Emergency Response within each Council's designated areas of responsibility. Management of emergency events is by the New Zealand Coordinated Incident Management System (CIMS).

# 10 RISK MANAGEMENT

## 10.1 Risk Management Context

### 10.1.1 Overview

This is the third transport-asset specific risk management planning exercise carried out at the Far North District Council. A review of the asset register has been undertaken and in some instances risks have either been removed from the register or the net risk rating has been changed due to current management options being exercised.

The objective of risk management is to identify the specific business risks, together with any possible risks to the health and safety of employees, other contractors and the travelling and general public associated with the ownership and management of the transportation assets. This can be used to determine the direct and indirect costs associated with these risks that can be determined and form a priority-based action plan.

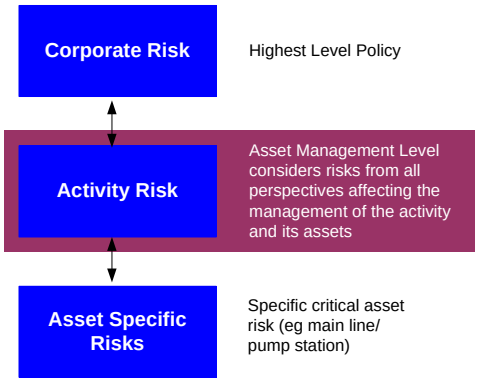
**Putting the Risks into Perspective**

Council' policy and operation cannot influence all the factors contributing to any events. However, actual deaths and injuries, and their effects, are occurring on the roading network. Far North District Council has a responsibility to assess the risks in order to best manage the network with the resources available to avoid and mitigate the effects of any event.

**Level of Risk**

The purpose of a risk plan is to identify the risks associated with the transport activity and assets. This requires approaching the risks from many perspectives including financial, operational, organisational, and public health and safety.

These risks are pertinent to both a higher corporate level and to a more detailed asset – specific level, but do not substitute for more specific risk analysis at those levels (see diagram). The next step is to develop more detailed risk plans where the criticality of specific assets is assessed and an action plan developed as appropriate.




**Corporate Risk**

For further details of Corporate Risk Plan, refer to Part B – Corporate Management, Section 2.3.11.

**Identify All Possible Risks**

A review of the risk register has been undertaken by Roading Engineers and in some instances risks have either been removed from the register or the net risk rating has been changed due to current management options being exercised.

## 10.2 Risk Register

The risk registers provided in the following tables for the current and future transport activities of Far North District Council have been developed in consultation with key staff.

**Table 57: Asset Management Risks – General Risks**

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable. | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Business Continuity** – the ability to attract and/or retain skilled core staff, and ability to maintain services in the event of a major disaster e.g. storm event, pandemic | Organisational | 4 | 5 | **20** | There is a shortage of skilled personnel within the industry and this can impact on areas outside of the major centres. Council's promoting the district as an attractive place to live and work.<br>Pandemic planning to be in place to deal with staff shortages, should it occur. | Fair | 4 | 3 | **12** | Review the recruitment policy, to include scholarships / cadetships (NZCE/BE/Diploma) for graduates and engineering technicians, succession planning; investigate flexibility within individual contracts.<br>Provide suitable office accommodation and improve working environment. |
| **Knowledge management** – the ability to retain knowledge and have sufficient systems (technology) in place to manage data/information due to an ageing workforce and reliance on Consultants is creating large gaps in institutional knowledge | Organisational | 4 | 4 | **16** | Some systems are in place. | Fair | 4 | 3 | **12** | Expand systems and databases to ensure that knowledge is transferred, stored and accessible. Define champions and successors; ensure knowledge is transferred from outside service providers. Develop a coherent succession plan. Written procedures and policies. |
| **Uncertainty around Resource Consents** – outcomes of objections from public and other issues can lead to significant cost increases and time delays | Legislative | 4 | 4 | **16** | Planning development involvement at initial stage, early consultation with affected parties. Monitoring of Consent requirements. | Good | 3 | 3 | **9** | Identify upfront what resource consents are required and develop a framework to ensure all legislative requirements are met. |
| **Public Safety** – accidents causing death or injury as a result of Council activities on roads | Public Safety | 5 | 5 | **25** | Safety systems are in place to minimise risk where possible | Good to Excellent | 4 | 3 | **12** | Regularly review Council's liability and H & S policy. |
| **Natural Hazards** – (slips/flooding/coastal erosion/wind/tsunami) causing damage to assets | Environmental / Operational | 5 | 3 | **15** | Hazard identification and emergency response systems are in place through service delivery contracts. | Good | 3 | 3 | **9** | Carry out a full assessment of potential climate change impacts. |
| **Inferior design and/or construction** – caused by failure to follow agreed Quality Management and Quality Assurance systems | Operational / Legal / Image | 4 | 4 | **16** | Maintenance contract and management in place. Current Practice.<br>Implement Quality Management and Quality Assurance systems to best of ability. | Good | 3 | 3 | **9** | Improve Council's Procurement Policy to put more emphasis on quality outputs. |
| **Inability to fund maintenance and capital requirements** | Operational | 4 | 4 | **16** | NZTA criteria & agreement with Council. Ensure decision makers are aware of funding cuts.<br>Maintain policies in place to maximise service delivery. | Good | 4 | 3 | **12** | Maintain and manage clear lines of communication with key agencies. Manage priorities in the program. Ensure Council is informed of changes to funding for the network. |
| **Formed Roads not in Legal Road Reserve** – costs and resources expended to 'legalise' the corridors for existing roads. | Organisational | 3 | 3 | **9** | Identification of roads not following legal corridors is carried out | Poor | 3 | 3 | **9** | Ensuring surveys identify existing roads that are not in Council Road Reserve.<br>Improve resources to fund legal and land purchase costs. |
| **Cost increases due to External Influences** - causing financial implications, i.e. rising costs (fuel, materials), acts of terrorism impacting on global economies | Financial | 4 | 4 | **16** | Manage budgets according to need. | Good | 3 | 3 | **9** | Continue to manage budgets accordingly. |
| **Other assets in road corridor –** e.g. telecom lines, power lines, water and sewer lines in road corridor, potential to cause damage/injury | Operational | 3 | 3 | **9** | Ensure assets are identified and located on As-Built drawings. | Fair-Good | 3 | 2 | **6** | Continue and improve with current practice. |

| Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable. | Risk Type | Gross Risk (No effective measures in place) | | | Current Practice/Strategy (Avoidance and mitigation measures) | | Net Risk (Considering measures in place) | | | Management Options |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Consequence | Likelihood | Factor | Description | Effectiveness | Consequence | Likelihood | Factor | |
| **Business Continuity** – reliance on electronic stored data and communication systems | Operational | 5 | 2 | **10** | Civil defence generator runs some systems for a minimum period of time | Poor (Limited) | 4 | 2 | **8** | Diversify and expand IT equipment and diversify the communication systems (radio/phone) |

**Table 58: Asset Management Risks – Bridges, Large Culverts, Stock Underpasses and Structures**

| Risk Descriptor – details the main component and provides an example of a risk(s) that may be attributable. | Risk Type | Gross Risk (No effective measures in place) | | | Current Practice/Strategy (Avoidance and mitigation measures) | | Net Risk (Considering measures in place) | | | Management Options |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Consequence | Likelihood | Factor | Description | Effectiveness | Consequence | Likelihood | Factor | |
| **Risk of structural failure due to limited knowledge of bridge load capacity and condition** | Health and Safety | 5 | 4 | **20** | Implemented programme of bridge inspections and structural evaluations. | Fair-Good | 5 | 2 | **10** | Accelerate evaluation programme. |
| **Risk of structural damage –** due to material deterioration over time, overloading, erosion, vehicle damage (terminal ends), ageing stock | Health and Safety | 5 | 4 | **20** | Postings, overweight permit procedure, advertising.<br>Protection of vulnerable bridge ends. | Fair-Good | 5 | 2 | **10** | Identify bridges that may be at risk leading to failure and/or structural damage.<br>Review current capacity of bridges, overweight permit process and communication of requirements.<br>Revision of the Bridge Management Strategy. |
| **Incomplete inventory of bridges on Council's road network** | Operational | 5 | 4 | **20** | Identify the ownership as they are discovered. | Poor | 5 | 3 | **15** | Clarify ownership of bridge/structures; identify all bridges in the district (private or public). |
| **Pedestrians Safety** | Health and Safety | 4 | 3 | **12** | Provide for pedestrians where possible. Limited by funding. | Fair-Good. | 4 | 2 | **8** | Review and improve existing handrail standards and identify at risk areas. |
| **Non compliance with Bridge weight/speed restrictions** –(ignoring or sign down) | Legal / Operational | 4 | 3 | **12** | Regular inspections to ensure appropriate signage are in place. | Good | 3 | 3 | **9** | Upgrade bridges to Class 1 minimum. |

**Table 59: Asset Management Risks – Pavements and Vegetation**

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable. | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Dust Contamination of air and water** - Dust on crops, roof water catchment areas, dust in Stormwater runoff (silt), toxins in dust then stormwater | Public/ Environmental Health | 3 | 5 | **15** | Dust suppression measures where appropriate and stormwater runoff control. | Fair (estimate 80% of VKMs are on sealed roads, 20% of VKMs are on unsealed roads) | 2 | 3 | **6** | Implement appropriate dust suppression measures where required.<br>Further improve road surface and roadside drainage to minimise air and water contamination. |
| **Fatal or serious crashes** – where road factors are significant contributor | Health and safety | 5 | 4 | **20** | Ensure Safety Deficiency database is maintained with safety risks identified and appropriate remedial action taken. | Good | 4 | 3 | **12** | Identify and remedy black spots and implement improvement strategy for identification and monitoring of deficient sites. |
| **Serious injury or death to personnel working on road works** | Health and Safety | 4 | 4 | **16** | Auditing of sites for compliance with Contractor Quality Plans and approval of TTMPs. | Good | 4 | 2 | **8** | Continue and improve with current practice. |
| **Serious injury or death to participants and onlookers at Special Events** | Health and Safety | 4 | 4 | **16** | Encourage organisers to notify Council and submit TTMPs for approval. | Fair to Good | 4 | 2 | **8** | Continue and improve with current practice. |
| **Failure to comply with statutory requirements** | Legal | 3 | 3 | **9** | Quality Assurance plans and programmes in place as funding permits | Poor | 1 | 2 | **2** | Continue to seek additional funds. |
| **Accelerated asset renewal needs due to overloaded vehicles, unexpected heavy vehicle use**, poor construction etc | Operational / Financial | 4 | 4 | **16** | Quality Assurance, heavy vehicle monitoring and maintaining liaison with heavy transport operators | Good | 3 | 3 | **9** | Continue and improve liaison with heavy transport operators. |

**Table 60: Asset Management Risks – Footpaths**

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable. | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Pedestrian tripping or slipping** caused by uneven surface, damage, slippery surface | Public Health | 3 | 3 | **9** | Inspections of high use footpaths in town centres only. Respond to RFS in other areas | Poor | 2 | 3 | **6** | Implement 12-monthly inspection program for the entire network. |
| **Widespread footpath deterioration** caused by lack of funding | Public Health | 3 | 3 | **9** | Reactive renewals as reported by the public or Council officers | Poor | 2 | 3 | **6** | Review of funding allocation based on results from inspection program. Complete inspection program of entire footpath network, then determine appropriate funding allocations (e.g. depreciation). |
| **Widespread footpath deterioration** caused by poor construction | Public Health | 3 | 3 | **9** | Compliance with Councils Engineering Standards and Guidelines. | Good | 2 | 3 | **6** | Review Engineering Standards and Guidelines as appropriate and ensure contracts are appropriately written and refer to these standards. |

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable. | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Widespread footpath deterioration** caused by lack of utilities reinstatements | Public Health | 3 | 3 | **9** | Reinstatements occur if identified via RFS or Council officers. Road opening notices to be used. | Poor | 2 | 3 | **6** | Review Engineering Standards and Guidelines and terms in maintenance standards. |
| **Accessibility issues** for disabled persons/wheelchairs/strollers/walkers/prams/mobility scooters from road parking areas, pedestrian crossings | Public Health | 3 | 3 | **9** | Identify issues via community groups. Typically reactive identification of works. Established communication through a disability forum, which meets quarterly. | Good | 2 | 3 | **6** | Review Council policy for taking bonds, communication protocols and inspections upon completion of works. |

## Table 61: Asset Management Risks – Car Parking

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable. | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Inadequate number** of car parking facilities | Operational | 2 | 3 | **6** | Impose parking restrictions and monitoring. Seasonal monitoring in place in high use areas. Conformance with District Plan rules | Fair | 2 | 3 | **6** | Review car park inventory, number of spaces and Levels of Service annually. Review seasonal monitoring as required. |
| **Inadequate number** of disabled carparks | Operational | 2 | 3 | **6** | Investigate requests and allocate as appropriate when Bylaw is reviewed. | Good | 2 | 2 | **4** | Review car parking bylaw with regard to allocation of disabled parking spaces. For disabled car parks design and assess accessibility as appropriate. |
| **Poorly marked or sign posted carparks** | Operational | 2 | 2 | **4** | Car parks sign posted and are maintained in accordance with the bylaw. | Good | 2 | 2 | **4** | Inspect signage regularly in accordance with the maintenance contract. |
| **Poorly maintained carpark surface** | Operational | 2 | 3 | **6** | Risk of tripping, injury or damage. | Poor | 2 | 3 | **6** | Improve maintenance levels of service. |

## Table 62: Asset Management Risks – Barriers, Road Marking and Signage

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable.<br>**Traffic Facilities and Furniture includes:**<br>**Signs and Markings**<br>**Guard and Site Rails** | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Inadequate road marking** and signage | Health & Safety | 4 | 5 | **20** | Ensure road marking and signage is implemented in accordance with NZ Standards. Install and maintain in accordance with MOTSAM. Day and night audits carried out | Good | 1 | 2 | **2** | Continue and improve with current practice. |
| **Guard Rails and Sight Rails** damaged and or missing | Health and Safety | 4 | 4 | **16** | Routine inspections, Deficiency Database, post Crash Accident Audits | Good | 1 | 2 | **2** | Continue and improve with current practice. |

## Table 63: Asset Management Risks – Street Lighting

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable**.** | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Urban street lighting** | Health and Safety | 3 | 4 | **12** | Lighting installed and maintained in accordance with best practice | Good | 1 | 3 | **3** | Continue and improve with current practice. |
| **Intersection flag lighting** | Health and Safety | 3 | 4 | **12** | Lighting installed and maintained in accordance with best practice | Good | 1 | 3 | **3** | Continue and improve with current practice. |

## Table 64: Asset Management Risks – Road Drainage Facilities

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable.<br>Drainage Facilities include:<br>◗ Cesspits and leads<br>◗ Table drains<br>◗ Culverts<br>◗ Kerb & Channel | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Undersized facilities and blockages -** causing localised flooding, damage to property, potential vehicular accidents (aqua planning) | Health and Safety | 4 | 4 | **16** | Routine network inspections and remedial action as identified. | Fair to Good | 2 | 3 | **6** | Improve contractor performance. |
| **Surface water contamination** | Environmental | 3 | 4 | **12** | Ensure appropriate sediment control and other stormwater runoff measures are implemented | Fair to Good | 3 | 3 | **9** | Continue liaison with NRC to ensure consent conditions remain affordable. |

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable.<br>Drainage Facilities include:<br>◗ Cesspits and leads<br>◗ Table drains<br>◗ Culverts<br>◗ Kerb & Channel | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Damaged/missing/dislodged or surcharging manhole lids** | Operational / Public Health | 5 | 4 | **20** | Complaints, RFS, road maintenance contract | Good | 5 | 3 | **15** | Address when notified as emergency works through RFS system and road maintenance contract.<br>When identified flag in GIS system. Follow developments of LGNZ with regard to the establishment of a national body of guidelines and recommendations for adoption by all TLA's. |

## Table 65: Asset Management Risks – Minor Structures, Retaining Walls and Seawalls

| **Risk Descriptor** – details the main component and provides an example of risk(s) that may be attributable. | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Structural failure** caused by poor design, landslide and vehicle impact. | Environmental / Operational | 4 | 4 | **16** | Design in accordance with appropriate Engineering Standards.<br>Regular inspections, maintenance and renewals are required. | Good | 2 | 2 | **4** | Continue and improve with current practice. |

## Table 66: Asset Management Risks – Quarries

| **Risk Descriptor –** details the main component and provides an example of a risk(s) that may be attributable. | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Security of Council owned sites and Health and Safety –** vandalism, theft of quarry assets, undermining of quarry face, damage or no fencing | Operational / Health & Safety | 4 | 4 | **16** | Inspections of the Quarry sites and maintenance as identified | Fair | 4 | 3 | **12** | Improve security measures and regularity of inspections. Alternatively look at selling the quarries. |
| **Environmental contamination** from tailings and sediment | Environmental | 3 | 4 | **12** | Ensure conditions of resource consents are met | Good | 3 | 2 | **6** | Continue and improve with current practice. |

It should be noted that Councils quarries are not currently operational.

**Table 67: Asset Management Risks – Vehicular Ferry**

| **Risk Descriptor** – details the main component and provides an example of a risk(s) that may be attributable. | **Risk Type** | **Gross Risk (No effective measures in place)** | | | **Current Practice/Strategy (Avoidance and mitigation measures)** | | **Net Risk (Considering measures in place)** | | | **Management Options** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Consequence** | **Likelihood** | **Factor** | **Description** | **Effectiveness** | **Consequence** | **Likelihood** | **Factor** | |
| **Public Liability –** personal injury and damage to private property | Health and Safety, Legal | 5 | 3 | **15** | Manuals, training, experience of staff, ongoing OSH evaluation and assessment | Good | 5 | 2 | **10** | Continue and improve with current practice. |
| **Damage** to Hull and/or propulsion units and/or engine failure | Operational | 4 | 3 | **12** | Ensure that MSA requirements are met at a minimum | Good | 4 | 2 | **8** | Continue and improve with current practice. |
| **Fuel Spillage** | Environmental | 3 | 2 | **6** | Ensure that MSA requirements are met at a minimum | Good | 3 | 1 | **3** | Continue and improve with current practice. |
| **Hull Failure** | Operational, Health and Safety | 4 | 1 | **4** | Programmed inspections and maintenance controlled by MSA | Good | 4 | 1 | **4** | Continue and improve with current practice. |

### 10.2.1 Risk Action Plan

Table 68 is compiled from the Risk Register and highlights the most significant Net Risks faced by the Transport activity. The main risks are listed in order of severity (Net Risk) as assigned in consultation with key Council staff.

Actions required to achieve the desired improvements are indicated along with how these actions will be monitored and reported. Where applicable, action tasks will detail timeframes for achievement, and the responsibility for these actions.

### 10.2.2 Monitor, Measure, Report, Review Plan and Actions

Management options listed in the risk tables have been refined into actions for each risk listed, in order to cost-effectively reduce the net risk by increasing FNDC's ability to minimise the chances of the risk event occurring, or minimising the consequences should it occur.

Actions should reflect the overall management of the asset, not just the minimisation of risk. If possible, proposed actions should align with other initiatives to:

- Reduce capital investment costs.
- Reduce operating and maintenance costs.
- Reduce business risk exposure (BRE).
- Increase effective asset life / value.
- Increase level of service.

The resulting action plan for risk treatment needs to be practical and achievable; such that the necessary resources and time frames are realistically met. The actions need to be monitored and measured.

The monitoring/reporting column of the Risk Action Table (Table 68) specifies:

- **Responsibility:** Nominated person responsible for ensuring the risks are managed and that improvements are carried out in accordance with the programme;
- **Method and Frequency of Monitoring:** The Action Table will be monitored by the Roading Business Unit, but there will be certain actions that are being monitored and reported in other forums. These forums need to specify the actions and the frequency they will be reviewed.

**Table 68: Asset Management Risk Action Plan – Transport**

| No. | Risk Descriptor | Risk Type | Net Risk | Action | Responsibility | Monitoring / Reporting |
|---|---|---|---|---|---|---|
| 1 | **Damaged/missing/dislodged or surcharging manhole lids** | Operational / Public Health | 20 | Address when notified as emergency works through RFS system and road maintenance contracts.<br>When identified flag in GIS system. Follow developments of LGNZ with regard to the establishment of a national body of guidelines and recommendations for adoption by all TLA's. | Roading Business Unit | Reporting through the Maintenance Contractors (monthly) |
| 2 | **Incomplete inventory of bridges on Council's road network** | Operational | 15 | Clarify ownership of bridge/structures; identify all bridges in the district (private or public). | Roading Business Unit | Report to GMT once completed |
| 3 | **Public Safety** – accidents causing death or injury as a result of Council activities on roads | Public / Environmental & Public Health | 12 | Regularly review Council's liability and H & S policy. | Roading Business Unit | Weekly H & S report by contract by Roading Business Unit<br>Quarterly reporting by GMT |
| 4 | **Inability to fund maintenance and capital requirements** | Environmental / Operational | 12 | Maintain and manage clear lines of communication with key agencies. Manage priorities in the program. Ensure Council is informed of changes to funding for the network. | Roading Business Unit | Quarterly reporting by GMT |
| 5 | **Fatal or serious crashes** – where road factors are significant contributor | Operational | 12 | Identify and remedy black spots and implement improvement strategy for identification and monitoring of deficient sites. | Roading Business Unit | Quarterly reporting by GMT |
| 6 | **Security of Council owned sites and Health and Safety –** vandalism, theft of quarry assets, undermining of quarry face, damage or no fencing | Operational | 12 | Improve security measures and regularity of inspections. Alternatively look at selling the quarries. | Roading Business Unit | Quarterly reporting by GMT |

# 11 ROUTINE MAINTENANCE PLAN

Routine maintenance is the regular ongoing day-to-day work necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to become operational.

The short-term maintenance strategy is intended to maintain the current levels of service standards while minimising costs. The long-term maintenance strategy will be modified to reflect the following factors:

- **Risk of failure** – The risk associated with failure of critical assets
- **Levels of service** – Changes in the current or agreed levels of service
- **Economic efficiency** – Asset condition assessment
- **Extend life of the asset component**–Asset improvements and development programme
- **Legislative compliance** – e.g. requirements of resource consents, LGA 2002, NZTA

The following standards are applicable to the operation and maintenance of the roading network. Further detail relating to the individual areas is further broken down below.

**Operations and Maintenance Standards**

Standards in Table 69 are applicable to the operation and maintenance of the roading network.

**Table 69: Operations and Maintenance Standards**

| | |
|---|---|
| • FNDC Operations and Maintenance Contracts | • NZTA Standards and Guidelines |
| • Health and Safety Plans | • Operating and Maintenance Manuals |
| • Traffic Management Plans | • FNDC Safety Management System |
| • Disaster Recovery Plan | • Council's Engineering Standards and Guidelines |
| • Australian Standard (AS) | • Code of Practice for Temporary Traffic Management – TNZ COPTTM |
| • General Specifications – Maintenance TNZ C/1: 1995 | |

**Standard and National Specifications**

Council refers to the relevant documents contained within the Transit New Zealand Standards and Guidelines Manual SP/M/021 Version 2 – August 2005 (Now NZTA). This document contains up-to-date standards and guidelines in current use throughout New Zealand, including international documents.

There are a number of standard specifications with latest amendments which form part of the Road Maintenance Contracts (Refer to Part C General Specifications of the Road Maintenance and Management Contract for further details).

## 11.1 Pavements

### 11.1.1 Maintenance Planning

Routine maintenance is the on-going day to day work activity required to keep assets serviceable and prevent premature deterioration or failure. Two categories of routine maintenance are carried out;

**Unplanned Maintenance:** Work carried out in response to reported problems or defects (e.g., pothole repair)

**Planned Maintenance:** Work carried out to a predetermined schedule or planned in association with other work (e.g., preparation for resealing).

**Pavement Maintenance Planning**

Pavement maintenance provides for the normal care and attention of the roadway to maintain its structural integrity and serviceability. Examples of this work include:

- Pavement patching and repairs;
- Shoulder maintenance, including flanking;
- Routine maintenance and repair of surface water channels and subsoil drainage;
- Renewal or installation of culverts with a diameter less than or equal to 600mm;
- Replacement of wearing and running course metal on unsealed roads;
- Grading of unsealed roads.

Council has three 3+1+1 term road maintenance contracts for all the pavement maintenance activities. These performance based contracts include both routine maintenance items and ordered works where programmes of work are agreed between the Network Manager and the Contractor. Currently the Southern Area Network Maintenance Contractor is Transfield Services Ltd and the Northern Area Network Maintenance Contractor is Fulton Hogan Limited.

**Unsealed Pavement Maintenance**

Council's unsealed roads can be divided into a number of categories - standard unsealed roads (U1, U2, U3 & U4) and those which require a Higher Maintenance Level (HML). *Hierarchy is currently being reviewed by Council.*

HML Roads are chosen for a number of reasons. They may be highly trafficked, have a high percentage of heavy vehicles, or be difficult to maintain. They are at the top of the unsealed hierarchy and are specified to be maintained as "fault-free" roads. Roads are upgraded to HML standard at Council's cost then maintained at that level by the contractor on a km/month basis. These roads must be rolled every time they are graded, with shape and pavement integrity maintained.

The LoS specified for other roads was determined by a working party during the formulation of the maintenance contracts. The group considered all aspects of unsealed maintenance and benchmarked road condition against other districts. The current LoS is deemed to be adequate and is generally being delivered well by the contractors.

A proactive heavy metalling programme is also in place, which targets roads identified as having a higher demand. This is a short-term measure where additional metal is placed to protect a road when there is a likelihood of increased usage or to provide a section of road with an improved shape. Triggered through local knowledge, network inspection and contractor feedback, the heavy metalling programme ensures the unsealed network meets the demand placed upon it by the forestry industry and also helps to support RDF projects.

#### 11.1.1.1 Historical Maintenance Expenditure

Table 70 below summarises the historical maintenance expenditure for the pavement assets since 2005/06.

**Table 70: Historical Maintenance Expenditure for Pavements**

| Year | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|
| Historical Maintenance Expenditure | 4,907,908 | 4,997,731 | 4,141,232 | 4,288,920 | 4,226,487 | 4,359,664 |

### 11.1.1.2 Customer Service Requests and Complaints

**RFS Results 2000-2010**

Figure 37 show the total number of complaints received for sealed surfaces. The types of complaints received are for "vegetation (trees), issues over roadside spraying, potholes and road drainage".

**Figure 37: Total Number of Complaints Received – Sealed Surface**

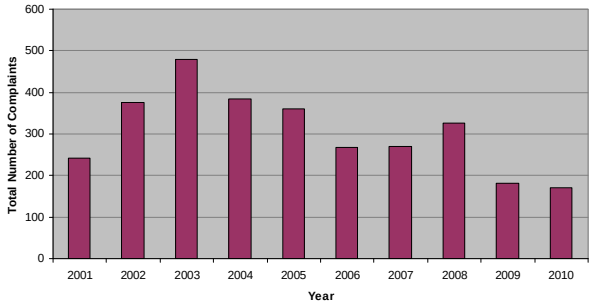



Figure 38 show the total number of complaints received for unsealed surfaces. The types of complaints received are for "potholes, corrugations, lack of metal, narrowness, short culverts, slips, berm vegetation, roadside spraying, road drainage, dust nuisance, requests for seal".

**Figure 38: Total Number of Complaints Received – Unsealed Surface**

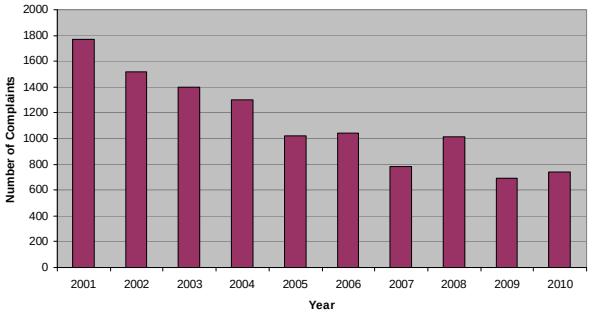



Figure 39 show the total number of complaints received for service lanes. The types of complaints received are for "surfacing failure and potholes".

**Figure 39: Total Number of Complaints Received – Service Lanes**

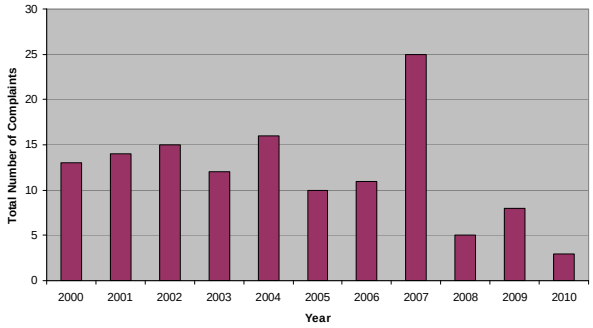
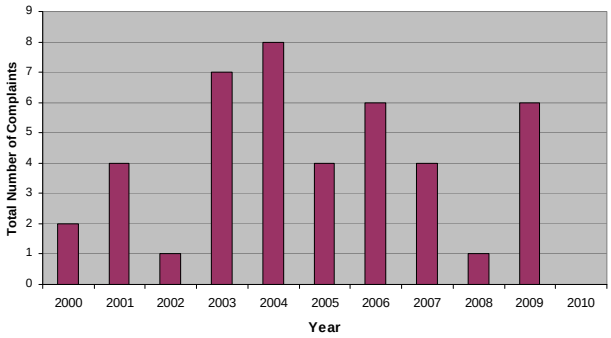



Figure 40 show the total number of complaints received for unformed roads. The types of complaints received are for "legal information, public rights, development of paper roads, determination of who is responsible for maintenance, determining where council maintenance ends, Maori road lines (restricted or unrestricted)".

**Figure 40: Total Number of Complaints Received – Unformed Roads**



#### 11.1.1.3 Maintenance Issues and Strategies

The key operational maintenance issues for pavements are:

- Significant quantities of unsealed pavements are very reactive to weather conditions i.e. dust and corrugations in dry conditions and potholes in wet weather conditions. The strategy to minimise these conditions is to continue improving the unsealed carriageway profile and the proactive use of metal blends, or sealing where justified.
- Council completes a significant quantity of surface water channel clearing and channel formation each year to ensure adequate pavement drainage.

#### 11.1.1.4 Standards and Specifications

Routine cyclic maintenance items will be repaired either as they are identified by the Routine Maintenance Crew or may be recorded and entered on to the Programme Manager's programme for subsequent repair. Items include, pothole repairs, edge break repairs, shoulder maintenance. Through the unsealed network, the routine pavement defect repair works item include identification and repair of potholes, shape defects including corrugations and ruts, and application of aggregate.

In addition to roads these routine items extend to the maintenance of service lanes and carparks.

The following technical standards[10] are applicable for pavement maintenance:

- Repair of potholes - sealed (TS 1)
- Repair of edge break (TS 3)
- Maintenance of unsealed shoulders (TS 5)
- Repair of potholes - unsealed (TS 7)
- Unsealed surface and shape maintenance (TS 9)
- Supply and place maintenance aggregate (TS 10)
- Maintain service lanes and car parks (TS 11)

#### 11.1.1.5 Risk

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network. Pavements are the major component of the network and are subjected to high traffic volumes and heavy loads, which over time can lead to deterioration and eventually asset failure if not effectively managed.

### 11.1.2 Future Maintenance Costs

Table 71 sets out the projected maintenance expenditure for the sealed pavement assets for the next 10 years. Increases shown in this budget are to protect against inflation and market cost increases. 4% escalation has been used. This budget typically is expended and decisions need to be made to reflect increased maintenance costs should the pavement rehabilitation and reseals programmes remain constrained. Particularly dry summers expose the sealed network to excessive cracking. Similarly increased forestry traffic will cause increased deterioration. Uncertainty exists over the timeframe to tender new maintenance contracts and also the possible existence of an amalgamation in 2014/2015 to coincide with the end of the SH network contract.

[10] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

**Table 71: Projected Maintenance Expenditure for Sealed Pavement Maintenance**

| Maintenance Category | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sealed Pavement Maintenance | 1,651,223 | 1,717,649 | 1,786,732 | 1,970,647 | 2,049,480 | 2,131,466 | 2,216,781 | 2,305,424 | 2,397,571 | 2,493,397 |
| Pre-seal Repairs | 441,120 | 458,765 | 477,116 | 526,453 | 547,513 | 569,416 | 592,207 | 615,888 | 640,505 | 666,104 |
| Other Pavement Maintenance | 9,425 | 9,425 | 9,425 | 11,249 | 11,699 | 12,167 | 12,654 | 13,160 | 13,686 | 14,233 |
| **TOTAL** | **2,101,768** | **2,185,839** | **2,273,273** | **2,508,349** | **2,608,692** | **2,713,049** | **2,821,642** | **2,934,472** | **3,051,762** | **3,173,734** |

Table 72 sets out the projected maintenance expenditure for the unsealed pavement assets for the next 10 years. A decrease is shown in this budget from 2012/2013 of approximately $270,000. Partially to offset an increase in expenditure in other maintenance line items such as Environmental Maintenance, but to also drive more efficient maintenance outcomes against the desired levels of service. 4% escalation has been used. Uncertainty exists over the timeframe to tender new maintenance contracts and also the possible existence of an amalgamation in 2014/2015 to coincide with the end of the SH network contract.

**Table 72: Projected Maintenance Expenditure for Unsealed Pavement Maintenance**

| Maintenance Category | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Grading Unsealed Roads | 785,000 | 814,869 | 847,464 | 883,047 | 918,372 | 955,110 | 993,339 | 1,033,060 | 1,074,351 | 1,117,291 |
| Other Pavement Maintenance | 1,215,000 | 1,265,131 | 1,294,936 | 1,366,754 | 1,421,429 | 1,478,291 | 1,537,461 | 1,598,940 | 1,662,849 | 1,729,310 |
| **TOTAL** | **2,000,000** | **2,080,000** | **2,142,400** | **2,249,801** | **2,339,801** | **2,433,401** | **2,530,800** | **2,632,000** | **2,737,200** | **2,846,601** |

## 11.2 Waitangi Trust Road – Special Purpose Road

### 11.2.1 Maintenance Planning

The Special Purpose Road is included in the Far North District Council's Eastern Road Maintenance Contract. Council ensures value for money for this road by including it with the main term maintenance contracts to achieve economy of scale at local road network rates.

#### 11.2.1.1 Historical Maintenance Expenditure

Table 73 below summarises the historical maintenance expenditure for the Waitangi Trust Road (SPR) since 2008/09.

**Table 73: Historical Maintenance Expenditure for Waitangi Trust Road**

| Year | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|
| **Historical Maintenance Expenditure** | 11,724 | 3,376 | 22,642 |

### 11.2.2 Future Maintenance Costs

Table 74 sets out the projected maintenance expenditure for the Waitangi Trust Road (SPR) for the next 10 years.

**Table 74: Projected Maintenance Expenditure for Waitangi Trust Road**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Mtce & Ops** | 14,500 | 14,000 | 14,000 | 14,560 | 15,143 | 15,749 | 16,379 | 17,034 | 17,715 | 18,423 |

## 11.3 Bridges and Large Culverts

### 11.3.1 Maintenance Planning

Bridges are inspected and assessed for faults in accordance with the Transit New Zealand Bridge Inspection and Maintenance Manual. Items requiring remedial work are categorised relative to the non-compliance being attributed to either a routine maintenance item or to defects that compromise the structural integrity of the bridge.

Minor maintenance items are quantified and prioritised for the maintenance contractor to programme as routine bridge maintenance work. Comprehensive structural investigations are undertaken by appropriately qualified engineers to determine remedial requirements on any bridge identified for further analysis.

Repair treatments and priorities are determined by considering the impact on the following:

- Public safety
- Future costs if the work is not undertaken
- Traffic movement
- Asset life

The most recent general inspection results have highlighted a significant number of bridges in need of urgent repair and requiring routine maintenance for:

| | |
|---|---|
| • Deck cleaning | • Pothole repairs |
| • Vegetation removal | • Signs maintenance |

A number of generic faults were highlighted during the general inspections. Programmes are developed to complete the appropriate actions. These faults include:

| | |
|---|---|
| • Signs of corrosion on steel beams | • Localised and general scour |
| • Concrete cracking and spalling | • Deterioration in timber components |
| • Expansion joint problems | • Handrail and guardrail repairs |
| • Potholes in bridge approaches | • Severe corrosion of large steel culverts |

#### 11.3.1.1 Historical Maintenance Expenditure

Table 75 summarises the historical maintenance expenditure for the bridge assets since 2005/06. The figures include retaining walls' maintenance which could not be split out for this exercise.

**Table 75: Historical Maintenance Expenditure for Bridges**

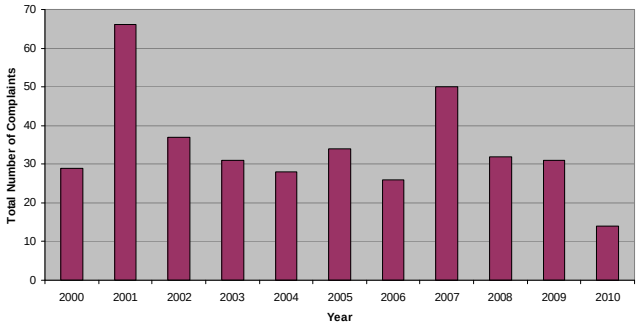
| Year | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|
| Historical Maintenance Expenditure | 400,411 | 301,182 | 361,373 | 428,480 | 530,078 | 579,848 |

### 11.3.1.2 Customer Service Requests and Complaints

**Figure 41: Total Number of Complaints Received - Bridges**

**RFS Results 2000-2010**

Figure 41 show the total number of complaints received for bridges. The types of complaints received are for "weight restrictions, flooding, ownership and responsibility for maintenance".




### 11.3.1.3 Standards and Specifications

The routine maintenance includes the cleaning of bridge decks, and drainage systems to remove detritus and loose aggregate from the approaches and decks, and the refitting cleaning, cleaning and painting of sight rails and guardrails across the district.

The following technical standards are applicable for bridge maintenance:

- Bridge maintenance (TS 13)[11]
- Transit New Zealand Bridge Inspection and Maintenance Manual SP/M/022

### 11.3.1.4 Risk

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network. Bridges are major components of the network and like pavements are subjected to stresses from traffic volumes and heavy loads, which over time can lead to deterioration and eventually asset failure if not effectively managed. In addition to traffic volumes and heavy loads, there are a number of risk descriptors that contribute to the overall risk profile for bridges and include environmental, operational, and structural.

## 11.3.2 Future Maintenance Costs

Table 76 sets out the projected maintenance expenditure for the bridge assets for the next 10 years. Initial increases are to protect against inflation and market cost increases, a 4% escalation has been used as a base. A backlog exists of concrete repair works that will require additional funding.

**Table 76: Projected Maintenance Expenditure for Bridges**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Structural Maintenance Bridges** | 500,000 | 520,000 | 540,800 | 562,450 | 584,950 | 608,350 | 632,700 | 658,000 | 684,300 | 711,650 |

[11] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

## 11.4 Footpaths

### 11.4.1 Maintenance Planning

Regular monitoring of the districts footpaths takes place to provide for an appropriate level of maintenance. There is an element of reactive maintenance that includes:

- Responding to public enquiries or RFS
- Maintenance to footpaths that pose a significant risk to public health and safety
- Footpath grinding is undertaken on a town-by-town basis to reduce identified trip hazards
- Vegetation control o(over hanging edge trimming)

#### 11.4.1.1 Historical Maintenance Expenditure

Table 77 summaries the historical maintenance expenditure for the footpath assets since 2005/06.

**Table 77: Historical Maintenance Expenditure for Footpaths**

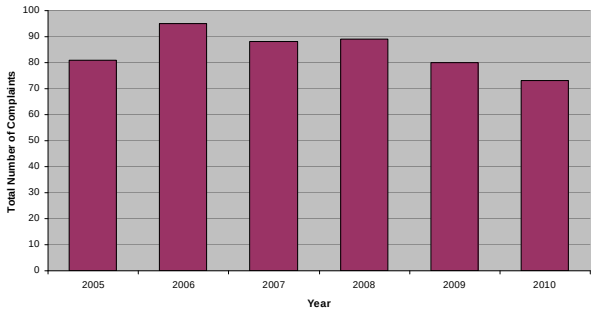
| Year | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|
| Historical Maintenance Expenditure | 89,522 | 208,903 | 234,961 | 274,658 | 175,821 | 179,832 |

#### 11.4.1.2 Customer Service Requests and Complaints

**RFS Results 2000-2010**

Figure 42 show the total number of complaints received for footpaths. The types of complaints received are for “faults e.g. trip hazards”.

**Figure 42: Total Number of Complaints Received - Footpaths**




#### 11.4.1.3 Standards and Specifications

Footpath specifications are primarily the Council’s Engineering Standards and Guidelines; aligned to NZS 4404.

#### 11.4.1.4 Risk

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network. Footpaths are the primary pedestrian surface and as such present risks that are potentially harmful to human health from uneven or slippery surfaces causing trips, slips and falls.

### 11.4.2 Future Maintenance Costs

The maintenance expenditure to maintain the delivery of the defined levels of service, include:

- Expected planned maintenance work requirements.
- Unplanned maintenance (responsive) currently undertaken
- Planned inspections and preventative maintenance
- 3 yearly review of network to confirm accuracy of information in RAMM

Table 78 sets out the projected maintenance expenditure for the footpaths assets for the next 10 years.

**Table 78: Projected Maintenance Expenditure for Footpaths**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Maintenance | 224,240 | 229,729 | 238,816 | 245,134 | 255,566 | 262,319 | 272,967 | 279,927 | 290,011 | 300,162 |

## 11.5 Car Parks

### 11.5.1 Maintenance Planning

Car park maintenance is carried out by Councils Northern, Eastern and Western Maintenance contractors as per the conditions of the contract. Regular audits are carried out by the Network Manager to ensure that appropriate maintenance is being carried out to the standards required. There is an element of reactive maintenance that includes:

- Responding to public enquiries or RFS
- Maintenance to car parks that are damaged, including signage and markings
- Trends (i.e. spending, complaints) and issues Standards and Specifications

#### 11.5.1.1 Historical Maintenance Expenditure

Table 79 summaries the historical maintenance expenditure for the car park assets since 2005/06.

**Table 79: Historical Maintenance Expenditure for Car parks**

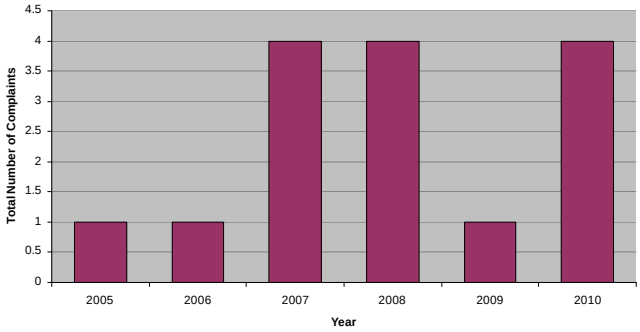
| Year | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|
| Historical Maintenance Expenditure | 13,352 | 13,053 | 17,077 | 15,346 | 8,888 | 11,597 |

#### 11.5.1.2 Customer Service Requests and Complaints

**FS Results 2000-2010**

Figure 43 show the total number of complaints received for car parks. The types of complaints received are for “surface failures and markings”.

**Figure 43: Total Number of Complaints Received – Car Parks**




#### 11.5.1.3 Standards and Specifications

In addition to road pavements above, the following technical standards[12] are referred to for car park maintenance:

- Maintain service lanes and car parks (TS 11)

[12] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

#### 11.5.1.4 Risk

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network. Car parks are subject to a variety of loads and external complications, including environmental factors that contribute to the overall risk profile. Risk descriptors for car parks include inadequate numbers of both able and disabled spaces and environmental factors associated with dust nuisance in unsealed areas and surface water contamination.

### 11.5.2 Future Maintenance Costs

The maintenance expenditure to maintain the delivery of the defined levels of service, include:-

- Expected planned maintenance work requirements
- The nature, incidence and cost of unplanned maintenance currently undertaken
- Planned inspections and preventative maintenance
- Preparing policies and studies
- Managing assets to desired levels of service.

Table 80 sets out the projected maintenance expenditure for the car park assets for the next 10 years.

**Table 80: Projected Maintenance Expenditure for Car Parks**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Car Park Mtce | 47,425 | 49,147 | 50,508 | 52,225 | 54,276 | 55,886 | 57,731 | 59,886 | 62,043 | 64,215 |

## 11.6 Traffic Services

### 11.6.1 Maintenance Planning

Sign and rail maintenance and road marking are undertaken as part of the roading maintenance contracts. These assets are routinely inspected and audited.

Many sites and routes have had improvements to road markings, signage and railing over the last few years, triggered by crash reduction studies. Although these safety improvements have been very positive, the traffic services budget allocations are insufficient to provide for the ongoing maintenance and renewal of these assets, i.e.:

- Higher grade signage which is costly to renew
- More road marking and a higher amount of reflective beads and RRPMs
- More sight rails and guard rails to maintain and repair.

From a maintenance allocation perspective, funding for these assets is covered by the Traffic Services category under NZTA.

#### 11.6.1.1 Historical Maintenance Expenditure

Table 81 summarises the historical maintenance expenditure for traffic services since 2008/09. These historical figures include street lighting maintenance and operation.

**Table 81: Historical Maintenance Expenditure for Traffic Facilities**

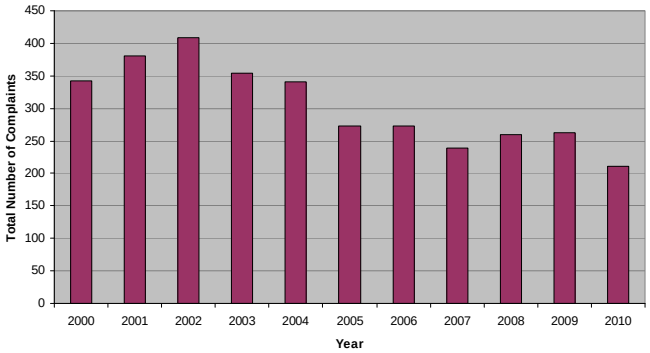
| Year | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|
| Historical Maintenance Expenditure | 1,179,350 | 1,338,936 | 1,358,100 |

### 11.6.1.2 Customer Service Requests and Complaints

**RFS Results 2000-2010**

Figure 44 show the total number of complaints received for signs, markings, and barriers. The types of complaints received are for "missing signs, graffitied signs, and requests for new signs".

**Figure 44: Total Number of Complaints Received – Signs, Markings, Barriers**




### 11.6.1.3 Standards and Specifications

The routine maintenance includes the refitting, cleaning and painting of sight rails and guardrails; cleaning, straightening, re-erecting sign posts and edge marker posts; and the clearing of vegetation obscuring any signs.

The following technical standards[13] are referred to for traffic facilities:

- Sight rails and guardrails (TS 12)
- Traffic signs (TS 18)

The following technical standards[14] are referred to for road marking:

- Road Marking Paint – white, yellow colours (TNZ M/7)
- Raised Pavement Markers (TNZ M/12)
- Painted Pavement Marking (TNZ P/12)
- Installation of Raised Pavement Markers (TNZ P/14)
- Road Marking Paint Applicator Testing (TNZ T/8)
- Guidelines for High Capacity Highways and Manual of Traffic Marking and Signs ((TNZ)

### 11.6.1.4 Risks

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network. Risks associated with Traffic Services include damage by vandalism or via vehicle contact (accident). The risk profile also incorporates operational risks such as a lack of maintenance or non-compliance with Council's Engineering Standards and Guidelines.

## 11.6.2 Future Maintenance Costs

Table 82 sets out the projected maintenance expenditure for traffic services for the next 10 years. The typical inflation and market protection escalations have been applied to the above budgets. The annual roading re-mark is subject to change depending on the outcome of trials using long life paint, network decisions and whether or not a new contract is tendered in the near future. Allowance is made for maintenance of State Highway signage located on local roads as outlined in the Memorandum of Understanding (MoU).

[13] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail
[14] Refer to the Road Marking Contract 7/06/107

**Table 82: Projected Maintenance Expenditure for Traffic Services**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Services Maintenance | 250,277 | 260,289 | 270,705 | 345,260 | 359,072 | 373,436 | 388,383 | 403,913 | 420,058 | 436,846 |
| Roadmarking Operations | 374,842 | 389,836 | 405,429 | 517,094 | 537,780 | 559,293 | 581,679 | 604,939 | 629,118 | 654,263 |
| **TOTAL** | **625,119** | **650,125** | **676,134** | **862,354** | **896,852** | **932,729** | **970,062** | **1,008,852** | **1,049,176** | **1,091,109** |

The figures above exclude the street lighting maintenance costs as this is covered under the future maintenance costs for street lighting.

## 11.7 Street Lighting

### 11.7.1 Maintenance Planning

The Street light Maintenance Contract 2010-2013 has been compared with the previous streetlight inventory available from Top Energy and is now held in RAMM accurately reflecting assets in the network.

The maintenance contract includes the following:

- Cleaning of diffusers to ensure full output from luminaries (lanterns)
- That all seals are effective
- That luminaries are securely fixed and supported
- That all columns are perpendicular and structural integrity is sound
- That all supports arms are securely anchored
- That all electrical mechanisms are installed and safe
- That all lanterns are being progressively replaced in a systematic manner.

All maintenance work must comply with the Electricity Act 1993 and Electricity Regulations 1993.

#### 11.7.1.1 Historical Maintenance Expenditure

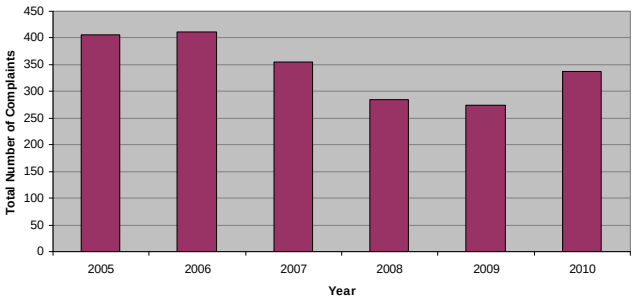
The historical maintenance expenditure for street lighting has not been easily identified, as costs have been taken out of Traffic Services (above). This will change going forward and have been separated out for the 2012/2022 LTP.

#### 11.7.1.2 Customer Service Requests and Complaints

**RFS Results 2005-2010**

Figure 45 show the total number of complaints received for street lighting. The types of complaints received are for "lights not working and requests for new/additional lights".

**Figure 45: Total Number of Complaints Received – Street Lighting**




#### 11.7.1.3 Standards and Specifications

Street lighting design is based on NZS 1158.1.3: 1997, which sets out the following lighting standards for light intensity:

- Arterial Roads 9 lux
- Collector Roads 6 lux
- Local Roads Specification sub-standard

A significant proportion of the District does not meet the standards above.

#### 11.7.1.4 Risk

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network. Risks associated with Street Lighting include the lack of lighting caused by funding issues, maintenance issues and damage by an external party such as vandalism or vehicle contact.

### 11.7.2 Future Maintenance Costs

Table 83 sets out the projected maintenance expenditure for the street lighting assets for the next 10 years. The typical inflation and market protection escalations have been applied to the above budgets. The streetlight inventory is assumed to remain static.

**Table 83: Projected Maintenance Expenditure for Street Lighting**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Street lighting Maintenance | 227,110 | 236,193 | 245,641 | 313,298 | 325,831 | 338,866 | 352,429 | 366,522 | 381,172 | 396,406 |
| Power Supply | 419,450 | 436,237 | 453,684 | 471,839 | 490,715 | 510,345 | 530,772 | 551,996 | 574,059 | 597,003 |
| **TOTAL** | **646,560** | **672,430** | **699,325** | **785,137** | **816,546** | **849,211** | **883,201** | **918,518** | **955,231** | **993,409** |

Maintenance of street lighting is funded from the Traffic Services Maintenance work category, which also funds Signage, Road Marking etc (covered under Traffic Facilities).

## 11.8 Drainage Facilities

### 11.8.1 Maintenance Planning

The majority of the drainage facilities maintenance is completed through Council's Road Network and Maintenance Management Contracts. There are two main funding categories that apply to this work:

**General Road Maintenance**

This provides for the normal care and attention of the roadway to maintain its structural integrity and serviceability.

- Routine maintenance and repair of surface water channels and subsoil drainage is an example of qualifying drainage facilities work;

**Major Drainage Control**

The major drainage control category provides for drainage work, which is not routine but can be clearly demonstrated to reduce future costs. Examples of qualifying drainage facilities work include:

- Repair and replacement of kerb and channel, provided that the deterioration is likely to adversely affect the performance of the pavement; and
- Installation of water channels, subsoil drainage, or kerb and channel where it is necessary to protect the pavement.

Maintenance standards are detailed in Council's Road Maintenance and Management Contracts. It should be noted that a proportion of funding from pavement maintenance is also utilised for drainage facilities maintenance.

### 11.8.1.1 Historical Maintenance Expenditure

Table 84 summaries the historical maintenance expenditure for the drainage assets since 2007/08.

**Table 84: Historical Maintenance Expenditure for Drainage Facilities**

| Year | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|
| Historical Maintenance Expenditure | 861,310 | 887,860 | 894,768 | 937,910 |

### 11.8.1.2 Customer Service Requests and Complaints

**RFS Results 2005-2010**

Figure 46 show the total number of complaints received for rural drainage. The types of complaints received are for "flooding of roads, runoff from roads to private property, scouring of outlet drains, blocked culverts, undersized culverts".

**Figure 46: Total Number of Complaints Received – Rural Drainage**

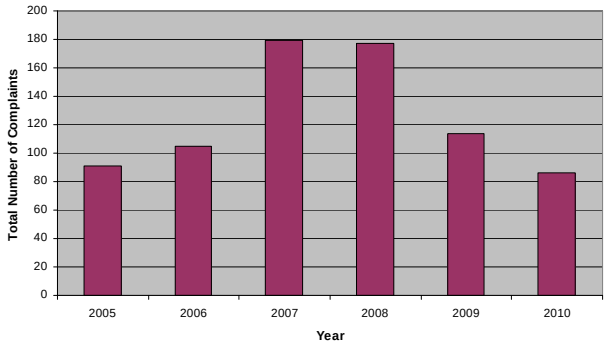



Figure 47 show the total number of complaints received for drainage - watertables. The types of complaints received are for "scouring of surface water channels, surface water channels blockages due to vegetation and slips"

**Figure 47: Total Number of Complaints Received – Drainage-Watertables**

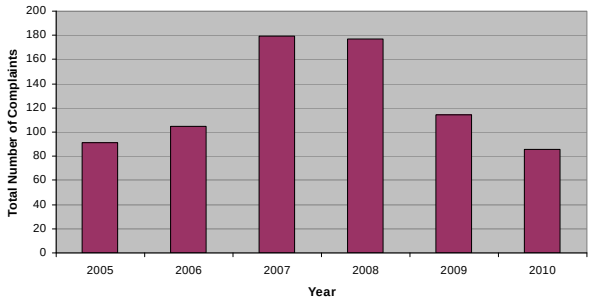
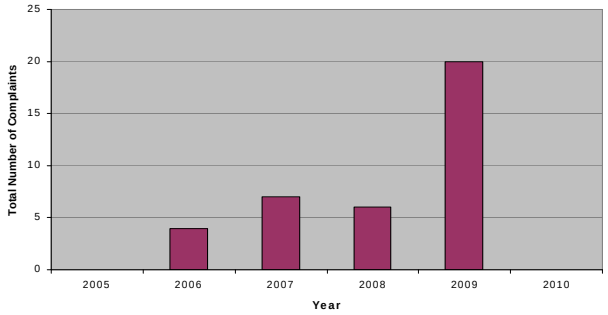



Figure 48 show the total number of complaints received for drainage development.

**Figure 48: Total Number of Complaints Received – Drainage Development**




### 11.8.1.3 Standards and Specifications

The routine maintenance includes the cleaning of culverts, vehicle access culverts, sumps and manholes, subsoil drains, minor hand cleaning of blockages of water channels, shoulder cut outs, and routine drain cleaning on the unsealed road network.

Inspections are carried out by culvert inspectors. Drain cleaning is carried out by the Routine Maintenance Crews, by hand or small excavator, with cut-offs generally cleaned by grader if accessible.

Street cleaning of the kerb and channels is carried out by the subcontractor on a pre-determined programme.

The following technical standards[15] are referred to for drainage maintenance:

- Stormwater structures (TS 6)
- Street cleaning (TS 14)

#### 11.8.1.4 Risk

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network. The key risk descriptors associated with drainage facilities relate to flooding caused by a number of factors such as undersized assets, lack of maintenance, poorly located assets and environmental factors such as surface water contamination, erosion and scour

### 11.8.2 Future Maintenance Costs

Table 85 sets out the projected maintenance expenditure for the drainage assets for the next 10 years. Increases shown in this budget are to protect against inflation and market cost increases, 4% escalation has been used. The technical specification is considered to be adequate for the network.

**Table 85: Projected Maintenance Expenditure for Drainage Facilities**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Routine Drainage Maintenance | 887,472 | 922,970 | 959,889 | 1,129,657 | 1,174,848 | 1,221,845 | 1,270,751 | 1,321,565 | 1,374,388 | 1,429,319 |
| Street Cleaning | 35,349 | 36,763 | 38,234 | 44,996 | 46,796 | 48,668 | 50,616 | 52,640 | 54,744 | 56,932 |
| **TOTAL** | **922,821** | **959,733** | **998,123** | **1,174,653** | **1,221,644** | **1,270,513** | **1,321,367** | **1,374,205** | **1,429,132** | **1,486,251** |

## 11.9 Minor Structures

### 11.9.1 Maintenance Planning

There is a two yearly inspection programme in place where maintenance items are quantified, estimated costs of repairs established and programmes of work prioritised to ensure timely repair. Work on these assets is funded from a number of sources:

- Pavement maintenance and renewals categories
- Structural maintenance and replacement
- Flood damage repairs

It should be noted that these are not specifically budgeted for, but accommodated as they are repaired and are not forecast to reflect maintenance and renewals. Flood damage accounts for a significant number of replacements and new works.

#### 11.9.1.1 Historical Maintenance Expenditure

The historical operational expenditure for Minor Structures is incorporated under Minor Structures Maintenance and cannot be broken down into further detail.

[15] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

#### 11.9.1.2 Customer Service Requests and Complaints

Council receives some RFSs for this activity, mainly due to storm damage slips and requests for new retaining walls.

#### 11.9.1.3 Standards and Specifications

**Technical Specifications**

The following technical standards[16] are referred to for minor structures:

- Minor structures (TS 26)

#### 11.9.1.4 Risk

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network.

### 11.9.2 Future Maintenance Costs

Table 86 sets out the projected maintenance expenditure for the minor structure assets for the next 10 years. Initial increases are to protect against inflation and market cost increases, a 4% escalation has been used as a base.

**Table 86: Projected Maintenance Expenditure for Minor Structures**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Retaining / Sea Wall Maintenance | 50,000 | 52,000 | 54,080 | 56,245 | 58,495 | 60,835 | 63,270 | 65,800 | 68,430 | 71,165 |

## 11.10 Quarries

### 11.10.1 Maintenance Planning

Maintenance work is needed on several quarries to address such issues as vegetation, fencing, and rubbish. This work has been programmed and monitored on an ongoing basis.

#### 11.10.1.1 Historical Maintenance Expenditure

Table 87 summaries the historical maintenance expenditure for the quarry assets since 2005/06.

**Table 87: Historical Maintenance Expenditure for Quarries**

| Year | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|
| Historical Maintenance Expenditure | 7,248 | 2,369 | 1,315 | 18,400 | 9,447 | 16,433 |

#### 11.10.1.2 Standards and Specifications

The following standard is applicable for quarries maintenance:

- Annual Resource Consent Conditions from Northland Regional Council (NRC).

#### 11.10.1.3 Risks

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network. One of the major risks facing Council is a lack of aggregate at key locations around the district, particularly in North Hokianga.

[16] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

### 11.10.2 Future Maintenance Costs

Table 88 sets out the projected maintenance expenditure for quarry assets for the next 10 years.

**Table 88: Projected Maintenance Expenditure for Quarries**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Quarries Maintenance | 76,041 | 78,398 | 81,143 | 83,661 | 86,169 | 88,930 | 92,040 | 95,446 | 98,694 | 102,145 |

## 11.11 Vehicular Ferry

### 11.11.1 Maintenance Planning

Transfield Services Limited, as Council's contractor, operates the Hokianga Harbour Ferry Service and is responsible for preparing and managing the agreed routine and periodic maintenance programmes for the ferry vessel; including all mechanical, electrical, hydraulic systems, re-painting and anti-corrosive maintenance to all surfaces to maintain the vessel to a serviceable and presentable standard throughout the period of the contract.

The management and operation of the ferry attracts a 55% subsidy annually from NZTA to help facilitate these operations.

The planned slipping of the vessel in October 2005 provided the opportunity for blasting and recoating the exterior of the hull. Engine operating hours at 29,209, 23,778, 23,246 and 29,300 are reasonably well shared over the four installed engines. The spare engine has been completely rebuilt and is ready for installation as a replacement when needed. Each of the propulsion units (Schottel Pump jet) have been rebuilt at least once in the past 9 years. One unit is now due for replacement and a complete new unit has been purchased.

#### 11.11.1.1 Historical Maintenance Expenditure

Table 89 summaries the historical maintenance expenditure for the ferry since 2005/06.

**Table 89: Historical Maintenance Expenditure for Vehicular Ferry**

| Year | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|
| **Historical Maintenance Expenditure** | 788,911 | 722,656 | 869,137 | 887,434 | 871,322 | 827,750 |

#### 11.11.1.2 Customer Service Requests and Complaints

There have not been any complaints regarding the ferry, only queries regarding the timetable e.g. running times across the harbour. These are all publicised on Council's website www.fndc.govt.nz

#### 11.11.1.3 Standards and Specifications

Maritime NZ sets standards for the maintenance of the ferry and they undertake an out of water survey at a frequency governed by the annual underwater survey.

#### 11.11.1.4 Risks

Section 10.2 of this AMP outlines Risk Management relating to the Transportation Network.

### 11.11.2 Future Maintenance Costs

The slipping of the vessel is planned for the 2012/2013 year, dependant on the underwater survey which is due to be carried out in the 2011/2012 year.

Table 90 sets out the projected maintenance expenditure for the ferry for the next 10 years. Increased funding for the Hokianga Ferry has been included as approved at the NLTP Advisory Group Meeting 10 November 2010.

**Table 90: Projected Maintenance Expenditure for Vehicular Ferry**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Routine & Periodic Operating costs | 1,113,696 | 948,393 | 1,008,319 | 1,011,986 | 1,334,210 | 1,073,899 | 1,666,749 | 1,149,649 | 1,177,658 | 1,218,878 |

## 11.12 Environmental Maintenance

### 11.12.1 Maintenance Planning

Environmental maintenance is carried out by Council's North and South Maintenance contractors as per the conditions of the contract. Regular audits are carried out by the Network Manager to ensure that appropriate maintenance is being carried out to the standards required. There is an element of reactive maintenance that includes:

- Responding to public enquiries or RFS
- Removal of material that poses a significant risk
- Removal of material following a large storm event or flood

#### 11.12.1.1 Historical Maintenance Expenditure

Table 91 summaries the historical maintenance expenditure for environmental maintenance (was corridor maintenance) since 2005/06.

**Table 91: Historical Maintenance Expenditure**

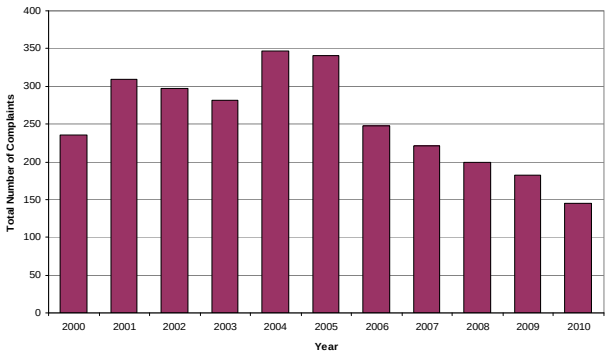
| Year | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|
| Historical Maintenance Expenditure | 643,683 | 665,921 | 856,999 | 908,420 | 942,375 | 949,392 |

#### 11.12.1.2 Customer Service Requests and Complaints

**RFS Results 2005-2010**

Figure 49 show the total number of complaints received for vegetation.
The types of complaints received are for "control of noxious plants on road reserve, removal of wildling trees that are blocking visibility, risk of/and trees falling on private property, removal of old windbreaks on road reserve, requests from Top Energy for removal of trees and vegetation that are of risk of falling onto power lines.

**Figure 49: Total Number of Complaints Received – Vegetation**




#### 11.12.1.3 Standards and Specifications

Vegetation control consists of mowing berms and clearing vegetation from specified locations. Cyclic mowing programmes are prepared by the Reporting, Programming and Quality Manager and implemented to meet the required standards. These are carried out as required and because of the seasonal variations in growth, the progress is monitored throughout the year as part of the inspection programme.

Litter removal is carried out by the routine maintenance crews on the find and fix basis.

The following technical standards[17] are referred to for environmental maintenance:

- Litter and detritus removal (TS 17)
- Vegetation control (TS 19)

### 11.12.2 Future Maintenance Costs

Table 92 sets out the projected maintenance expenditure for environmental maintenance for the next 10 years. Increases in budget are based on:

1) an increase in the overall budget due to the growing demand for removal of fallen trees from the road and for the removal of hazardous trees from road reserve (that have been identified by an arborist as a danger to the road and travelling public) due to the number of high wind weather events that are not attributable to "flood damage funding", and
2) the maintenance and removal of effluent from the new Pakaraka Stock Truck Effluent dump facility.

**Table 92: Projected Maintenance Expenditure**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Vegetation Control | 672,140 | 696,904 | 721,668 | 854,924 | 889,124 | 924,692 | 961,704 | 1,000,160 | 1,040,136 | 1,081,708 |
| Litter, Debris & Graffiti Control | 251,372 | 263,549 | 277,202 | 319,729 | 332,520 | 345,821 | 359,663 | 374,045 | 388,996 | 404,543 |
| Other Environmental Maintenance | 7,076 | 7,341 | 7,605 | 8,999 | 9,359 | 9,734 | 10,123 | 10,528 | 10,949 | 11,386 |
| **TOTAL** | **930,588** | **967,794** | **1,006,475** | **1,183,652** | **1,231,003** | **1,280,247** | **1,331,490** | **1,384,733** | **1,440,081** | **1,497,637** |

[17] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

# 12 RENEWAL/REPLACEMENT PLAN

Renewal expenditure is any major work which does not increase the asset's design capacity but restores, rehabilitates, replaces or renews an existing asset to its original capacity. Work over and above restoring an asset to original capacity is new works expenditure.

**Renewal Standards**

Through the routine inspection programmes, items will be identified that are outside the routine works definitions. Where appropriate, these will be compiled into a programme for consideration by the Network Manager as Ordered Works.

"Ordered works" are identified faults that are not generally able to be classified as routine items yet still essential to maintain the integrity of the network, and conform to the Council's and the Network Manager's longer term strategies.

These faults are all gathered through inspection processes, public or call centre requests and/or from the Network Manager. The Reporting Programme and Quality Manager marks the fault on the road, measures, prices prioritises the fault repairs in programmes for implementation. The programmes are submitted to the Network Manager for approval to proceed.

**Asset Performance**

Assets are renewed when they fail to meet the required level of service or may affect the life of the asset. The monitoring of asset reliability, capacity and efficiency during planned maintenance inspections and operational activity identifies non-performing assets. Indicators of non-performing assets include:

**Table 93: Renewal Asset Indicators**

| | |
|---|---|
| • Structural failure. | • Ineffective and/or uneconomic operation. |
| • Repeated asset failure. | • Unsafe conditions for public. |

## 12.1 Pavements

### 12.1.1 Renewal Plan

Road pavement renewal is required when the pavement layers are reaching the end of their design life and are showing signs of deterioration. Pavement renewals, rather than resurfacing, become the best option when considering the whole life costs of the pavement. NZ Transport Agency subsidy for this form of treatment is available through the following categories:

- Unsealed Road Metalling
- Sealed Road Resurfacing
- Pavement Rehabilitation

#### 12.1.1.1 Pavement Renewal Project Identification

Pavement renewal sites will be identified through performance modelling, Network Manager Observation and audit, network falling weight deflectometer (FWD) testing (last carried out in 2008), and Maintenance Contractor inspections and reporting.

The annual programme is developed with an emphasis on road hierarchy. Priority is given to roads with high traffic volumes; especially heavy commercial vehicles. Consideration is given

to the likely rate of pavement deterioration should no action be taken, i.e. roads with the highest maintenance costs per unit length will be given priority for Road Rehabilitation.

Within the FNDC network there are 876.2 km of sealed roads. By assuming an expected pavement life, it is possible to predict an annual pavement renewal requirement. Table 94 shows the consequences of using various effective lives for the sealed network.

**Table 94: Annual Pavement Renewal Requirements – Total Kilometres vs. Design Life**

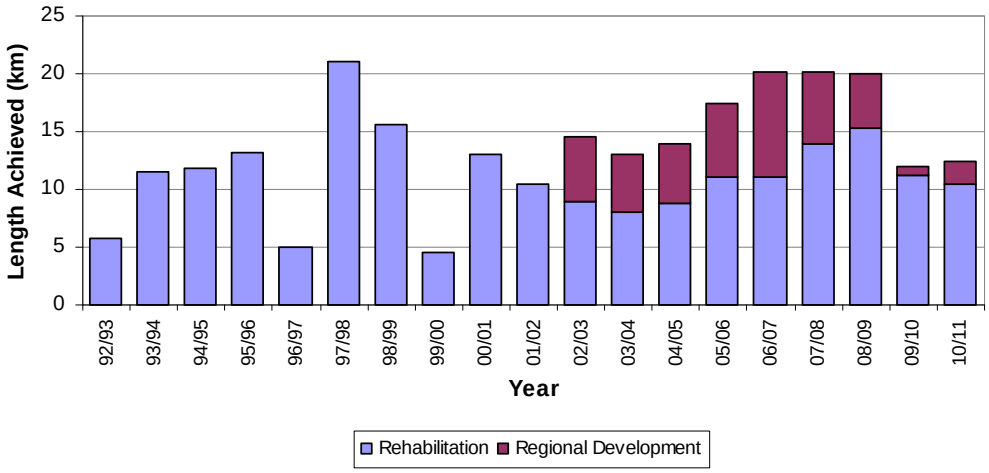
| **Sealed Roads** | **876.2 km** | **876.2 km** | **876.2 km** | **876.2 km** | **876.2 km** |
|---|---|---|---|---|---|
| Mean Pavement Life for Network | 45 Years | 40 Years | 35 Years | 30 Years | 25 Years |
| **Annual Pavement Renewal Requirement** | **19.5 km** | **21.9 km** | **25.0 km** | **29.2 km** | **35.0 km** |

This approach can be considered very simplistic, but it does give a general idea of the level of pavement renewal required on an annual basis.

#### 12.1.1.2 Historical Pavement Renewals

An average of 14 kilometres of pavement renewal has been completed per year over the past three-year period. On average, approximately 12 kilometres of sealed pavement renewal has been undertaken each year with an additional 2 kilometres per year completed through the regional development programme. Figure 50 shows the length of pavement renewals undertaken over the last 19 years.

**Figure 50: Historical Sealed Pavement Renewal (including RDF)**




The minimum level Council looks to achieve is 16.9 kilometres of pavement rehabilitation yearly for the next 10 years, resulting in an overall renewal rate of 2% per annum (i.e. an average effective life of 52 years). However, it should be noted that the results of Council's pavement deterioration assessment predicts that over the next 20-year period an average of 23 kilometres a year of pavement rehabilitation may be required to maintain the network. It is prudent to consider that roughness; shoving and rutting have deteriorated even with an average of 14 km of pavement renewal completed over the previous 3 years. In this context, until further trends are assessed it is considered practical (and prudent) to target 19 km per annum.

Council's current pavement rehabilitation program is based on assessment of existing pavement condition. Rehabilitation requirements are currently 1.3% or 12km per year. There is some concern that there will need to be a dramatic increase in the programmed

lengths in the future e.g. with each year that passes Council gets further behind in achieving the target length required.

Over the last 9 years, the RDF programme has benefited Council's pavement renewal programme by several million dollars per annum resulting in the following lengths being completed as shown in Table 95. The RDF programme has successfully provided the shortfall between the overall target renewal expenditure required and the pavement rehabilitation funding requested.

**Table 95: RDF Completed Lengths 2002 - 2011**

| Year | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
|---|---|---|---|---|---|---|---|---|---|
| RDF | 5.6 | 5.0 | 5.07 | 6.4 | 8.2 | 4.6 | 4.742 | .740 | 1.910 |

The RDF programme remains a critical funding component if Council continues to fund pavement rehabilitations at the current level and maintains the current level of service.

#### 12.1.1.3 Pavement Surface Renewal

There are a number of defects that can result in a requirement to either reseal or repair the existing road surface.

| | |
|---|---|
| • Cracking | • Potholes |
| • Loss of water proofing | • Flushing |
| • Chip Loss (scabbing & ravelling) | • Loss of Texture / Skid Resistance |

The need for resurfacing is identified through performance modelling, visual inspections, network knowledge, contractor and road user advice. At present, Council does not operate a skid resistance measurement programme, which could provide additional input. The programme is then prepared by the network manager and approved by Council.

Performance modelling through the RAMM treatment selection process includes the use of historical data when identifying possible sites for resurfacing. As such, an emphasis is placed upon seal age and remaining life, resulting in a number of what is known as "Birthday Seals". Although seal age should be an input to the selection process it should not necessarily drive the programme. Decisions focus on need, ensuring the required level of service is maintained.

Asphaltic Concrete (AC) is used on selected high stress areas e.g. cul-de-sac heads, roundabouts and other high impact areas where a specifically designed surfacing will be used, e.g. mix 20, 40, SMA Polymer modified AC, etc.

By using a simplistic approach of taking the total sealed length of the Far North and dividing by predicted design lives, as shown in Table 96, it is possible to determine what the annual resurfacing requirement and budget would be.

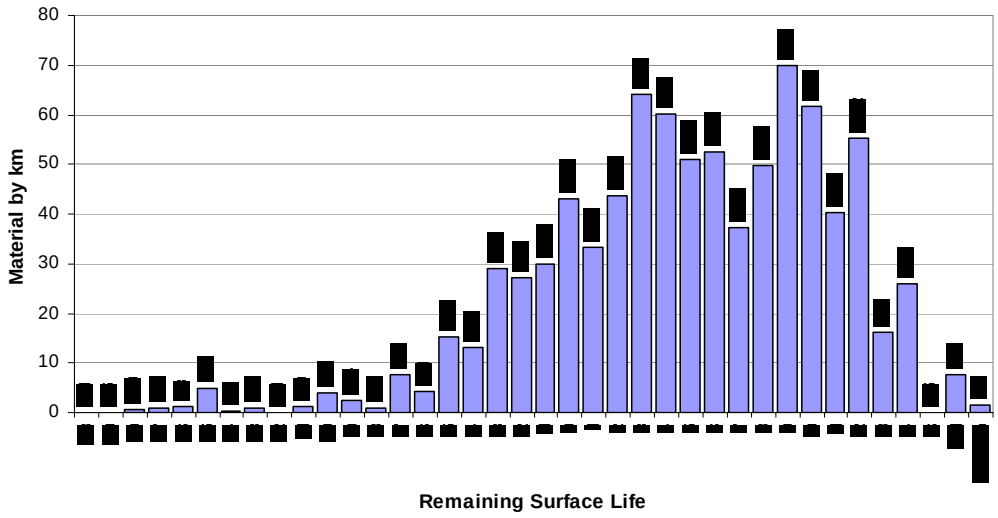
**Table 96: Annual Re-surfacing Requirements – Total Kilometres vs. Design Life**

| **FNDC Sealed Roads** | **876.2 km** | **876.2 km** | **876.2 km** |
|---|---|---|---|
| Design Life | 8 Years | 10 Years | 12 Years |
| **Annual Re-surfacing Requirement** | **109.5 km** | **87.6 km** | **73.0 km** |

#### 12.1.1.4 Historical Surface Renewals

Using the information on seal age from the RAMM database, Figure 51 shows the remaining life of the existing surfacing against length of road.

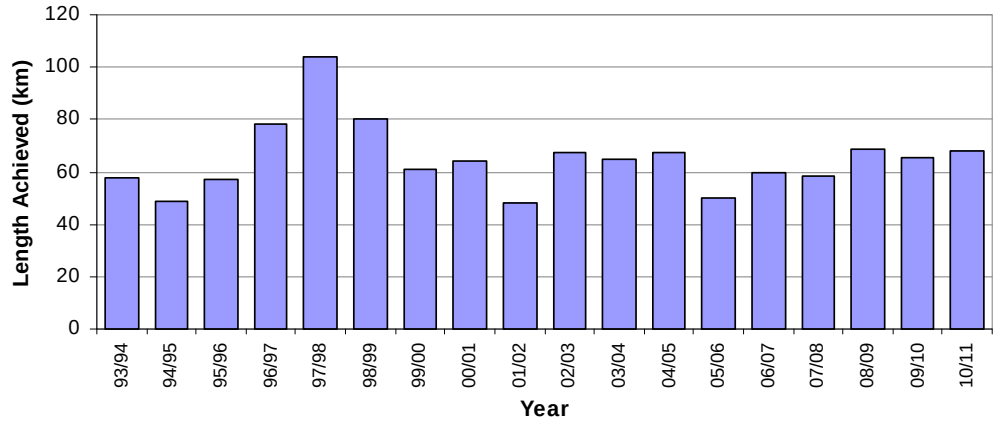
**Figure 51: Remaining Surface Life**




Year 0 (relating to 2011/ 12) has a total of 42.98 km of road that have reached the predicted design life, giving a backlog of 186.78 km in total. As previously mentioned, resurfacing based on seal age alone can lead to a number of 'birthday seals', which may not necessarily be required. The backlog may in fact be due to some surfaces lasting beyond their predicted life. It is important that inspection of those sections of road (highlighted as having reached their predicted design lives) are undertaken to ensure the information within the RAMM database is a true reflection of the network and that any resurfacing undertaken is dictated by condition. This is carried out regularly to refine the modelling process.

The Graph in Figure 52 shows the length of surfacing undertaken over the past 18 years with an average of 65 km of resurfacing undertaken each year. The graph shows a steady increase from 2005/06. However, for the last 3 years a consistent amount of resurfacing averaging at 67.5 km per year has been undertaken.

**Figure 52: Historical Reseals**



### 12.1.2 Renewal Standards

The following standards[18] are referred to for pavements:

- Repair of surface deformation (TS 2)
- Sealed roads, Pavement repairs (TS 4)
- Unsealed roads, Dig out repairs (TS 8)
- Pavement Rehabilitation (TS 24)
- Supply and place maintenance aggregate (TS 10)
- Unsealed surface and shape maintenance (TS 9)
- Repair of potholes – unsealed (TS 7)
- Maintenance of unsealed shoulders (TS 5)
- Repair potholes – sealed (TS 1)
- Repair of edgebreak (TS 3)
- Kerb and Channel (TS 16)
- Repair of surface defects (TS 20)

### 12.1.3 Future Renewal Costs

#### Unsealed

Table 97 shows the projected renewals expenditure for unsealed road metalling for the next 10 years. A gravel loss of 12mm per year was used to generate the three year budgets utilising approximately 100,000 m³ of metal. Since the start of the 2009-2012 programme a further 40km of the unsealed network has been sealed, effectively reducing the amount of metal to be applied. This is tempered by the increase in forestry movements on low volume roads increasing the gravel loss. A prudent measure would be to maintain similar levels of funding to cater for potential losses in pavement integrity.

**Table 97: Projected Renewals Expenditure Unsealed Road Metalling**

| Renewals Category | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Unsealed Road Metalling | 3,047,190 | 3,169,078 | 3,295,841 | 3,427,784 | 3,564,908 | 3,707,516 | 3,855,914 | 4,010,102 | 4,170,384 | 4,337,066 |

#### Sealed

Table 98 shows the projected renewals expenditure for sealed road pavement rehabilitation for the next 10 years. Lengths for 2012/13 – 2014/15 are provided, representing approximately 1.3% of the sealed network per annum. A precautionary approach needs to be applied based on the rate of deterioration on the network. Hence a robust data collection programme will be implemented with a maturity of modelling (dTIMs) over the next 3-5 years. Council will continue to work with forestry operators to gain visibility of logging operations and to monitor specific areas experiencing a greater number of roads. To protect against inflation, a 4% increase has been applied across the 10-year forecast.

**Table 98: Projected Renewals Expenditure Sealed Road Metalling**

| Renewals Category | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Pavement Rehabilitation | 2,844,040 | 3,581,254 | 3,050,237 | 3,222,128 | 3,351,013 | 3,485,054 | 3,624,456 | 3,769,434 | 3,920,211 | 4,077,020 |

[18] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

Table 99 shows the projected renewals expenditure for sealed road resurfacing for the next 10 years. 80km per annum of reseal is provided to:

a) maintain an average seal life of 10.5 years,

b) reduce the backlog of approximately 200km that is, and

c) maintain the SCI of the network

This does mean an increase in funding over the next 1 – 3 – 10 year period and this can be further impacted on by the bitumen price index, which is currently around 26%. This has a significant impact on the overall value or the resurfacing and the Councils ability to achieve the desired lengths from an Asset Management perspective. FNDC does have some road surfaces that are lasting longer than predicted life due to low traffic volumes.

**Table 99: Projected Renewals Expenditure Sealed Road Resurfacing**

| Renewals Category | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Sealed Road Resurfacing | 3,337,860 | 3,440,487 | 3,610,224 | 4,749,635 | 4,939,621 | 5,137,207 | 5,342,704 | 5,556,407 | 5,778,653 | 6,009,789 |

Table 100 shows the projected renewals expenditure for minor improvements for the next 10 years. Projects are identified based on route position, risk, cost and other variables to determine a sites ranking versus others in the deficiency database.

**Table 100: Projected Renewals Expenditure Minor Improvements**

| Renewals Category | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Minor Improvements | 1,465,686 | 1,533,939 | 1,584,950 | 1,625,045 | 1,718,124 | 1,786,852 | 1,858,326 | 1,932,659 | 2,009,965 | 2,090,364 |

Table 101 shows the projected renewals expenditure for preventative maintenance for the next 10 years. There are various sites throughout the district to complete non routine repair works to protect the serviceability of roads and roads structures, and to prevent the threat of road closures arising from natural phenomena where damage is more economical to repair now than leave until the road carriageway is affected.

**Table 101: Projected Renewals Expenditure Preventative Maintenance**

| Renewals Category | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Preventative Maintenance | 625,000 | 600,000 | 435,000 | 460,000 | 550,000 | 530,000 | 600,000 | 650,000 | 600,000 | 525,000 |

## 12.2 Waitangi Trust Road – Special Purpose Road

### 12.2.1 Renewal Plan

The Special Purpose Road is included in the Far North District Council's Maintenance Contracts (Road Maintenance South, Preseal Repair and Reseals and Pavement Marking). Council ensures value for money for this road by including it with the main term maintenance contracts to achieve economy of scale at local road network rates.

### 12.2.2 Future Renewal Costs

Table 102 shows the projected renewals expenditure for the next 10 years.

**Table 102: Projected Renewals Expenditure**

| Renewals Category | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Renewal of local road | 130,000 | | 19,000 | | 11,000 | 80,000 | | 19,000 | 11,000 | |

## 12.3 Bridges and Large Culverts (>3.4 m²)

### 12.3.1 Renewal Plan

Asset renewal is undertaken when a structure, or significant components of a structure has reached the end of their economic life. The required level of renewal (including replacement or rehabilitation) will depend on:

- Current bridge condition (a number of bridges on the network are in poor condition and could pose a significant risk). Categories include excellent, good, average, below average and poor.
- Residual life (based on postulated likely total useful life less age). Bridges that are close to or have exceeded generally accepted expected useful lives need to be carefully assessed for potentially hidden failure mechanisms. Useful life has been assumed from bridge material type i.e. concrete, steel or timber.
- Proximity to marine environment – structures in severe corrosive environments can have significantly reduced expected lives. Categories include coastal (within 1km of marine environment), (within 10km of marine environment) and inland (greater than 10km from marine environment).
- Traffic volume (ADT) (higher traffic volumes reflect greater levels of service required in terms of width and load carrying capacity).
- Load Carrying Capacity (% Gross Weight).

**Table 103: Asset Component Useful Lives**

| Material | Total Useful Life |
|---|---|
| Concrete | 120 years |
| Steel | 75 years |
| Timber | 50 years |

### 12.3.2 Renewal Standards

The following standards are referred to for bridges:

- Structures Maintenance - Bridges (TS 13)[19]

### 12.3.3 Future Renewal Costs

Types of renewal works undertaken include:

- Replacement of an entire bridge with an equivalent capacity
- Replacement of individual bridge components (e.g. deck, piers, abutments)
- Rehabilitation of bridge components (restoring the structural components).

[19] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

Renewal needs are identified following planned inspection programme. The prioritisation of works and the selection of renewal options are made on the basis of an economic evaluation using NZTA criteria. Project feasibility scheme assessment reports are completed for bridges that require renewal and/or replacement.

Over the last 3 years limited bridge replacements have been completed. Inspection results indicated the following:

- Timber bridges will (on average) achieve their design useful life of 80 years.
- Bridges constructed with concrete are likely to perform better and are expected to achieve a minimum useful life of 100 years.
- Bridges within the District are generally in a reasonable condition based on current inspection results.
- Large steel culverts are failing prematurely.

With 701 bridges with lives of 100 years or less, this results in a requirement of at least 7 bridge replacements per annum. With many bridges constructed in the 1940's and 50's, there will be a significant need for replacements in the 2040's and 50's. Therefore, the current replacement needs are likely to be lower than this. Refer to the Bridge Management Strategy for further details in Appendix E.

**Table 104: Projected Renewals Expenditure for Bridges**

| Bridge | Road Name | Renewal Year | Replacement Cost |
|---|---|---|---|
| H04 | West Coast Road | 2012/2013 | $495,000 |
| P13 | Browns Road | 2012/2013 | $110,000 |
| L11 | Hapanga Road | 2013/2014 | $165,000 |
| R07 | Waikuku Road | 2013/2014 | $110,000 |
| C13 | Churtons Road | 2013/2014 | $143,000 |
| E87 | Blue Gorge Road | 2013/2014 | $99,000 |
| N03 | Tawata Road | 2013/2014 | $99,000 |
| D68 | Kaitaia-Awaroa Road | 2014/2015 | $165,000 |
| A39 | Waharua Road | 2014/2015 | $143,000 |
| I48 | Matawherohia Road | 2014/2015 | $110,000 |
| N32 | Mission Oak Road | 2014/2015 | $165,000 |
| W10 | Paraha Road | 2014/2015 | $132,000 |
| A41 | Saleyard Avenue | 2015/2016 | $187,000 |
| W12 | Pokopu Road | 2015/2016 | $165,000 |
| M36 | Horeke Road | 2015/2016 | $165,000 |
| E70 | Duncan Road | 2015/2016 | $110,000 |
| P05 | Davy Road | 2016/2017 | $165,000 |
| D65 | Kaitaia Awaroa | 2016/2017 | $220,000 |
| B13 | Quarry Road | 2016/2017 | $165,000 |
| G05 | West Coast Road | 2016/2017 | $110,000 |
| W16 | Davis Road | 2016/2017 | $110,000 |
| W15 | Davis Road | 2017/2018 | $165,000 |
| D35 | Powells Road | 2017/2018 | $110,000 |
| P48 | Cumber Road | 2017/2018 | $110,000 |
| E43 | Fern Flat Road | 2017/2018 | $110,000 |

| Bridge | Road Name | Renewal Year | Replacement Cost |
|---|---|---|---|
| C03 | Matai Bay Road | 2017/2018 | $385,000 |
| G20 | Otengi Road | 2018/2019 | $165,000 |
| I28 | Waitapu Creek Road | 2018/2019 | $110,000 |
| E09 | Oruru Road | 2018/2019 | $385,000 |
| H06 | Grounds Road | 2018/2019 | $165,000 |
| E02 | Mill Bay Road | 2019/2020 | $82,500 |
| I51 | TipaTipa Road | 2019/2020 | $137,500 |
| E63 | Fisher-Riley Road | 2019/2020 | $137,500 |
| F07 | Hihi Road | 2019/2020 | $385,000 |
| N35 | Graham road | 2020/2021 | $275,000 |
| A40 | Oromanga Road | 2020/2021 | $110,000 |
| E56 | Peria Valley Road | 2020/2021 | $110,000 |
| G21 | Rangi Point | 2020/2021 | $275,000 |
| D45 | Kaitaia Awaroa Road | 2021/2022 | $192,500 |
| B18 | Oinu Road | 2021/2022 | $82,500 |
| E47 | Fern Flat Road | 2021/2022 | $110,000 |

Bridge renewals have been prioritised in accordance with Council's Bridge Management Strategy. The physical state of many of the priority bridge replacements has required renewals to occur before the asset have been fully depreciated in the financial fixed asset register. Depreciation funding has been used to fund the replacements to the extent of depreciation charged to date. Additional funding has been budgeted to enable the replacement of the bridges earlier than their financial replacement date or where the budgeted replacement costs exceed the financial fixed asset register replacement cost. The additional funding is budgeted to be sourced from loans.

Table 105 shows the projected renewals expenditure for structural component replacement for bridges for the next 10 years. Current detailed structural inspections are identifying that structures are in need of attention. Some are deteriorating at a rate which is faster than predicted. Indications are that there is a backlog of work to catch up with.

**Table 105: Projected Structural Component Replacement for Bridges**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Structural Component Replacement – Bridges** | 599,334 | 604,507 | 650,688 | 628,343 | 653,477 | 679,616 | 706,801 | 735,073 | 764,475 | 795,054 |

## 12.4 Footpaths

### 12.4.1 Renewal Plan

Asset renewal is undertaken when a structure, or significant components of a structure has reached the end of their economic life. The required level of renewal (including replacement or rehabilitation) will depend on:

- The age profile
- The condition profile
- The level of on-going maintenance
- The economic life of the materials used.

### 12.4.2 Renewal Standards

Footpath specifications are Council's Engineering Standards and Guidelines supported by NZS 4404.

### 12.4.3 Future Renewal Costs

Table 106 show the projected renewals expenditure for footpaths split out by ward over the next 10 years.

**Table 106: Projected Renewals Expenditure for Footpaths**

| Project Name | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Northern Ward | 122,994 | 9,093 | 26,344 | 324,752 | 134,534 | 239,803 | 246,524 | 253,910 | 262,292 | 270,943 |
| Eastern Ward | 224,574 | 266,720 | 175,261 | 0 | 27,350 | 136,720 | 140,552 | 144,763 | 149,541 | 154,474 |
| Western Ward | 37,456 | 97,772 | 65,231 | 22,515 | 122,375 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL** | **385,024** | **373,585** | **266,836** | **347,267** | **284,259** | **376,523** | **387,076** | **398,673** | **411,833** | **425,417** |

## 12.5 Car Parks

### 12.5.1 Renewal Plan

The required level of renewal (including replacement or rehabilitation) will depend on:

- The age profile
- The condition profile
- The level of on-going maintenance
- The economic lives of the materials used.

### 12.5.2 Renewal Standards

The following standard[20] is referred to for car parks:

- Maintain Service Lanes & Car parks (TS 11)

#### 12.5.2.1 Future Renewal Costs

Table 107 shows the projected renewals expenditure over the next 10 years.

**Table 107: Projected Renewals Expenditure for Car Parks**

| Project Name | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Eastern Ward | 87,634 | | 8,758 | | | 281,341 | | 92,155 | 54,955 | |
| Northern Ward | 6,014 | | | | | | | 49,781 | | |
| Western Ward | | | 172,584 | | | | | 1,542 | | |
| **TOTAL** | **93,648** | | **181,342** | | | **281,341** | | **143,478** | **54,955** | |

## 12.6 Traffic Services

### 12.6.1 Renewal Plan

The triggers for renewal works include:

- Replacement of obsolete, damaged, sub-standard and non-conforming signs identified during routine inspections are programmed for replacement according to the following priority:

[20] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

- Public safety
- Traffic volumes
- Convenience of road users

- The condition of the asset
- The economic/useful lives of the materials used.

### 12.6.2 Renewal Standards

The following standards[21] are referred to for traffic services:

- Structures Maintenance - Sight rails and guardrails (TS 12)
- Traffic signs (TS 18)

#### 12.6.2.1 Future Renewal Costs

Table 108 shows the projected renewals expenditure for traffic services over the next 10 years. This is typically a reactive budge and one that has been consistently underspent over the past three year funding period. The forecast provided is based on previous years expenditure with an inflation factor of 4% applied to protect against market forces. An allowance is made for the renewal of State Highway signage located on local roads as per the MOU.

**Table 108: Projected Renewals Expenditure for Traffic Services**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Traffic Services Renewals | 302,231 | 314,320 | 326,893 | 339,980 | 353,580 | 367,724 | 382,443 | 397,736 | 413,633 | 430,165 |

## 12.7 Street Lighting

### 12.7.1 Renewal Plan

Renewal is generally undertaken when a streetlight or key components of the light have reached the end of their economic life or are irreversibly damaged. Renewals can involve the complete replacement of the asset (pole and lighting mechanism), as maybe the case when the light is damaged or felled in an accident or storm; or the replacement of components. Recently more detailed analysis of network maintenance cost has shown that assets at the extremity of the network cost a disproportionate amount to service due to the high cost of mobilisation. A recent change introduced has targeted these remote assets for replacement with LED fittings that have a reported life in the order of 17-18 years and use 20% 0f the energy. The asset database and registry will be updated to reflect the change and ensure appropriate recovery is made from energy suppliers.

Renewal works are prioritised according to the following:

- Road user and pedestrian safety
- Benefit/cost savings (power efficiencies)
- Condition and performance of lanterns

### 12.7.2 Renewal Standards

The following standard is referred to for street lighting:

- Standard of the Standards Association of New Zealand (NZS)

[21] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

- Australian Standard (AS)
- Standard of New Zealand Transport Agency (NRB/TNZ/NZTA)

### 12.7.3 Future Renewal Costs

As for Maintenance Expenditure above, the renewal of street lighting assets is funded from the Traffic Services Renewals work category, which also funds Signage, Road Marking etc (covered under Traffic Facilities).

## 12.8 Drainage Facilities

### 12.8.1 Renewal Plan

Asset renewal is undertaken when:

- Separation of two-piece kerb and channel
- Renewal or installation of culverts is required with a diameter less than or equal to 600mm.
- A depression the prevents drainage
- Deterioration of the pavement adjacent to the kerb and channel
- Vehicle damage
- The asset has reached the end of its economic/useful life
- Street upgrades and footpath reconstruction

### 12.8.2 Renewal Standards

The following standard[22] is referred to for drainage facilities:

- Drainage Maintenance - Stormwater structures (TS 6)

### 12.8.3 Future Renewal Costs

Table 109 shows the projected renewals expenditure for drainage facilities over the next 10 years. A significant increase in this programme is signalled from structures inspections to:

a) upgrade or replace a large number of large culverts that are failing across the district, and

b) to implement a Surface Water Channel renewal programme

A 4% cost increase is allowed for to protect against inflation.

**Table 109: Projected Renewals Expenditure for Drainage Facilities**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Drainage Renewals | 813,563 | 846,104 | 879,952 | 1,271,126 | 1,321,975 | 1,374,857 | 1,429,878 | 1,487,060 | 1,546,509 | 1,608,333 |

## 12.9 Minor Structures

### 12.9.1 Renewal Plan

As stated previously, there is two yearly inspection programme in place where maintenance items are quantified, estimated costs of repairs established and programmes of work

[22] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

prioritised to ensure timely repair. Works on these assets are funded from a number of sources:

- Pavement maintenance & renewals categories
- Structural maintenance and replacement
- Flood damage repairs

It should be noted that these are not specifically budgeted for and are therefore not forecast to reflect maintenance and renewals; but are repaired when required. Flood damage accounts for a significant number of replacements and new works.

### 12.9.2 Renewal Standards

The following standard[23] is referred to for drainage facilities:

- Emergency works (TS 26)

### 12.9.3 Future Renewal Costs

Table 110 shows the projected renewals expenditure for minor structures over the next 10 years. Current detailed structural inspections are identifying that structures are in need of attention. Some are deteriorating at a rate which is faster than predicted. Indications are that there is a backlog of work to catch up with.

**Table 110: Projected Renewals Expenditure for Minor Structures**

| Year | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Structural Component Repl – Retaining Walls | 30,000 | 50,000 | 30,000 | 30,000 | 31,200 | 32,447 | 33,747 | 35,096 | 36,499 | 37,959 |

## 12.10 Quarries

Council has no plans to renew any of the assets currently onsite at its quarries. Need to maintain for resource consent requirements.

## 12.11 Vehicular Ferry

### 12.11.1 Renewal Plan

Although the engines and propulsion units have been very well maintained, they have accumulated a large number of hours and may require full replacement within the next 6 years.

### 12.11.2 Renewal Standards

The service will be required to comply with all relevant legislation and marine regulations.

### 12.11.3 Future Renewal Costs

Table 111 shows the projected renewals expenditure for the ferry over the next 10 years.

**Table 111: Projected Renewals Expenditure for Vehicular Ferry**

| Project | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Schottle replacement | | 99,793 | 203,945 | | | | | | | 148,324 |
| Schottle rebuild new impellor | | | | 45,350 | | | 45,874 | | | |
| Schottle rebuild | 30,000 | | 30,116 | | 30,378 | | 30,583 | | 40,387 | |

[23] Refer to the Maintenance Contracts 7/06/100 & 7/06/101 under Part A Conditions of Tendering for further detail

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Engine rebuilds | 200,000 | | | | | 203,295 | | 264,075 | | |
| Gearbox replace | | | | | | 81,318 | | | 106,830 | |
| Drivelines | | | | | | | 40,777 | | | |
| **TOTAL** | **230,000** | **99,793** | **234,061** | **45,350** | **30,378** | **284,613** | **117,234** | **264,075** | **147,217** | **148,324** |

# 13 NEW WORKS PLAN

New works are those works that create a new asset that did not previously exist, or works which upgrade or improve an existing asset beyond its existing capacity. They may result from growth, social or environmental needs. Assets may be acquired at no direct cost to the organisation (i.e. subdivision development).

**Overview**

This section of the plan covers strategies for the creation of new assets (including those created through land subdivision and other development) or works which upgrade or improve an existing asset beyond its existing capacity or performance in response to changes in usage or customer expectations (sealed roads verses unsealed roads). These works are either Council initiated or developer initiated.

As required by schedule 10 of the LGA 2002, with respect to Council funded development work, this plan also identifies and differentiates requirements of additional asset capacity in terms of increased demand (e.g. growth) or an increase in service provision levels and standards.

**Development Planning Categories**

| | |
|---|---|
| **Growth** | Any asset created or upgraded as part of development (council funded and funded by development contributions) that is required as a result of growth |
| **LoS** | Any asset development that is required as a result of a change in service levels. |
| **Regulatory** | Anticipated expenditure needed to meet legislative requirements such as resource consents required under the Resource Management Act (e.g. higher environmental standards), LTNZ |
| **Operational Efficiency** | To reduce costs and improve efficiency |
| **Vested** | Any subdivision development as a result of land development and vested in Council by the developers. |

## 13.1 Pavements

### 13.1.1 New Works

Pavement is generally constructed through the following mechanisms:

- Pavements and other assets that are vested with Council as a result of subdivision development; and
- The development of new portions of pavements when completing seal widening, seal extension works, road realignments and greenfields construction (e.g. bypasses).

Historically, there have been issues with the standard of design and construction of pavements vested with Council. Council has revised the Engineering Standards and Guidelines that provide the requirements for subdivision development. The revision of these Standards and the appointment of a Development Engineer to the Roading and Drainage Group have significantly reduced issues relating to the quality and standard of assets vested to Council.

**Capital Works Asset Development**

Pavement creation is related to:

- increased levels of services required by existing road users (to relieve traffic congestion, improve safety, etc)
- growth related capital works projects, and
- assets resulting from developments.

The development of the road network is undertaken in accordance with the District Plan, which indicates priorities for road widening and new construction. The road designations included in the District Plan form a major commitment, which, under the Resource Management Act, must be constructed within the time frame described in the Plan.

Projects are justified and prioritised on the basis of a cost / benefit analysis which accounts for:

- the benefit to the road user through reducing delays in the time to travel along a given route
- vehicle operating cost savings
- safety benefits
- intangible benefits, such as community dislocation, environmental issues (pollution, water quality, noise and vibrations) and other local, regional and national issues.

Road lifecycle costs (of which pavements are a major component) may be reduced in the asset creation phase by reviewing the following:

- ranking criteria for all capital works and projects
- evaluation of options and staging for all road creation projects
- tendering and contract administration procedures
- review of strategies and plans.

**Safety Improvements**

Each year, when Council is preparing its capital works programme for the following 12 month period, provision is made for minor safety works, including:

- Visibility improvements
- Improved street lighting (rural flag lighting)
- Road curvature realignment
- Signage
- Road widening

Funding is outlined in NZTA's Planning, Programming and Funding Manual 2008.

### 13.1.2 Summary of Future Costs

Capital works are generally initiated through triggers such as growth, Levels of Service, regulatory, operational efficiency, or vested (gifted) through subdivisions. Table 112 summarise the projected capital works to be undertaken over the next 10 years. Any seal extensions will benefit from a subsidy of up to 65%.

**Table 112: Projected Capital Works Expenditure**

| Project Name | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Emergency Storm Damage July 08 | | | | | | | | | | |
| Associated Improvements | 358,206 | 426,256 | 464,601 | 694,426 | 670,203 | 697,010 | 724,891 | 753,887 | 784,042 | 815,405 |
| Klinac Lane Extn | | 500,000 | | | | | | | | |
| Kerikeri Southeast Extn | | | | | | | 1,000,000 | 4,000,000 | 5,000,000 | 5,000,000 |
| Alternative Route Butler to Clarke Road | | 200,000 | 650,000 | 650,000 | 450,000 | | | | | |
| TOTAL | 358,206 | 1,126,256 | 1,114,601 | 1,344,426 | 1,120,203 | 697,010 | 1,724,891 | 4,753,887 | 5,784,042 | 5,815,405 |

## 13.2 Bridges and Large Culverts

### 13.2.1 New Works

Capital works are generally initiated through triggers such as growth, Levels of Service, regulatory, operational efficiency, or vested (gifted) through subdivisions.

### 13.2.2 Summary of Future Costs

There is no capital expenditure forecast for bridges. This will be reviewed with subsequent versions of this AMP, Council's Annual Plan and the LTP.

## 13.3 Footpaths

### 13.3.1 New Works

Footpath development will typically coincide with growth related development, such as new housing, schools or built areas.

### 13.3.2 Summary of Future Costs

Table 113 shows a list of new footpaths to be constructed in the Eastern Ward.

**Table 113: Projected Capital Works Expenditure Eastern**

| Project Name | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Black Road | | | | | 47,225 | | | | | |
| Cobham Road | | | | | | | | 30,598 | | |
| Hall Road | | | | | | 34,677 | | | | |
| Inlet Road | | 169,785 | | | | | | | | |
| Kerikeri Road | | | | 109,060 | | | | | | |
| Kerikeri Road | | | | 119,966 | | | | | | |
| Kemp Road | | 108,045 | | | | | | | | |
| Kendall Road | | | 165,173 | | | | | | | |
| Landing Road | | | | | | 97,096 | | | | |
| Mission Road | | | | 61,074 | | | | | | |
| Pa Road | | | | | 303,588 | | | | | |
| Riddell Road | | | 63,528 | | | | | | | |
| Skudders Beach Road | | | | | | | | 31,821 | | |
| Waipapa Road | | | | | | | | | 725,708 | |
| Puketona Road | 74,000 | | | | | | | | | |
| State Highway 11 | | | | | | | 712,980 | | | |
| Te Kemara Avenue | | | | | | | | | | 70,524 |
| Flagstaff Road | | | | | | 11,559 | | | | |

| Project Name | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Long Beach Road | | | | | | | | | | 97,950 |
| Matauwhi Road | | | | | | | | 14,687 | | |
| Robertson Road | | | | | | | | | | 66,606 |
| Station Road | | | | | | 11,559 | | | | |
| Waiomio Road, | | | | | | | | 18,359 | | |
| Whangae Road | | | | | | | | | | 33,956 |
| Omaunu Road | 200,000 | | | | | | | | | |
| Totara North School Road | | | | | | | | | | 65,300 |
| Whangaroa Road | | | | | | | | | | 914,200 |
| **TOTAL** | **274,000** | **277,830** | **228,701** | **290,100** | **350,813** | **154,891** | **712,980** | **95,465** | **725,708** | **1,248,536** |

Table 114 shows a list of new footpaths to be constructed in the Western Ward.

**Table 114: Projected Capital Works Expenditure Western**

| Project Name | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Thorpe Road | | 41,160 | | | | | | | | |
| State Highway 12 | 30,000 | | | | | | | | | |
| State Highway 12 | 80,000 | | | | | | | | | |
| State Highway 12 | | | 84,704 | | | | | | | |
| Signal Station Road | | | | 218,120 | | | | | | |
| Taumatawiwi Road | | | | | | 41,612 | | | | |
| Kohukohu Road | | | | | 157,416 | | | | | |
| Beach Road | | | | | | 34,677 | | | | |
| West Coast Road | | | | | | | 95,064 | | | |
| State Highway 12 | | | | | | | | 24,478 | | |
| Manning to Mariner Street | | | | | | | | | 88,501 | |
| **TOTAL** | **110,000** | **41,160** | **84,704** | **218,120** | **157,416** | **76,289** | **95,064** | **24,478** | **88,501** | **-** |

Table 115 shows a list of new footpaths to be constructed in the Western Ward.

**Table 115: Projected Capital Works Expenditure Northern**

| Project Name | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Beach Road | | | | | | | | | 101,144 | |
| Cable Bay Block Road | | | | | | 115,590 | | | | |
| Kotare Drive | | | | | | | | 36,717 | | |
| Oruru Road | | | | | | | 47,532 | | | |
| State Highway 10 | | | | | 202,392 | | | | | |
| Taipa Point Road | 20,000 | | | | | | | | | |
| Matai Bay Road | 30,000 | | | | | | | | | |
| Simon Urlich Road | | | | | | | | | 101,144 | |
| Far North Road | | 174,930 | | | | | | | | |
| Far North Road | | | 88,939 | | | | | | | |
| Fitzgerald Road | | | | | | | | 48,956 | | |
| Foreshore Road | | | | 163,590 | | | | | | |
| Pukepoto Road | | | | | | | 23,766 | | | |
| Arnold Rae Park | | | | | | | 47,532 | | | |
| State Highway 1 | | | | | | | | | 151,716 | |
| **TOTAL** | **50,000** | **174,930** | **88,939** | **163,590** | **202,392** | **115,590** | **118,830** | **85,673** | **354,004** | **-** |

## 13.4 Car Parks

### 13.4.1 New Works

An issues and options paper for a Car Parking Strategy for the Far North went to Council in 2010 and was adopted. The next step is to work collaboratively with the District Plan Team to draft up the strategy. This will be carried out over the next 1-2 years depending on resources to complete this.

Once this is finalised, areas requiring further car parks will be prioritised with subsequent versions of this AMP, Councils Annual Plan and the LTP.

### 13.4.2 Summary of Future Costs

Table 116 shows the current list of new car parks to be constructed.

**Table 116: Projected Capital Works Car Parks**

| Project Name | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Church Road, Russell | | 205,800 | | | | | | | | |
| **Total** | | **205,800** | | | | | | | | |

## 13.5 Traffic Services

### 13.5.1 New Works

New traffic services occur from network improvements and assets vested with Council from new subdivisions. The network improvements are triggered by safety audits and/or crash reduction studies and many of these improvements are funded from the minor safety budget.

### 13.5.2 Summary of Future Costs

There is no capital expenditure forecast for traffic services. This will be reviewed once the Car Parking Strategy is finalised within the next 3 years.

## 13.6 Street lighting

### 13.6.1 New Works

The capital cost of installing new street lighting assets is programmed from minor safety and/or road reconstruction projects. New assets will as a standard, be installed using high efficiency luminaires with the Councils engineering standards updated to reflect this change of emphasis. New street lighting assets are vested with Council as a result of new subdivisions.

### 13.6.2 Summary of Future Costs

There is no capital expenditure forecast for streetlights.

## 13.7 Drainage Facilities

### 13.7.1 New Works

New drainage facilities are created through road upgrades and construction works; and as such are not separated out and budgeted for specifically. New drainage facilities are created as a result of subdivisions and developments being vested with Council; in conjunction with growth related capital works.

### 13.7.2 Summary of Future Costs

There is no capital expenditure forecast for drainage facilities.

## 13.8 Minor Structures

### 13.8.1 New Works

New walls are normally generated as a result of storm events and road construction projects.

### 13.8.2 Summary of Future Costs

There is no capital expenditure forecast for minor structures. This is determined when a storm event occurs in the Far North District.

## 13.9 Quarries

### 13.9.1 New Works

Council is investigating, alongside other interested parties, the potential for new sites to be developed for the supply of quality aggregate for the Northland Region including Council' roads and those operated by NZTA.

Council has no plans to develop new sites or expand those it currently owns or manages.

# 14 DISPOSAL PLAN

Asset Disposal is the retirement or sale of assets whether surplus or superseded by new or improved systems. Assets may become surplus to requirements due to obsolescence, under utilisation, changes in policy, etc.

Disposal is the retirement, demolition or sale of assets whether surplus or superseded by new or improved assets. Assets may become surplus to requirements for any of the following reasons:

- Under utilisation
- Obsolescence
- Provision exceeds required level of service
- Assets replaced before its predicted economic life
- Uneconomic to upgrade or operate
- Policy changes
- Service provided by other means (e.g. private sector involvement)
- Potential risk of ownership (financial, environmental, legal, social, vandalism).

At this time Council has no plans to dispose of any of its transportation assets.

# 15 FINANCIAL PROJECTIONS

To undertake a sustainable, long-term approach to asset management, it is essential to prepare long-term financial forecasts. This allows a long term view of how the asset will be managed, how much this will cost and when additional funding may be required to meet expected service levels. These financial forecasts are a culmination of the previously discussed aspects of the Asset Management Plan such as:

- Community Consultation
- Levels of Service
- Demand Management
- Lifecycle Management
- Asset Lives
- Condition Ratings
- Asset Valuation
- Sustainability

The above forms the basis of the long-term operations, maintenance and capital requirements. Funding requirements have also been included in the financial statements.

## 15.1 Financial Statements and Projections

Table 117 contains the transport statement of Financial Performance, which incorporates the projected income and funding sources to fund operational, renewal and capital expenditure.

### 15.1.1 Operating Expenditure

Operations and maintenance expenditure covers reactive and proactive maintenance corporate management, debt serving, depreciation and interest payable.

Operations expenditure is estimated at approximately $30.2 million in 2012/13 (including corporate overheads, debt serving and depreciation). These projections increase over the 10 year period to $43.4 million.

### 15.1.2 Renewals Works (Rehabilitation and Replacement)

Renewal works includes rehabilitation and replacement of assets to restore an asset to its original level of service, i.e. the required condition. Renewals expenditure forecasts shown in the *source and application of funds table in the LTP* cover the cost of asset renewal through its whole lifecycle through to disposal of the asset. A total of $158.4 million is budgeted for renewals over the 10-year period.

### 15.1.3 Capital Works (New Works)

Capital works (new works) involves the creation of new assets, or works, which upgrade or improve an existing asset beyond its current performance in response to changes in usage or customer expectations. New works expenditure forecasts shown in the *source and application of funds table in the LTP* show a total of $56.3 million is budgeted for new works over the 10-year period.

### 15.1.3.1 Transport Income and Expenditure Forecast

**Table 117: Transport Income and Expenditure Forecast**

| Transport Network District Wide | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Operating Statement** | **Budget** | **Budget** | **Budget** | **Budget** | **Budget** | **Budget** | **Budget** | **Budget** | **Budget** | **Budget** |
| **Income** | | | | | | | | | | |
| General Rates | 11,158,631 | 11,105,942 | 11,677,134 | 12,323,144 | 12,985,310 | 13,383,201 | 14,514,591 | 14,572,811 | 15,289,938 | 16,189,156 |
| Community Rates | 1,198,566 | 1,259,352 | 1,335,921 | 1,401,818 | 1,482,645 | 1,564,880 | 1,645,117 | 1,734,056 | 1,789,603 | 1,904,329 |
| Service Rates | 3,043,478 | 3,043,478 | 3,043,478 | 3,043,478 | 3,043,478 | 3,043,478 | 3,043,478 | 3,043,478 | 3,043,478 | 3,043,478 |
| Rates Penalties | 427,718 | 440,566 | 453,783 | 467,372 | 481,381 | 495,845 | 510,727 | 526,025 | 541,820 | 558,076 |
| Fees | 755,286 | 779,455 | 804,380 | 831,721 | 860,799 | 890,029 | 919,410 | 949,772 | 983,987 | 1,018,428 |
| Service Fees | 13,700 | 14,138 | 14,591 | 15,086 | 15,614 | 16,144 | 16,677 | 17,228 | 17,848 | 18,473 |
| Rents | 43,159 | 44,540 | 45,964 | 47,526 | 49,188 | 50,858 | 52,537 | 54,272 | 56,227 | 58,195 |
| Subsidy Operational | 5,178,283 | 5,842,379 | 5,949,076 | 6,499,524 | 6,751,001 | 7,044,180 | 7,301,848 | 7,654,931 | 7,866,666 | 8,172,091 |
| Subsidy Renewals | 6,951,048 | 5,748,376 | 7,426,155 | 8,363,926 | 8,697,815 | 9,154,037 | 9,362,399 | 9,816,639 | 10,178,533 | 10,337,110 |
| Subsidy New Works | 2,953,431 | 1,793,122 | 1,674,776 | 1,736,732 | 1,773,765 | 1,598,087 | 2,342,873 | 4,302,234 | 4,928,809 | 4,907,123 |
| Central Govt Subsidy - Administration | 300,681 | 301,137 | 338,625 | 373,504 | 387,508 | 400,417 | 427,660 | 489,911 | 516,915 | 526,867 |
| Development Contributions | 0 | 0 | 0 | 560,936 | 1,121,873 | 1,682,809 | 1,682,809 | 1,682,809 | 2,243,745 | 2,243,745 |
| Development Contributions Opex | 0 | 0 | 0 | 221,667 | 209,028 | 196,390 | 183,751 | 178,890 | 165,278 | 151,667 |
| Petrol Tax | 596,946 | 616,048 | 635,748 | 657,357 | 680,339 | 703,441 | 726,662 | 750,660 | 777,701 | 804,922 |
| Recoveries | 26,854 | 27,708 | 28,612 | 29,566 | 30,568 | 31,593 | 32,649 | 33,756 | 34,957 | 36,180 |
| **Total Operating Income** | **32,647,781** | **31,016,242** | **33,428,242** | **36,573,358** | **38,570,311** | **40,255,390** | **42,763,188** | **45,807,470** | **48,435,506** | **49,969,841** |
| **Direct Costs** | | | | | | | | | | |
| Carparks | 47,425 | 49,147 | 50,508 | 52,225 | 54,276 | 55,886 | 57,731 | 59,886 | 62,043 | 64,215 |
| Footpaths | 224,240 | 229,729 | 238,816 | 245,134 | 255,566 | 262,319 | 272,967 | 279,927 | 290,011 | 300,162 |
| Infrastructure & Asset Management Operations | (4,612) | (4,759) | (4,912) | (5,079) | (5,258) | (5,437) | (5,617) | (5,803) | (6,013) | (6,224) |
| Asset Management | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Roading Administration | 669,666 | 678,889 | 697,476 | 717,879 | 747,820 | 768,317 | 788,313 | 810,819 | 833,157 | 858,608 |
| Emergency Works | 987,801 | 1,113,170 | 1,145,523 | 784,241 | 811,660 | 839,221 | 866,924 | 895,553 | 927,814 | 960,289 |
| Ferries | 1,113,696 | 948,393 | 1,008,319 | 1,011,986 | 1,334,210 | 1,073,899 | 1,666,749 | 1,149,649 | 1,177,658 | 1,218,878 |

| Transport Network District Wide | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Legalisation | 420,651 | 432,501 | 445,806 | 459,765 | 481,300 | 495,330 | 510,134 | 525,216 | 541,889 | 558,821 |
| Roading Network | 9,238,644 | 9,530,540 | 9,837,877 | 11,014,032 | 11,366,228 | 11,905,713 | 12,288,428 | 12,864,423 | 13,284,641 | 13,900,033 |
| Roading Unsubsidised Work | 638,051 | 657,831 | 680,865 | 701,984 | 723,040 | 746,201 | 772,297 | 800,882 | 828,127 | 857,094 |
| Cycleway Network | 168,512 | 143,675 | 54,061 | 55,977 | 62,003 | 63,816 | 66,079 | 68,012 | 70,176 | 72,374 |
| Professional Services Unit | (138,938) | (268,083) | (278,753) | (292,240) | (289,278) | (306,107) | (321,424) | (337,329) | (356,927) | (375,008) |
| Interest | 1,010,856 | 1,148,410 | 1,205,898 | 1,569,940 | 1,565,566 | 1,568,769 | 1,658,141 | 1,675,544 | 1,717,668 | 1,797,149 |
| Depreciation | 14,670,609 | 15,375,679 | 16,132,298 | 16,765,904 | 17,173,657 | 18,082,917 | 18,809,335 | 19,658,885 | 20,574,033 | 21,606,707 |
| **Total Direct Operating Expenditure** | **29,046,601** | **30,035,121** | **31,213,781** | **33,081,749** | **34,280,791** | **35,550,845** | **37,430,058** | **38,445,663** | **39,944,277** | **41,813,098** |
| Indirect Costs | 1,195,506 | 1,238,142 | 1,254,629 | 1,290,057 | 1,346,427 | 1,382,140 | 1,426,492 | 1,464,628 | 1,513,538 | 1,556,003 |
| **Total Indirect Costs** | **1,195,506** | **1,238,142** | **1,254,629** | **1,290,057** | **1,346,427** | **1,382,140** | **1,426,492** | **1,464,628** | **1,513,538** | **1,556,003** |
| **Total Operating Expenditure** | **30,242,107** | **31,273,263** | **32,468,410** | **34,371,806** | **35,627,218** | **36,932,985** | **38,856,550** | **39,910,291** | **41,457,815** | **43,369,101** |
| **Net Operating Surplus/(Deficit)** | **2,405,674** | **(257,021)** | **959,832** | **2,201,552** | **2,943,093** | **3,322,405** | **3,906,638** | **5,897,179** | **6,977,691** | **6,600,740** |
| **Funding** | | | | | | | | | | |
| Net Profit/(Loss) | 2,405,674 | (257,021) | 959,832 | 2,201,552 | 2,943,093 | 3,322,405 | 3,906,638 | 5,897,179 | 6,977,691 | 6,600,740 |
| External Loans Raised | 2,942,653 | 1,738,633 | 1,453,291 | 1,000,912 | 1,152,017 | 891,182 | 1,283,024 | 1,809,426 | 2,415,708 | 2,349,459 |
| Development Contribution Fund Contributions | 0 | 0 | 0 | (560,936) | (1,121,873) | (1,682,809) | (1,682,809) | (1,682,809) | (2,243,745) | (2,243,745) |
| Development Contribution Fund Withdrawal | 510,393 | 875,273 | 790,457 | 991,044 | 914,092 | 732,495 | 1,338,461 | 1,163,160 | 1,874,866 | 2,028,486 |
| Depreciation Renewal Fund Withdrawals | 5,937,116 | 4,827,339 | 6,288,389 | 6,955,506 | 7,154,146 | 7,895,903 | 7,804,938 | 8,319,338 | 8,520,823 | 8,667,079 |
| Depreciation Debt Funding Withdrawal | 650,106 | 797,238 | 844,063 | 916,728 | 966,773 | 1,021,874 | 1,056,496 | 1,120,647 | 1,196,345 | 1,317,130 |
| Depreciation Not Funded Withdrawal | 7,498,804 | 7,798,519 | 8,141,099 | 8,460,042 | 8,650,360 | 9,112,528 | 9,481,443 | 9,904,502 | 10,373,396 | 10,887,238 |
| **Total Capital Expenditure** | **19,944,747** | **15,779,981** | **18,477,132** | **19,964,847** | **20,658,607** | **21,293,579** | **23,188,190** | **26,531,443** | **29,115,084** | **29,606,387** |
| **Capital Expenditure** | | | | | | | | | | |
| Capital Projects New | 6,406,477 | 4,407,028 | 3,918,524 | 3,728,688 | 3,839,873 | 3,221,764 | 4,964,358 | 7,274,819 | 9,219,383 | 9,285,068 |
| Capital Projects Renewal | 12,888,164 | 10,575,715 | 13,714,545 | 15,319,431 | 15,851,961 | 17,049,941 | 17,167,336 | 18,135,977 | 18,699,356 | 19,004,189 |
| Debt Repayment | 650,106 | 797,238 | 844,063 | 916,728 | 966,773 | 1,021,874 | 1,056,496 | 1,120,647 | 1,196,345 | 1,317,130 |
| **Total Capital Expenditure** | **19,944,747** | **15,779,981** | **18,477,132** | **19,964,847** | **20,658,607** | **21,293,579** | **23,188,190** | **26,531,443** | **29,115,084** | **29,606,387** |
| **NET SURPLUS / (DEFICIT)** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

The above financial table shows the Capital expenditure grouped by Primary Purpose for undertaking the works. In the Source and Application of funds the New and Renewal works are grouped by the funding source.

Table 117 last updated: 14/8/2012 11:44 AM

**Figure 53: Transportation Operating Expense**

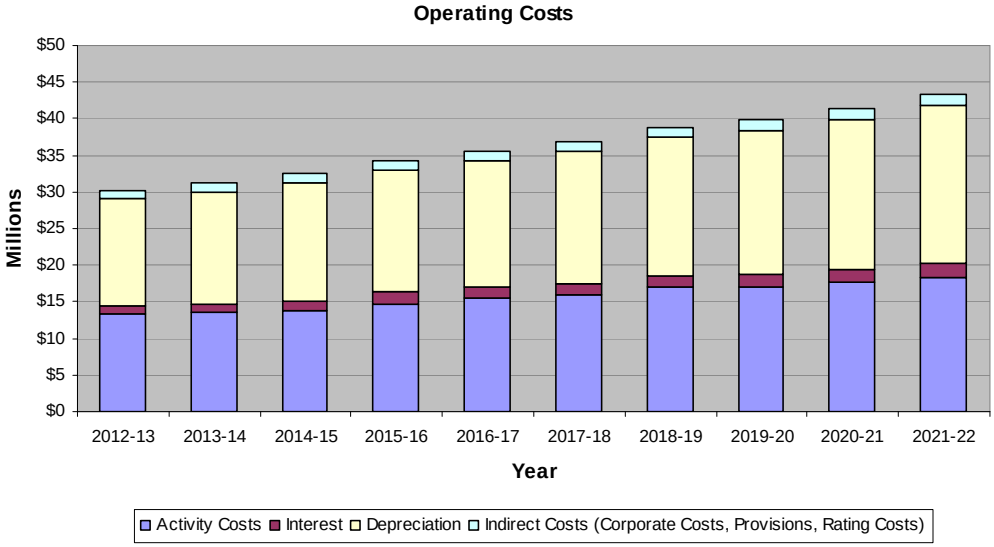



Figure 53 shows the total Operating Expense for the next 10 years including depreciation and Interest. The "Activity Cost" is estimated at $13.4 million in 2012/13 and increases to $18.4 million in 2021/22. This equates to an increase of approximately $5.0 million over the 10 year period. Interest values show the marginal cost of interest expense on the proposed programme. Capital projects increase depreciation payable which when adjusted for inflation will impact on available funding and the depreciation included in this plan. Depreciation is estimated at $14.7 million in 2012/13 and increases to $21.6 million in 2021/22, equating to an increase of approximately $6.9 million over the 10 year period.

### 15.1.3.2 Forecast Operating Costs (excluding Depreciation and Interest)

**Table 118: Forecast Operating Costs (excluding Depreciation and Interest)**

| Operating Costs | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Activity Costs | 13,312,572 | 13,464,541 | 13,820,622 | 14,685,680 | 15,437,107 | 15,790,717 | 16,845,533 | 16,990,310 | 17,526,796 | 18,278,565 |
| Allocated Direct Costs | 52,564 | 46,491 | 54,964 | 60,225 | 104,461 | 108,442 | 117,049 | 120,924 | 125,780 | 130,677 |
| Allocated Indirect Costs | 1,195,506 | 1,238,142 | 1,254,629 | 1,290,057 | 1,346,427 | 1,382,140 | 1,426,492 | 1,464,628 | 1,513,538 | 1,556,003 |
| **Total Operating Costs (Excl Depreciation & Interest)** | **14,560,642** | **14,749,174** | **15,130,214** | **16,035,962** | **16,887,995** | **17,281,299** | **18,389,074** | **18,575,862** | **19,166,114** | **19,965,245** |

Table 118 last updated: 14/8/2012 11:50 AM

**Figure 54: Operating Costs (excl Depreciation and Interest)**

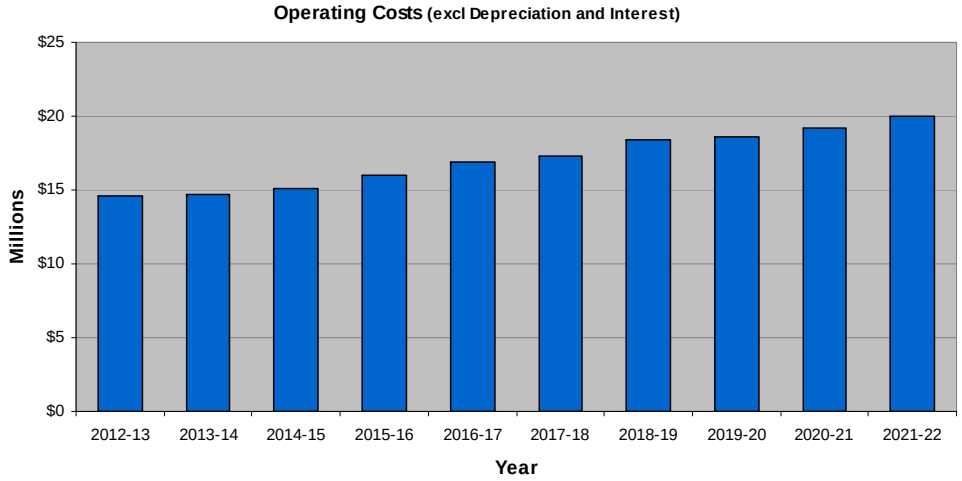



Figure 54 shows an upward trend for Operating Costs for the next 10 years excluding depreciation and interest. The "Operating Costs" is estimated at $14.6 million in 2012/13 and increases to $20.0 million in 2021/22, equating to an increase of approximately $5.4 million over the 10 year period.

### 15.1.3.3 Future Infrastructural Asset & Land Values

**Table 119: Future Infrastructural Asset (Optimised Replacement Value) & Land Values**

| Asset Type | Commissioned Assets | Incl Work In Progress | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carparks | 4,754,867 | 5,470,742 | 5,470,742 | 5,676,542 | 5,676,542 | 5,676,542 | 5,676,542 | 5,676,542 | 5,676,542 | 5,676,542 | 5,676,542 | 5,676,542 |
| Footpaths | 25,094,623 | 25,717,796 | 26,151,796 | 26,676,405 | 27,087,158 | 27,758,968 | 28,469,589 | 28,816,359 | 29,743,233 | 29,948,849 | 31,117,062 | 32,365,598 |
| Streetlighting | 256,974 | 256,974 | 256,974 | 256,974 | 256,974 | 256,974 | 256,974 | 256,974 | 256,974 | 256,974 | 256,974 | 256,974 |
| Management Vehicle | 19,008 | 28,512 | 19,008 | 19,008 | 19,008 | 19,008 | 19,008 | 19,008 | 19,008 | 19,008 | 19,008 | 19,008 |
| Roading Operations | 168,989 | 196,646 | 168,989 | 168,989 | 168,989 | 168,989 | 168,989 | 168,989 | 168,989 | 168,989 | 168,989 | 168,989 |
| Emergency Works | 0 | 469,181 | 469,181 | 469,181 | 469,181 | 469,181 | 469,181 | 469,181 | 469,181 | 469,181 | 469,181 | 469,181 |
| Ferry | 3,776,610 | 3,812,113 | 3,812,113 | 3,812,113 | 3,812,113 | 3,812,113 | 3,812,113 | 3,812,113 | 3,812,113 | 3,812,113 | 3,812,113 | 3,812,113 |
| Roading Network | 1,469,362,557 | 1,486,646,476 | 1,490,099,794 | 1,493,776,413 | 1,497,284,184 | 1,500,341,062 | 1,503,470,315 | 1,506,345,309 | 1,510,382,792 | 1,517,451,996 | 1,525,503,166 | 1,533,539,698 |
| Roading Minor Safety | 0 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 |
| Cycleway Network | 0 | 2,609,159 | 5,128,318 | 5,128,318 | 5,128,318 | 5,128,318 | 5,128,318 | 5,128,318 | 5,128,318 | 5,128,318 | 5,128,318 | 5,128,318 |
| **TOTAL** | **1,503,433,628** | **1,526,602,723** | **1,532,972,039** | **1,537,379,067** | **1,541,297,591** | **1,545,026,279** | **1,548,866,153** | **1,552,087,917** | **1,557,052,275** | **1,564,327,094** | **1,573,546,477** | **1,582,831,545** |

Table 119 last updated: 14/8/2012 12:49 PM

**Figure 55: Estimated Infrastructure Asset Value (Optimised Replacement Value)**

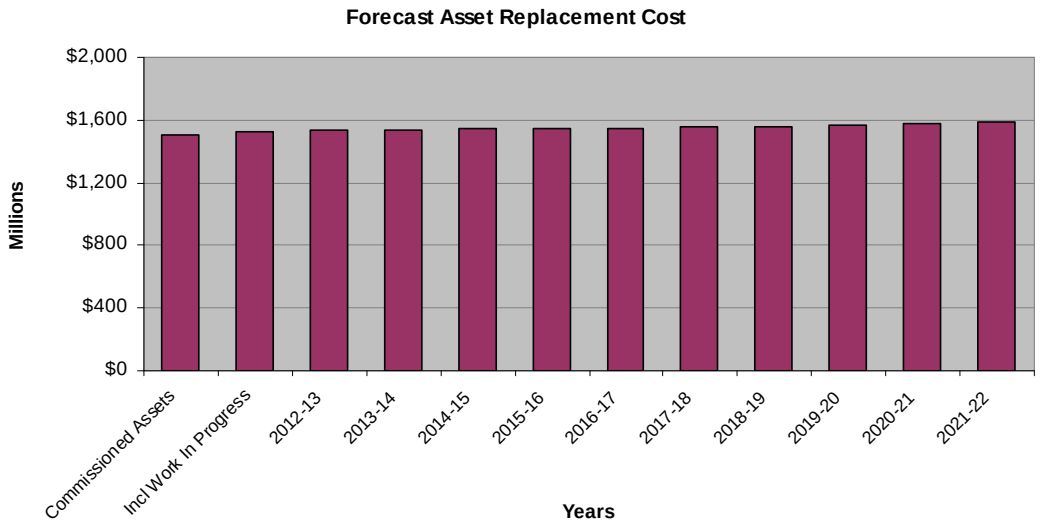



Figure 55 shows an upward trend for Optimised Replacement Value from the current year with a value of approximately $1.533 billion in 2012/13 to $1.583 billion in 2018/19, equating to an increase in replacement cost of approximately $49.86 million over the next 10 year period.

### 15.1.3.4 Infrastructural Asset Depreciation (Current & Future Values)

**Table 120: Infrastructural Asset Depreciation (Current Values)**

| Asset Type | Commissioned Assets | Incl. Work In Progress | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carparks | 84,334 | 110,719 | 106,060 | 110,719 | 110,719 | 118,719 | 118,719 | 118,719 | 118,719 | 118,719 | 118,719 | 118,719 | 118,719 |
| Cycleway Network | 0 | 59,920 | 35,000 | 59,920 | 169,860 | 239,860 | 239,860 | 239,860 | 239,860 | 239,860 | 239,860 | 239,860 | 239,860 |
| Emergency Works | 0 | 16,756 | 11,459 | 16,756 | 16,756 | 16,756 | 16,756 | 16,756 | 16,756 | 16,756 | 16,756 | 16,756 | 16,756 |
| Ferries | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 | 80,466 |
| Footpaths | 609,967 | 628,277 | 743,061 | 628,277 | 642,745 | 659,739 | 672,671 | 693,205 | 714,272 | 724,271 | 750,271 | 755,871 | 786,671 |
| IAM Operations | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 | 4,752 |
| Roading Administration | 14,037 | 14,037 | 19,857 | 14,037 | 14,037 | 14,037 | 14,037 | 14,037 | 14,037 | 14,037 | 14,037 | 14,037 | 14,037 |
| Roading Network | 13,269,985 | 13,744,686 | 14,149,406 | 13,744,686 | 13,864,889 | 13,985,264 | 14,096,344 | 13,992,714 | 14,284,366 | 14,361,047 | 14,467,329 | 14,654,647 | 14,861,908 |
| Street Lighting | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 | 10,996 |
| **Total Depreciation** | **14,074,537** | **14,670,609** | **15,161,057** | **14,670,609** | **14,915,220** | **15,130,589** | **15,254,601** | **15,171,505** | **15,484,224** | **15,570,904** | **15,703,186** | **15,896,104** | **16,134,165** |

Table 120 last updated: 14/8/2012 12:55 PM

**Table 121: Infrastructural Asset Depreciation (Future Values)**

| Asset Type | Commissioned Assets | Incl. Work In Progress | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carparks | 84,334 | 110,719 | 106,060 | 110,719 | 113,930 | 125,229 | 128,750 | 132,492 | 135,980 | 139,567 | 143,509 | 147,982 | 152,599 |
| Cycleway Network | 0 | 59,920 | 35,000 | 59,920 | 174,656 | 249,603 | 255,029 | 260,800 | 266,600 | 272,431 | 278,457 | 285,247 | 292,082 |
| Emergency Works | 0 | 16,756 | 11,459 | 16,756 | 17,275 | 17,880 | 18,435 | 18,988 | 19,596 | 20,281 | 21,032 | 21,748 | 22,508 |
| Ferries | 80,466 | 80,466 | 80,466 | 80,466 | 83,041 | 85,696 | 88,609 | 91,707 | 94,821 | 97,951 | 101,186 | 104,831 | 108,500 |
| Footpaths | 609,967 | 628,277 | 743,061 | 628,277 | 661,385 | 698,532 | 733,615 | 779,440 | 825,627 | 860,651 | 918,257 | 955,648 | 1,027,392 |
| IAM Operations | 4,752 | 4,752 | 4,752 | 4,752 | 4,904 | 5,061 | 5,233 | 5,416 | 5,600 | 5,785 | 5,976 | 6,191 | 6,408 |
| Roading Administration | 14,037 | 14,037 | 19,857 | 14,037 | 14,472 | 14,979 | 15,444 | 15,907 | 16,416 | 16,990 | 17,619 | 18,219 | 18,856 |
| Roading Network | 13,269,985 | 13,744,686 | 14,149,406 | 13,744,686 | 14,294,701 | 14,923,675 | 15,508,798 | 15,856,544 | 16,705,566 | 17,382,611 | 18,159,391 | 19,020,266 | 19,964,001 |
| Street Lighting | 10,996 | 10,996 | 10,996 | 10,996 | 11,315 | 11,643 | 11,992 | 12,364 | 12,710 | 13,067 | 13,458 | 13,902 | 14,361 |
| **Total Depreciation** | **14,074,537** | **14,670,609** | **15,161,057** | **14,670,609** | **15,375,679** | **16,132,298** | **16,765,904** | **17,173,657** | **18,082,917** | **18,809,335** | **19,658,885** | **20,574,033** | **21,606,707** |

Table 121 last updated: 14/8/2012 1:00 PM

**Figure 56: Depreciation Requirements**

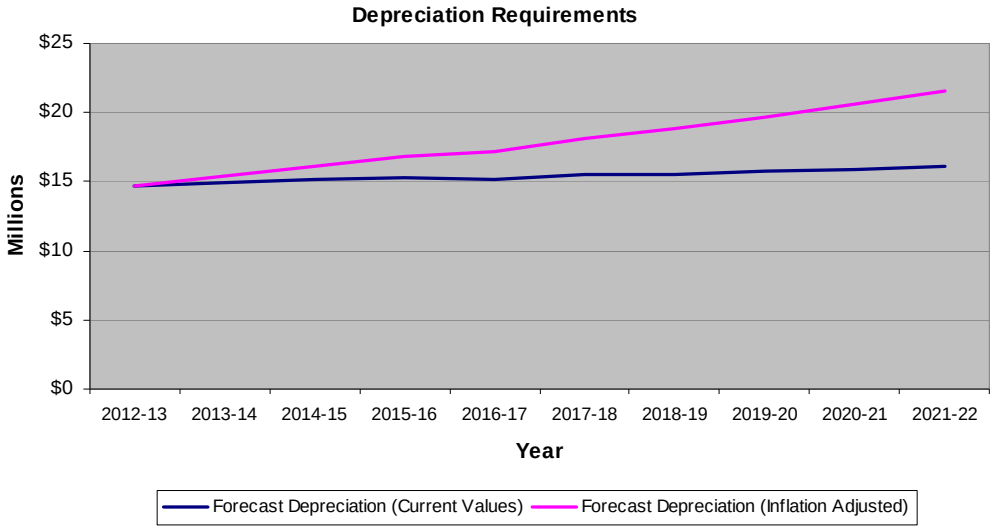



Figure 56 shows the resultant increase in depreciation for the proposed 10 year new works programme from $14.7 million in 2012/13 to $16.1 million in 2021/22, an increase of approximately $1.5 million. The Forecast Depreciation (Inflation Adjusted) line shows the impact of inflation on the base assets and proposed new works.

### 15.1.3.5 Future Infrastructural Asset & Land Values

**Table 122: Future Infrastructural Asset (Optimised Depreciated Replacement Value) & Land Values**

| Asset Type | Commissioned Assets | Incl Work In Progress | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Carparks | 3,765,410 | 3,765,410 | 4,454,900 | 4,633,550 | 4,597,613 | 4,560,838 | 4,523,171 | 4,484,672 | 4,445,319 | 4,405,026 | 4,363,668 | 4,321,209 |
| Footpaths | 10,974,598 | 10,974,598 | 12,013,462 | 12,504,342 | 12,862,397 | 13,465,822 | 14,082,850 | 14,309,054 | 15,100,100 | 15,133,998 | 16,117,745 | 17,135,505 |
| Streetlighting | 214,628 | 214,628 | 214,628 | 214,628 | 214,628 | 214,628 | 214,628 | 214,628 | 214,628 | 214,628 | 214,628 | 214,628 |
| Management Vehicle | 20,161 | 20,161 | 20,161 | 20,161 | 20,161 | 20,161 | 20,161 | 20,161 | 20,161 | 20,161 | 20,161 | 20,161 |
| Roading Operations | 140,494 | 140,494 | 140,494 | 140,494 | 140,494 | 140,494 | 140,494 | 140,494 | 140,494 | 140,494 | 140,494 | 140,494 |
| Emergency Works | 0 | 0 | 452,425 | 435,150 | 417,269 | 398,834 | 379,846 | 360,250 | 339,969 | 318,937 | 297,189 | 274,681 |
| Ferry | 1,247,054 | 1,247,054 | 1,282,557 | 1,282,557 | 1,282,557 | 1,282,557 | 1,282,557 | 1,282,557 | 1,282,557 | 1,282,557 | 1,282,557 | 1,282,557 |
| Roading Network | 1,193,588,464 | 1,193,588,464 | 1,213,851,000 | 1,216,914,273 | 1,219,658,770 | 1,221,806,488 | 1,223,890,104 | 1,225,578,779 | 1,228,295,641 | 1,233,861,939 | 1,240,115,956 | 1,246,014,058 |
| Roading Minor Safety | 0 | 0 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 | 1,395,124 |
| Cycleway Network | 0 | 0 | 6,457,239 | 6,282,583 | 6,032,980 | 5,777,951 | 5,517,152 | 5,250,551 | 4,978,120 | 4,699,664 | 4,414,417 | 4,122,335 |
| **TOTAL** | **1,209,950,810** | **1,209,950,810** | **1,240,281,990** | **1,243,822,862** | **1,246,621,994** | **1,249,062,897** | **1,251,446,087** | **1,253,036,271** | **1,256,212,114** | **1,261,472,528** | **1,268,361,939** | **1,274,920,753** |

Table 122 last updated: 14/8/2012 1:27 PM

**Figure 57: Estimated Infrastructural Asset Value (Optimised Depreciated Replacement Value)**

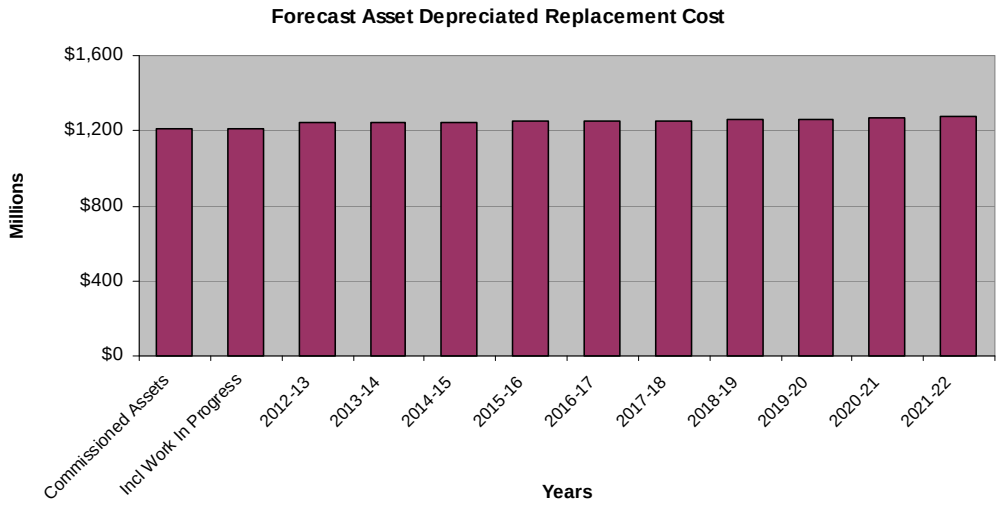



Figure 57 shows an upward trend for Optimised Depreciated Replacement Value from the current year with a value of approximately $1.240 billion in 2012/13 to $1.275 billion in 2018/19, equating to a decrease in depreciated replacement cost of approximately $34.6 million over the next 10 year period.

### 15.1.3.6 Forecast New Loan Requirements

Table 123 below shows the Forecast New Loan Requirements that Council may have to raise for this activity over the next 10 year period.

**Table 123: Forecast New Loan Requirements**

| Location | Asset/Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Carparks** | | | | | | | | | | | |
| Russell | Church Road Russell, Develop new Car Park | 0 | -205,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cycleway Network** | | | | | | | | | | | |
| District Wide | Cycleway Network | -800,009 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Footpaths** | | | | | | | | | | | |
| Ahipara | Foreshore Road Ahipara | 0 | 0 | 0 | -32,718 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cable Bay | Cable Bay Block Road | 0 | 0 | 0 | 0 | 0 | -115,590 | 0 | 0 | 0 | 0 |
| Coopers Beach | State Highway 10 Coopers Beach | 0 | 0 | 0 | 0 | -202,392 | 0 | 0 | 0 | 0 | 0 |
| Houhora | Fitzgerald Road Houhora | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -9,791 | 0 | 0 |
| Kaeo | Omaunu Rd Bridge to Turner St Kaeo | -200,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaikohe | Thorpe Rd Kaikohe | 0 | -41,160 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia | Pukepoto Road Kaitaia | 0 | 0 | 0 | 0 | 0 | 0 | -23,766 | 0 | 0 | 0 |
| Kaitaia | Arnold Rae Park Kaitaia | 0 | 0 | 0 | 0 | 0 | 0 | -47,532 | 0 | 0 | 0 |
| Karikari Peninsula | Matai Bay Road Karikari | -6,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kawakawa | Whangae Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -6,791 |
| Kawakawa | Waiomio Road Link to Existing Footpath | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -3,672 | 0 | 0 |
| Kawakawa | Whitemans Road Kawakawa Footpath Concrete 240m | 0 | -15,435 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kawakawa | Station Road Kawakawa | 0 | 0 | 0 | 0 | 0 | -11,559 | 0 | 0 | 0 | 0 |
| Kerikeri | Riddell Road Kerikeri | 0 | 0 | -12,706 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri | Pa Rd Kerikeri | 0 | 0 | 0 | 0 | -60,718 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri | Whangaroa Road Kerikeri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -182,840 |
| Kerikeri | Black Rd Kerikeri | 0 | 0 | 0 | 0 | -9,445 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri | Kerikeri Road Maraenui to SH10 | 0 | 0 | 0 | -23,993 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri | Landing Road Kerikeri | 0 | 0 | 0 | 0 | 0 | -19,419 | 0 | 0 | 0 | 0 |
| Kerikeri | Mission Road Kerikeri | 0 | 0 | 0 | -12,215 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri | Skudders Beach Rd Kerikeri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -6,364 | 0 | 0 |

| Location | Asset/Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Kerikeri | Cobham Road Kerikeri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -6,120 | 0 | 0 |
| Kerikeri | Hall Rd Kerikeri | 0 | 0 | 0 | 0 | 0 | -6,935 | 0 | 0 | 0 | 0 |
| Kerikeri | Inlet Road Darwin Rd to Rolands Wood | 0 | -33,957 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri | Kemp Road Kerikeri | 0 | -21,609 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri | Kendall Road Kerikeri | 0 | 0 | -33,035 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri | Kerikeri Road Hall Road to Maraenui | 0 | 0 | 0 | -21,812 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kohukohu | Kohukohu Road Kohukohu | 0 | 0 | 0 | 0 | -157,416 | 0 | 0 | 0 | 0 | 0 |
| Kohukohu | Beach Rd Kohukohu | 0 | 0 | 0 | 0 | 0 | -34,677 | 0 | 0 | 0 | 0 |
| Mangonui | Beach Rd Mangonui | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -20,229 | 0 |
| Mangonui | Oruru Road Mangonui | 0 | 0 | 0 | 0 | 0 | 0 | -9,506 | 0 | 0 | 0 |
| Mangonui | Kotare Drive Mangonui | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -7,343 | 0 | 0 |
| Mitimiti | West Coast Road Mitimiti | 0 | 0 | 0 | 0 | 0 | 0 | -95,064 | 0 | 0 | 0 |
| Omapere | State Highway 12 Omapere | 0 | 0 | -84,704 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Omapere | Signal Station Rd Omapere | 0 | 0 | 0 | -218,120 | 0 | 0 | 0 | 0 | 0 | 0 |
| Opononi | Taumatawiwi Rd Opononi | 0 | 0 | 0 | 0 | 0 | -41,612 | 0 | 0 | 0 | 0 |
| Opononi | State Highway 12 Opononi | -30,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Opononi | State Highway 12 Opononi | -80,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Paihia | State Highway 11 Haruru Falls | 0 | 0 | 0 | 0 | 0 | 0 | -142,596 | 0 | 0 | 0 |
| Paihia | Puketona Road Haruru Falls to Nautical Drive | -14,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Paihia | Te Kemara Avenue Paihia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -14,105 |
| Pamapuria | State Highway 1 Pamapuria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -151,716 | 0 |
| Pukenui | Far North Road Pukenui | 0 | -34,986 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pukenui | Far North Road Pukenui | 0 | 0 | -17,788 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rawene | Manning to Mariner St Rawene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -88,501 | 0 |
| Russell | Robertson Road Russell | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -13,321 |
| Russell | York Street Russell Footpath Concrete 39m | 0 | 0 | -8,409 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Russell | Long Beach Road Russell | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -97,950 |
| Russell | Matauwhi Road Russell | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2,937 | 0 | 0 |
| Russell | Flagstaff Rd Russell | 0 | 0 | 0 | 0 | 0 | -2,312 | 0 | 0 | 0 | 0 |
| Taipa | Taipa Point Road Taipa | -4,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totara North | Totara North School Road Totara North | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -65,300 |

| Location | Asset/Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Waimamaku | State Highway 12 Waimamaku | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -24,478 | 0 | 0 |
| Waipapa | Waipapa Rd Kerikeri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -145,142 | 0 |
| Waipapa | Waipapa Landing Place Kerikeri Footpath Interlocking Blocks 170m | 0 | -15,254 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Whatuwhiwhi | Simon Urlich Road Whatuwhiwhi | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -20,229 | 0 |
| **Roading Network** | | | | | | | | | | | |
| Awanui | Churtons Road Bridge No C13 | 0 | -15,015 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Awanui | Oinu Road Bridge No B18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -7,219 |
| District Wide | Carry Forward Of Unsubsidised Work | -660,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| District Wide | Retaining Wall Renewals - WC215 | -13,500 | -22,500 | -13,500 | -13,500 | -14,040 | -14,601 | -15,186 | -15,793 | -16,425 | -17,082 |
| District Wide | Minor Improvements District Wide - WC341 | -307,794 | -322,127 | -332,840 | -346,929 | -360,806 | -375,239 | -390,248 | -405,858 | -422,093 | -438,976 |
| District Wide | Ratepayer Partnership Programme | -584,700 | -584,700 | -584,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| District Wide | Preventative Maintenance | -218,750 | -210,000 | -152,250 | -161,000 | -192,500 | -185,500 | -210,000 | -227,500 | -210,000 | -183,750 |
| East Coast | Tipa Tipa Road Bridge No I51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -14,438 | 0 | 0 |
| Herekino | Powells Bridge No D35 | 0 | 0 | 0 | 0 | 0 | -9,625 | 0 | 0 | 0 | 0 |
| Hihi | Hihi Road Bridge No F07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -13,475 | 0 | 0 |
| Kaeo | Matawherohia Road Bridge No I48 | 0 | 0 | -11,550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaikohe | Cumber Road Bridge No P48 | 0 | 0 | 0 | 0 | 0 | -9,625 | 0 | 0 | 0 | 0 |
| Kaikohe | Browns Road Bridge No P13 | -11,550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia | Grounds Road Bridge No H06 | 0 | 0 | 0 | 0 | 0 | 0 | -17,325 | 0 | 0 | 0 |
| Kaitaia | Butler-Homestead Road | 0 | -52,500 | -170,625 | -170,625 | -118,125 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia | Klinac Lane Extension | 0 | -131,250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia | Kerikeri Southeast Extension | 0 | 0 | 0 | 0 | 0 | 0 | -262,500 | -1,050,000 | -1,312,500 | -1,312,500 |
| Mangonui | Mill Bay Bridge No E02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -7,219 | 0 | 0 |
| Matawaia | Paraha Road Bridge No W10 | 0 | 0 | -13,860 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mitimiti | West Coast Road Bridge No G05 | 0 | 0 | 0 | 0 | -9,625 | 0 | 0 | 0 | 0 | 0 |
| Moerewa | Davy Road Bridge No P05 | 0 | 0 | 0 | 0 | -17,325 | 0 | 0 | 0 | 0 | 0 |
| Moerewa | Davis Road Bridge No W16 | 0 | 0 | 0 | 0 | -9,625 | 0 | 0 | 0 | 0 | 0 |
| Moerewa | Davis Road Bridge No W15 | 0 | 0 | 0 | 0 | 0 | -14,438 | 0 | 0 | 0 | 0 |
| Opua | Te Raupo Road Bridge NoT49 | -11,550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pamapuria | Fisher - Riley Road Bridge No E63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -14,438 | 0 | 0 |

| Location | Asset/Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Panguru | Otengi Road Bridge No G20 | 0 | 0 | 0 | 0 | 0 | 0 | -17,325 | 0 | 0 | 0 |
| Peria | Blue Gorge Road Bridge No E87 | 0 | -10,395 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peria | Peria Valley Road Bridge No E56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -9,625 | 0 |
| Taheke | Graham Road Bridge No N35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -9,625 | 0 |
| Taheke | Mission Oak Road Bridge No N32 | 0 | 0 | -17,325 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Taipa | Oruru Road Bridge No E09 | 0 | 0 | 0 | 0 | 0 | 0 | -40,425 | 0 | 0 | 0 |
| Taipa | Fern Flat Road Bridge No E43 | 0 | 0 | 0 | 0 | 0 | -9,625 | 0 | 0 | 0 | 0 |
| Taipa | Fern Flat Road Bridge No E47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -9,625 |
| Te Kao | Oromanga Road Bridge No A40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -9,625 | 0 |
| Waimate North | Waikuku Road Bridge No R07 | 0 | -11,550 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waimatenui | Tawata Road Bridge No N03 | 0 | -10,395 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Whangaroa | Waitapu Creek Road Bridge No I23 | 0 | 0 | 0 | 0 | 0 | 0 | -11,550 | 0 | 0 | 0 |
| Whatuwhiwhi | Matai Bay Road Bridge NoC03 | 0 | 0 | 0 | 0 | 0 | -40,425 | 0 | 0 | 0 | 0 |
| **TOTAL** | | **-2,942,653** | **-1,738,633** | **-1,453,291** | **-1,000,912** | **-1,152,017** | **-891,182** | **-1,283,024** | **-1,809,426** | **-2,415,708** | **-2,349,459** |

Table 123 last updated: 14/8/2012 1:33 PM

### 15.1.3.7 Anticipated Capital Subsidy or Grant Funding

Table 124 shows the Anticipated Capital Subsidy by project. Council has applied to New Zealand Transport Agency (NZTA) for subsidy on the following projects. Council is awaiting confirmation from NZTA.

**Table 124: Anticipated Capital Subsidy or Grant Funding**

| Asset/Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Cycleway Network** | | | | | | | | | | |
| Cycleway Network | 1,719,150 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Ferries** | | | | | | | | | | |
| Drivelines Moved to Maintenance | 0 | 0 | 0 | 0 | 0 | 0 | 22,835 | 0 | 0 | 0 |
| Engine Rebuilds | 112,000 | 0 | 0 | 0 | 0 | 113,845 | 0 | 147,882 | 0 | 0 |
| Gearbox Replacement | 0 | 0 | 0 | 0 | 0 | 45,538 | 0 | 0 | 59,825 | 0 |
| Schottle Rebuild | 16,800 | 0 | 16,865 | 0 | 17,012 | 0 | 17,126 | 0 | 22,617 | 0 |
| Schottle Rebuild New Impellor | 0 | 0 | 0 | 25,396 | 0 | 0 | 25,689 | 0 | 0 | 0 |
| Schottle Replacement | 0 | 55,884 | 114,209 | 0 | 0 | 0 | 0 | 0 | 0 | 83,061 |
| **Roading Network** | | | | | | | | | | |
| Associated Improvements Eastern Ward - WC231 | 59,198 | 70,443 | 63,490 | 124,925 | 129,922 | 135,119 | 140,523 | 146,144 | 151,990 | 158,070 |
| Associated Improvements Northern Ward - WC231 | 49,650 | 59,082 | 97,482 | 101,382 | 105,437 | 109,654 | 114,040 | 118,602 | 123,346 | 128,280 |
| Associated Improvements Western Ward - WC231 | 88,166 | 104,916 | 94,559 | 128,128 | 133,253 | 138,583 | 144,126 | 149,892 | 155,887 | 162,123 |
| Blue Gorge Road Bridge No E87 | 0 | 64,350 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bridge Renewals - WC215 | 329,634 | 332,479 | 357,878 | 345,589 | 359,412 | 373,789 | 388,741 | 404,290 | 420,461 | 437,280 |
| Browns Road Bridge No P13 | 71,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Butler-Homestead Road | 0 | 130,000 | 422,500 | 422,500 | 292,500 | 0 | 0 | 0 | 0 | 0 |
| Chip Sealing - WC212 | 1,727,129 | 1,796,213 | 1,868,058 | 2,457,626 | 2,555,930 | 2,658,168 | 2,764,495 | 2,875,074 | 2,990,077 | 3,109,680 |
| Churtons Road Bridge No C13 | 0 | 92,950 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Culverts - WC213 | 289,067 | 300,629 | 312,656 | 451,647 | 469,715 | 488,505 | 508,058 | 528,374 | 549,493 | 571,455 |
| Cumber Road Bridge No P48 | 0 | 0 | 0 | 0 | 0 | 71,500 | 0 | 0 | 0 | 0 |
| Davis Road Bridge No W15 | 0 | 0 | 0 | 0 | 0 | 107,250 | 0 | 0 | 0 | 0 |
| Davis Road Bridge No W16 | 0 | 0 | 0 | 0 | 71,500 | 0 | 0 | 0 | 0 | 0 |
| Davy Road Bridge No P05 | 0 | 0 | 0 | 0 | 107,250 | 0 | 0 | 0 | 0 | 0 |

| Asset/Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Duncan Road Bridge No E70 | 0 | 0 | 0 | 71,500 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fern Flat Road Bridge No E43 | 0 | 0 | 0 | 0 | 0 | 71,500 | 0 | 0 | 0 | 0 |
| Fern Flat Road Bridge No E47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71,500 |
| Fisher - Riley Road Bridge No E63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89,375 | 0 | 0 |
| Graham Road Bridge No N35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 178,750 | 0 |
| Grounds Road Bridge No H06 | 0 | 0 | 0 | 0 | 0 | 0 | 107,250 | 0 | 0 | 0 |
| Hapanga Road Culvert No L11 | 0 | 107,250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hihi Road Bridge No F07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 250,250 | 0 | 0 |
| Horeke Road Culvert M36 | 0 | 0 | 0 | 107,250 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia Awaroa Culvert No D45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125,125 |
| Kaitaia Awaroa Culvert No D65 | 0 | 0 | 0 | 0 | 143,000 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia-Awaroa Road Culvert No D68 | 0 | 0 | 107,250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerb and Channel Renewals - WC213 | 39,598 | 41,182 | 42,830 | 61,870 | 64,345 | 66,919 | 69,597 | 72,380 | 75,273 | 78,282 |
| Kerikeri Southeast Extension | 0 | 0 | 0 | 0 | 0 | 0 | 650,000 | 2,600,000 | 3,250,000 | 3,250,000 |
| Klinac Lane Extension | 0 | 325,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matai Bay Road Bridge NoC03 | 0 | 0 | 0 | 0 | 0 | 250,250 | 0 | 0 | 0 | 0 |
| Matawherohia Road Bridge No I48 | 0 | 0 | 71,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mill Bay Bridge No E02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53,625 | 0 | 0 |
| Minor Improvements District Wide - WC341 | 952,696 | 997,060 | 1,030,218 | 1,073,829 | 1,116,781 | 1,161,454 | 1,207,912 | 1,256,228 | 1,306,477 | 1,358,737 |
| Mission Oak Road Bridge No N32 | 0 | 0 | 107,250 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oinu Road Bridge No B18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53,625 |
| Oromanga Road Bridge No A40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71,500 | 0 |
| Oruru Road Bridge No E09 | 0 | 0 | 0 | 0 | 0 | 0 | 250,250 | 0 | 0 | 0 |
| Otengi Road Bridge No G20 | 0 | 0 | 0 | 0 | 0 | 0 | 107,250 | 0 | 0 | 0 |
| Other Drainage Renewals - WC213 | 118,795 | 123,546 | 128,488 | 185,602 | 193,027 | 200,748 | 208,778 | 217,129 | 225,814 | 234,847 |
| Paraha Road Bridge No W10 | 0 | 0 | 85,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peria Valley Road Bridge No E56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71,500 | 0 |
| Periodic Remetalling - WC211 | 1,675,955 | 1,742,993 | 1,812,713 | 1,885,281 | 1,960,699 | 2,039,134 | 2,120,753 | 2,205,556 | 2,293,711 | 2,385,386 |
| Pokopu Road Culvert No W12 | 0 | 0 | 0 | 107,250 | 0 | 0 | 0 | 0 | 0 | 0 |

| Asset/Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Powells Bridge No D35 | 0 | 0 | 0 | 0 | 0 | 71,500 | 0 | 0 | 0 | 0 |
| Preventative Maintenance | 406,250 | 390,000 | 282,750 | 299,000 | 357,500 | 344,501 | 390,000 | 422,500 | 390,000 | 341,250 |
| Quarry Road Culvert No B13 | 0 | 0 | 0 | 0 | 107,250 | 0 | 0 | 0 | 0 | 0 |
| Rangi Point Culvert No G21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 178,750 | 0 |
| Retaining Wall Renewals - WC215 | 16,500 | 27,500 | 16,500 | 16,500 | 17,160 | 17,846 | 18,561 | 19,303 | 20,074 | 20,877 |
| Runaruna Road Culvert 6900m | 0 | 64,350 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rural Road Rehabilitation - WC214 | 1,350,335 | 202,594 | 1,623,482 | 1,714,970 | 1,783,569 | 1,854,912 | 1,929,109 | 2,006,273 | 2,086,523 | 2,169,985 |
| Saleyard Avenue Culvert no A41 | 0 | 0 | 0 | 121,550 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tawata Road Bridge No N03 | 0 | 64,350 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Te Raupo Road Bridge NoT49 | 71,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Thin Asphaltic Surfacings - WC212 | 108,694 | 96,055 | 117,565 | 154,674 | 160,861 | 167,296 | 173,993 | 180,950 | 188,183 | 195,704 |
| Tipa Tipa Road Bridge No I51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89,375 | 0 | 0 |
| Traffic Services Renewals - WC222 | 166,227 | 172,876 | 179,791 | 186,989 | 194,469 | 202,248 | 210,344 | 218,755 | 227,498 | 236,591 |
| Urban Road Rehabilitation - WC214 | 213,887 | 108,296 | 54,148 | 57,200 | 59,488 | 61,867 | 64,342 | 66,916 | 69,593 | 72,376 |
| Waharua Road Culvert No A39 | 0 | 0 | 92,950 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waikuku Road Bridge No R07 | 0 | 71,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waitapu Creek Road Bridge No I23 | 0 | 0 | 0 | 0 | 0 | 0 | 71,500 | 0 | 0 | 0 |
| West Coast Road Bridge No G05 | 0 | 0 | 0 | 0 | 71,500 | 0 | 0 | 0 | 0 | 0 |
| West Coast Road Culvert No H04 | 321,750 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL** | **9,904,479** | **7,541,498** | **9,100,931** | **10,100,657** | **10,471,580** | **10,752,124** | **11,705,272** | **14,118,873** | **15,107,342** | **15,244,233** |

Table 124 last updated: 14/8/2012 1:40 PM

### 15.1.3.8 Capital Works funding sources

The period of which development contributions is collected is assumed to be from 2012/2013. Table 125 shows the capital costs analysed under the headings: new (loans), subsidy, growth and renewal works.

**Table 125: Budgeted New Works Priorities and Drivers**

| Asset | Project Name | Loan | New Subsidy | Renewal Subsidy | Growth | Renewal | Project Cost |
|---|---|---|---|---|---|---|---|
| **2012-2013** | | | | | | | |
| Carry Forward Of Unsubsidised Work | Carry Forward Of Unsubsidised Work | -660,000 | 0 | 0 | 0 | 0 | 660,000 |
| Cycleway Network | Cycleway Network | -800,009 | -1,719,150 | 0 | 0 | 0 | 2,519,159 |
| Footpaths New - Eastern | Omaunu Rd Bridge to Turner St Kaeo | -200,000 | 0 | 0 | 0 | 0 | 200,000 |
| | Puketona Road Haruru Falls to Nautical Drive | -14,800 | 0 | 0 | -59,200 | 0 | 74,000 |
| Footpaths New - Northern | Matai Bay Road Karikari | -6,000 | 0 | 0 | -24,000 | 0 | 30,000 |
| | Taipa Point Road Taipa | -4,000 | 0 | 0 | -16,000 | 0 | 20,000 |
| Footpaths New - Western | State Highway 12 Opononi | -30,000 | 0 | 0 | 0 | 0 | 30,000 |
| | State Highway 12 Opononi | -80,000 | 0 | 0 | 0 | 0 | 80,000 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -307,794 | -571,618 | -381,078 | 0 | -205196.04 | 1,465,686 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -100,000 | 0 | 100,000 |
| | New Development Road Improvements | 0 | 0 | 0 | -100,000 | 0 | 100,000 |
| | New Development Road Improvements | 0 | 0 | 0 | -50,000 | 0 | 50,000 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -59,198 | 0 | -48,434 | 0 | 107,632 |
| | Associated Improvements Northern Ward - WC231 | 0 | -49,650 | 0 | -40,622 | 0 | 90,272 |
| | Associated Improvements Western Ward - WC231 | 0 | -88,166 | 0 | -72,136 | 0 | 160,302 |
| Preventative Maintenance | Preventative Maintenance | -218,750 | -406,250 | 0 | 0 | 0 | 625,000 |
| Ratepayer Partnership Programme | Ratepayer Partnership Programme | -584,700 | 0 | 0 | 0 | 0 | 584,700 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -13,500 | -16,500 | 0 | 0 | 0 | 30,000 |
| **Total 2012-2013** | | **-2,919,553** | **-2,910,531** | **-381,078** | **-510,393** | **-205,196** | **6,926,751** |
| **2013-2014** | | | | | | | |
| Butler-Homestead Road | Butler-Homestead Road | -52,500 | -130,000 | 0 | -17,500 | 0 | 200,000 |
| Car Park Development | Church Road Russell, Develop new Car Park | -205,800 | 0 | 0 | 0 | 0 | 205,800 |

| Asset | Project Name | Loan | New Subsidy | Renewal Subsidy | Growth | Renewal | Project Cost |
|---|---|---|---|---|---|---|---|
| Footpaths New - Eastern | Inlet Road Darwin Rd to Rolands Wood | -33,957 | 0 | 0 | -135,828 | 0 | 169,785 |
| | Kemp Road Kerikeri | -21,609 | 0 | 0 | -86,436 | 0 | 108,045 |
| Footpaths New - Northern | Far North Road Pukenui | -34,986 | 0 | 0 | -139,944 | 0 | 174,930 |
| Footpaths New - Western | Thorpe Rd Kaikohe | -41,160 | 0 | 0 | 0 | 0 | 41,160 |
| Klinac Lane Extension | Klinac Lane Extension | -131,250 | -325,000 | 0 | -43,750 | 0 | 500,000 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -322,127 | -598,236 | -398,824 | 0 | -214751.46 | 1,533,939 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -104,000 | 0 | 104,000 |
| | New Development Road Improvements | 0 | 0 | 0 | -104,000 | 0 | 104,000 |
| | New Development Road Improvements | 0 | 0 | 0 | -52,000 | 0 | 52,000 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -70,443 | 0 | -57,636 | 0 | 128,079 |
| | Associated Improvements Northern Ward - WC231 | 0 | -59,082 | 0 | -48,339 | 0 | 107,421 |
| | Associated Improvements Western Ward - WC231 | 0 | -104,916 | 0 | -85,840 | 0 | 190,756 |
| Preventative Maintenance | Preventative Maintenance | -210,000 | -390,000 | 0 | 0 | 0 | 600,000 |
| Ratepayer Partnership Programme | Ratepayer Partnership Programme | -584,700 | 0 | 0 | 0 | 0 | 584,700 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -22,500 | -27,500 | 0 | 0 | 0 | 50,000 |
| **Total 2013-2014** | | **-1,660,589** | **-1,705,177** | **-398,824** | **-875,273** | **-214,751** | **4,854,615** |
| **2014-2015** | | | | | | | |
| Butler-Homestead Road | Butler-Homestead Road | -170,625 | -422,500 | 0 | -56,875 | 0 | 650,000 |
| Footpaths New - Eastern | Kendall Road Kerikeri | -33,035 | 0 | 0 | -132,138 | 0 | 165,173 |
| | Riddell Road Kerikeri | -12,706 | 0 | 0 | -50,822 | 0 | 63,528 |
| Footpaths New - Northern | Far North Road Pukenui | -17,788 | 0 | 0 | -71,151 | 0 | 88,939 |
| Footpaths New - Western | State Highway 12 Omapere | -84,704 | 0 | 0 | 0 | 0 | 84,704 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -332,840 | -618,131 | -412,087 | 0 | -221893 | 1,584,950 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -108,160 | 0 | 108,160 |
| | New Development Road Improvements | 0 | 0 | 0 | -108,160 | 0 | 108,160 |
| | New Development Road Improvements | 0 | 0 | 0 | -54,080 | 0 | 54,080 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -63,490 | 0 | -51,946 | 0 | 115,436 |
| | Associated Improvements Northern Ward - WC231 | 0 | -97,482 | 0 | -79,758 | 0 | 177,240 |

| Asset | Project Name | Loan | New Subsidy | Renewal Subsidy | Growth | Renewal | Project Cost |
|---|---|---|---|---|---|---|---|
| Pavement | Associated Improvements Western Ward - WC231 | 0 | -94,559 | 0 | -77,366 | 0 | 171,925 |
| Preventative Maintenance | Preventative Maintenance | -152,250 | -282,750 | 0 | 0 | 0 | 435,000 |
| Ratepayer Partnership Programme | Ratepayer Partnership Programme | -584,700 | 0 | 0 | 0 | 0 | 584,700 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -13,500 | -16,500 | 0 | 0 | 0 | 30,000 |
| **Total 2014-2015** | | **-1,402,147** | **-1,595,411** | **-412,087** | **-790,457** | **-221,893** | **4,421,995** |
| **2015-2016** | | | | | | | |
| Butler-Homestead Road | Butler-Homestead Road | -170,625 | -422,500 | 0 | -56,875 | 0 | 650,000 |
| Footpaths New - Eastern | Kerikeri Road Hall Road to Maraenui | -21,812 | 0 | 0 | -87,248 | 0 | 109,060 |
| | Kerikeri Road Maraenui to SH10 | -23,993 | 0 | 0 | -95,973 | 0 | 119,966 |
| | Mission Road Kerikeri | -12,215 | 0 | 0 | -48,859 | 0 | 61,074 |
| Footpaths New - Northern | Foreshore Road Ahipara | -32,718 | 0 | 0 | -130,872 | 0 | 163,590 |
| Footpaths New - Western | Signal Station Rd Omapere | -218,120 | 0 | 0 | 0 | 0 | 218,120 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -346,929 | -644,298 | -429,532 | 0 | -231286.3 | 1,652,045 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -112,490 | 0 | 112,490 |
| | New Development Road Improvements | 0 | 0 | 0 | -112,490 | 0 | 112,490 |
| | New Development Road Improvements | 0 | 0 | 0 | -56,245 | 0 | 56,245 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -124,925 | 0 | -102,211 | 0 | 227,136 |
| | Associated Improvements Northern Ward - WC231 | 0 | -101,382 | 0 | -82,949 | 0 | 184,330 |
| | Associated Improvements Western Ward - WC231 | 0 | -128,128 | 0 | -104,832 | 0 | 232,960 |
| Preventative Maintenance | Preventative Maintenance | -161,000 | -299,000 | 0 | 0 | 0 | 460,000 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -13,500 | -16,500 | 0 | 0 | 0 | 30,000 |
| **Total 2015-2016** | | **-1,000,912** | **-1,736,732** | **-429,532** | **-991,044** | **-231,286** | **4,389,506** |
| **2016-2017** | | | | | | | |
| Butler-Homestead Road | Butler-Homestead Road | -118,125 | -292,500 | 0 | -39,375 | 0 | 450,000 |
| Footpaths New - Eastern | Black Rd Kerikeri | -9,445 | 0 | 0 | -37,780 | 0 | 47,225 |
| | Pa Rd Kerikeri | -60,718 | 0 | 0 | -242,870 | 0 | 303,588 |
| Footpaths New - Northern | State Highway 10 Coopers Beach | -202,392 | 0 | 0 | 0 | 0 | 202,392 |
| Footpaths New - Western | Kohukohu Road Kohukohu | -157,416 | 0 | 0 | 0 | 0 | 157,416 |

| Asset | Project Name | Loan | New Subsidy | Renewal Subsidy | Growth | Renewal | Project Cost |
|---|---|---|---|---|---|---|---|
| Minor Improvements | Minor Improvements District Wide - WC341 | -360,806 | -670,068 | -446,712 | 0 | -240537.36 | 1,718,124 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -116,990 | 0 | 116,990 |
| | New Development Road Improvements | 0 | 0 | 0 | -116,990 | 0 | 116,990 |
| | New Development Road Improvements | 0 | 0 | 0 | -58,495 | 0 | 58,495 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -129,922 | 0 | -106,300 | 0 | 236,222 |
| | Associated Improvements Northern Ward - WC231 | 0 | -105,437 | 0 | -86,266 | 0 | 191,703 |
| | Associated Improvements Western Ward - WC231 | 0 | -133,253 | 0 | -109,025 | 0 | 242,278 |
| Preventative Maintenance | Preventative Maintenance | -192,500 | -357,500 | 0 | 0 | 0 | 550,000 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -14,040 | -17,160 | 0 | 0 | 0 | 31,200 |
| **Total 2016-2017** | | **-1,115,442** | **-1,705,840** | **-446,712** | **-914,092** | **-240,537** | **4,422,623** |
| **2017-2018** | | | | | | | |
| Footpaths New - Eastern | Station Road Kawakawa | -11,559 | 0 | 0 | 0 | 0 | 11,559 |
| | Hall Rd Kerikeri | -6,935 | 0 | 0 | -27,742 | 0 | 34,677 |
| | Landing Road Kerikeri | -19,419 | 0 | 0 | -77,677 | 0 | 97,096 |
| | Flagstaff Rd Russell | -2,312 | 0 | 0 | -9,247 | 0 | 11,559 |
| Footpaths New - Northern | Cable Bay Block Road | -115,590 | 0 | 0 | 0 | 0 | 115,590 |
| Footpaths New - Western | Beach Rd Kohukohu | -34,677 | 0 | 0 | 0 | 0 | 34,677 |
| | Taumatawiwi Rd Opononi | -41,612 | 0 | 0 | 0 | 0 | 41,612 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -375,239 | -696,872 | -464,582 | 0 | -250159.28 | 1,786,852 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -121,670 | 0 | 121,670 |
| | New Development Road Improvements | 0 | 0 | 0 | -121,670 | 0 | 121,670 |
| | New Development Road Improvements | 0 | 0 | 0 | -60,835 | 0 | 60,835 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -135,119 | 0 | -110,552 | 0 | 245,670 |
| | Associated Improvements Northern Ward - WC231 | 0 | -109,654 | 0 | -89,717 | 0 | 199,371 |
| | Associated Improvements Western Ward - WC231 | 0 | -138,583 | 0 | -113,386 | 0 | 251,969 |
| Preventative Maintenance | Preventative Maintenance | -185,500 | -344,501 | 0 | 0 | 0 | 530,001 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -14,601 | -17,846 | 0 | 0 | 0 | 32,447 |
| **Total 2017-2018** | | **-807,445** | **-1,442,574** | **-464,582** | **-732,495** | **-250,159** | **3,697,255** |

| Asset | Project Name | Loan | New Subsidy | Renewal Subsidy | Growth | Renewal | Project Cost |
|---|---|---|---|---|---|---|---|
| **2018-2019** | | | | | | | |
| Footpaths New - Eastern | State Highway 11 Haruru Falls | -142,596 | 0 | 0 | -570,384 | 0 | 712,980 |
| Footpaths New - Northern | Arnold Rae Park Kaitaia | -47,532 | 0 | 0 | 0 | 0 | 47,532 |
| | Pukepoto Road Kaitaia | -23,766 | 0 | 0 | 0 | 0 | 23,766 |
| | Oruru Road Mangonui | -9,506 | 0 | 0 | -38,026 | 0 | 47,532 |
| Footpaths New - Western | West Coast Road Mitimiti | -95,064 | 0 | 0 | 0 | 0 | 95,064 |
| Kerikeri Southeast Extension | Kerikeri Southeast Extension | -262,500 | -650,000 | 0 | -87,500 | 0 | 1,000,000 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -390,248 | -724,747 | -483,165 | 0 | -260165.64 | 1,858,326 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -126,540 | 0 | 126,540 |
| | New Development Road Improvements | 0 | 0 | 0 | -126,540 | 0 | 126,540 |
| | New Development Road Improvements | 0 | 0 | 0 | -63,270 | 0 | 63,270 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -140,523 | 0 | -114,974 | 0 | 255,497 |
| | Associated Improvements Northern Ward - WC231 | 0 | -114,040 | 0 | -93,306 | 0 | 207,346 |
| | Associated Improvements Western Ward - WC231 | 0 | -144,126 | 0 | -117,922 | 0 | 262,048 |
| Preventative Maintenance | Preventative Maintenance | -210,000 | -390,000 | 0 | 0 | 0 | 600,000 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -15,186 | -18,561 | 0 | 0 | 0 | 33,747 |
| **Total 2018-2019** | | **-1,196,399** | **-2,181,998** | **-483,165** | **-1,338,461** | **-260,166** | **5,460,188** |
| **2019-2020** | | | | | | | |
| Footpaths New - Eastern | Waiomio Road Link to Existing Footpath | -3,672 | 0 | 0 | -14,687 | 0 | 18,359 |
| | Cobham Road Kerikeri | -6,120 | 0 | 0 | -24,478 | 0 | 30,598 |
| | Skudders Beach Rd Kerikeri | -6,364 | 0 | 0 | -25,457 | 0 | 31,821 |
| | Matauwhi Road Russell | -2,937 | 0 | 0 | -11,750 | 0 | 14,687 |
| Footpaths New - Northern | Fitzgerald Road Houhora | -9,791 | 0 | 0 | -39,165 | 0 | 48,956 |
| | Kotare Drive Mangonui | -7,343 | 0 | 0 | -29,374 | 0 | 36,717 |
| Footpaths New - Western | State Highway 12 Waimamaku | -24,478 | 0 | 0 | 0 | 0 | 24,478 |
| Kerikeri Southeast Extension | Kerikeri Southeast Extension | -1,050,000 | -2,600,000 | 0 | -350,000 | 0 | 4,000,000 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -405,858 | -753,737 | -502,491 | 0 | -270572.26 | 1,932,659 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -131,600 | 0 | 131,600 |

| Asset | Project Name | Loan | New Subsidy | Renewal Subsidy | Growth | Renewal | Project Cost |
|---|---|---|---|---|---|---|---|
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -131,600 | 0 | 131,600 |
| | New Development Road Improvements | 0 | 0 | 0 | -65,800 | 0 | 65,800 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -146,144 | 0 | -119,573 | 0 | 265,717 |
| | Associated Improvements Northern Ward - WC231 | 0 | -118,602 | 0 | -97,038 | 0 | 215,640 |
| | Associated Improvements Western Ward - WC231 | 0 | -149,892 | 0 | -122,639 | 0 | 272,530 |
| Preventative Maintenance | Preventative Maintenance | -227,500 | -422,500 | 0 | 0 | 0 | 650,000 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -15,793 | -19,303 | 0 | 0 | 0 | 35,096 |
| **Total 2019-2020** | | **-1,759,857** | **-4,210,178** | **-502,491** | **-1,163,160** | **-270,572** | **7,906,258** |
| **2020-2021** | | | | | | | |
| Footpaths New - Eastern | Waipapa Rd Kerikeri | -145,142 | 0 | 0 | -580,566 | 0 | 725,708 |
| Footpaths New - Northern | Beach Rd Mangonui | -20,229 | 0 | 0 | -80,915 | 0 | 101,144 |
| | State Highway 1 Pamapuria | -151,716 | 0 | 0 | 0 | 0 | 151,716 |
| | Simon Urlich Road Whatuwhiwhi | -20,229 | 0 | 0 | -80,915 | 0 | 101,144 |
| Footpaths New - Western | Manning to Mariner St Rawene | -88,501 | 0 | 0 | 0 | 0 | 88,501 |
| Kerikeri Southeast Extension | Kerikeri Southeast Extension | -1,312,500 | -3,250,000 | 0 | -437,500 | 0 | 5,000,000 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -422,093 | -783,886 | -522,591 | 0 | -281395.1 | 2,009,965 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -136,860 | 0 | 136,860 |
| | New Development Road Improvements | 0 | 0 | 0 | -136,860 | 0 | 136,860 |
| | New Development Road Improvements | 0 | 0 | 0 | -68,430 | 0 | 68,430 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -151,990 | 0 | -124,356 | 0 | 276,346 |
| | Associated Improvements Northern Ward - WC231 | 0 | -123,346 | 0 | -100,919 | 0 | 224,265 |
| | Associated Improvements Western Ward - WC231 | 0 | -155,887 | 0 | -127,544 | 0 | 283,431 |
| Preventative Maintenance | Preventative Maintenance | -210,000 | -390,000 | 0 | 0 | 0 | 600,000 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -16,425 | -20,074 | 0 | 0 | 0 | 36,499 |
| **Total 2020-2021** | | **-2,386,833** | **-4,875,184** | **-522,591** | **-1,874,866** | **-281,395** | **9,940,869** |
| **2021-2022** | | | | | | | |
| Footpaths New - Eastern | Whangae Road | -6,791 | 0 | 0 | -27,165 | 0 | 33,956 |
| | Whangaroa Road Kerikeri | -182,840 | 0 | 0 | -731,360 | 0 | 914,200 |

| Asset | Project Name | Loan | New Subsidy | Renewal Subsidy | Growth | Renewal | Project Cost |
|---|---|---|---|---|---|---|---|
| Footpaths New - Eastern | Te Kemara Avenue Paihia | -14,105 | 0 | 0 | -56,419 | 0 | 70,524 |
| | Long Beach Road Russell | -97,950 | 0 | 0 | 0 | 0 | 97,950 |
| | Robertson Road Russell | -13,321 | 0 | 0 | -53,285 | 0 | 66,606 |
| | Totara North School Road Totara North | -65,300 | 0 | 0 | 0 | 0 | 65,300 |
| Kerikeri Southeast Extension | Kerikeri Southeast Extension | -1,312,500 | -3,250,000 | 0 | -437,500 | 0 | 5,000,000 |
| Minor Improvements | Minor Improvements District Wide - WC341 | -438,976 | -815,242 | -543,495 | 0 | -292650.96 | 2,090,364 |
| New Development Road Improvements | New Development Road Improvements | 0 | 0 | 0 | -142,330 | 0 | 142,330 |
| | New Development Road Improvements | 0 | 0 | 0 | -142,330 | 0 | 142,330 |
| | New Development Road Improvements | 0 | 0 | 0 | -71,165 | 0 | 71,165 |
| Pavement | Associated Improvements Eastern Ward - WC231 | 0 | -158,070 | 0 | -129,330 | 0 | 287,400 |
| | Associated Improvements Northern Ward - WC231 | 0 | -128,280 | 0 | -104,956 | 0 | 233,236 |
| | Associated Improvements Western Ward - WC231 | 0 | -162,123 | 0 | -132,646 | 0 | 294,769 |
| Preventative Maintenance | Preventative Maintenance | -183,750 | -341,250 | 0 | 0 | 0 | 525,000 |
| Structures Component Replacement | Retaining Wall Renewals - WC215 | -17,082 | -20,877 | 0 | 0 | 0 | 37,959 |
| **Total 2021-2022** | | **-2,332,615** | **-4,875,842** | **-543,495** | **-2,028,486** | **-292,651** | **10,073,089** |
| **TOTAL** | | **-16,581,793** | **-27,239,466** | **-4,584,557** | **-11,218,726** | **-2,468,607** | **62,093,149** |

Table 125 last updated: 14/8/2012 1:50 AM

### 15.1.3.9 Budgeted Capital Works

Table 126 outlines the New Works Forecast Expenditure by project. Over the next 10-years Council has budgeted to spend $62.1 million on new assets.

**Table 126: Budgeted Capital Works Forecast Expenditure By Project**

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Carparks** | | | | | | | | | | |
| **Bay of Islands - Whangaroa** | | | | | | | | | | |
| Church Road Russell, Develop new Car Park | 0 | 205,800 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL: Carparks** | **0** | **205,800** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Cycleway Network** | | | | | | | | | | |
| **District** | | | | | | | | | | |
| Cycleway Network | 2,519,159 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL: Cycleway Network** | **2,519,159** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Footpaths** | | | | | | | | | | |
| **Bay of Islands - Whangaroa** | | | | | | | | | | |
| Black Rd Kerikeri | 0 | 0 | 0 | 0 | 47,225 | 0 | 0 | 0 | 0 | 0 |
| Cobham Road Kerikeri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30,598 | 0 | 0 |
| Flagstaff Rd Russell | 0 | 0 | 0 | 0 | 0 | 11,559 | 0 | 0 | 0 | 0 |
| Hall Rd Kerikeri | 0 | 0 | 0 | 0 | 0 | 34,677 | 0 | 0 | 0 | 0 |
| Inlet Road Darwin Rd to Rolands Wood | 0 | 169,785 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kemp Road Kerikeri | 0 | 108,045 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kendall Road Kerikeri | 0 | 0 | 165,173 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri Road Hall Road to Maraenui | 0 | 0 | 0 | 109,060 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri Road Maraenui to SH10 | 0 | 0 | 0 | 119,966 | 0 | 0 | 0 | 0 | 0 | 0 |
| Landing Road Kerikeri | 0 | 0 | 0 | 0 | 0 | 97,096 | 0 | 0 | 0 | 0 |
| Long Beach Road Russell | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97,950 |
| Matauwhi Road Russell | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14,687 | 0 | 0 |
| Mission Road Kerikeri | 0 | 0 | 0 | 61,074 | 0 | 0 | 0 | 0 | 0 | 0 |
| Omaunu Rd Bridge to Turner St Kaeo | 200,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pa Rd Kerikeri | 0 | 0 | 0 | 0 | 303,588 | 0 | 0 | 0 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Puketona Road Haruru Falls to Nautical Drive | 74,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Riddell Road Kerikeri | 0 | 0 | 63,528 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Robertson Road Russell | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66,606 |
| Skudders Beach Rd Kerikeri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31,821 | 0 | 0 |
| State Highway 11 Haruru Falls | 0 | 0 | 0 | 0 | 0 | 0 | 712,980 | 0 | 0 | 0 |
| Station Road Kawakawa | 0 | 0 | 0 | 0 | 0 | 11,559 | 0 | 0 | 0 | 0 |
| Te Kemara Avenue Paihia | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70,524 |
| Totara North School Road Totara North | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65,300 |
| Waiomio Road Link to Existing Footpath | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18,359 | 0 | 0 |
| Waipapa Rd Kerikeri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 725,708 | 0 |
| Whangae Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33,956 |
| Whangaroa Road Kerikeri | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 914,200 |
| **Kaikohe - Hokianga** | | | | | | | | | | |
| Beach Rd Kohukohu | 0 | 0 | 0 | 0 | 0 | 34,677 | 0 | 0 | 0 | 0 |
| Kohukohu Road Kohukohu | 0 | 0 | 0 | 0 | 157,416 | 0 | 0 | 0 | 0 | 0 |
| Manning to Mariner St Rawene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88,501 | 0 |
| Signal Station Rd Omapere | 0 | 0 | 0 | 218,120 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 12 Omapere | 0 | 0 | 84,704 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 12 Opononi | 30,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 12 Opononi | 80,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 12 Waimamaku | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24,478 | 0 | 0 |
| Taumatawiwi Rd Opononi | 0 | 0 | 0 | 0 | 0 | 41,612 | 0 | 0 | 0 | 0 |
| Thorpe Rd Kaikohe | 0 | 41,160 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Coast Road Mitimiti | 0 | 0 | 0 | 0 | 0 | 0 | 95,064 | 0 | 0 | 0 |
| **Te Hiku** | | | | | | | | | | |
| Arnold Rae Park Kaitaia | 0 | 0 | 0 | 0 | 0 | 0 | 47,532 | 0 | 0 | 0 |
| Beach Rd Mangonui | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 101,144 | 0 |
| Cable Bay Block Road | 0 | 0 | 0 | 0 | 0 | 115,590 | 0 | 0 | 0 | 0 |
| Far North Road Pukenui | 0 | 174,930 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Far North Road Pukenui | 0 | 0 | 88,939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fitzgerald Road Houhora | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48,956 | 0 | 0 |
| Foreshore Road Ahipara | 0 | 0 | 0 | 163,590 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kotare Drive Mangonui | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36,717 | 0 | 0 |
| Matai Bay Road Karikari | 30,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oruru Road Mangonui | 0 | 0 | 0 | 0 | 0 | 0 | 47,532 | 0 | 0 | 0 |
| Pukepoto Road Kaitaia | 0 | 0 | 0 | 0 | 0 | 0 | 23,766 | 0 | 0 | 0 |
| Simon Urlich Road Whatuwhiwhi | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 101,144 | 0 |
| State Highway 1 Pamapuria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 151,716 | 0 |
| State Highway 10 Coopers Beach | 0 | 0 | 0 | 0 | 202,392 | 0 | 0 | 0 | 0 | 0 |
| Taipa Point Road Taipa | 20,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL: Footpaths** | **434,000** | **493,920** | **402,344** | **671,810** | **710,621** | **346,770** | **926,874** | **205,616** | **1,168,213** | **1,248,536** |
| **Roading Network** | | | | | | | | | | |
| **Bay of Islands - Whangaroa** | | | | | | | | | | |
| Associated Improvements Eastern Ward - WC231 | 107,632 | 128,079 | 115,436 | 227,136 | 236,222 | 245,670 | 255,497 | 265,717 | 276,346 | 287,400 |
| New Development Road Improvements | 100,000 | 104,000 | 108,160 | 112,490 | 116,990 | 121,670 | 126,540 | 131,600 | 136,860 | 142,330 |
| **District** | | | | | | | | | | |
| Carry Forward Of Unsubsidised Work | 660,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Minor Improvements District Wide - WC341 | 1,465,686 | 1,533,939 | 1,584,950 | 1,652,045 | 1,718,124 | 1,786,852 | 1,858,326 | 1,932,659 | 2,009,965 | 2,090,364 |
| Preventative Maintenance | 625,000 | 600,000 | 435,000 | 460,000 | 550,000 | 530,001 | 600,000 | 650,000 | 600,000 | 525,000 |
| Ratepayer Partnership Programme | 584,700 | 584,700 | 584,700 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Retaining Wall Renewals - WC215 | 30,000 | 50,000 | 30,000 | 30,000 | 31,200 | 32,447 | 33,747 | 35,096 | 36,499 | 37,959 |
| **Kaikohe - Hokianga** | | | | | | | | | | |
| Associated Improvements Western Ward - WC231 | 160,302 | 190,756 | 171,925 | 232,960 | 242,278 | 251,969 | 262,048 | 272,530 | 283,431 | 294,769 |
| New Development Road Improvements | 50,000 | 52,000 | 54,080 | 56,245 | 58,495 | 60,835 | 63,270 | 65,800 | 68,430 | 71,165 |
| **Te Hiku** | | | | | | | | | | |
| Associated Improvements Northern Ward - WC231 | 90,272 | 107,421 | 177,240 | 184,330 | 191,703 | 199,371 | 207,346 | 215,640 | 224,265 | 233,236 |
| Butler-Homestead Road | 0 | 200,000 | 650,000 | 650,000 | 450,000 | 0 | 0 | 0 | 0 | 0 |
| Kerikeri Southeast Extension | 0 | 0 | 0 | 0 | 0 | 0 | 1,000,000 | 4,000,000 | 5,000,000 | 5,000,000 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Klinac Lane Extension | 0 | 500,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| New Development Road Improvements | 100,000 | 104,000 | 108,160 | 112,490 | 116,990 | 121,670 | 126,540 | 131,600 | 136,860 | 142,330 |
| **TOTAL: Roading Network** | **3,973,592** | **4,154,895** | **4,019,651** | **3,717,696** | **3,712,002** | **3,350,485** | **4,533,314** | **7,700,642** | **8,772,656** | **8,824,553** |
| **TOTAL** | **6,926,751** | **4,854,615** | **4,421,995** | **4,389,506** | **4,422,623** | **3,697,255** | **5,460,188** | **7,906,258** | **9,940,869** | **10,073,089** |

The above financial table shows the Capital expenditure grouped by Primary Purpose for undertaking the works. In the Source and Application of funds the New and Renewal works are grouped by the funding source

Table 126 last updated: 14/8/2012 2:05 PM

## Figure 58: Budgeted New Capital Requirements

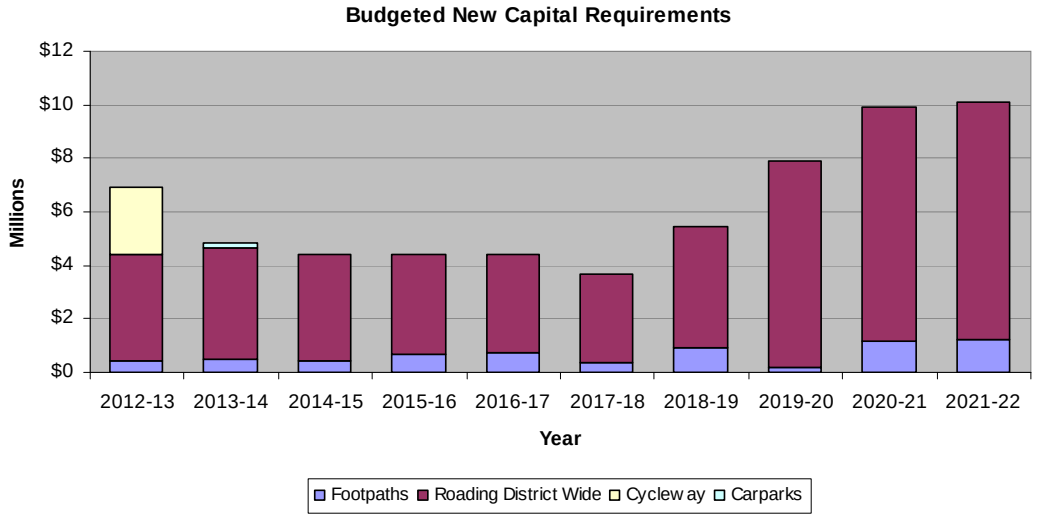



Figure 58 shows a steady trend for capital works programmed for roading. The capital works programmed are primarily relating to District Wide Minor Improvements, Pavement Maintenance and Associated Improvements. Butler to Homestead Road link is budgeted in the 2013/14 – 2016/17 years and the Kerikeri South Eastern Extension are programmed in the outer 4 years of the 10-year plan.

### 15.1.3.10 Budgeted Renewal Works

Table 127 outlines the Budgeted Renewals Expenditure by Project. A total of $152.6 million is budgeted for renewals over the 10-year period.

**Table 127: Budgeted Renewals Expenditure By Project**

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Carparks** | | | | | | | | | | |
| **Bay of Islands - Whangaroa** | | | | | | | | | | |
| Taronui Bay Formation | 3,591 | 0 | 0 | 0 | 0 | 4,151 | 0 | 0 | 0 | 0 |
| Commercial St Car Park, Kawakawa | 0 | 0 | 0 | 0 | 0 | 110,936 | 0 | 0 | 0 | 0 |
| Hundertwasser Carpark Fencing | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9,719 | 0 | 0 |
| Johnson Park Surface Chipseal 475m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4,128 | 0 | 0 |
| Whangae Rd Car Park Drainage | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,299 | 0 | 0 |
| Whangae Rd Car Park Surface Chipseal 1165m2 | 0 | 0 | 8,758 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hobson Rd Basecourse Asphalt 3512m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53,514 | 0 | 0 |
| Hobson Rd Surface Asphalt 3512m2 | 0 | 0 | 0 | 0 | 0 | 132,340 | 0 | 0 | 0 | 0 |
| Homestead Rd Surface Asphalt 900m2 | 0 | 0 | 0 | 0 | 0 | 33,914 | 0 | 0 | 0 | 0 |
| Kerikeri Bowling Club Surface 1170m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48,223 | 0 |
| Waipapa Car Park Sealing750m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,732 | 0 |
| Marsden Rd Footpath Asphalt 186m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8,719 | 0 | 0 |
| Marsden Rd Surface Asphalt 2578m2 | 84,043 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kent Bay North Surface Grade 3/5 wet lock 820m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,126 | 0 | 0 |
| Kent Bay South Surface Grade 3/5 wet lock 420m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,650 | 0 | 0 |
| **Kaikohe - Hokianga** | | | | | | | | | | |
| Memorial Ave Car Park Lantern x 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,542 | 0 | 0 |
| Memorial Ave Car Park Surface 5000m2 | 0 | 0 | 172,584 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Te Hiku** | | | | | | | | | | |
| North Road Kaitaia Basecourse Chipseal 847m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12,906 | 0 | 0 |
| North Road Kaitaia Surface Chipseal 847m2 | 6,014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Redan Road Basecourse Chipseal 2420m2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36,875 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| **TOTAL: Carparks** | **93,648** | **0** | **181,342** | **0** | **0** | **281,341** | **0** | **143,478** | **54,955** | **0** |
| **Ferries** | | | | | | | | | | |
| **District** | | | | | | | | | | |
| Drivelines Moved to Maintenance | 0 | 0 | 0 | 0 | 0 | 0 | 40,777 | 0 | 0 | 0 |
| Engine Rebuilds | 200,000 | 0 | 0 | 0 | 0 | 203,295 | 0 | 264,075 | 0 | 0 |
| Gearbox Replacement | 0 | 0 | 0 | 0 | 0 | 81,318 | 0 | 0 | 106,830 | 0 |
| Schottle Rebuild | 30,000 | 0 | 30,116 | 0 | 30,378 | 0 | 30,583 | 0 | 40,387 | 0 |
| Schottle Rebuild New Impellor | 0 | 0 | 0 | 45,350 | 0 | 0 | 45,874 | 0 | 0 | 0 |
| Schottle Replacement | 0 | 99,793 | 203,945 | 0 | 0 | 0 | 0 | 0 | 0 | 148,324 |
| **TOTAL: Ferries** | **230,000** | **99,793** | **234,061** | **45,350** | **30,378** | **284,613** | **117,234** | **264,075** | **147,217** | **148,324** |
| **Footpaths** | | | | | | | | | | |
| **Bay of Islands - Whangaroa** | | | | | | | | | | |
| Footpath Renewal Programme - Eastern | 0 | 0 | 0 | 0 | 0 | 136,720 | 140,552 | 144,763 | 149,541 | 154,474 |
| State Highway 10 Kaeo Footpath Concrete 80m | 0 | 0 | 8,955 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Albert Street Kawakawa Footpath Concrete 28m | 0 | 5,818 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Albert Street Kawakawa Footpath Concrete 194m | 0 | 19,278 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Commercial Street Kawakawa Footpath Concrete 24m | 3,680 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gillies Road SH 1 Kawakawa Footpath Concrete 137m | 39,894 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gillies Road SH 1 Kawakawa Footpath Concrete 79m | 20,852 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gillies Road SH 1 Kawakawa Footpath Concrete 85m | 22,434 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gillies Street (West) Kawakawa Footpath Seal 59m | 1,888 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gills Drive Kawakawa Footpath Concrete 115m | 0 | 12,367 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gills Drive Kawakawa Footpath Concrete 180m | 0 | 19,358 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Greenacres Drive Kawakawa Footpath Concrete 14m | 0 | 1,505 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Greenacres Drive Kawakawa Footpath Timber 30m | 0 | 4,260 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grey Street Kawakawa Footpath Concrete 121m | 0 | 13,012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grey Street Kawakawa Footpath Concrete 129m | 0 | 13,874 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Harry's Place Kawakawa Footpath Concrete 70m | 0 | 7,528 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hospital Road Kawakawa Footpath Concrete 107m | 0 | 11,506 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Hospital Road Kawakawa Footpath Concrete 172m | 0 | 18,497 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| North Road (SH 11) Kawakawa Footpath Concrete 50m | 0 | 5,378 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| North Road (SH 11) Kawakawa Footpath Concrete 73m | 0 | 7,752 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Raymond Street Kawakawa Footpath Concrete 86m | 9,391 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vogel Street Kawakawa Footpath Concrete 51m | 0 | 5,484 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vogel Street Kawakawa Footpath Concrete 91m | 0 | 9,787 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Whitemans Road Kawakawa Footpath Concrete 240m | 0 | 25,488 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Amokura Road Kerikeri Footpath Concrete 146m | 0 | 0 | 17,895 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cobham Court Footpath Kerikeri Concrete 24m | 0 | 0 | 18,612 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lanark Road Kerikeri Footpath Concrete 10m | 0 | 0 | 1,421 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Landing Road Kerikeri Footpath Concrete 143m | 0 | 0 | 20,316 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Landing Road Kerikeri Footpath Concrete 90m | 0 | 0 | 12,786 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mill Lane Kerikeri Footpath 1900 Concrete 18M | 1,966 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sammaree Place Kerikeri Footpath Concrete 14m | 0 | 0 | 1,989 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mason Avenue Moerewa Footpath Concrete 252m | 0 | 0 | 19,008 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mawson Avenue Waipapa Footpath Concrete 331m | 0 | 0 | 47,026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Moerewa Footpath Concrete 108m | 4,653 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Moerewa Footpath Concrete 46m | 8,372 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beechy Street Opua Footpath Concrete 10m | 0 | 2,622 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kings Road Paihia Footpath Concrete 107m | 0 | 14,204 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kings Road Paihia Footpath Concrete 197m | 0 | 20,452 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kings Road Paihia Footpath Concrete 90m | 0 | 23,360 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Marsden Road (SH11) Paihia Footpath Concrete 102m | 10,220 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Marsden Road (SH11) Paihia Footpath Concrete 139m | 13,931 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Marsden Road (SH11) Paihia Footpath Concrete 346m | 34,672 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Marsden Road (SH11) Paihia Footpath Interlocking Blocks 255m | 36,720 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Marsden Road (SH11) Paihia Footpath Concrete 25m | 6,143 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Seaview Road (SH11) Paihia Footpath Timber 62m | 8,556 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Skudders Beach Road Kerikeri Footpath Concrete 30m | 0 | 0 | 3,409 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Tohitapu Road Paihia Footpath Concrete 12m | 1,202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Robertson Street Russell Footpath Concrete 88m | 0 | 0 | 9,957 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| York Street Russell Footpath Concrete 39m | 0 | 0 | 13,887 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mako Street Taupo Bay Footpath Concrete 204m | 0 | 0 | 0 | 0 | 22,960 | 0 | 0 | 0 | 0 | 0 |
| Marlin Drive Taupo Bay Footpath Concrete 39m | 0 | 0 | 0 | 0 | 4,390 | 0 | 0 | 0 | 0 | 0 |
| Waipapa Landing Place Kerikeri Footpath Interlocking Blocks 170m | 0 | 25,190 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Kaikohe – Hokianga** | | | | | | | | | | |
| Broadway SH 12 Kaikohe Footpath Concrete 146m | 0 | 0 | 38,719 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kohukohu Road Kohukohu Footpath Seal Over Concrete 13m | 0 | 0 | 0 | 544 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kohukohu Road Kohukohu Footpath Concrete 49m | 0 | 0 | 0 | 7,780 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kohukohu Road Kohukohu Footpath Concrete 16m | 0 | 0 | 0 | 2,541 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kohukohu Road Kohukohu Footpath Concrete 30m | 0 | 0 | 0 | 4,466 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kohukohu Road Kohukohu Footpath Concrete 35m | 2,867 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rakautapu Road Kohukohu Footpath Concrete 11m | 0 | 0 | 0 | 1,528 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Coast Road Kohukohu Footpath Concrete 36m | 0 | 0 | 0 | 5,359 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Coast Road Kohukohu Footpath Concrete 920m | 0 | 0 | 0 | 0 | 122,375 | 0 | 0 | 0 | 0 | 0 |
| West Coast Road Kohukohu Footpath Seal 17m | 0 | 0 | 0 | 297 | 0 | 0 | 0 | 0 | 0 | 0 |
| Settlers Way Okaihau Footpath Concrete 54m | 0 | 0 | 25,572 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Settlers Way Okaihau Footpath Seal 37m | 0 | 0 | 940 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 12 Opononi Footpath Concrete 101m | 0 | 10,725 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 12 Opononi Footpath Timber 613m | 0 | 87,047 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parnell Street Rawene Footpath Asphaltic Concrete (Black) 9m | 5,967 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Parnell Street Rawene Footpath Concrete 25m | 12,109 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Russell Esplanade Rawene Footpath Concrete 52m | 5,678 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Russell Esplanade Rawene Footpath Concrete 67m | 9,755 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Russell Esplanade Rawene Footpath Interlocking Blocks 6m | 1,080 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Te Hiku** | | | | | | | | | | |
| Ahipara Road Ahipara Footpath Concrete 25m | 0 | 0 | 0 | 0 | 2,814 | 0 | 0 | 0 | 0 | 0 |
| Ahipara Road Ahipara Footpath Concrete 64m | 0 | 0 | 0 | 0 | 9,168 | 0 | 0 | 0 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Takahe Road Ahipara Footpath Concrete 412m | 0 | 0 | 0 | 57,245 | 0 | 0 | 0 | 0 | 0 | 0 |
| Takahe Road Ahipara Footpath Concrete 481m | 0 | 0 | 0 | 66,831 | 0 | 0 | 0 | 0 | 0 | 0 |
| Collard Street Awanui Footpath Concrete 68m | 0 | 0 | 0 | 8,773 | 0 | 0 | 0 | 0 | 0 | 0 |
| Collard Street Awanui Footpath Seal 29m | 0 | 0 | 0 | 1,012 | 0 | 0 | 0 | 0 | 0 | 0 |
| Collard Street Awanui Footpath Concrete 100m | 0 | 0 | 0 | 12,902 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Seal 14m | 784 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Seal 153m | 8,813 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Concrete 405m | 45,711 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Concrete 61m | 6,886 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Metal 91m | 2,048 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Seal 19m | 1,034 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Seal 40m | 1,728 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Seal 54m | 3,110 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 1 Awanui Footpath Seal 36m | 2,074 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Broadwood Rd, 1980 Metal 20m | 750 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| State Highway 10 Cable Bay Footpath Metal 14m | 0 | 0 | 0 | 0 | 256 | 0 | 0 | 0 | 0 | 0 |
| State Highway 10 Cable Bay Footpath Concrete 71m | 0 | 0 | 0 | 0 | 10,170 | 0 | 0 | 0 | 0 | 0 |
| State Highway 10 Cable Bay Footpath Concrete 333m | 0 | 0 | 0 | 0 | 40,888 | 0 | 0 | 0 | 0 | 0 |
| State Highway 10 Cable Bay Footpath Seal 8m | 0 | 0 | 0 | 0 | 432 | 0 | 0 | 0 | 0 | 0 |
| State Highway 10 Coopers Beach Footpath Seal 44m | 0 | 0 | 0 | 0 | 1,583 | 0 | 0 | 0 | 0 | 0 |
| State Highway 10 Coopers Beach Footpath Seal 72m | 0 | 0 | 0 | 0 | 1,425 | 0 | 0 | 0 | 0 | 0 |
| Bank Street Kaitaia Footpath Concrete 15m | 4,443 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank Street Kaitaia Footpath Concrete 20m | 5,433 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank Street Kaitaia Footpath Concrete 8m | 1,843 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank Street Kaitaia Footpath Metal 8m | 330 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank Street Kaitaia Footpath Seal 16m | 922 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank Street Kaitaia Footpath Seal 76m | 4,378 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank Street Kaitaia Footpath Seal 87m | 5,011 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bank Street Kaitaia Footpath Seal 8m | 230 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Bank Street Kaitaia Footpath Metal 11m | 193 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bonnetts Road Kaitaia Footpath Concrete 22m | 2,603 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Commerce Street Kaitaia Footpath Seal 14m | 784 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Commerce Street Kaitaia Footpath Seal 25m | 1,240 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Commerce Street Kaitaia Footpath Seal 30m | 2,640 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Commerce Street Kaitaia Footpath Seal 64m | 3,584 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Commerce Street Kaitaia Footpath Seal 21m | 1,277 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Donald Lane Kaitaia Footpath Timber 38m | 0 | 4,946 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jamieson Road Kaitaia Footpath Concrete 188m | 0 | 0 | 0 | 0 | 26,931 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia-Awaroa Road Kaitaia Footpath Metal 33m | 619 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia-Awaroa Road Kaitaia Footpath Metal 45m | 1,013 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia-Awaroa Road Kaitaia Footpath Metal 519m | 9,731 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Kaitaia-Awaroa Road Kaitaia Footpath Metal 65m | 1,625 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lake Road Kaitaia Footpath Metal 360m | 0 | 0 | 7,623 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Masters Street Kaitaia Footpath Concrete 74m | 0 | 0 | 0 | 8,813 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matthews Avenue SH 1 Kaitaia Footpath Concrete 169m | 0 | 0 | 0 | 23,482 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matthews Avenue SH 1 Kaitaia Footpath Concrete 375m | 0 | 0 | 0 | 52,103 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matthews Avenue SH 1 Kaitaia Footpath Concrete 10m | 1,274 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matthews Avenue SH 1 Kaitaia Footpath Concrete 11m | 0 | 0 | 0 | 1,528 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matthews Avenue SH 1 Kaitaia Footpath Concrete 27m | 0 | 0 | 0 | 4,824 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matthews Avenue SH 1 Kaitaia Footpath Concrete 49m | 0 | 0 | 0 | 6,809 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matthews Avenue SH 1 Kaitaia Footpath Metal 12m | 135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Melba Street Kaitaia Footpath Concrete 33m | 0 | 0 | 11,252 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Melba Street Kaitaia Footpath Concrete 38m | 0 | 0 | 5,400 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| North Road Kaitaia Footpath Concrete 104m | 0 | 0 | 0 | 23,739 | 0 | 0 | 0 | 0 | 0 | 0 |
| North Road Kaitaia Footpath Concrete 219m | 0 | 0 | 0 | 30,428 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oxford Street Kaitaia Footpath Concrete 95m | 0 | 0 | 0 | 13,200 | 0 | 0 | 0 | 0 | 0 | 0 |
| Puckey Avenue Kaitaia Footpath Concrete 35m | 0 | 0 | 0 | 12,505 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pukepoto Road Kaitaia Footpath Concrete 33m | 0 | 0 | 0 | 0 | 4,727 | 0 | 0 | 0 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Pukepoto Road Kaitaia Footpath Concrete 119m | 0 | 0 | 0 | 0 | 17,047 | 0 | 0 | 0 | 0 | 0 |
| Pukepoto Road Kaitaia Footpath Concrete 99m | 0 | 0 | 0 | 0 | 14,182 | 0 | 0 | 0 | 0 | 0 |
| Taaffe Street Kaitaia Footpath Seal 33m | 0 | 0 | 2,069 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tangonge Crescent Kaitaia Footpath Metal 46m | 748 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beach Road Mangonui Footpath Concrete 6m | 0 | 674 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beach Road Mangonui Footpath Metal 129m | 0 | 1,991 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beach Road Mangonui Footpath Seal 75m | 0 | 1,482 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Colonel Mould Drive Mangonui Footpath Concrete 23m | 0 | 0 | 0 | 0 | 2,353 | 0 | 0 | 0 | 0 | 0 |
| Colonel Mould Drive Mangonui Footpath Concrete 25m | 0 | 0 | 0 | 0 | 2,558 | 0 | 0 | 0 | 0 | 0 |
| Waterfront Road Mangonui Footpath Seal 20m | 0 | 0 | 0 | 558 | 0 | 0 | 0 | 0 | 0 | 0 |
| Footpath Renewal Programme - Northern | 0 | 0 | 0 | 0 | 0 | 153,087 | 157,378 | 162,093 | 167,444 | 172,967 |
| Footpath Renewal Programme - Western | 0 | 0 | 0 | 0 | 0 | 86,716 | 89,146 | 91,817 | 94,848 | 97,976 |
| **TOTAL: Footpaths** | **385,024** | **373,585** | **266,836** | **347,267** | **284,259** | **376,523** | **387,076** | **398,673** | **411,833** | **425,417** |
| **Roading Network** | | | | | | | | | | |
| **Bay of Islands - Whangaroa** | | | | | | | | | | |
| Matawherohia Road Bridge No I48 | 0 | 0 | 110,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Paraha Road Bridge No W10 | 0 | 0 | 132,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Davis Road Bridge No W15 | 0 | 0 | 0 | 0 | 0 | 165,000 | 0 | 0 | 0 | 0 |
| Davis Road Bridge No W16 | 0 | 0 | 0 | 0 | 110,000 | 0 | 0 | 0 | 0 | 0 |
| Davy Road Bridge No P05 | 0 | 0 | 0 | 0 | 165,000 | 0 | 0 | 0 | 0 | 0 |
| Pokopu Road Culvert No W12 | 0 | 0 | 0 | 165,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Te Raupo Road Bridge NoT49 | 110,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Waikuku Road Bridge No R07 | 0 | 110,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **District** | | | | | | | | | | |
| Bridge Renewals - WC215 | 599,334 | 604,507 | 650,688 | 628,343 | 653,477 | 679,616 | 706,801 | 735,073 | 764,475 | 795,054 |
| Chip Sealing - WC212 | 3,140,234 | 3,265,841 | 3,396,469 | 4,468,410 | 4,647,146 | 4,833,032 | 5,026,354 | 5,227,407 | 5,436,503 | 5,653,964 |
| Culverts - WC213 | 525,577 | 546,599 | 568,466 | 821,177 | 854,027 | 888,191 | 923,742 | 960,680 | 999,078 | 1,039,009 |
| Kerb and Channel Renewals - WC213 | 71,996 | 74,876 | 77,872 | 112,490 | 116,990 | 121,670 | 126,540 | 131,600 | 136,860 | 142,330 |
| Periodic Remetalling - WC211 | 3,047,190 | 3,169,078 | 3,295,841 | 3,427,784 | 3,564,908 | 3,707,516 | 3,855,914 | 4,010,102 | 4,170,384 | 4,337,066 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Thin Asphaltic Surfacings - WC212 | 197,626 | 174,646 | 213,755 | 281,225 | 292,475 | 304,175 | 316,350 | 329,000 | 342,150 | 355,825 |
| Traffic Services Renewals - WC222 | 302,231 | 314,320 | 326,893 | 339,980 | 353,580 | 367,724 | 382,443 | 397,736 | 413,633 | 430,165 |
| Urban Road Rehabilitation - WC214 | 388,885 | 196,901 | 98,451 | 104,000 | 108,160 | 112,486 | 116,986 | 121,665 | 126,532 | 131,593 |
| Rural Road Rehabilitation - WC214 | 2,455,155 | 368,353 | 2,951,786 | 3,118,128 | 3,242,853 | 3,372,567 | 3,507,470 | 3,647,769 | 3,793,679 | 3,945,427 |
| Other Drainage Renewals - WC213 | 215,990 | 224,629 | 233,614 | 337,459 | 350,958 | 364,996 | 379,596 | 394,780 | 410,571 | 426,994 |
| **Kaikohe - Hokianga** | | | | | | | | | | |
| Hapanga Road Culvert No L11 | 0 | 165,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Horeke Road Culvert M36 | 0 | 0 | 0 | 165,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Browns Road Bridge No P13 | 110,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cumber Road Bridge No P48 | 0 | 0 | 0 | 0 | 0 | 110,000 | 0 | 0 | 0 | 0 |
| West Coast Road Culvert No H04 | 495,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| West Coast Road Bridge No G05 | 0 | 0 | 0 | 0 | 110,000 | 0 | 0 | 0 | 0 | 0 |
| Rangi Point Culvert No G21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 275,000 | 0 |
| Runaruna Road Culvert 6900m | 0 | 99,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Graham Road Bridge No N35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 275,000 | 0 |
| Mission Oak Road Bridge No N32 | 0 | 0 | 165,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Tawata Road Bridge No N03 | 0 | 99,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Te Hiku** | | | | | | | | | | |
| Churtons Road Bridge No C13 | 0 | 143,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oinu Road Bridge No B18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82,500 |
| Quarry Road Culvert No B13 | 0 | 0 | 0 | 0 | 165,000 | 0 | 0 | 0 | 0 | 0 |
| Tipa Tipa Road Bridge No I51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 137,500 | 0 | 0 |
| Kaitaia Awaroa Culvert No D45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 192,500 |
| Kaitaia-Awaroa Road Culvert No D68 | 0 | 0 | 165,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Powells Bridge No D35 | 0 | 0 | 0 | 0 | 0 | 110,000 | 0 | 0 | 0 | 0 |
| Hihi Road Bridge No F07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 385,000 | 0 | 0 |
| Saleyard Avenue Culvert no A41 | 0 | 0 | 0 | 187,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Duncan Road Bridge No E70 | 0 | 0 | 0 | 110,000 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grounds Road Bridge No H06 | 0 | 0 | 0 | 0 | 0 | 0 | 165,000 | 0 | 0 | 0 |

| Project Name | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|---|---|---|---|---|---|---|
| Kaitaia Awaroa Culvert No D65 | 0 | 0 | 0 | 0 | 220,000 | 0 | 0 | 0 | 0 | 0 |
| Mill Bay Bridge No E02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82,500 | 0 | 0 |
| Fisher - Riley Road Bridge No E63 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 137,500 | 0 | 0 |
| Otengi Road Bridge No G20 | 0 | 0 | 0 | 0 | 0 | 0 | 165,000 | 0 | 0 | 0 |
| Blue Gorge Road Bridge No E87 | 0 | 99,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Peria Valley Road Bridge No E56 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110,000 | 0 |
| Fern Flat Road Bridge No E43 | 0 | 0 | 0 | 0 | 0 | 110,000 | 0 | 0 | 0 | 0 |
| Fern Flat Road Bridge No E47 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110,000 |
| Oruru Road Bridge No E09 | 0 | 0 | 0 | 0 | 0 | 0 | 385,000 | 0 | 0 | 0 |
| Waharua Road Culvert No A39 | 0 | 0 | 143,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Oromanga Road Bridge No A40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 110,000 | 0 |
| Waitapu Creek Road Bridge No I23 | 0 | 0 | 0 | 0 | 0 | 0 | 110,000 | 0 | 0 | 0 |
| Matai Bay Road Bridge NoC03 | 0 | 0 | 0 | 0 | 0 | 385,000 | 0 | 0 | 0 | 0 |
| **TOTAL: Roading Network** | **11,659,218** | **9,654,750** | **12,528,835** | **14,265,996** | **14,954,574** | **15,631,973** | **16,167,196** | **16,698,312** | **17,363,865** | **17,642,427** |
| **TOTAL** | **12,367,890** | **10,128,128** | **13,211,074** | **14,658,613** | **15,269,211** | **16,574,450** | **16,671,506** | **17,504,538** | **17,977,870** | **18,216,168** |

The above financial table shows the Capital expenditure grouped by Primary Purpose for undertaking the works. In the Source and Application of funds the New and Renewal works are grouped by the funding source

Table 126 last updated: 14/8/2012 2:20 PM

**Figure 59: Budgeted Renewals Capital Requirements**

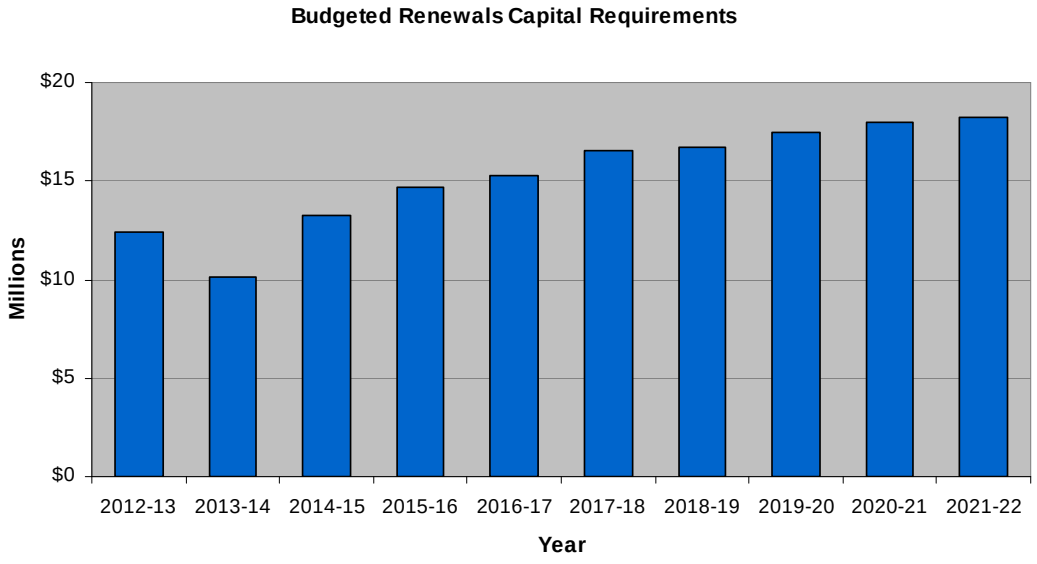
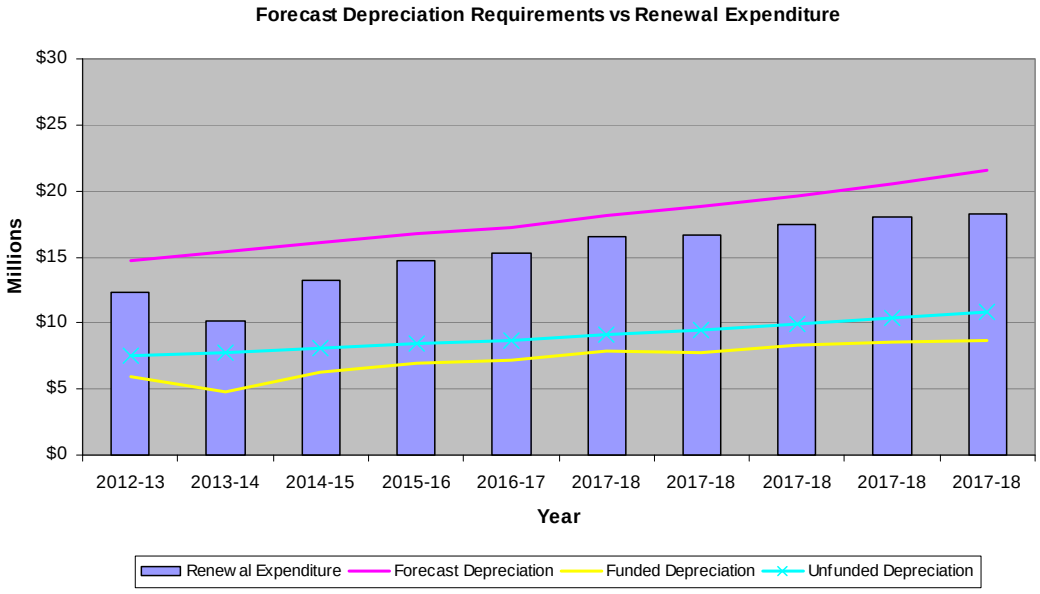



Figure 59 shows an upward trend for budgeted renewals for the 10 year period, primarily relating to District Wide Pavement Rehabilitation, Sealed Road Resurfacing and Unsealed Road Metalling.

### 15.1.3.11 Relationship between Renewals and Depreciation

Figure 60 compares the proposed 10 year renewal expenditure with the Forecast Depreciation. The resultant increase in depreciation from $14.7 million in 2012/13 to $16.1 million in 2021/22 is approximately $1.5 million. Funded Depreciation is the depreciation funded from rates. Council has opted not to fund the total cost of depreciation from rates as it receives funding from the NZTA. Roading subsidies are expected to continue for the duration of the plan in order to fund the difference between the renewal expenditure and local share (rate) funding.

**Figure 60: Depreciation Provision V Renewals Expenditure**



#### 15.1.3.12 Risk to Significant Forecasting Assumptions

Table 128 outlines the risks to significant forecasting assumptions. Should theses assumptions prove to be incorrect, there could be a significant effect on the level of rates to be collected from the community. If this were to occur, Council would re-evaluate the works' programmes to determine if expenditure is appropriate and for rates to be altered accordingly; or whether the scope of the proposed works can be scaled down.

**Table 128: Risks to Significant Forecasting Assumptions**

| Assumption | Risk | Level of Risk | Potential impact of risk | Potential financial impact | Mitigation |
|---|---|---|---|---|---|
| Future cost increases will be in line with the financial projections contained in this plan | Major cost escalations | Medium | May require changes to the way that Council prioritises and approaches transport activities | Medium / High | Council works closely with NZTA and government and aims to anticipate and plan for foreseeable changes in costs |
| Regulations relating to transport will remain largely the same over the planning period | Significant change in regulations | Low | May require changes to the way that Council prioritises and approaches transport activities | Medium / High | Council works closely with NZTA and government and aims to anticipate and plan for foreseeable changes in costs |
| Sources of funds for future replacement of significant assets will be as set out in the Revenue and Financing Policy elsewhere in this LTP | Funding sources including NZTA may not be available as required | Low | Difficulty in funding asset replacement | Low | Council will either substitute alterative funding sources e.g. borrowing or reduce capital expenditure to match funding availability |

### 15.1.4 Valuation Forecasts

This AM Plan is intended to set out how Council manages Transportation assets in a way that is appropriate for a readership which includes executive management and elected members of the Council, interest groups, stakeholders, and other interested members of the general community. A detailed copy of the Roading 2010 and 2011 valuations are attached in Appendix C of this AMP.

Statutory financial reporting requires the FNDC to revalue its fixed assets at least every five years. An asset valuation is used for asset management (calculating long-term asset renewal projections), identifying loss of service potential (depreciation) and for financial reporting purposes.

#### 15.1.4.1 Accounting Standards

New Zealand International Financial Reporting Standard 16 (NZIAS16) applies to all Stormwater infrastructure assets considered in the scope of this valuation for the general purpose of financial reports.

#### 15.1.4.2 Industry Guidelines

All infrastructure assets valued have been done so in accordance with the methodology prescribed in the New Zealand Infrastructure Asset Valuation & Depreciation Guidelines Manual Edition 2.0 2006.

### 15.1.4.3 Valuation Process & Methodology

The last full valuation was undertaken by Campbell Consulting Ltd as at 30th June 2010 and builds on valuations undertaken previously. Data was supplied by Council and discussions were carried out with the asset manager to confirm the changes to the asset register from the previous valuation.

**Table 129: Asset Data – Valuation Terminology**

| Terminology | General Meaning |
|---|---|
| **Replacement cost (RC)** | The cost of constructing a new infrastructure asset using the present day technology, and maintaining the original service potential |
| **Optimised Replacement cost (ORC)** | The cost of the modern equivalent asset that would be used to replicated the existing asset. The asset cost is 'optimised' down to allow for surplus capacity or technical obsolescence |
| **Optimised Depreciation Replacement Cost (ODRC)** | Is the optimised replacement cost after deducting the wear of an asset to reflect the remaining useful life of the asset. Calculated on the gross replacement cost of modern equivalent assets (MEA). |

The assessment of replacement cost and optimised replacement cost (ORC) was established in accordance with Financial Reporting Standard (NZIAS16). The Accumulated Depreciation (calculated on a straight line basis) is then deducted.

### 15.1.4.4 Asset Register

Council's transport assets are contained within RAMM. The replacement costs are provided by Council and were determined by considering last valuation rates, last years contract prices, consulting suppliers about price increase, consulting with and comparing prices with other Local Authorities in the region. This information is then exported to excel and provided to an external consultant to undertake the valuation.

### 15.1.4.5 Asset Assumptions (Valuation Assumptions)

The assumptions that have been used in the valuation of Council's transport assets are as follows:

- Depreciation is by straight-line and condition based methods (where appropriate)
- Asset Base Life or Total Useful Life have been used as detailed in Table 130:
- Asset age: actual construction dates were used where available. However where these were not available default values have been used
- The valuations are all reported in a Microsoft Excel format.
- Minimum remaining useful life (RUL) has been assumed as 5 years
- Asset information is as complete as possible at 30th June 2011.
- Only Transport assets have been valued.

Base lives of assets used in this valuation are as follows:

**Table 130: Current Infrastructural Asset Base Lives**

| Asset | Asset Type | Base Life (years) |
|---|---|---|
| **Formation** | Formation | n/a |
| **Subbase** | Subbase unsealed | n/a |
| | Subbase sealed | 35 or 15 |
| **Basecourse** | Basecourse unsealed | n/a |
| | Basecourse sealed | 35 or 15 |
| **Surface** | Surface unsealed low traffic | 25 |

| Asset | Asset Type | Base Life (years) |
|---|---|---|
| | Surface unsealed high traffic | 15 |
| | Surface sealed AC | 25 |
| | Surface sealed Concrete | 50 |
| | Surface sealed single coat | 12 |
| | Surface sealed two coat & reseals | 12 |
| | Surface sealed Texturising Seal | 12 |
| **Road Markings** | Road Markings | 1 |
| **Edge Marker Posts** | Edge Marker Posts | 8 |
| **Signs** | Wooden/Plastic Posts | 15 |
| | Aluminium, Steel, Concrete Posts | 15 |
| | Signs | 10 |
| | Double Sided Signs | 10 |
| | Frame | 10 |
| **Streetlights** | Pole – Metal, Steel | 25 |
| | Pole – Oclyte, Fibreglass, Wood | 40 |
| | Pole – Concrete | 60 |
| | Single Bracket | 40 |
| | Double Bracket | 40 |
| | Triple Bracket | 40 |
| | Lamp – Less than 100W | 25# |
| | Lamp – 125 and 150W | 25# |
| | Lamp – 250W | 25# |
| | Lamp – 400W | 25# |
| **Railings** | Concrete | 50 |
| | Steel and other | 50 |
| | Wooden, sight and hand rails | 30 |
| **Traffic Islands** | Area of Grass | 80 |
| | Hard Surface – Block or Concrete | 80 |
| | Landscape/Hard surface, Block Concrete or Other | 80 |
| | Landscape/Hard surface - Cobblestone | 80 |
| | Planted landscaping | 80 |
| **Drainage** | Single pipes and culverts | |
| | Twin pipes and culverts | Based on material |
| | Triple culvert (1500mm) | |
| | Flume down batter | 60 |
| | Subsoil drain | 100 |
| | Catchpit, SE pits | 80 |
| | Double Catchpit or side entry | 80 |
| | Soakholes | 50 |
| | Max pits | 80 |
| | Megapits | 80 |
| | Manholes | 100 |
| | Scruffy Dome | 60 |
| | Inlet structure | 60 |

| Asset | Asset Type | Base Life (years) |
|---|---|---|
| | Outlet structure | 60 |
| | Dished Channel | 50 |
| | Kerb & Channel | 80 |
| | Kerb Only (Concrete or Stone) | 80 |
| | Kerb Only (Wood) | 50 |
| | SWC Shallow | n/a |
| | SWC Deep | n/a |
| | Concrete SWC shallow | 50 |
| | Concrete SWC deep | 50 |
| **Walls** | Retaining Walls – Earth | 50 |
| | Retaining Walls – Anchored or Cantilevered | 80 |
| | Retaining Walls – Gravity or Concrete/Rock | 80 |
| | Retaining Walls - Gabion/Rock/Stone | 70 |
| | Seawalls - Cantilevered | 50 |
| | Seawalls – Gravity or Rock/Concrete | 50 |
| | Seawalls – Rock/Stone | 50 |
| **Bridges** | Concrete/Steel Bridge | 100 |
| | Substructures | 100 |
| | Deck Timber | 50 |
| | Large Culverts | 60-100 |
| **Quarries** | Quarries | Varies |

# except for Mercury Vapour lamps which were restricted to an REL of 8 years

#### 15.1.4.6 Replacement Cost

The asset replacement costs have been calculated as:

**Replacement Cost (RC)** = Unit Rate X Quantity

**Optimised Replacement Cost (ORC)** = RC x % of Optimisation

Assets have been depreciated on a straight-line basis (note residual values are not depreciated) to determine the Optimised Depreciated Replacement Cost (ODRC).

Where ODRC is calculated as:

**ODRC = (ORC-RV) * RUL/(RUL + AGE)+ RV**

**Where RV = Residual Value and RUL = Remaining Useful Life**

The calculation for annual depreciation used is:

**Annual Depreciation = (ORC – RV)/(RUL + Age)**

### 15.1.4.7 Asset Replacement Value Summary

**Table 131: Overview of the Transport Activity**

| Asset | Sub Group | Unit | Quantities | GRC | ODRC | AD |
|---|---|---|---|---|---|---|
| Pavement | Formation | m3 | 13,001,533 | 377,008,131 | 376,719,668 | 0 |
| | SubBase | m3 | 3,107,387 | 189,030,979 | 122,051,951 | 539,154 |
| | Basecourse | m3 | 1,938,966 | 129,502,850 | 105,379,755 | 3,169,106 |
| | Surfaces | m2 | 14,582,131 | 87,687,043 | 30,099,656 | 5,344,720 |
| Drainage | Culverts / Catchpit Leads | m | 249,420 | 68,882,130 | 48,004,980 | 840,029 |
| | Catchpits & manholes | no | 2,939 | 5,368,559 | 3,662,127 | 59,975 |
| | Surface Water Channels | m | 2,224,261 | 11,834,178 | 11,109,379 | 7,113 |
| | Kerb & Channel | m | 269,621 | 18,411,441 | 10,171,035 | 340,740 |
| | Dams | no | 2 | 77,416 | 71,857 | 1,548 |
| Streetlights | Streetlights | no | | 5,219,815 | 2,474,819 | 124,693 |
| Bridges & Large Culverts | Bridges & Large Culverts | no | 701 | 163,793,399 | 89,379,582 | 1,775,646 |
| Minor Structures | Retaining / Sea Walls | no | 520 | 36,025,624 | 24,058,643 | 863,509 |
| Traffic Facilities | Railings | m | 38,691 | 6,668,489 | 3,297,478 | 205,662 |
| | Edge Marker Posts | no | 10,093 | 272,486 | 91,797 | 33,388 |
| | Roadmarking | | | 2,567,998 | 2,565,370 | 124 |
| | Traffic Islands | m | 11,800 | 550,133 | 378,385 | 9,607 |
| Signs and Posts | Signs | no | 26,649 | 3,733,038 | 1,533,216 | 306,298 |
| Quarries incl Fences | Quarries incl Fences | no | | 505,748 | 455,584 | 18,192 |
| Footapths | Footapths | m2 | 275,207 | 23,912,390 | 9,996,418 | 532,248 |
| Carparks | Carparks | no | 21 | 1,761,086 | 917,787 | 72,109 |
| Ferry | Ferry | no | 1 | 3,889,448 | 1,359,892 | 80,466 |
| **TOTAL** | | | | **1,136,702,381** | **843,779,379** | **14,324,330** |

Excludes: Land, Buildings, Vehicles, and Memorials.

### 15.1.4.8 Details of historical valuations

A copy of historical valuations is attached in Appendix C.

### 15.1.4.9 Forecasts of depreciation

Refer to Table 120 and Table 121 and Figure 56 for Forecast Depreciation (Current and Future values) included in the financial projections above.

# 16 ACRONYMS

| | |
|---|---|
| **AADT** | Annual Average Daily Traffic |
| **AEP** | Annual Exceedance Probability |
| **AMP** | Asset Management Plan |
| **AP** | Annual Plan |
| **BAMS** | Bridge Asset Management Strategy |
| **BAP** | Best Appropriate Practice |
| **BCR** | Benefit Cost Ratio |
| **BRE** | Business Risk Exposure |
| **CAS** | Crash Analysis System |
| **CDEM** | Civil Defence Emergency Management |
| **CEO** | Chief Executive Officer |
| **CPP** | Competitive Pricing Procedure |
| **CRS** | Crash Reduction Studies |
| **DRC** | Depreciated Replacement Cost |
| **FNDC** | Far North District Council |
| **FNHL** | Far North Holdings Limited |
| **FRS 3** | Financial Reporting standard 3 |
| **FWD** | Falling Weight Deflectometer |
| **GIS** | Geographical Information System |
| **GMT** | General Management Team |
| **GPS** | Government Policy Statement |
| **GRC** | Gross Replacement Cost |
| **H&S** | Health and Safety |
| **KPI** | Key Performance Indicator |
| **LCM** | Life Cycle Management |
| **LGA** | Local Government Act |
| **LTP** | Long Term Plan |
| **LoS** | Levels of Service |
| **LTMA** | Land Transport Management Act |
| **LTSA** | Land Transport Safety Authority |
| **MMI** | Maintenance Management Item |
| **NIWA** | National Institute for Water and Atmosphere |
| **NPV** | Net Present Value |
| **VRL** | Versus Research Limited |
| **NRC** | Northland Regional Council |
| **NZTA** | New Zealand Transport Agency |
| **OAG** | Office of the Auditor General |
| **ODM** | Optimised Decision making |
| **O&M** | Operations and Maintenance |
| **OSH** | Occupational Safety and Health |
| **PRS** | Pavement Renewal Strategy |
| **QA** | Quality Assurance |

| | |
|---|---|
| **RAMM** | Road Assessment and Maintenance Management |
| **RCA** | Road Controlling Authority |
| **RDF** | Regional Development Fund |
| **CARS** | Corridor Access Request |
| **RFS** | Request for Service |
| **RMA** | Resource Management Act 1991 |
| **RUL** | Remaining Useful Life |
| **SLIM** | Street Light Inventory Management |
| **SMS** | Safety Management System |
| **RRPM** | Raised Reflectorised Pavement Markers |

# 17 GLOSSARY

| | |
|---|---|
| **Annual Plan** | The Annual Plan provides a statement of the direction of Council and ensures consistency and coordination in both making policies and decisions concerning the use of Council resources. It is a reference document for monitoring and measuring performance for the community as well as the Council itself. |
| **Asset Management (AM)** | The combination of management, financial, economic, and engineering and other practices applies to physical assets with the objective of providing the required level of service in the most cost effective manner. |
| **Asset Management System (AMS)** | A system (usually computerised) for collecting, analysing and reporting data on the utilisation, performance, lifecycle management and funding of existing assets. |
| **Asset Register** | A record or asset information considered worthy of separate identification including inventory, historical, financial, condition, and construction, technical and financial information about each. |
| **Asset Renewal** | Major work, which restores an existing asset to its original capacity or the required condition (re-roofing, re-painting, replace heating) |
| **Auditor General** | The Auditor General of the New Zealand Audit Office. |
| **Benefit Cost Ratio (BCR)** | A ratio which compares the benefits accruing to customers and the wider community from constructing a project with at projects costs. |
| **Bitumen Price Index** | Calculated monthly based on exchange rates and raw materials |
| **Capital Expenditure (CAPEX)** | Expenditure used to create new assets or to increase the capacity of existing assets beyond their original design capacity or service potential. CAPEX increases the value of an asset. |
| **Community Outcomes** | Outcomes developed by Council that directly contributes to and against which it can be measured. |
| **Components** | Specific parts of an asset having independent physical or functional identity and having specific attributes such as different life expectancy, maintenance regimes, risk or criticality. |
| **Condition Monitoring** | Continuous or periodic inspection, assessment, measurement and interpretation of resulting data, to indicate the condition of a specific component so as to determine the need for some preventative or remedial action |
| **Condition Rating Survey** | Survey carried out to assess the condition of assets. |
| **Critical Assets** | Assets for which the financial, business or service level consequences of failure are sufficiently severe to justify proactive inspection and rehabilitation. Critical assets have a lower threshold for action than non critical assets. |
| **Current Replacement Cost** | The cost of replacing the service potential of an existing asset, by reference to some measure of capacity, with an appropriate modern equivalent asset. |
| **Deferred Maintenance** | The shortfall in rehabilitation work required to maintain the service potential of an asset. |
| **Depreciated Replacement Cost** | The replacement cost of an asset spread over the expected lifetime of the asset. |
| **Depreciation** | The wearing out, consumption or other loss of value of an asset whether arising from use, passing of time or obsolescence through technological and market changes. It is accounted for the by historical cost (or re-valued amount) of the asset less its residual value over its useful life. |
| **Disposal** | Activities necessary to dispose of decommissioned assets. |
| **Emergency Work** | The restoration work required to restore a transport asset damaged by a sudden and unexpected event (e.g. storm event). |

| | |
|---|---|
| **Geographic Information System (GIS)** | Software which provides a means of spatially viewing, searching, manipulating, and analysing an electronic database. |
| **Life Cycle Management** | A process of managing an asset from initial construction through to disposal |
| **Net Present Value (NPV)** | The value of an asset to the organisation, derived from the continued use and subsequent disposal in present monetary values. It is the new amount of discounted total cash inflows arising from the continued use and subsequent disposal of the asset after deducting the value of the discounted total cast outflows. |
| **Optimised Renewal Decision Making** | An optimisation process for considering and prioritising all options to rectify performance failures of assets. The process encompasses NPV analysis and risk assessment. |
| **Road Assessment and Maintenance Management (RAMM)** | The computerised utilities asset management software system used to record and report on transport assets with the network |
| **Stakeholder** | A person or organisation who has a legitimate interest in an activity e.g. community, Iwi, etc |
| **Sustainability** | The process of meeting the needs of the present community without compromising the ability of future generations to meet their own needs |

# 18 APPENDIX A – NZTA TECHNICAL AND PROCEDURAL REPORTS

# 19 APPENDIX B - PAVEMENT RENEWAL STRATEGY

# 20 APPENDIX C - 2010 AND 2011 ROADING AND FERRY VALUATIONS

# 21 APPENDIX D - COVEC GROWTH ASSUMPTIONS REPORT

# 22 APPENDIX E - BRIDGE ASSET MANAGEMENT STRATEGY