445TH MEETING OF THE
MACKENZIE DISTRICT COUNCIL

TO THE MAYOR AND COUNCILLORS OF THE MACKENZIE DISTRICT COUNCIL

Membership of the Council:
Claire Barlow (Mayor)
Cr Russell Armstrong
Cr Murray Cox
Cr Noel Jackson
Cr James Leslie
Cr Graham Smith
Cr Evan Williams

Notice is given of an Extraordinary Meeting of the Mackenzie District Council to be held on Thursday, April 16, 2015, at 1.00pm.

VENUE: Council Chambers, Fairlie

BUSINESS: As per the attached agenda.

WAYNE BARNETT
CHIEF EXECUTIVE OFFICER

MACKENZIE DISTRICT COUNCIL

Agenda for Extraordinary Meeting of the Mackenzie District Council to be held on Thursday, April 16, 2015, at 11.00am

OPENING AND APOLOGIES

DECLARATIONS OF INTEREST

1. **Resolutions to finalise the fixed and variable components of the rates in the Long Term Plan (to follow councillor workshop).**

2. **Resolutions to change how tourism, economic development and Alps2Ocean rates are collected (to follow councillor workshop).**

3. **Long Term Plan Supporting Information Attachments**
    1. Draft Investment Policy
    2: Corporate Services and Governance Activity Management Plan
    3: Community and Townships Activity Management Plan
    4: Regulatory Services Activity Management Plan
    5: Transportation Activity Management Plan
    6: Infrastructure Strategy

MACKENZIE DISTRICT COUNCIL

REPORT TO: MACKENZIE DISTRICT COUNCIL

SUBJECT: LONG TERM PLAN SUPPORTING INFORMATION

DATE: April 16 2015

FROM: Toni Morrison, Senior Policy Planner
Paul Morris, Finance Manager

REASON FOR REPORT

To provide a number of updated supporting reports for the Council's Long Term Plan 2015/2025 and Consultation Document for adoption.

RECOMMENDATIONS:

1. That the report be received.

2. That the draft Investment Policy be adopted by Council.

3. That the Corporate Services and Governance Activity Management Plan be adopted by Council as supporting information for the Consultation Document and Long Term Plan.

4. That the following updated Activity Management Plans be adopted by Council as supporting information for the Consultation Document and Long Term Plan:

    a) Transportation Activity Management Plan
    b) Community and Townships Activity Management Plan
    c) Regulatory Services Activity Management Plan

5. That the updated Infrastructure Strategy be adopted by Council as supporting information for the Consultation Document and Long Term Plan.

WAYNE BARNETT

CHIEF EXECUTIVE OFFICER

ATTACHMENTS:

Attachment 1: Draft Investment Policy
Attachment 2: Corporate Services and Governance Activity Management Plan
Attachment 3: Community and Townships Activity Management Plan
Attachment 4: Regulatory Services Activity Management Plan
Attachment 5: Transportation Activity Management Plan
Attachment 6: Infrastructure Strategy

BACKGROUND:

The Council is currently finalising all of the supporting information that will form the basis of the 2015-25 Long Term Plan (LTP).

Investment Policy

Under the Local Government Act 2002 (LGA) the Council is required to have an investment policy. Discussions at Council workshops have resulted in a need to review and amend the Council's current policy. Attached is a draft Policy showing suggested changes (highlighted in yellow), for the Council's consideration and adoption. Once adopted this will form part of the supporting information for the Consultation Document and LTP.

Corporate Services and Governance Activity Management Plan

Staff have developed this AMP for the Council's consideration. Once adopted it will form part of the supporting information for the Consultation Document and LTP.

Community and Townships Activity Management Plan
Regulatory Services Activity Management Plan
Transportation Activity Management Plan

The Council has adopted earlier drafts of these documents, but it was necessary to update them following the recent Council workshops and decisions on the budget at the 31 March Council meeting. The documents have been updated and are now presented to Council for adoption as supporting information for the Consultation Document and LTP.

Changes to the attached documents are highlighted in yellow in the text of each document. In summary, the changes are:

The **Community and Townships Activity Management Plan** has been updated to:

- include provision for the new Tekapo toilets and the upgrade of the toilets on Lakeside Drive
- describe the change in the rubbish bag collection service in Albury

The **Regulatory Services Activity Management Plan** has been updated to reflect decisions on the change to the way Plan Changes including Plan Change 13 and Plan Review will be funded.

The **Transportation Activity Management Plan** has been updated to:

- reflect decisions on budget changes
- include a description of the proposed disposal of two bridges

Infrastructure Strategy
This has been updated to include a section on the Council's decision on funding of the 3 Waters infrastructure, and the change to the roading spend. These changes are highlighted in the attached document in yellow.

POLICY STATUS:

As noted above, the Council is required to have an Investment Policy. The proposal is to update the policy in accordance with recent Council decisions affecting investments.

There are no other applicable policies.

SIGNIFICANCE OF DECISION:

In accordance with Council's Significance and Engagement Policy, these matters have been assessed as significant because the decisions relate to supporting information for the Consultation Document and the Long Term Plan 2015-25.

ISSUES & OPTIONS:

This process is currently progressing under tight timeframes. Council is required to adopt all supporting information for the Consultation Document prior to adopting the Consultation Document itself. The CD will be presented to Council on 28 April, for public consultation during May.

This timeframe is necessary to ensure that the LTP is adopted by June 30. The consequences of not adopting the LTP by June 30 include a delay in striking the rates for the new financial year, resulting in a loss of income to Council.

The documents for Councils consideration and adoption at this meeting are:
Attachment 1: Draft Investment Policy
Attachment 2: Corporate Services and Governance Activity Management Plan
Attachment 3: Community and Townships Activity Management Plan
Attachment 4: Regulatory Services Activity Management Plan
Attachment 5: Transportation Activity Management Plan
Attachment 6: Infrastructure Strategy

The options available to Council are to either:
1. Approve the above documents as contained in this report OR
2. Amend as appropriate and approve the documents.

CONSIDERATIONS:

Legal
This process is guided by the Local Government Act 2002.

Financial
As stated above there is a financial risk to Council if the Long Term Plan process does not meet its tight deadlines and adoption is delayed until after June 30, 2015.

CONCLUSION:

The Council is required to have adopted all supporting information for the Consultation Document prior to adopting the Consultation Document itself. This paper seeks the adoption of various supporting documents, to enable the adoption of the Consultation Document on April 28.

Investment Policy

General

Council's philosophy is to optimise long term returns while balancing risk and return. It recognises that as a responsible public authority its investments should be low risk, and be managed conservatively. Speculative investments will be avoided; however Council also recognises that lower risk generally means lower returns.

Council's financial investments are managed as a portfolio of financial assets. Its primary objectives when investing are to protect the investment's capital value and to minimise the risk of capital loss. Accordingly, only creditworthy counter parties are acceptable.

Within the credit constraints, Council also seeks to:

- Optimise investment return
- Ensure investments are liquid and sufficiently flexible
- Diversify the mix of financial investments
- Manage potential capital losses due to interest rate movements if investments need to be liquidated before maturity

Income from Council's investments is generally used to offset the general rate. The proceeds from a sale of an actual investment will be held by the Council as a financial investment.

Investment Mix

Council may maintain investments in the following financial assets

- Loan advances (refer to section 1)
- Equity investments (refer to section 2)
- Property investments (refer to section 3)
- Forestry investments (refer to section 4)
- Financial investments (refer to section 5)

1. Loan Advances

Nature of Investment / Rationale for Holding

In special circumstances, Council will provide loan advances for sporting, community development and other reasons. Examples of these loans have been to the Twizel Basketball Club to purchase equipment for their use in the Twizel Events Centre and also the debenture that the Council previously held with High Country Health Limited, a company formed to operate the Twizel medical practice.

Interest rates are set at the average of Council's bond portfolio rate, recalculated annually.

Council approves all loan advances.

Disposition of Revenue

Interest is taken to the Investment Trading Account. Interest earned is allocated to the general rate.

The Council approves any repayment; proceeds on repayment are used to reimburse the reserve from where it was originally taken, or otherwise are taken to the ratepayers equity account and used in achieving Council's strategic objectives.

Risk Management
The primary risk is that the borrower defaults on the payment of interest and principal amounts owing to Council. Where possible Council seeks security for any loans provided. All loans to sporting bodies are subject to a chattel security.

Should loan repayments go into arrears, Council takes immediate steps to retrieve the monies owing.

Management/Reporting Procedures
The Council reviews performance of these investments on a regular basis to ensure Council objectives are being achieved and that interest and principal repayments are being made in accordance with the loan agreement.

Specific Policy
Council's policy is to seek wherever possible early retirement of loans, otherwise Council intends to hold loan investments until maturity.

2. Equity Investments

Council has the following equity investments:

- Mackenzie Holdings Limited (MHL)
- Alpine Energy Limited.

2.1 Mackenzie Holdings Limited

Nature of Investment/Rationale for Holding
The Council established Mackenzie Holdings Limited as a wholly-owned subsidiary in 2004 charged with developing the Pukaki Airfield as an operational airfield. The operations have been transferred to Pukaki Airport Board, a committee of Council. Mackenzie Holdings Limited is not operational and will be wound up in due course. It has been exempted under section 7 of the Local Government Act 2002 from the normal reporting requirements.

2.2 Alpine Energy Limited

Nature of Investment
Alpine Energy Limited was created under the Energy Companies Act 1992, Council having 2,049,870 $1 shares representing a minority 4.9% shareholding. The company supplies electricity to the South Canterbury region and was created from the former South Canterbury Electric Power Board.

Rationale for Holding
Council views this investment as a strategic asset ensuring the cost effective distribution of electricity to the District.

Disposition of Revenue

Interim and final dividends are taken to the investment trading account. Dividends earned are allocated to the four District communities of Twizel, Fairlie, Tekapo and rural, based on their respective capital values. ~~The dividends to be received have been estimated at $378,000 per annum for the period of the long-term plan. This may vary over time.~~

Council approves any disposition; proceeds on disposition are taken to the ratepayers equity account and used in achieving Council's strategic objectives.

Risk Management
Alpine Energy is made up of a number of discrete "businesses" which operate independently of each other and which attract varying degrees of risk including electricity distribution and electrical contracting. Alpine Energy's main business is electricity distribution where the risks are considered to be low given the high cost of replicating an electrical network. Alpine Energy manages its other business risks through separate companies, which limits its liability. Within each business the respective boards manage the operational risks.

Management/Reporting Procedures
The Council approves the statement of corporate intent annually and monitors the investment through unaudited six monthly and audited annual financial statements.

Specific Policy
Council reviews its investment in Alpine Energy on an annual basis.

3. Property Investments

Nature of Investment
In addition to commercial and residential property, the Council has landholdings which have been acquired in a number of ways. Any surplus land is either leased or held intending to be sold at market valuation or at an agreed value satisfactory to Council.

Rationale for Holding
Council's overall objective is to only own property that is necessary to achieve its strategic plan objectives. Council reviews property ownership through assessing the benefits of continued ownership in comparison to other arrangements which could deliver the same results. This assessment is based on the most financially viable method of achieving the delivery of Council services. Council generally follows a similar assessment criterion in relation to new property and land investments.

Disposition of Revenue
Property rentals are charged at commercial levels. All income including rentals and ground rent from property are taken to the property trading account and are used to offset the general rate. Council approves any disposition of property or landholdings. Sale proceeds are taken to the real estate reserve and used in achieving Council's strategic objectives.

Risk Management
The capital value of property and land is impacted by changes in economic and financial factors e.g. business confidence, growth, and interest rates. Council manages this by only holding property that relates to the delivery of core services. Council intends to sell down its landholdings when it is prudent to do so and at a value satisfactory to Council.

The Council reviews the performance of its property investments through regular reporting.

Specific Policy
The property and landholdings portfolio is reviewed annually. All surplus landholdings and commercial property are disposed of at market valuation or at a price satisfactory to Council.

4. Forestry Investments

Nature of Investment/ Rationale for Holding
Council has approximately 1,040 hectares of forestry plantation. Council has historically invested in forestry, as it provides diversification of Council's investment portfolio as well as provides good long-term inflation adjusted returns.

Forestry plantations are held as long-term investments on the basis of net positive discounted cash flows, factoring in projected market prices, annual maintenance and cutting costs and discounted at Council's annualised cost of capital.

The Council is proposing to sell three blocks of forestry land in the Opuha ward in the 2015/16 year.

Disposition of Revenue
Any harvesting requires Forestry Board approval. Harvest proceeds are taken to the forestry trading account and used to further develop the forestry plantations. Revenue from carbon credits is treated similarly. Returns are made back to Council in the form of rental paid for the freehold land that the Forestry Board occupies. This rental is allocated to the four communities of Twizel, Fairlie, Tekapo and Rural, based on their respective capital values.

Revenue from the sale of the forestry land, if proceeded with, may be used on essential services such as roads, water supply, sewer and stormwater.

Risk Management
The most significant risk relates to product price returns, which are dependent on world markets. This means that forestry returns are dependent on commodity prices and carbon markets driven by other countries. Where there is a short-term downward spike in international stump prices, Council will defer harvesting until such time as it becomes economically viable.

Management and Reporting Procedures
The investment is monitored and managed by the Forestry Board, which consists of up to four appointed members. A forester and forest manager are employed on contract to report on the plantation management regime and report to the Forestry Board on a regular basis.

Specific Policy
As long as investing in forestry remains financially viable, Council intends to retain its forestry investment and harvest when stump value is maximised. As noted, the Council proposes to sell three blocks of forestry land in the 2015/16 year, and intends to retain the balance of the land.

5. Financial Investments

Nature of Investment

Council invests in approved financial assets, which excludes dealing in shares. Council invests in the following instruments:

- Government investments,
- Registered bank investments,
- Local Authority investments.
- State Owned Enterprises (SOE) investments,
- Corporate investments, and
- District Health Board investments.

Rationale for Holding

Council primarily holds financial investments to earn revenue used in the reduction of general rates. Council also maintains a portfolio of financial investments for the reason of:

- Investing proceeds from the sale of assets,
- Investing amounts allocated to general and special fund reserves e.g. disaster reserve,
- Investing funds allocated for approved future expenditure, and
- Investing surplus cash and working capital funds.

Disposition of Revenue

Interest is taken to the investment trading account. Interest earned is allocated to the general rate.

Financial investments are normally held to maturity date. Where investments are liquidated prior to maturity date, approval is obtained from the CEO.

Risk Management

Investment Objectives

Council's primary objective when investing is the protection of its investment. Accordingly, only credit worthy counter parties are acceptable. Credit worthy counter parties are selected on the basis of their Standard and Poors (S & P) ratings, or the Moody's Investor Services ("Moodys") or Fitch Ratings ("Fitch") equivalents which must be strong or better. Credit ratings are monitored on a quarterly basis by the Finance Manager from updated advice from the Council's investment advisors.

The following principles capture the above objectives:

- ***Credit Risk***
  Credit risk is minimised by placing maximum limits for each broad class of non-Government issuer, and by limiting investments to local authorities, registered banks, strongly rated SOEs, corporates and DHBs within prescribed issuer and portfolio limits. These are detailed in the authorised investment criteria for financial market investment activities.

- ***Liquidity Risk***
  Liquidity risk is minimised by ensuring that all investments must be capable of being liquidated in a readily available secondary market. Furthermore, Council requires that the duration of the Council's portfolio must be within a range of 25% shorter or longer than the benchmark portfolio set in conjunction with the Council's investment adviser (refer to benchmarking as part of this investment policy).

Interest Rate Risk Management

Council's investments give rise to a direct exposure to a change in interest rates, impacting the return and capital value of its investments.

The CEO approves interest rate risk management strategy as recommended by the Finance Manager, who determines the appropriate interest rate profile to adopt for investments, after reviewing on a regular basis, cash flow forecasts incorporating plans for approved expenditure and strategic initiatives, monitoring the interest rate markets, evaluating the interest rate outlook and seeking appropriate advice where necessary.

The Finance Manager implements an interest rate risk management strategy by using risk management instruments to protect investment returns and to change interest rate and maturity profiles.

The use of interest rate risk management instruments requires Council approval.

Management and Reporting Procedures
The CEO approves the investment strategy, recommended by the Finance Manager. During the annual budget round the Finance Manager recommends a formal investment strategy to the CEO. Thereafter, the CEO approves the investment strategy on a quarterly basis, as recommended by the Finance Manager who evaluates Council's cash flow forecasts, the outlook for interest rates, the shape of the yield curve and where necessary seeks appropriate advice.

Benchmarking
The Council measures the performance of the investment portfolio by benchmarking the performance of the portfolio against the performance of an appropriate external benchmark portfolio. This provides the Council with an indication as to the effectiveness and suitability of the current investment parameters and the manner in which the parameters are being implemented at an operational level.

Specific Policy
Council reviews its investments portfolio annually and manages the portfolio according to the objective performance measures determined during the annual budget round.

Counterparty Exposure Limits
Council ensures that all financial investments and interest rate risk management is undertaken with institutions that are of high quality credit to ensure amounts owing to Council are paid fully and on due date. This does not limit Council investing in other assets, other than financial investments.

More specifically, Council minimises its credit exposure by:

- Transacting with entities which have a strong credit rating,
- Limiting total exposure to prescribed amounts and portfolio limits, and
- Timely and rigorous compliance monitoring.

Table 1 below "*authorised investment criteria for financial market investment activities*" summarises credit requirements and limits.

Foreign Exchange Policy
Council does not borrow or enter into incidental arrangements within or outside New Zealand in currency other than New Zealand currency.

Cash Management
From time to time, Council has cashflow surpluses and borrowing requirements due to the mismatch of daily receipts and payments. All cash inflows and expenses pass through bank accounts controlled by the finance function.

Cash management activities must be undertaken within the following parameters:

Cash management instruments are limited to:

a. Call deposits with registered banks.
b. Negotiable instruments with maturity less than three months.
c. Term deposits with registered banks (less than six months). Not recommended if early break penalties are enforced.

Cash may only be invested with approved counterparties as detailed below.

If practical, a targeted minimum of $250,000 is invested at call.

An optimal daily range of no more than $100,000 is targeted for in Council's current account.

Interest rate risk management on cash management balances is not permitted.

Table 1: Authorised Investment Criteria for Financial Market Investment Activities

Authorised Asset Classes	Overall Portfolio Limit as a Percentage of the Total Portfolio	Approved Financial Market Investment Instruments (must be denominated in NZ dollars)	Credit Rating Criteria – Standard and Poor's (or Moody's or Fitch equivalents)	Limit for each issuer subject to overall portfolio limit for issuer class
New Zealand Government	100%	• Government Stock • Treasury Bills	Not Applicable	Unlimited
Rated Local Authorities	70%	• Commercial Paper • Bonds/MTNs/FRNs	Short term S&P rating of A1 or better Long term S&P rating of BBB or better Long term S&P rating of A- or better Long term S&P rating of A+ or better Long term S&P rating of AA- or better	$3.0 million $1.0 million $2.0 million $3.0 million $4.0 million
Local Authorities where rates are used as security	60%	• Commercial Paper • Bonds/MTNs/FRNs	Not Applicable	$2.0 million $2.0 million
New Zealand Registered Banks	100%	• Call/Deposits/Bank Bills/Commercial Paper • Bonds/MTNs/FRNs	Short term S&P rating of A1 or better Long term S&P rating of BBB or better Long term S&P rating of A- or better Long term S&P rating of A+ or better Long term S&P rating of AA – or better	$10.0 million $1.0 million $2.0 million $3.0 million $4.0 million
State Owned Enterprises	70%	• Commercial Paper • Bonds/MTNs/FRNs	Short term S&P rating of A1 or better Long term S&P rating of BBB or better Long term S&P rating of A- or better Long term S&P rating of A+ or better Long term S&P rating of AA- or better	$3.0 million $1.0 million $2 million $3.0 million $4.0 million
Corporates	60%	• Commercial Paper • Bonds/MTNs/FRNs	Short term S&P rating of A1 or better Long term S&P rating of BBB or better Long term S&P rating of A- or better Long term S&P rating of A+ or better Long term S&P rating of AA -or better	$3.0 million $1.0 million $2.0 million $3.0 million $4.0 million
Financials	30%	• Commercial Paper	Short term S&P rating of A1 or better	$3.0 million

		• Bonds/MTNs/FRNs	Long term S&P rating of BBB or better Long term S&P rating of A- or better Long term S&P rating of A+ or better Long term S&P rating of AA- or better	$1.0 million $2.0 million $3.0 million $4.0 million

Investment Policy

Adopted by: **Council**

Adopted date: **16 April 2015**

Review date: as required.

MACKENZIE DISTRICT COUNCIL

Activity Management Plan For Governance & Corporate Services 2015-2025

1. INTRODUCTION

1.1 Background

This Activity Management Plan covers the Governance and Corporate Services activities of Council.

The Governance activity is made up of three sub-activities:

- District Council
- Community Boards
- Elections

Corporate Services is made up of the following sub-activities:

- Administration
- Finance
- Council Offices
- Chief Executive Department
- Information Technology Department
- Community Facilities Department
- Engineering Department

1.2 Rationale for Council's Involvement

The Governance activity is prescribed by statute, as follows:

District Council
Under section 41 of the Local Government Act 2002, a territorial authority must have a governing body consisting of members and a mayor. That body is responsible and democratically accountable for the decision making of the local authority. In the case of Mackenzie District, the Council comprises a Mayor elected at large and six Councillors elected from two wards.

Community Boards
Subpart 2 of Part 4 of the Local Government Act 2002 provides for the establishment, membership, powers and roles of Community Boards. While Community Boards are not compulsory, the District has been served over many years by Community Boards or their equivalents representing Fairlie, Lake Tekapo and Twizel. The Community Board structure for the Mackenzie District was confirmed in 2004 by a determination of the Local Government Commission, which stated that each board would be made up of four elected members and one Councillor appointed from the appropriate ward.

Elections
Sections 41 and 50 require members of the Council and the Community Boards to be elected under the Local Electoral Act 2001.

Corporate Services
Corporate Services provides managerial or administrative support for all other activities undertaken by the Council. It is generally not practical for a particular activity to individually manage and administer its affairs, therefore this work is carried out by the Corporate Services Department.

1.3 Community outcomes to which the Activity Contributes

The activity of Governance and Corporate Services works across all activities undertaken by Council. It therefore contributes to all six Community Outcomes:

- An attractive and highly valued natural environment
- A thriving economy
- A democracy which upholds the rights of the individual
- A fit and healthy community
- Safe effective and sustainable infrastructure
- A supportive and contributing community

1.4 Activity Goals

To make wise decisions on behalf of the residents and ratepayers of the district, that will enhance the wellbeing of the people of the Mackenzie, both now and in the future.

To provide cost effective and efficient managerial, financial and administrative support for all activities undertaken by the Council.

1.5 Principal Objectives

Governance

District Council

- To provide leadership, direction and policies that will supply efficient and cost effective services to the community.
- To provide prudent stewardship of the assets entrusted to its care
- To advocate effectively on behalf of the community
- To ensure communication of Council activities to residents and ratepayers through meetings, speeches and published information.
- To provide opportunities for community feedback through consultative processes.

Community Boards

- To provide focussed debate and feedback to Council on issues affecting the three community areas of the Mackenzie District.

Elections

- To carry out the triennial election in accordance with the Local Electoral Act 2001.
- To ensure that all extraordinary vacancies are filled in accordance with the Local Electoral Act 2001.

Corporate Services

Administration & Finance

- To provide accounting support to all other activities of Council.
- To provide secretarial and administrative support for all activities of Council.
- To manage the commercial activities of Council.

Council Offices

- To provide and maintain the Council Offices in Fairlie and Twizel and the Council Chambers.

Chief Executive Department

- To provide overall leadership of the Council staff.
- To provide direct support to the elected body of Council.

Information Technology Department

- To provide appropriate Information Technology support.

Community Facilities Department

- To manage the core delivery of all community facilities and services.

Engineering Department

- To manage the core delivery of essential services, such as water, sewerage, stormwater, roading and waste.

2. LEVELS OF SERVICE AND PERFORMANCE MEASURES

The levels of service expected from Corporate Services activity area relate to the provision of managerial and administrative support for all other activities of Council. The service levels are internal between the Corporate Services sub-activity and the area of the organisation that it provides services to.

Corporate Services provides managerial and administrative support for the other activities carried out by Council and as such indirectly contributes to the performance measures identified within the other activities. As a result, there are no specific performance measures identified for the sub-activities of Corporate Services.

There are no performance measures or targets specifically applicable to governance activity. There are no anticipated changes to levels of service in this area.

3. THE EXISTING SITUATION DESCRIBED

3.1 Governance

District Council
The District Council comprises of the Mayor and six Councillors. The Mayor is elected by the District at large and the Councillors are elected by way of wards:

- Opuha Ward (3 Councillors)
- Pukaki Ward (3 Councillors)

There are also eight committees of Council namely the Finance, Assets and Services, Strategy and Policy, and Planning Committees, the Forestry Board, the Pukaki Airport Board, the Tekapo Property Group Sub-committee and Audit & Risk Sub-committee. The Council also operates a number of joint committees with other Councils for various functions, including water management and civil defence.

Community Boards
The Mackenzie District has three Community Boards:

- Fairlie – elected by the electors of the Fairlie community boundary
- Tekapo – elected by the electors of the former Tekapo Ward
- Twizel – elected by members of the Twizel Township

Each Board comprises of four elected members and one appointed Councillor.

Elections
Under the Local Electoral Act 2001, the District must hold an election for the Mayor, Councillors and Community Board Members every three years. If any elected member is unable to complete their term of office (in terms of Part 1 of Schedule 7 of the Local Government Act 2002) it creates an extraordinary vacancy. Most extraordinary vacancies are required to be filled by way of a by-election. An exception is for a Community Board, where the vacancy can be filled by appointment if it is less than 12 months until the next triennial election.

The Council appoints an Electoral Officer, who is delegated duties and responsibilities under the Local Electoral Act 2001. These include responsibility for conducting the triennial election and any by-elections.

3.2 Corporate Services

Administration
Key Functions - The key functions of the Administration Department are as follows:

- Provision of reception services.
- Provision of secretarial support for the Council.

- Filing and archiving of all documentation that passes through the Council.

Personnel - The current approved staffing level for the administration function is 6 FTE.

Finance
Key Functions - The key functions of the finance sub-activity are as follows:

- Preparation of and leading the budgetary process.
- Providing key documents to the community as required under legislation. These include the Annual Plan, the Long Term Plan and the Annual Report.
- Payment of invoices.
- Setting and collection of rates.
- Preparation and collection of other Council revenue.
- Wage and salary payments to staff and elected representatives.
- Reporting on financial position and performance to Council, Community Boards and management.
- Leading the commercial arm of the Council.
- Management of the Council's investment portfolio.

Personnel - The current staffing level for the finance function is 2.73 FTE.

Council Offices
Key Functions - The key function of the Council Offices sub-activity is the provision of offices and Council Chambers in Main Street, Fairlie and Market Place, Twizel.

Chief Executive Department
Key Functions - The key functions of the Chief Executive Department are as follows:

- To provide overall leadership of the Council staff.
- To provide direct support to the elected body of Council.

Personnel - The current approved staffing level for the Chief Executive Department is 1.93 FTE.

Information Technology Department
Key Functions - The key functions of the Information Technology Department are as follows:

- To provide computer support for the organisation.
- Provide input and recommendations on all facets of Information Technology to Council management.

Personnel - The current approved staffing level for the Information Technology Department is 2.6 FTE.

Community Facilities Department
Key Functions **-** The key functions of the Community Facilities Department are as follows:

- To provide Managerial support for all Community Facilities and Services.
- To provide leadership to employees relating to Community Facilities or Services.
- To provide supervision of Township Maintenance Contracts.

Personnel - The current approved staffing level for Community Facilities Department is 1 FTE.

Engineering Department
Key Functions - The key function of the Engineering Department is to provide oversight of all Council's infrastructure and solid waste activity.

Personnel –the current approved staffing level of the Engineering Department is 3 FTE's.

4. MAINTENANCE AND OPERATING

Governance
The governance role will be carried out by Council as long as it is in existence. While community boards are not compulsory any decision for changes to this structure would need to be undertaken as part of a representation review.

Corporate Services

Administration
The requirements of the Local Government Act 2002 place significant administrative pressure on local authorities. While parts of various legislative requirements can be outsourced, there is still the necessity for the servicing of the District Council by an administration base in the area that it serves. As a result, the Council will continue to operate an Administration Department.

Finance
There are number of key functions which are required of Council and it is considered most appropriate in terms of efficiency, accountability and effectiveness that these are delivered through the current structure within the organisation.

Council Offices
The provision for council offices will always be required if the District Council is in existence. While the properties could be owned by another party and leased by the Council, it is felt that owning its own property is more appropriate to ensure security of tenure and continuity of service.

Chief Executive Department
Under Section 42 of the Local Government Act 2002, a local authority must appoint a Chief Executive Officer. As a result, the Council cannot contract out of the responsibilities of having a Chief Executive Department.

Information Technology Department
The Council has an in-house Information Technology Department to ensure it is fulfilling various legislative requirements, and to enable it to respond to the increasing use of technology in its various functions and public processes. Due to the isolation of the District and the need to deal with computer and technology issues in a timely manner, while the Council could contract out the services provided by the Department, it is considered that the current situation of in-house support is the most appropriate for the Council's needs. Council will review the most appropriate method of delivering this service and there may come a time where a combination of in-house and outsourced service is appropriate.

Community Facilities Department
Most of the community facilities and services activities managed by the Council are not of the size or scale to warrant staff dedicated for particular purposes. The current Community Facilities Department is considered the most appropriate method for managing this activity.

Engineering Department
The Engineering Department is considered the most appropriate method for managing the roading, waste, water, sewerage and stormwater functions and services of Council.

5. FUTURE DEMAND

Governance
The significant future demands affecting Governance in the Mackenzie District to be considered are:

- Growth Trends – Trends in population growth or decline may determine whether Mackenzie District remains an effective unit of local government.
- Economic changes – changes in economic activity may determine whether Mackenzie District remains a viable unit of local government.

It is expected that Council will remain an effective unit of local government for the entire period of the long term plan.

Corporate

Administration
Any increases in staff levels as a result of future demand will be assessed as and when required. It is anticipated that the current level of service will be retained.

Finance

Extra resourcing for up to 1 FTE in the finance area is proposed in the 2015/16 year, to respond to increased legislative requirements and to ensure business continuity and service delivery is maintained.

Council Offices
It is anticipated that the current level of accommodation is sufficient to meet future demand.

Chief Executive Department
Any increases in staff levels as a result of future demand will be assessed as a when required. It is anticipated that the current level of service will be retained.

Information Technology Department
Any increases in staff levels as a result of future demand will be assessed as a when required. It is anticipated that the current level of service will be retained.

Community Facilities Department
Any increases in staff levels as a result of future demand will be assessed as a when required. It is anticipated that the current level of service will be retained.

Engineering Department
Any increases in staff levels as a result of future demand will be assessed as a when required. It is anticipated that the current level of service will be retained.

6. CAPITAL EXPENDITURE

6.1 Proposed Future Capital Works Programme

Mackenzie District Counil
LTP Finance Report
For The 30 Year Period Ended 30 June 2045

	Actual June 2014	Budget June 2015	LTP Budget Yr 1 2016	LTP Budget Yr 2 2017	LTP Budget Yr 3 2018	LTP Budget Yr 4 2019	LTP Budget Yr 5 2020	LTP Budget Yr 6 2021	LTP Budget Yr 7 2022	LTP Budget Yr 8 2023	LTP Budget Yr 9 2024
Administration - District											
Assets											
Capex											
0018925. Plant and Equipment	1,800	3,000	0	0	0	0	0	0	0	0	0
0018999. Transfer to Assets	(1,800)	0	0	0	0	0	0	0	0	0	0
Total Capex	**0**	**3,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**0**	**3,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Administration - District	**0**	**3,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Council Building - Fairlie											
Assets											
Capex											
0088915. Building - Air Conditioning	0	0	0	0	0	0	0	0	0	0	37,530
0088916. Building Renovations	16,666	0	0	61,440	0	0	0	0	0	0	0
0088925. Plant and Equipment	0	20,000	0	0	0	0	0	0	0	0	0
0088935. Furniture & Fittings - Admin	19,707	2,118	0	0	0	0	0	0	0	0	0
0088940. Furniture & Fittings - Other	260	8,000	3,000	3,072	3,150	3,231	3,321	3,417	3,519	3,633	3,753
0088999. Transfer to Assets	(36,632)	0	0	0	0	0	0	0	0	0	0
Total Capex	**0**	**30,118**	**3,000**	**64,512**	**3,150**	**3,231**	**3,321**	**3,417**	**3,519**	**3,633**	**41,283**
Total Assets	**0**	**30,118**	**3,000**	**64,512**	**3,150**	**3,231**	**3,321**	**3,417**	**3,519**	**3,633**	**41,283**
Total Council Building - Fairlie	**0**	**30,118**	**3,000**	**64,512**	**3,150**	**3,231**	**3,321**	**3,417**	**3,519**	**3,633**	**41,283**
Council Building - Twizel											
Assets											
Capex											
0098916. Building Renovations	5,171	3,000	0	0	0	0	0	0	0	0	0
0098940. Furniture & Fittings - Other	4,730	0	2,000	2,048	2,100	2,154	2,214	2,278	2,346	2,422	15,012
0098999. Transfer to Assets	(9,901)	0	0	0	0	0	0	0	0	0	0
Total Capex	**0**	**3,000**	**2,000**	**2,048**	**2,100**	**2,154**	**2,214**	**2,278**	**2,346**	**2,422**	**15,012**
Total Assets	**0**	**3,000**	**2,000**	**2,048**	**2,100**	**2,154**	**2,214**	**2,278**	**2,346**	**2,422**	**15,012**
Total Council Building - Twizel	**0**	**3,000**	**2,000**	**2,048**	**2,100**	**2,154**	**2,214**	**2,278**	**2,346**	**2,422**	**15,012**
Information Technology Support											
Assets											
Capex											
0788001. Records Mngt Program	0	8,000	8,000	8,200	8,416	8,640	8,888	9,160	9,440	9,752	10,088
0788002. PC Server	51,073	0	20,000	0	73,640	0	0	22,900	0	85,330	0
0788006. GIS Aerials	28,741	0	0	0	61,016	0	0	0	68,440	0	0
0788010. Network Infrastructure	4,766	0	2,000	0	0	0	0	0	0	0	0
0788011. Communications Equipment	36,943	0	0	0	0	0	0	0	0	0	0
0788012. Software	17,600	35,000	18,000	18,450	18,936	19,440	19,998	20,610	21,240	21,942	22,698
0788014. Web site development	0	7,000	28,000	0	0	0	0	32,060	0	0	0
0788925. Plant and Equipment	2,415	0	3,000	0	3,156	0	3,333	0	3,540	0	3,783
0788999. Transfer to Assets	(141,538)	0	0	0	0	0	0	0	0	0	0
Total Capex	**0**	**50,000**	**79,000**	**26,650**	**165,164**	**28,080**	**32,219**	**84,730**	**102,660**	**117,024**	**36,569**
Total Assets	**0**	**50,000**	**79,000**	**26,650**	**165,164**	**28,080**	**32,219**	**84,730**	**102,660**	**117,024**	**36,569**
Total Information Technology Support	**0**	**50,000**	**79,000**	**26,650**	**165,164**	**28,080**	**32,219**	**84,730**	**102,660**	**117,024**	**36,569**
Plant Operations											
Assets											
Capex											
2658930. Vehicles	(20,986)	87,000	28,000	83,025	76,796	71,280	128,876	64,120	44,840	103,615	78,182
2658999. Transfer to assets	20,986	0	0	0	0	0	0	0	0	0	0
Total Capex	**0**	**87,000**	**28,000**	**83,025**	**76,796**	**71,280**	**128,876**	**64,120**	**44,840**	**103,615**	**78,182**
Total Assets	**0**	**87,000**	**28,000**	**83,025**	**76,796**	**71,280**	**128,876**	**64,120**	**44,840**	**103,615**	**78,182**
Total Plant Operations	**0**	**87,000**	**28,000**	**83,025**	**76,796**	**71,280**	**128,876**	**64,120**	**44,840**	**103,615**	**78,182**

6.2 Funding of Capital Works

The purchase of the Corporate Services Capital Expenditure is funded through the Council's Policy for Funding Capital Expenditure.

The Policy is summarised as follows:

Capital Reserves

- A Capital Reserve has been established for each activity that the Council undertakes.
- All depreciation that has been funded from that activity will be lodged into the Capital Reserve on a quarterly basis.
- Funds from other reserves or financial contributions can also be deposited into the Capital Reserve.
- All capital expenditure will be paid from the Capital Reserve effective at the end of each month.
- Capital Reserves may go into overdraft at any stage with prior approval of Council.

Capital Expenditure

- All Capital Expenditure must be approved by Council through the budget process or by an explicit resolution.

Interest Component

- The balance of the Capital Reserve will be monitored by the Manager – Finance & Administration on a quarterly basis.
- If the balance of the Capital Reserve is overdrawn, the community of interest for the relevant activity will be charged an interest rate set at 100 basis points greater than the Official Cash Rate determined by the Reserve Bank. Such interest will be charged as a cost to the activity operating expenses and be rated for.
- If the balance of the Capital Reserve is in funds, then the Council will pay the community of interest in the relevant activity an interest payment set at 25 basis points less than the Official Cash Rate determined by the Reserve Bank. Such interest will accrue to the activity's Capital Reserve.

7. FUNDING THE ANNUAL NET COST

7.1 Funding Impact Statement for Corporate Services and Governance

Mackenzie District Council											
Funding Impact Statement for 10 Years to 30 June 2025 for Governance and Corporate Services											
	Annual Plan 2014/15 ($000)	**LTP Year 1 2015/16 ($000)**	**LTP Year 2 2016/17 ($000)**	**LTP Year 3 2017/18 ($000)**	**LTP Year 4 2018/19 ($000)**	**LTP Year 5 2019/20 ($000)**	**LTP Year 6 2020/21 ($000)**	**LTP Year 7 2021/22 ($000)**	**LTP Year 8 2022/23 ($000)**	**LTP Year 9 2023/24 ($000)**	**LTP Year 10 2024/25 ($000)**
Sources of operating funding											
General rates, uniform annual general charges, rates penalties	2,256	2,617	2,685	2,741	2,820	2,917	2,970	3,049	3,163	3,226	3,293
Targeted rates (other than a targeted rate for water supply)	26	25	26	26	27	27	28	29	29	30	31
Subsidies and grants for operating purposes	-	-	-	-	-	-	-	-	-	-	-
Fees, charges, and targeted rates for water supply	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads recovered	130	124	135	145	150	178	187	201	210	213	219
Local authorities fuel tax, fines, infringement fees, and other receipts	134	133	136	140	143	147	152	157	162	167	173
Total operating funding (A)	**2546**	**2899**	**2982**	**3052**	**3140**	**3269**	**3337**	**3436**	**3564**	**3636**	**3716**
Applications of operating funding											
Payments to staff and suppliers	2,439	2,667	2,724	2,789	2,854	2,937	3,000	3,080	3,168	3,260	3,342
Finance costs	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads applied	86	77	82	86	92	104	108	112	114	115	113
Other operating funding applications	-	-	-	-	-	-	-	-	-	-	-
Total applications of operating funding (B)	**2525**	**2744**	**2806**	**2875**	**2946**	**3041**	**3108**	**3192**	**3282**	**3375**	**3455**
Surplus (deficit) of operating funding (A - B)	**21**	**155**	**176**	**177**	**194**	**228**	**229**	**244**	**282**	**261**	**261**
Sources of capital funding											
Subsidies and grants for capital expenditure	-	-	-	-	-	-	-	-	-	-	-
Development and financial contributions	-	-	-	-	-	-	-	-	-	-	-
Increase (decrease) in debt	-	-	-	-	-	-	-	-	-	-	-
Gross proceeds from sale of assets	-	-	-	-	-	-	-	-	-	-	-
Lump sum contributions	-	-	-	-	-	-	-	-	-	-	-
Total sources of capital funding (C)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Applications of capital funding											
Capital expenditure											
to meet additional demand	-	-	-	-	-	-	-	-	-	-	-
to improve the level of service	-	-	-	-	-	-	-	-	-	-	-
to replace existing assets	173	112	176	247	105	167	155	153	227	171	86
Increase (decrease) in reserves	-152	43	0	-70	89	61	74	91	55	90	175
Increase (decrease) in investments	-	-	-	-	-	-	-	-	-	-	-
Total applications of capital funding (D)	**21**	**155**	**176**	**177**	**194**	**228**	**229**	**244**	**282**	**261**	**261**
Surplus (deficit) of capital funding (C - D)	-21	-155	-176	-177	-194	-228	-229	-244	-282	-261	-261
Funding balance ((A - B) + (C - D))	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

8. RESOURCE CONSENTS / PROPERTY DESIGNATIONS

Governance
Not applicable

Administration
Not Applicable

Council Offices
The land that the Council Offices occupy is held in freehold title to the Council. The District Plan zoning is appropriate for the activity.

Chief Executive Department
Not Applicable

Information Technology Department
Not Applicable

Community Facilities Department
Not Applicable

Engineering Department
Not Applicable

9. SIGNIFICANT NEGATIVE EFFECTS

Not applicable to the activity of Governance & Corporate Services.

10. SIGNIFICANT FORECASTING ASSUMPTIONS, UNCERTAINTIES AND RISK MANAGEMENT

It is assumed that Council remains an effective unit of local government throughout the Long Term Plan period. There are risks that legislative changes may impact on this assumption or the Council may be affected by a reorganisation plan. These risks are considered moderate.

11. OTHER LEGISLATION/BYLAWS

The Governance activity of Council works under all legislation affecting or involving local government.

Specific legislation that impacts on the activity of Corporate Services includes:

- Local Government Act 1974

- Local Government Act 2002
- Local Electoral Act 2001
- Local Government (Rating) Act 2002

12. PLAN REVIEW / PUBLIC CONSULTATION

Public Consultation of the Activity Management Plan for Governance and Corporate Services
The Activity Management Plan for Governance and Corporate Services has been prepared as supporting information for the Mackenzie District Council's 2015-2025 Long Term Plan and the associated Consultation Document. The LTP will be adopted following consultation under the special consultative procedure as required by the Local Government Act 2002.

Review of the Activity Management Plan for Governance and Corporate Services
A full review of the Activity Management Plan for Governance and Corporate Services will be conducted as part of the preparation for the next Mackenzie District Council Long Term Plan.

Activity Management Plan

For Community and Township Services

Updated following Council decisions
31 March 2015

Community and Township Services

Community and Township Services includes the following ten activities:

Activity 1: Pensioner Housing
Activity 2: Medical Centres
Activity 3: Public Toilets
Activity 4: Cemeteries
Activity 5: Grants
Activity 6: Swimming Pools
Activity 7: Halls and Community Centres
Activity 8: Parks, Reserves and Amenity Areas
Activity 9: Libraries
Activity 10: Solid Waste

Our Aims:

We aim to meet the needs and aspirations of the community by providing a range of recreational facilities and open spaces that are safe, well maintained and offer a range of quality recreational experiences, and that are affordable to the community.

We aim to provide services that would not otherwise be provided in smaller centres such as ours, and to maintain cemeteries and public toilets at an appropriate level.

We aim to minimise residual waste that is disposed of to landfill through the reduction, reuse and recycling of waste.

Why is the Council involved?

Council supports a range of community services in the Mackenzie District that would not otherwise be viable. In order to support the health and welfare of the community it provides or helps finance medical centres, pensioner housing, social and community support and information. Council also makes grants to various community organisations.

There is a statutory requirement for councils to provide cemeteries and we have been providing these for over a century. Public toilets are provided because of public expectation or demand and for public health and safety reasons. Council at this point is the only economic provider of these facilities.

Council provides recreational facilities as it believes that they contribute to several positive community outcomes as listed below. This is coupled with the community's expectation that these assets will continue to be provided as they always have been. Some of the facilities were originally built by the community and then gifted to Council in the expectation that they would be maintained.

Effective solid waste management benefits the community through protecting public health and the environment from solid waste. The Council currently provides a kerbside collection to township and limited rural areas, and operates Resource Recovery Parks and cleanfill sites in Fairlie, Tekapo and Twizel to enable the appropriate disposal of waste.

Background

Community and Townships Services provides the township amenity areas and recreational facilities including the district's pools, parks, reserves, libraries, community centres and halls.

We also provide a range of services which include pensioner housing, cemeteries, doctors rooms, public toilets and grants to the Resource Centres in Fairlie and Twizel. Council also administers and distributes grants from Sport New Zealand and Creative New Zealand.

The Council has historically provided solid waste collection services and operated a number landfills. All landfills in the district have now been closed. A new kerbside wheelie bin service was introduced in 2011 to replace the previous bag system. The kerbside collection and operation of the three Resource Recovery Parks are now managed by contractors.

Community Outcomes

These activities contribute to:

- "A thriving economy."
  By providing toilet facilities for visitors and others, in support of a key part of our local economy.
  By having a range of facilities at their doorsteps, people are encouraged to live in the district. The facilities also provide space for commercial activities or events that encourage visitors to the district.
  By handling, sorting and processing solid waste in an affordable manner and in a way that maximises returns from recovered material.

- "Safe efficient and sustainable infrastructure."
  By providing district cemeteries to meet legal and environmental requirements.

- "A fit and healthy community."
  By providing halls, community centres, swimming pools, parks and reserves as venues for structured and informal exercise. By contributing to district libraries as places for recreational reading and research.
  By providing medical centres and targeted grants for art and recreation.

- "A supportive and contributing community."

By providing halls and community centres as focal points for the community and centres for celebrations and cultural activities. These activities are generally driven by volunteers and are well supported by the community.
By providing subsidised housing for the elderly and supporting the work of the resource centres.

- "An attractive and highly valued natural environment."
  By providing parks, reserves, amenity areas and walkways which maintain, protect and enhance the environment.
  By providing waste collection services, Resource Recovery Parks and Cleanfill sites to allow the public to dispose of waste appropriately and by using methods of safe waste handling, transport and final disposal to protect public health and the environment.

Current Situation

Swimming Pools
Two swimming pools operate in the district at Fairlie and Twizel. The pools are primarily solar heated and operated only during the summer months from late October to mid-March. Council employs and trains staff for life guarding and cleaning duties.

Halls and Community Centres
The Twizel Events Centre includes a sports hall, climbing walls, gymnasium, squash courts, community rooms, theatre and catering kitchen.

Mackenzie Community Centre includes a sports hall, theatre, community room and catering kitchen.

Tekapo Community Hall is a smaller hall which underwent a significant renovation in 2013. The hall is proving to be a popular venue for functions and meetings.

All these facilities are available for public hire.

The rural community halls at Sherwood and Albury are managed by local committees with rates, insurance and electricity paid by the council and funded through local rates.

Libraries
The Council "purchases" library services from the Twizel Area School and Mackenzie College. Council provides 52% of the funding for these services with the remainder provided by the schools. The libraries are open 5 ½ days per week.

Parks and Reserves
The Council maintains and owns a host of reserves (urban and rural), domains, parks and walkways throughout the district. Some reserves are leased for grazing purposes while others provide open spaces for recreation, beautification, the enjoyment of visitors and residents and civic pride.

Council maintains five play areas throughout the district.

This activity extends into passive non-reserve areas which include street front plantings, mowing and beautification areas, as well as amenity tree plantings within the townships

Pensioner Housing
Council has ten pensioner units; seven in Fairlie and three in Twizel. The Fairlie units were built in 2007 and the Twizel units in 1995. Council maintains the buildings and grounds, selects tenants, reviews tenancy agreements and rentals, and monitors long term demand for housing and maintenance.

Medical Centres
Council owns and maintains the medical centre in Fairlie and the medical centre and doctor's residences in Twizel. The buildings are maintained in line with the building maintenance programme. The High Country Medical Trust is currently building a new medical facility in Twizel.

Public Toilets
The public toilets are located throughout the district and are cleaned by locally based contractors in their respective areas. The main public toilets are cleaned daily.
The lesser toilets are cleaned at a lesser frequency depending on usage.

Effluent Dump Stations
The dump stations are made up of a concrete apron with grate and connection to the main sewer, with a water supply for wash-down. They provide for waste disposal by motor homes and campers and are located in Lake Tekapo and Twizel.

Cemeteries
Council currently operates cemeteries in Albury, Fairlie, Burkes Pass, Tekapo and Twizel. All cemetery services are provided under contract through the Township Maintenance Contract.

Solid waste
A three bin kerbside waste collection is operated in the township areas and limited rural locations. Three Resource Recovery Parks and cleanfill sites are located in Fairlie, Tekapo and Twizel for waste disposal. Waste services are currently contracted out.

Plans for the Future

TWIZEL

Market Place

With the new public toilets complete, the original toilet site becomes surplus to requirements and the community and council have determined that the building will be demolished. No decision has been yet made as to the future of the site. The site is zoned 'Village Centre' so could either be redeveloped into additional retail space or demolished and incorporated into open space.

The Market Place entrance between the council building and the Armstrong building is overdue for improvement. These are the remaining sections of Market Place that were not touched by the Market Place upgrade.

Swimming Pool

The pool was opened in 1973 and is now 42 years old.

Investigation over the period of the last plan revealed a substantial leak in the pump chamber which was resolved by relining the chamber. Pool expansion joints will require work along biannual paint of the pool. The pumping and filtration equipment has been upgraded and replaced over time, as has the solar heating system.

Investigation is required into options for the pool to determine future spending and likely costs. We need to look at whether replacement is in order or relining and re plumbing is an option. This work is proposed to take place early in the Long Term Plan period to determine a future direction for this facility.

Reserves

Twizel's Lakes Wardell and Ruataniwha have reserves which are popular with visitors. The facilities in this area are limited, with work proposed in the plan at Lake Wardell and Lake Ruataniwha. There are also plans for the further development of tracks and facilities in these areas.

Twizel Cemetery

We are planning further development of off-street parking within the green area next to the current cemetery, to provide safer access to users. There is also the provision of additional lawn beams to maintain the available plots.

Twizel Medical Centre

With the construction of the new medical centre in Twizel the current site will become surplus to requirements. This site will be sold and the funds used to pay for development costs of $100,000 associated with subdivision of the new site. Council will no longer be responsible for the maintenance of medical facilities in Twizel but will retain a financial interest in the new building.

LAKE TEKAPO

The Tekapo community has recently reviewed future options for community facilities in Tekapo.

There are a number of projects under way and these include the footbridge, sundial and solar system, play area and an upgrade of the Tekapo Hall site to include car parking and a possible squash court complex. The Tekapo Community Board has pledged on-going support for these projects.

Toilets

In Tekapo the community expressed a desire for new toilets alongside a transport centre, to replace the existing public toilets. There is potential for this option to be developed in conjunction with a commercial operator, possibly alongside their facility. Suggestions include lifting the level of service to include pay toilets with a possible inclusion of showers and laundry services as well. This work is programmed for year one of the Long Term Plan (LTP) so it should coincide with lakefront developments and new infrastructure.

The Council has also set aside some funding in Year 3 of the LTP for additional toilet facilities in the eastern part of the township at the carpark, and an upgrade of the Lakeside Drive toilet facilities.

Tekapo Domain and Play Area Reserves

The public play equipment in Tekapo is dated and tired and due for replacement. A community group has been undertaking some work in this area and have raised funds for equipment. The equipment in the vicinity of the camp ground at Lakeside Drive should either be replaced with modern equipment or removed when the new equipment is installed towards the town centre.

Consideration needs to be given to better supporting the existing playground community group to achieve their goals.

Along with this and other developments in the domain – (footbridge town centre expansion and solar system) the town needs to consider how all this hangs together, and develop a master plan for the Tekapo water front that incorporates existing walkways, facilities and proposed development to ensure that these developments and facilities work together.

This master plan could include future development of other reserves in the area e.g. Aorangi Crescent, Hamilton Drive Reserve and the possible sports field area on D'Archiac Drive.

FAIRLIE

Fairlie Village Green
Further work is proposed for the Fairlie Village Green which will include additional play equipment and parking.

Cemetery
Earlier forecasts indicated that council needed to purchase land for expansion of the Fairlie Cemetery by 2013. This prediction did not take into account pre-purchased plots and double depth burials. That aside, before 2022 council will need to purchase additional land for the Fairlie Cemetery. Council needs to be alert to possibilities and opportunities for expansion or a new site for the Fairlie Cemetery. In the meantime, funding has been provided for the expansion of the available area in the existing cemetery, in year two of the Long Term Plan.

SH 79 Entrance to Fairlie
Work has commenced this year with the tidying up of this entrance to Fairlie.

The Community Board's proposal will aim to enhance this entrance to Fairlie with a higher level of maintenance, regular grass cutting and new planting extending from the camping ground out to the base of the hill. The work will include enhancement of the old sawmill site and entry to the Fairlie - Kimbell walkway.

Walkways
Over time various volunteer groups have helped establish walkways around the town and of particular note, the Fairlie to Kimbell walkway was recently established by the Fairlie Lions Group. The walkways are a real asset to the town and need an appropriate level of maintenance. Council regularly maintains one of these and plans to progressively raise the standard of the other walkways by increasing the resource in these areas.

ALBURY

Solid Waste
The Council has previously provided a collection point in Albury, for residents to drop off rubbish bags once a week. This service was paid for by a local rate, and was not used by many residents. It will be discontinued from June 2015. As with all other townships, the Council will continue to provide a wheelie bin service and resource recovery parks in Fairlie, Tekapo and Twizel for the disposal of waste.

DISTRICT WIDE

Housing
Communities in Twizel and Tekapo have suggested a need for additional housing for the elderly, along with worker type accommodation needed in Lake Tekapo.

Previous housing projects have been part-funded by central government and indications are this is unlikely in the near future. However, there may be funding for research in this area.

In order to determine future demand, council plans to commission a small research project to determine the likely future need for additional council type housing across the district.

Alps2Ocean Cycleway

The Alps2Ocean Cycleway has been constructed through the district on existing roads and partly off-road - extending from Mount Cook to Lake Ohau. The long term maintenance of this track will be shared between the Mackenzie and Waitaki District Councils and work will be required on track and signage maintenance, as well as the maintenance and cleaning of facilities along the way.

Initial proposals suggest that this work will be funded by the users of the trails. That said, there will be a continued requirement for on-going improvements . Council is currently investigating off-roading sections of Hayman Road to address significant safety concerns. The estimated cost of this portion of work is approximately $1.5 million. It is expected that two thirds of the required funding will come from sources external to council.

Council currently allocates $50,000 per annum to the upkeep of this project, as well as sharing an additional $100,000 in marketing and promotional costs. It is anticipated that the cost associated with councils contribution to the Hayman Road improvement works will be funded from the reallocation of the above funding as the Alps2Ocean Cycleway becomes self-sustaining.

Funding

- **Pensioner Housing** is funded by rental income. Council subsidies rentals by setting the cost at market price less 20%, and by charging no more than one third of what tenants receive from national superannuation.
- **Medical Centres** are funded in part by rentals and in part by rates.
- **Public Toilets -** operation and maintenance is completely funded through general rates. The replacement of the Tekapo toilets, and the new toilets and Lakeside Drive upgrade will be funded from capital reserves.
- **Cemeteries –** operation and maintenance are 70% funded by user charges 30% funded by rates. The expansion of the Fairlie Cemetery will be funded from the real estate reserve.
- **Grant** funding comes partly from outside organisations like Creative New Zealand, and partly from the ratepayers in the township that benefits from the project or organisation receiving the grant.
- **Swimming Pools** are funded by community rates and aim to cover 25% of costs through user charges.
- **Halls and Community Centres** are funded by local community rate which is offset by user charges.
- **Parks, Reserves and Amenity Areas** are funded through a combination of community and general rates. Some reserve costs are offset by income from reserve leases.
- **Libraries** are funded from general rates.

- **Solid Waste** is funded from general and targeted rates.

Maintenance and Operation

Swimming pools are supervised and maintained by council staff. Parks and reserves, cemeteries and township maintenance are predominantly carried out by council's contractors, with specialist contractors engaged from time to time for specific one-off work. Library services in both Fairlie and Twizel are contracted to the local College and Area School. Solid waste services are currently managed by council contractors.

Negative Effects

There are no significant negative effects associated with the Community and Township Services activity.

Assumptions

Depreciation - Depreciation on halls in Fairlie, Tekapo and Twizel and the two public swimming pools is funded at 50%. The assumption is that if they are ever required to be rebuilt, the community and fund raising will meet 50% of the costs associated with these facilities. Council does not fund depreciation for the Albury and Sherwood Halls on the assumption that they are unlikely to be replaced if they were ever lost.

Ageing Population - Census data indicates an ageing population across the district. However, it does not identify significant growth. Council has identified the need for additional elderly housing in Twizel. All previous pensioner housing has been part funded by central government. The assumption is that any further pensioner housing will be part funded in the same way.

Low Population Growth - Indications are that Mackenzie District will not have significant population growth in its resident population. Over the next 10 years the assumption is that resident population growth will not significantly change enough to warrant the replacement of any community facilities or assets other than what is already planned.

Tourism - Tourism is a driver worth watching to ensure public toilets are able to meet the requirements of likely growth in this area.

Demand Forecast

Public expectation will continue to grow. As facilities and services improve over time, along with comparable facilities in other districts, demand will grow for facilities that are considered to be of an acceptable standard.

Affordability will always be an issue with a smaller rating base and this needs to be balanced against the needs and wants of the communities.

Compliance with legislation and changes to standards impact on the cost of and the ability to provide services.

Population growth in the next ten years is projected to be minimal with more movement toward the metropolitan areas. The Mackenzie District needs to cope with a variable population that increases significantly through the holiday periods.

The salmon farming and agriculture industry is continuing to grow, as is tourism. All of these will generate extra solid waste in some form.

Demand Impact on Assets

Facilities provided by the district have varying demand on them and this is determined by usage. For example the halls and community centres have relatively low usage due to a low resident population and the public toilet facilities have very high usage due to the high visitor numbers travelling into and through the district.

The solid waste facilities are currently coping with demand placed on them. There is space at all three Resource Recovery Parks to accommodate increased demand.

Major Projects Valued at More Than $20,000 Over the 10 Year Period

Project	Amount	Year
Tekapo Public Toilets (replacement)	460,000	2015/16
New toilets in Tekapo & upgrade of Lakeside Drive toilets	368,000	2017/18
Twizel Medical Centre	100,000	2015/16
Fairlie Cemetery Expansion	100,000	2016/17
Twizel Township projects	100,000	2015--- 2025
Tekapo Township Projects	250,000	2015--- 2025

Statement of Service Provision

Levels of Service	Measure of Service	Target
Township services and facilities are provided and maintained to an acceptable level	Maintain or improve average customer satisfaction rating for Township Services and Facilities (currently 84%)	84% or above
The majority of Mackenzie waste is recycled rather than landfilled.	The percentage of solid waste from the District Resource Recovery Parks diverted from landfills. (2013/14 37.7% diversion)	Trending upward annually over the period of the plan
Waste is handled hygienically	Compliance with resource consent conditions. (Minor issue with Fairlie and Twizel Landfills in 2011)	100% compliance.

- The bench marking for the first performance measure is the customer satisfaction survey undertaken by Cinta in October 2011. The 84 % represents the total combined average level of satisfaction for township services and facilities areas surveyed.
- The Intention is to re survey on an annual basis

Capital Expenditure Report For The 10 Year Period Ended 30 June 2025	Actual June 2014	Budget June 2015	LTP Budget Yr 1 2016	LTP Budget Yr 2 2017	LTP Budget Yr 3 2018	LTP Budget Yr 4 2019	LTP Budget Yr 5 2020	LTP Budget Yr 6 2021	LTP Budget Yr 7 2022	LTP Budget Yr 8 2023	LTP Budget Yr 9 2024	LTP Budget Yr 10 2025
Fairlie Pensioner Housing												
Assets												
Capex												
1908925. Plant and Equipment	0	0	0	21,504	0	0	0	0	0	0	0	0
Total Capex	**0**	**0**	**0**	**21,504**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**0**	**0**	**0**	**21,504**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Fairlie Pensioner Housing	**0**	**0**	**0**	**21,504**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Fairlie Township												
Assets												
Capex												
0528965. Comm Asset - Public Amenities	600	0	0	0	0	0	0	0	0	0	0	0
0528999. Transfer to Assets	0	0	0	0	0	0	0	0	0	0	0	0
Total Capex	**600**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**600**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Fairlie Township	**600**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mackenzie Community Centre												
Assets												
Capex												
1228925. Plant and Equipment	0	20,000	0	0	0	0	0	0	0	0	0	0
1228940. Furniture & Fittings - Other	0	5,000	0	0	0	0	0	0	0	0	0	0
Total Capex	**0**	**25,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**0**	**25,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Mackenzie Community Centre	**0**	**25,000**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Public Toilets												
Assets												
Capex												
1518916. Buildings	119,820	317,652	465,000	0	368,200	0	0	0	0	0	0	0
1518999. Transfer to Assets	0	0	0	0	0	0	0	0	0	0	0	0
Total Capex	**119,820**	**317,652**	**465,000**	**0**	**368,200**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**119,820**	**317,652**	**465,000**	**0**	**368,200**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Public Toilets	**119,820**	**317,652**	**465,000**	**0**	**368,200**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Strathconan Swimming Pool												
Assets												
Capex												
1408215. Plant	4,753	0	0	0	0	0	0	0	0	0	0	0
1408999. Transfer to Assets	0	0	0	0	0	0	0	0	0	0	0	0
Total Capex	**4,753**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**4,753**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Strathconan Swimming Pool	**4,753**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tekapo Community Hall												
Assets												
Capex												
1248917. Aorangi Cres Upgrade	5,066	0	0	0	0	0	0	0	0	0	0	0
1248940. Furniture & Fittings - Other	20,444	0	0	0	0	0	0	0	0	0	0	0
1248950. Community Assets - Buildings	4,587	0	0	0	0	0	0	0	0	0	0	0
1248978. Resurfacing Tennis Court	15,076	0	0	0	0	0	0	0	0	0	0	0
1248999. Transfer to Assets	0	0	0	0	0	0	0	0	0	0	0	0
Total Capex	**45,173**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**45,173**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Tekapo Community Hall	**45,173**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Twizel Community Centre												
Assets												
Capex												
1268940. Furniture & Fittings - Other	0	0	0	0	52,500	0	0	0	0	0	0	0
Total Capex	**0**	**0**	**0**	**0**	**52,500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**0**	**0**	**0**	**0**	**52,500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Twizel Community Centre	**0**	**0**	**0**	**0**	**52,500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Twizel Pensioner Housing												
Assets												
Capex												
1918925. Plant and Equipment	0	0	0	9,216	0	0	0	0	0	0	0	0
Total Capex	**0**	**0**	**0**	**9,216**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**0**	**0**	**0**	**9,216**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Twizel Pensioner Housing	**0**	**0**	**0**	**9,216**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Twizel Reserves												
Assets												
Capex												
1068192. Other Projects	11,294	0	0	20,480	10,500	0	0	0	0	0	0	0
1068999. Transfer to Assets	0	0	0	0	0	0	0	0	0	0	0	0
Total Capex	**11,294**	**0**	**0**	**20,480**	**10,500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**11,294**	**0**	**0**	**20,480**	**10,500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Twizel Reserves	**11,294**	**0**	**0**	**20,480**	**10,500**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Twizel Swimming Pool												
Assets												
Capex												
1428215. Plant	4,753	0	0	0	0	0	0	0	0	0	0	0
1428999. Transfer to Assets	0	0	0	0	0	0	0	0	0	0	0	0
Total Capex	**4,753**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Assets	**4,753**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Twizel Swimming Pool	**4,753**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Funding Impact Statement for 2015-2025 for Community and Recreational Facilities

Mackenzie District Council											
Funding Impact Statement for 10 Years to 30 June 2025 for Community and Township Services											
	Annual Plan 2014/15 ($000)	**LTP Year 1 2015/16 ($000)**	**LTP Year 2 2016/17 ($000)**	**LTP Year 3 2017/18 ($000)**	**LTP Year 4 2018/19 ($000)**	**LTP Year 5 2019/20 ($000)**	**LTP Year 6 2020/21 ($000)**	**LTP Year 7 2021/22 ($000)**	**LTP Year 8 2022/23 ($000)**	**LTP Year 9 2023/24 ($000)**	**LTP Year 10 2024/25 ($000)**
Sources of operating funding											
General rates, uniform annual general charges, rates penalties	575	620	669	690	728	755	759	776	810	824	856
Targeted rates (other than a targeted rate for water supply)	1876	1874	1863	2079	2071	2102	2169	2221	2203	2214	2263
Subsidies and grants for operating purposes	22	18	18	19	19	20	20	21	22	22	23
Fees, charges, and targeted rates for water supply	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads recovered	10	12	16	19	22	28	34	38	43	49	54
Local authorities fuel tax, fines, infringement fees, and other receipts	456	404	419	446	458	471	485	500	514	531	550
Total operating funding (A)	**2939**	**2928**	**2986**	**3254**	**3299**	**3375**	**3468**	**3556**	**3592**	**3641**	**3746**
Applications of operating funding											
Payments to staff and suppliers	2600	2637	2660	2939	2964	3036	3146	3245	3307	3436	3546
Finance costs	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads applied	101	95	115	110	123	117	110	101	94	89	86
Other operating funding applications	-	-	-	-	-	-	-	-	-	-	-
Total applications of operating funding (B)	**2702**	**2733**	**2774**	**3049**	**3087**	**3153**	**3256**	**3346**	**3401**	**3526**	**3632**
Surplus (deficit) of operating funding (A - B)	**237**	**195**	**212**	**205**	**212**	**222**	**212**	**210**	**191**	**115**	**114**
Sources of capital funding											
Subsidies and grants for capital expenditure	-	-	-	-	-	-	-	-	-	-	-
Development and financial contributions	-	-	-	-	-	-	-	-	-	-	-
Increase (decrease) in debt	-	-	-	-	-	-	-	-	-	-	-
Gross proceeds from sale of assets	-	-	-	-	-	-	-	-	-	-	-
Lump sum contributions	-	-	-	-	-	-	-	-	-	-	-
Total sources of capital funding (C)	-	-	-	-	-	-	-	-	-	-	-
Applications of capital funding											
Capital expenditure											
to meet additional demand	-	-	-	-	-	-	-	-	-	-	-
to improve the level of service	-	-	-	-	-	-	-	-	-	-	-
to replace existing assets	343	465	51	63	-	-	-	-	-	-	-
Increase (decrease) in reserves	-105	-199	229	265	278	290	281	283	266	195	198
Increase (decrease) in investments	-	-	-	-	-	-	-	-	-	-	-
Total applications of capital funding (D)	**238**	**266**	**280**	**328**	**278**	**290**	**281**	**283**	**266**	**195**	**198**
Surplus (deficit) of capital funding (C - D)	-238	-266	-280	-328	-278	-290	-281	-283	-266	-195	-198
Funding balance ((A - B) + (C - D))	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

MACKENZIE DISTRICT COUNCIL

Activity Management Plan For Regulatory Services 2015-2025

February 2015

1. INTRODUCTION

1.1 Background

Environmental Management
The planning department is responsible for administering the council's functions under the Resource Management Act 1991. The key planning document is the District Plan, which sets out the issues facing the district and then manages the effects of those issues by setting objectives, policies and rules to achieve the purpose of the Resource Management Act, enabling sustainable management of the district's natural and physical resources.

Other functions of the planning department include:

- Resource consents processing;
- Processing plan changes
- Monitoring and enforcement of resource consents and activities permitted by the District Plan;
- Review of the District Plan

Building Control
The building control department is responsible for administering the council's functions under the Building Act 2004. This involves processing building consent applications, monitoring the construction of buildings, and issuing code compliance certificates upon the completion of building.

The council is an accredited Building Consent Authority.

Other Regulatory Services
The council has responsibilities under the Dog Control Act 1996 to manage dog control. Responding to and investigating dog complaints and incidents is contracted, but the administration of dog control is managed by staff.

The council is responsible under the Civil Defence Emergency Management Act 2002 to ensure the council and community are prepared and able to respond in the event of a civil defence emergency.

The council has responsibilities under the Food Act 2014 and Sale and Supply of Alcohol Act 2012 which is managed by a contract with Timaru District Council.

The council also has responsibilities under the Forest and Rural Fires Act 1977. Mackenzie District Council is part of the South Canterbury Rural District, an enlarged rural fire authority that is a joint venture between Mackenzie, Timaru and Waimate district councils, in conjunction with a forestry owners group, the Department of Conservation, and the New Zealand Fire Service.

1.2 Community outcomes to which the Activity Contributes

- An attractive and highly valued natural environment.
- A thriving economy
- A fit and healthy community.
- A safe, effective and sustainable infrastructure

Keeping the District Plan up to date with the changing pressures that are facing the district will ensure that development that occurs in the district does not have a detrimental impact on the amenity of the district. Managing the effects of activities through resource consents and monitoring activities within the district also contribute to this. Well planned and managed development is seen by the community as an important outcome.

Support for recreational activities through appropriate recreational and special purpose zoning in the District Plan will also support these outcomes.

New building and alterations provide economic prosperity for local architects and builders involved in these projects within the district. New building also adds capital value to the district which is important for growth and helps to encourage other commercial investment opportunities.

Inspection of building work will ensure that builders comply with the building plans provided to, and approved by Council, and that safety and sanitary standards specified in the Building Code are met.

Controlling the nuisance effects of dogs will ensure that people who use footpaths and recreation areas for health/fitness and general enjoyment will be safe and will be able to continue with their personal fitness and wellbeing.

Maintaining our readiness and volunteer groups for civil defence and rural fire events will ensure that our communities are prepared and if necessary evacuated during an event.

Ensuring that food is prepared safely and that alcohol is sold responsibly, helps provide for a safe and vibrant community.

1.3 Activity Goals

- To enhance the safety of those who live in and visit the Mackenzie District by undertaking a range of regulatory activities.

- To protect and enhance the natural environment by regulating development in a manner that is environmentally sensitive, well planned and positively contributes to the maintenance and enhancement of the district's natural and scenic landscape.

- To ensure that all new buildings and alterations in the district are constructed in a manner which promotes the health, safety and wellbeing of the community, and which complies with all relevant statutes and codes.

1.4 Principal Objectives

Resource Management
To provide a customer focused approach to resource management planning.

Building Control
To provide a customer focussed building control service

Animal Control
To effectively manage dog control.

Civil Defence

For the Council and the community to be prepared to respond to a civil defence emergency.

Rural Fire

To provide a capable response to rural fires.

Health and Liquor

To ensure that food sold is safe to consume, and that alcohol is sold responsibly.

2. PERFORMANCE MEASURES

Level of Service	Measure of Service	Target
To effectively manage environmental issues within the District.	80% or greater of those surveyed are satisfied by the belief that the Council are adequately managing resource management issues in the District.	80% positive feedback to a customer survey.
To provide a customer focused service for processing resource consents while achieving our obligations under the Resource Management Act 1991.	Non-notified consents are processed within the statutory timeframe of 20 working days. 80% or greater of those applying for resource consents are satisfied with the quality of the service they receive.	95% compliance. 80% positive feedback to a customer survey.
To provide a customer focussed building control service that achieves our obligations under the Building Act 2004.	Building consents are processed within the statutory timeframe of 20 working days. 80% or greater of those applying for building consents are satisfied with the quality of the service they receive.	95% compliance 80% positive feedback to a customer survey.
To provide a safe environment for dogs and the public to co-exist.	80% or greater of those surveyed believe the Council is adequately managing dog control issues in the District.	80% positive feedback to a customer survey.
For the Council to be prepared to respond to a civil defence emergency.	Council staff and volunteers are familiar with their roles and are adequately trained.	Training is attended as required, and the Council will participate in one training exercise per year.
For the public to be adequately prepared for a civil defence emergency.	80% or greater of the community surveyed believe that they are adequately prepared for a civil defence emergency.	80% favourable response from a customer survey.

To manage fire risk and to be able to provide a ready and capable response to rural fires.	The Council has a capable and well equipped rural fire response teams across the Mackenzie District.	All volunteer rural fire teams are trained to industry standards.
	80% or greater of the community surveyed believe that the Council is adequately prepared to respond to rural fires.	80% favourable response from a customer survey.

3. THE EXISTING SITUATION DESCRIBED

Resource Management
Policy planning in relation to the District Plan and other policy documents is managed by a part-time senior policy planning position, as well as a fixed term full-time policy position. Where necessary the council uses external consultants to support this role, but where possible this work is undertaken internally in order to provide a more efficient service to the community.

The same applies to processing resource consents. The council has one full-time planning position dedicated to resource consent processing. The timeframes for processing of resource consents are governed by legislation, and where those timeframes are not met, the council is now required to apply a discounting policy. In order to provide a customer focused service the council endeavours to process resource consents internally, but where work load or complexity does not enable it to do so, external consultants are used.

Building Control
The council is an accredited building control authority and employs three full-time building control officers, one acting as manager, as well as a full-time building administrator.

The timeframe for processing building consent applications is set by legislation. Building consents are processed internally, but can be contracted out where required. Building inspections are also undertaken by staff, maintaining a sound customer relationship with the building industry, as well as minimising costs to the customer.

Regulatory Services
The council has two dog control contractors, one based in Twizel, and the other based in Fairlie. While at times resources are stretched when responding to dog control incidents, the council's aim is to respond to all complaints within a timely manner.

With regard to health and liquor services, the council has a long standing contract with Timaru District Council. The council has entered into a joint local alcohol policy (LAP) with Timaru and Waimate District Councils, providing a consistent approach to how the sale of alcohol is managed in these parts of South Canterbury.

4. MAINTENANCE AND OPERATING

4.1 Operational Matters and Issues.

Resource Management
The continuing project over the term of this LTP is the review of the Council's District Plan. The plan became operative in May 2004 and the Resource Management Act specifies that no parts of a district plan can be more than 10 years old. Reviewing the plan is a significant undertaking. The project work is being undertaken by both staff and consultants, but is being managed internally to achieve our goal of providing a customer-focused outcome.

Resource consent processing is very much business as usual. The Council may adapt its processing depending on work load and any legislative processes during the term of the LTP.

Plan changes are funded are over a ten year period. The costs are met from the general rate, and are repaid over a 25 year period. This is to smooth the burden, as significant plan changes can be costly and would have a significant rating impact if the costs were met by rates in the year that the costs were incurred. Plan changes have a life of 10 years by statute, and this is the reason for rate funding the costs over that period.

Council is yet to complete Plan Change 13. This is currently before the Environment Court and is potentially subject to an appeal to the Court of Appeal. Once all the matters are back before the Environment Court council hopes to complete the plan change within the next three years. A budget of $400,000 over the next three years is proposed to meet the costs of this, however we do not know what the final amount will be.

Building Control
It is likely that the over the term of the LTP the Government will continue to amend the Building Act 2004 and make changes to the Building Code. It is important that the council is able to adapt to those changes as they occur in order to provide an effective service to the local community.

The council continues to work closely with other building control authorities. In particular the council is part of a Southern Building Control Group, made up of eleven South Island councils. It is likely that over the term of the LTP we will see the amalgamation of some building control authorities, or a greater focus on collaboration. However, regardless of that outcome, the council's focus is to provide a customer based service by retaining its own building control officers that can undertake all necessary building inspections during construction work.

Regulatory Services
Dog control is always a challenge and is a balance between providing a suitable level of service and the cost to the council. The intention is to continue using contractors to provide this service with council staff acting as backup where necessary.

Civil defence relies heavily on volunteers to assist the council in responding to any emergency situation. The council intends to continue working with the community to encourage volunteers and to ensure that all volunteers, as well as council staff, are adequately trained for their roles.

The council's ability to fight rural fires depends on its equipment and volunteers. A capital works programme is in place to ensure that ageing equipment is replaced in an organised an affordable manner. Being part of an enlarged rural fire district has huge benefits for this council in that the cost of employing a highly qualified principal rural fire officer is spread across four organisations, enabling more funds to be dedicated to equipment such as tankers.

The maintenance cost for rural fire tankers is funded annually through the rural works and services rate.

The council intends to continue with its contract with Timaru District Council to provide health and liquor services.

5. FUTURE DEMAND

Population growth is likely to increase slightly over the next 20 years, from 4300 (2013 census) to 4762 in 2033. It is not anticipated that there will be a significant change in demand over the term of the LTP.

The biggest demand is in building control with building activity increasing over the period of the previous LTP. High demand in this area is expected to continue for the next three years, although further increases are not expected. We expect a continuation of the current elevated level of building activity.

6. CAPITAL EXPENDITURE

6.1 Proposed Future Capital Works Programme.

Only rural fire activity has capital expenditure proposed. This is for two new replacement tankers. Fairlie (2015/16) and Twizel (2017/18).

6.2 Funding of Capital Works

Funded through depreciation.

Capital Expenditure Report	Annual Plan	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP
For the 30 Years to 30 June 2045	Budget	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)
Regulatory											
Regulatory											
Capex											
0108925. Plant and Equipment	2	25	-	-	-	-	-	-	-	-	-
0108999. Transfer to Assets	-	-	-	-	-	-	-	-	-	-	-
0698925. Plant and Equipment	-	-	-	-	-	-	-	-	-	-	-
0698999. Transfer to Assets	-	-	-	-	-	-	-	-	-	-	-
0838925. Plant and Equipment	-	6	8	8	9	9	9	9	10	10	10
0838930. Vehicles	20	55	-	58	-	-	-	-	-	-	-
0838999. Transfer to Assets	-	-	-	-	-	-	-	-	-	-	-
Total Capex	**22**	**86**	**8**	**66**	**9**	**9**	**9**	**9**	**10**	**10**	**10**
Total Regulatory	**22**	**86**	**8**	**66**	**9**	**9**	**9**	**9**	**10**	**10**	**10**
Total Regulatory	**22**	**86**	**8**	**66**	**9**	**9**	**9**	**9**	**10**	**10**	**10**

7. FUNDING THE ANNUAL NET COST

7.1 A statement of financial performance

Planning and Regulatory Services:
Council sets a range of fees and charges to meet the proportion of the total costs of these services that it believes should be funded from the user of the service provided. However, it is not always able to determine accurately its level of cost recovery for a couple for reasons. The maximum fee may be set by statute and the number of licenses or permits issued may vary from year to year. An example of this is the liquor licence fees which are set by statute.

7.2 Council's funding policy

Council Policy for funding regulatory services is broken down as follows:

Resource Management
- Resource consent processing 100% through fees and charges
- District planning 100% general rate levied on capital value

Building Control
- 100% through fees and charges

Dog Control
- 90% through fees and charges; and
- 10% general rate levied on capital value;

Civil Defence
- 100% general rate levied on capital value.

Rural Fire
- 100% levied through rural works and services rate.

Sale of Alcohol and Environmental Health
- 100% through fees and charges

The funding split between user changes and rate funding reflects the Council's judgements on how much the user should fund an activity verses the public good which is rate funded.

8. SIGNIFICANT NEGATIVE EFFECTS

Providing for sustainable management under the Resource Management Act is a balancing act between providing for community wellbeing through growth and development while managing the state of the environment. Previously in the Mackenzie Basin the council had uncontrolled development of rural land which was causing a negative impact. However, measures introduced to better manage that development still have the potential to have a negative impact by introducing tighter controls that inhibit development and introduce additional compliance costs to the council. Resource management planning straddles a fine line.

However, generally the provision of regulatory services is prescribed by legislation and this activity is very much business as usual for the council.

9. SIGNIFICANT FORECASTING ASSUMPTIONS, UNCERTAINTIES AND RISK MANAGEMENT

9.1 Assumptions and Uncertainties

The assumptions used in the preparation of the Activity Management Plan for regulatory services are as follows:

Price Changes/Inflation
In preparing the budget for the 2015-2025 period the Council has used price change adjustors, as developed by Business and Economic Research Limited (BERL), to account for the effect of inflation. As the BERL figures are based on best estimates there is a risk that these predicted figures may change over the term of the Plan.

9.2 Risk Management

The Council's judgement is that no risk management plan for regulatory services is required.

10. OTHER LEGISLATION

Civil Defence and Emergency Management Act 2002
Dog Control Act 1996
Health Act 1956
Food Act 2014
Sale and Supply of Alcohol Act 2012
Forest and Rural Fires Act 1977
Gambling Act 2003

11. PLAN REVIEW / PUBLIC CONSULTATION

Consultation will occur as part of the LTP process.

12. FUNDING IMPACT STATEMENT

Mackenzie District Council											
Funding Impact Statement for 10 Years to 30 June 2025 for Planning and Regulation											
	Annual Plan 2014/15 ($000)	LTP Year 1 2015/16 ($000)	LTP Year 2 2016/17 ($000)	LTP Year 3 2017/18 ($000)	LTP Year 4 2018/19 ($000)	LTP Year 5 2019/20 ($000)	LTP Year 6 2020/21 ($000)	LTP Year 7 2021/22 ($000)	LTP Year 8 2022/23 ($000)	LTP Year 9 2023/24 ($000)	LTP Year 10 2024/25 ($000)
Sources of operating funding											
General rates, uniform annual general charges, rates penalties	276	406	409	402	502	512	520	572	525	543	552
Targeted rates (other than a targeted rate for water supply)	155	165	175	158	163	165	164	168	175	177	183
Subsidies and grants for operating purposes	-	-	-	-	-	-	-	-	-	-	-
Fees, charges, and targeted rates for water supply	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads recovered	1	1	-	-	1	1	1	1	1	1	1
Local authorities fuel tax, fines, infringement fees, and other receipts	532	625	640	656	672	695	713	734	756	778	802
Total operating funding (A)	**964**	**1197**	**1224**	**1216**	**1338**	**1373**	**1398**	**1475**	**1457**	**1499**	**1538**
Applications of operating funding											
Payments to staff and suppliers	1,242	1,268	1,290	1,261	1,156	1,185	1,215	1,248	1,273	1,321	1,361
Finance costs	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads applied	53	97	102	103	106	112	113	112	111	107	105
Other operating funding applications	-	-	-	-	-	-	-	-	-	-	-
Total applications of operating funding (B)	**1295**	**1365**	**1392**	**1364**	**1262**	**1297**	**1328**	**1360**	**1384**	**1428**	**1466**
Surplus (deficit) of operating funding (A - B)	**-331**	**-168**	**-168**	**-148**	**76**	**76**	**70**	**115**	**73**	**71**	**72**
Sources of capital funding											
Subsidies and grants for capital expenditure	-	-	-	-	-	-	-	-	-	-	-
Development and financial contributions	120	120	120	120	40	40	40	40	40	40	40
Increase (decrease) in debt	-	-	-	-	-	-	-	-	-	-	-
Gross proceeds from sale of assets	-	-	-	-	-	-	-	-	-	-	-
Lump sum contributions	-	-	-	-	-	-	-	-	-	-	-
Total sources of capital funding (C)	**120**	**120**	**120**	**120**	**40**	**40**	**40**	**40**	**40**	**40**	**40**
Applications of capital funding											
Capital expenditure											
to meet additional demand	-	-	-	-	-	-	-	-	-	-	-
to improve the level of service	-	-	-	-	-	-	-	-	-	-	-
to replace existing assets	22	86	8	66	9	9	9	9	10	10	10
Increase (decrease) in reserves	-233	-134	-56	-94	107	107	101	146	103	101	102
Increase (decrease) in investments	-	-	-	-	-	-	-	-	-	-	-
Total applications of capital funding (D)	**-211**	**-48**	**-48**	**-28**	**116**	**116**	**110**	**155**	**113**	**111**	**112**
Surplus (deficit) of capital funding (C - D)	331	168	168	148	-76	-76	-70	-115	-73	-71	-72
Funding balance ((A - B) + (C - D))	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

ACTIVITY MANAGEMENT PLAN
For Transportation

VERSION 5

March 2015

Mackenzie District Council
Activity Management Plan
for Transportation

Mackenzie District Council Adopted ----------

Date ----------

Prepared By ----------

Bernie Haar
Asset Manager

MACKENZIE DISTRICT COUNCIL

ACTIVITY MANAGEMENT PLAN FOR TRANSPORTATION

Prepared By: _____

Bernie Haar, Asset Manager
Mackenzie District Council

Reviewed By: _____

Suzy Ratahi, Roading Manager
Mackenzie District Council

Document Approved: _____

Chief Executive Officer,
Mackenzie District Council

Adopted by Council: _____

Mayor (on behalf of Councillors)

Document No

File No .....

Mackenzie District Council – Activity Management Plan for Transportation

UPDATE REGISTER

Number	Date	Description of Update	Updated by
Version 3	April 2009	Revision of the second AMP produced by MDC	Opus International Consultants
Version 4	30 November 2011	Full update to Version 3 Draft	Opus International Consultants
Version 5	19th January 2015	Full Review of Lifecycle management resulting in significant changes, focusing on Sealed road resurfacing and unsealed road remetalling, partial review of the remaining document resulting in updates	Bernie Haar, Asset Manager, Mackenzie District Council

CONTENTS

GLOSSARY OF TERMS

The following terms and acronyms (in brackets) are used in this Plan.

ACCRUAL ACCOUNTING
The recognition of revenues as they are earned and expenses as they are incurred.

ANNUAL PLAN
A document produced annually by an organisation to inform stakeholders of its objectives, intended activities, performance, income and expenditure required for a period of one financial year. It may also indicate anticipated future short-term income and expenditure

ASSET
A physical component of a facility, which has value, enables services to be provided and has an economic life of greater than 12 months. Dynamic assets have some moving parts, while passive assets have none.

ASSET MANAGEMENT (AM)
The combination of management, financial, economic, engineering and other practices applied to physical assets with the objective of providing the required level of service in the most cost-effective manner.

ASSET MANAGEMENT PLAN
A plan developed for the management of one or more infrastructure assets that combines multidisciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost-effective manner to provide a specified level of service. A significant component of the plan is a long-term cash flow projection for the activities.

ASSET MANAGEMENT STRATEGY
A strategy for asset management covering the development and implementation of plans and programmes for asset creation, operation, maintenance, rehabilitation/replacement, disposal and performance monitoring to ensure that the desired levels of service and other operational objectives are achieved at optimum cost.

ASSET REGISTER
A record of asset information considered worthy of separate identification including inventory, historical, financial, condition, construction, technical and financial information about each.

BENEFIT-COST RATIO (B/C)
The sum of the present values of all benefits (including residual value, if any) over a specified period, or the lifecycle, of the asset or facility, divided by the sum of the present value of all cost.

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 asset stock.

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.

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 APPROACH
The shortfall in rehabilitation work required to maintain the service potential of an asset.

DEPRECIATED REPLACEMENT COST (DRC)

The replacement cost of an existing asset less an allowance for wear or consumption having regard for the remaining economic life of the existing asset.

GLOSSARY OF TERMS

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 by the allocation of the cost (or revalued amount) of the asset less its residual value over its useful life.

DETERIORATION RATE
The rate at which an asset approaches failure.

DISPOSAL
Activities necessary to dispose of decommissioned assets.

ECONOMIC LIFE
The period from the acquisition of the asset to the time when the asset, while physically able to provide a service, ceases to be the lowest cost alternative to satisfy a particular level of service. The economic life is at the maximum when equal to the physical life; however obsolescence will often ensure that the economic life is less than the physical life.

FACILITY
A complex comprising many assets (e.g. a hospital, water treatment plant, recreation complex, etc.) which represents a single management unit for financial, operational, maintenance or other purposes.

FINANCIAL STATEMENTS
Balance sheets, profit and loss accounts, statements of changes in financial position, notes another statements which collectively are intended to give a true and fair view of the state of affairs and profit or loss for an entity for a defined period.

GAP ANALYSIS
A method of assessing the gap between a business's current asset management practices and the future desirable asset management practices. Also called needs analysis or improvement planning.

INFRASTRUCTURE ASSETS
Stationary systems forming a network and serving whole communities, where the system as a whole is intended to be maintained indefinitely at a particular level of service potential by the continuing replacement and refurbishment of its components. The network may include normally recognised ordinary assets as components.

LEVELS OF SERVICE
The defined service quality for a particular activity (i.e. roading) or service area (i.e. street lighting) against which service performance may be measured. Service levels usually relate to quality, quantity, reliability, responsiveness, environmental acceptability and cost.

LIFE
A measure of the anticipated life of an asset or component; such as time, number of cycles, distance intervals etc.

LIFECYCLE
The cycle of activities that an asset (or facility) goes through while it retains an identity as a particular asset i.e. from planning and design to decommissioning or disposal.

LIFECYCLE COST
The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.

LIFECYCLE COST ANALYSIS
Any technique which allows assessment of a given solution, or choice from among alternative solution, on the basis of all relevant economic consequences over the service life of the asses

MAINTENANCE
All actions necessary for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal. Fixed interval maintenance is used to express the maximum interval between maintenance tasks.
On-condition maintenance is where the maintenance action depends upon the item reaching some predetermined condition.

MAINTENANCE PLAN
Collated information policies and procedures for the optimum maintenance of an asset or group of assets.

MAINTENANCE STANDARDS
The standards set for the maintenance service, usually contained in preventive maintenance schedules, operation and maintenance manuals, codes of practise, estimating criteria, statutory regulations and mandatory requirements, in accordance with maintenance quality objectives.

OPERATION
The active process of utilising an asset, which will consume resources such as manpower, energy, chemicals and materials. Operation costs are part of the lifecycle costs of an asset.

OPTIMISED DEPRECIATED REPLACEMENT COST (ODRC)
The optimised replacement cost after deducting an allowance for wear or consumption to reflect the remaining economic or service life of an existing asset. ODRC is the surrogate for valuing assets in use where there are no competitive markets for assets, or for their services or outputs.

PERFORMANCE MONITORING
Continuous or periodic quantitative and qualitative assessments of the actual performance compared with specific objectives, targets or standards.

PLANNED MAINTENANCE
Planned maintenance activities fall into three categories:

i) Periodic – necessary to ensure the reliability or to sustain the design life of an asset.
ii) Predictive – condition-monitoring activities used to predict failure.
iii) Preventive – maintenance that can be initiated without routine or continuous checking (e.g. using information contained in maintenance manuals or manufacturers' recommendations) and is not condition based.

REHABILITATION
Works to rebuild or replace parts or components or an asset, to restore it to a required functional condition and extend its life, which may incorporate some modification. Generally involves repairing the asset to deliver its original level of service (i.e. heavy patching of roads, slip-lining of sewer mains, etc.) without resorting to significant upgrading or renewal, using available techniques and standards.

RENEWAL
Works to upgrade refurbish or replace existing facilities with facilities of equivalent capacity or performance capability.

REMAINING ECONOMIC LIFE
The time remaining until an asset ceases to provide the required service level or economic usefulness.

REPAIR
Action to restore an item to its previous condition after failure or damage.

REPLACEMENT
The complete replacement of an asset that has reached the end of its life, so as to provide a similar or agreed alternative, level of service.

REPLACEMENT COST
The cost of replacing an existing asset with a substantially identical new asset.

RESIDUAL VALUE
The net market or recoverable value that would be realised from disposal of an asset or facility at the end of its life.

RISK MANAGEMENT
The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence.

ROAD ASSESSMENT MAINTENANCE MANAGEMENT SYSTEM (RAMM)
The computerised road maintenance management software system developed by Transit New Zealand for use nationally by all New Zealand road asset managers.

ROUTINE MAINTENANCE
Day-to-day operational activities to keep the asset operating (replacement of light bulbs, cleaning of drains, repairing leaks, etc.) and which form part of the annual operating budget, including preventive maintenance.

SERVICE POTENTIAL
The total future service capacity of an asset. It is normally determined by reference to the operating capacity and economic life of an asset.

STATEMENT OF FINANCIAL PERFORMANCE
A report on the net surplus/deficit, and its components, arising from activities or events during a given period, that is significant for the assessment of both past and future financial performance.

STRATEGIC PLAN
A plan containing the long-term goals and strategies of an organisation. Strategic plans have a strong external focus, cover major portions of the organisation and identify major targets, actions and resource allocations relating to the long-term survival, value and growth of the organisation.

UNPLANNED MAINTENANCE
Corrective work required in the short-term to restore an asset to working condition so it can continue to deliver the required service or to maintain its level of security and integrity.

USEFUL LIFE
May be expressed as either:

a) The period over which a depreciable asset is expected to be used, or
b) The number of production or similar units (i.e. intervals, cycles) that is expected to be obtained from the asset.

VALUATION
Assessed asset value, which may depend on the purpose for which the valuation is required, i.e. replacement value for determining maintenance levels, market value for lifecycle costing and optimised deprival value for tariff setting.

1. EXECUTIVE SUMMARY

1.1 INTRODUCTION

This Activity Management Plan for Roading (AMP) has been developed to provide the Mackenzie District Council (MDC) with a long term management tool for the road asset. It sets out the current asset condition, what issues are currently and likely to impact on the asset and the costs associated with maintaining, operating, renewing, developing and disposing of the asset.

In terms of population, the Mackenzie District is the third smallest territorial authority in New Zealand with a normally resident population of approximately 4,000, with limited growth. In contrast to its small population, the area of the District is large, comprising 745,562 hectares. Fairlie, Lake Tekapo and Twizel are the main towns and there are villages at Albury, Kimbell, Burkes Pass and Mount Cook.

The District is severed by - State Highways, which form the back bone of the network. Together the State Highway network, connect the district demographics and have resulted in a relatively large lowly trafficked network.

1.2 PURPOSE OF TRANSPORTATION ASSET MANAGEMENT PLANNING

The purpose of this AMP is to provide a tool combining management, planning, financial, engineering and technical practices to ensure that the level of service required by customers is provided at the lowest long term cost to the community. The plan is intended to demonstrate to customers that Council is managing the assets responsibly and that they will be regularly consulted over the price/quality trade-offs resulting from alternative levels of service.

1.3 PLAN LEVEL

MDC considers the required sophistication of their plan in the short to medium term need not progress beyond a **"Core+"** planning level, as:

- the cost at this time to move to an advanced plan would provide little significant benefit to Council or its' customers
- the size, complexity and use of the assets is consistent with a rural sparsely populated district
- the risks associated with failure are low

This AMP is one of the Council's suite of plans that together describe the services and workload that the community sees as important for the Council to provide and sustain. They outline the basic methodologies Council will use to achieve the strategic objectives promoted in the MDC LTP 2015 - 2025 and thus move towards achieving the "outcomes" and the citizens' "vision" of the society they wish to be a part of.

1.4 SCOPE OF ASSET MANAGEMENT PLAN

This revision provides a full update to Version 5 of the AMP originally produced by Mackenzie District Council's consultants, at version 1 and considerably reviewed and updated to version 5 by Council Staff. It provides a medium to long term indication of asset management requirements and specific work programmes over the planning period from 1 July 2015 to 30 June 2025.

The plan will continue to be periodically reviewed to incorporate, as appropriate new asset information and improved knowledge of customer expectations. The objective is to optimise life cycle asset management activities and provide a greater degree of confidence in financial forecasts.

1.5 TRANSPORTATION ASSET MANAGEMENT ACTIVITY

Council is responsible for the management of road assets with an optimised depreciated replacement cost of $84,910,105 (July 2013 valuation). For 2014/15 Council has budgeted to spend $3.360M on maintaining, operating and renewing these assets (including staff and overhead costs).

The following list summarises the MDC Transportation Asset Management activities:

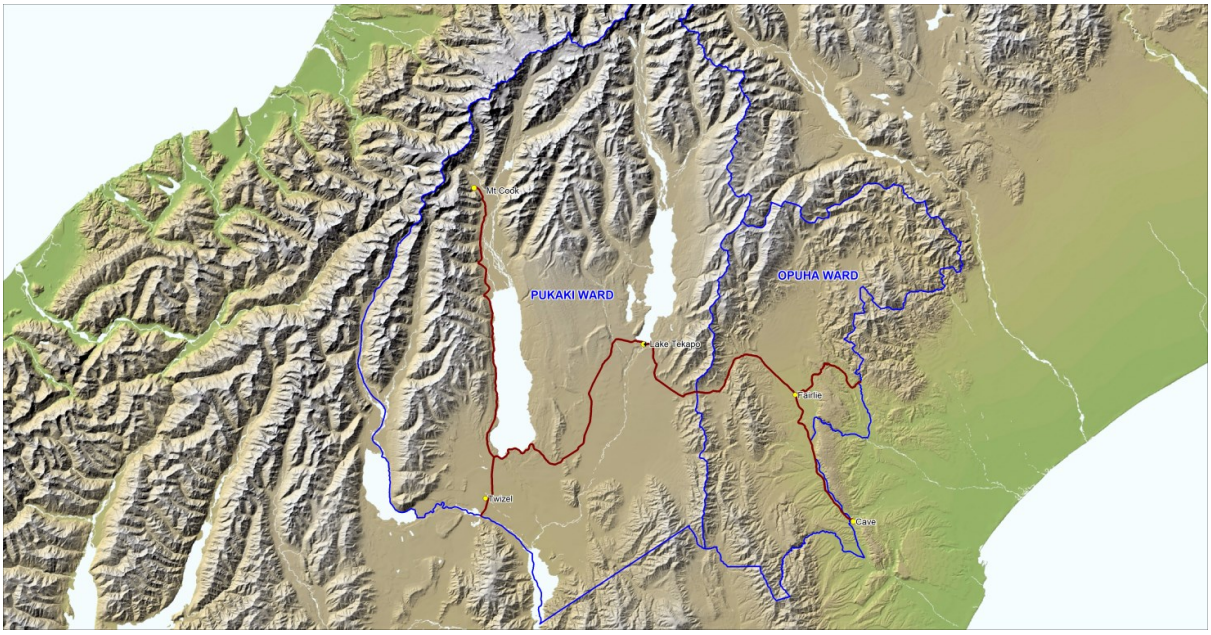
- Asset Management
- Safety Management
- Road Maintenance
- Road Data Management
- Project Management
- Environmental Management
- Network Inspections
- Legislative Compliance Management
- Network Management
- Customer Management

1.6 ASSET DESCRIPTION

1.6.1 LOCATION

Figure 1.1 shows the location of the district within the Canterbury Region.

Figure 1.1 – Map of Mackenzie District



The Mackenzie District is bounded in the north and east by the Timaru and Waimate Districts, in the south by the Waitaki District and to the West by the Southern Alps/ Westland District boundary. There are two wards: **Pukaki** which in effect takes in the Mackenzie Basin and **Opuha** being the remaining area to the west of a line following the upper reaches of the Hakataramea River through Burkes Pass to Mt Musgrove in the Two Thumb Range.

The backbone of the roading network in the district is provided by the following State Highways which are the responsibility of the New Zealand Transport Agency (NZTA).

State Highway 8 Timaru - Fairlie - Lake Tekapo - Twizel - Omarama
State Highway 79 Fairlie - Geraldine
State Highway 80 Twizel - Mt Cook Village

The Mackenzie District roading consists of a network of "Principal" and "Local" roads leading from the state highways to many remote localities and providing convenient access in and around the three main urban centres of Twizel, Lake Tekapo and Fairlie (Mt Cook Village is administered by the Department of Conservation). The network is predominantly rural (93%), unsealed (72%) and with light average daily traffic volumes (less than 500 vehicles per day).

1.6.2 THE ASSET

The transport asset includes all Council owned road reserve, roads, streets, bridges, footpaths and related infrastructure within the District as shown in Table 1.1.

Table 1.1 – Transportation assets included in this plan

Asset Description	Sub-Asset Description	Quantity
Land		1,395Ha
Roads	All roads	722.85km
	Urban - Sealed	47.43km
	Urban - Unsealed	5.12km
	Rural - Sealed	158.1km
	Rural - Unsealed	512.2km
Footpaths		62km
Drainage	Culverts	17.75km
	Catch Pits	305
	Side Drains	16.2km
	Soak Pits	40
	Earth Surface Water Channel	722.85km
	Kerb and Channel	62.47km
Bridges	Bridges - Timber	11
	Bridges – Other (Including 7 large Box Culverts)	86
	Cattle stops	56
	Concrete Fords	20
Signage	Signs	5711
	Posts	2,498
Lighting	Lanterns (include brackets)	791
	Columns	346

Features (gates, Intersections, Monuments, stockpile sites)	164

Unformed roads are not included except in the land area.

1.7 KEY STAKEHOLDERS AND CUSTOMERS

Key Stakeholders

The Council as the ultimate owner of assets and the Crown (through Ministry of Transport financial assistance) wish to ensure that their investment is secure and that the operational capability of the network is ensured. The Crown entity established to manage Transportation activities is the NZ Transport Agency (NZTA). Other key stakeholders of the roading network include:

- Regional council
- Owners and operators of inter-connecting or co-located networks, including NZTA state highways
- Significant representative user-groups such as Road Transport Association (RTA)

Funding

Funding is provided by several parties and in particular the following are significant contributors:

- NZ Transport Agency – The District Transportation Programme is financially assisted by NZTA in accordance with operational requirements set out in NZTA Programme and Funding Manual.
- Ratepayers – Rates provide funding for non-subsidised activities and the Council's share of subsidised works.

Funding Assistance rates are one tool within the land transport system that the New Zealand Transport Agency uses which:

- Assists local government (and other approved organisations) and the NZ Transport Agency to work together to achieve:
  - optimal national land transport outcomes within their combined financial resources, and
  - an integrated and appropriately consistent land transport network throughout the country, and
- Enables the costs of the land transport network to be shared appropriately between direct land transport system users and local communities.

Funding assistance is not a subsidy, but part of a co-investment system that recognises there are both national and local benefits from investing in the land transport system.

Prior to 30 June 2014 Council received a financial assistance rate of 53% for maintenance works and 63% for capital improvements until 30 June 2015. From that time the normal FAR rate for Council will be 51%.

There will be a transition period where Council's FAR will start at 54% reducing by 1% per annum until the base is reduced to 51%. This rate is for maintenance works and capital improvements.

It also should be noted that generally the funding allocation over the last nine years has been held at a level that was not adjusted to match inflation. The Financial assistance has been falling behind the actual needs for some years.

Customer Groups
MDC's customers fall into three different groups: associated service providers, users and the wider community. These are detailed in Table 1.2.

Table 1.2 – MDC Roading Customer Groups

Customer Group	Description	Customers
Associated Service Providers	These are other service providers who rely on the transportation network	• Contractors • Utilities service providers – use the road corridor to access their assets • Transport operators • Emergency Services
Users	Those who directly use the service	• Private drivers • Commercial road users • Drivers of public and other transport services (e.g. tourist buses) • Pedestrians and cyclists
The Wider Community	Non-users that are affected if the service is not provided	• Citizens • Tourists • Residents who live beside the roads • Local businesses – requiring access

Other Parties
Other parties with an interest in MDC's AMP include Council employees, consultants and contractors who manage and work on the asset.

1.8 COUNCIL LEVEL OF SERVICE

Council's current and target levels of service as to be consulted on in the 2015-2025 LTP are summarised in Table 4.1 and are summarised below.

- Council provides safe, smooth, quality sealed roads in order to reduce travel times and vehicle wear.
- Council provides a safe and efficient roading network.
- Ready access is provided around the District except in extreme weather conditions.
- Footpaths are maintained in good condition and are fit for purpose.

These show how levels of service contribute to the community outcomes and provides a technical measure that enables Council to monitor current levels of service against target levels of service.

The current LOS are documented as a combination of:

- LTP LOS documentation based on real or interpreted customer feedback
- Contract processes which describe some elements of the quality of service provided, mainly travelling surfaces and intervention levels

These have been based on Levels of Service (LOS) outlined in the 2012-2022 LTP as modified during the 2014/15 Annual Plan community consultation.

Changes that may affect future LOS include:

- Changes in government requirements
- Continual drops in Funding Assistance Rate (FAR) to a base level of 51%
- Funding shortfalls caused by natural disasters, such as Canterbury Earthquakes
- On Network Road Classification.
- Change in land use and intensification associated with the roading network.
- Increased pressure from Central Government to allow heavier vehicles on the network.

1.9 NEW ZEALAND LAND TRANSPORT – ONE NETWORK ROAD CLASSIFICATION - LEVEL OF SERVICE

This AMP was written on the basis of agreed levels of service, consulted on through the LTP process since 2009, with our customers. NZTA's One Network Road Classification recently confirmed (late January 2015) indicates a different level of service from that previously confirmed by Council. The lateness of delivery of this new confirmed classification system has not allowed staff sufficient time to complete the necessary gap analysis to allow the development of the Transitional Plan as required by NZTA by the 31st March 2015. This Transitional Plan will be a very important document that NZTA will apply a high level of significance and likely impact on future funding, as such it cannot be rushed. Any substantial change to our current levels of service will require a significant investment in staff and consultancy time to give it the attention it deserves (in preparing the Transitional Plan) and attempting to achieve this deadline.

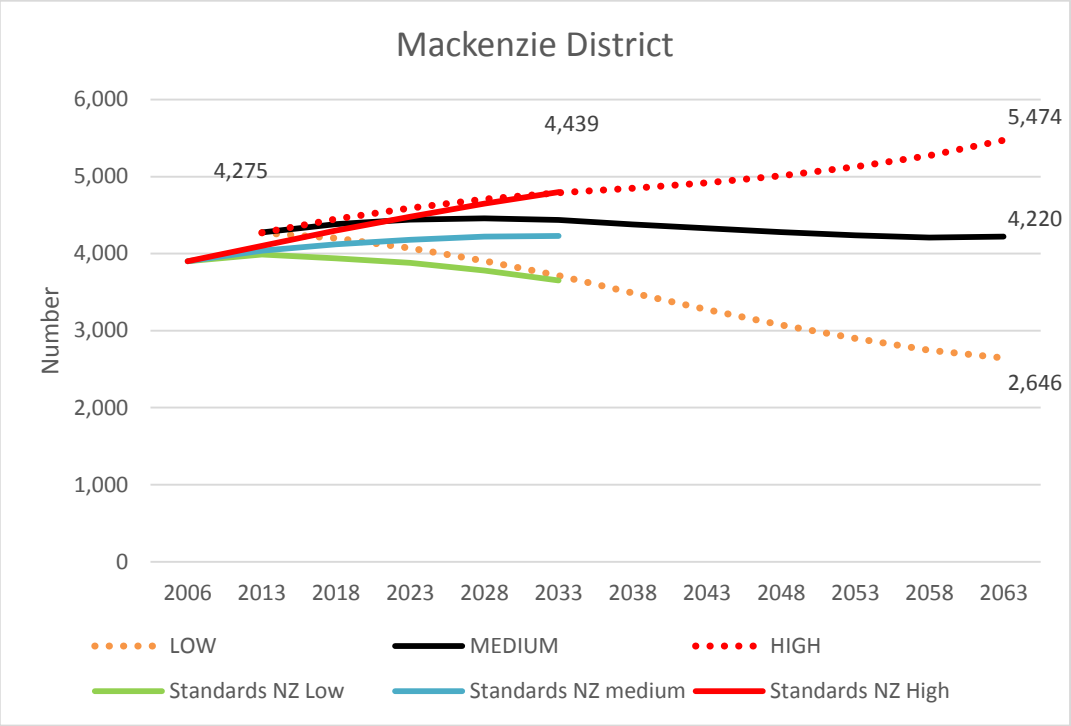
1.10 FUTURE DEMAND

The Mackenzie District Roading network predominantly carries low volume rural traffic on unsealed roads. Only 52.55km of the total 722km in the network is urban. The districts population of approximately 4,000 is low and the growth at approximately 9.3% (since the 2006 census) this is a significant change from the 2001-2006 period where the population grew by a modest 2.3%.
Predominantly the growth we are experiencing in traffic numbers is due to increasing Tourist numbers and economic development due to irrigation and changes in far practices.

Future demand on the network will continue to be driven by tourism and land use changes and intensification brought about through changes to irrigation within the district.

1.10.1 POPULATION

The following graph predicts a relatively static population growth over the period of this strategy. As a result there will not be any significant increase or decrease in demand for Council services based on change in population.



1.10.2 DEVELOPMENT

Analysis of the future urban and rural residential subdivision over the next 4 years shows and average of 10 sections per year, long with associated infrastructure, to be vested in Tekapo and an average of 46 per year in Twizel.

During the 2015/17, 5km of sealed road and 4.8 km of unsealed road will be vested in Council. Whilst developers have to construct this to Councils standard before vesting the ongoing maintenance costs have to be allowed for.

It is assumed that this level of development will slow down to about a third of this but continue at that rate for the duration of this plan.

1.10.3 CHANGE IN LAND USE

Change in land use is ongoing and something that is hard to predict. Due the difficulty in forecasting where this demand might be over the next 30 years, it is important to recognise that it will happen and plan for it as early as the knowledge and effects become better understood.

1.10.4 TOURISM

Tourism makes up a large component of transportation demand within the district. The Ministry of Tourism states that total visits by travellers to Mackenzie RTO (Mackenzie District) are forecast to rise from 960,377 in 2009 to 1,075,079 in 2016 - an increase of 11.9% or 1.6% per annum. This is expected to grow significantly with two large hotel complexes under development in the Tekapo area.

The Ministry of Business, Innovation and Employment, *"MBIE – New Zealand's tourism sector outlook 2014-2020"* report makes the following predictions on tourism nationwide this could correlate to a 31% visitor increase to the Mackenzie District. Well above previous forecasts.

"**Outlook to 2020**

- *The outlook to 2020 is promising. Visitor numbers are expected to grow from 2.71 million to 3.55 million with spending up from $6.7 billion to $8.3 billion.*
- *China is our next biggest market after Australia. Across all markets we expect about 850,000 extra visitors by 2020. Eighty per cent of the extra visitors will come from Australia (385,000) and China (280,000).*
- *The long-term outlook is very positive. Industrialisation and urbanisation in emerging markets will foster a blossoming middle class with the economic muscle to lift growth in visitor arrivals. As a result, the mix of visitors coming to New Zealand is changing. Operators need to be alert to these opportunities.*
- *In China alone, middle-class demand is forecast to add the equivalent of another US tourism market by 2020. We expect a continuation of recent robust growth in the number of Chinese visitors coming to New Zealand."*

An example of the effect of increased tourism traffic on the Mackenzie network is the Roundhill Ski area on Lilybank Road. The Ski traffic of up to 600vpd on a road designed to take its normal loading of 80 vpd to farms. This increased loading impacts the pavement at the worst possible time of the year. Whilst this road is classified as a secondary collector under the ONRC, it is actually a predominantly unsealed road that operates at 100km/hr so increased traffic results in accelerated wear through loss of fines. This road attracts a disproportionate amount of costs to maintain it at a safe level of service for the customer compared to what is collected from the properties it serves.

Over the last decade Mackenzie District has seen a change from normal, pastoral farming, to more intensive practises in particular dairy conversions and cropping with more irrigation water becoming available this land use intensification will continue. This significant change in land use impacts on the road network in terms of increased heavy vehicle volumes. Each conversion adds at least four heavy truck and trailer movements on the adjacent roading network. Some of those roads are narrow gravel roads with limited structural strength.

In order to better predict network requirements based on future demand, Council needs to complete improvement plan items to further understand these demands and the associated impacts on the network.

1.11 RISK MANAGEMENT

Risk management is "the systematic application of management policies, procedures and practices to the task of identifying, analysing, evaluating, treating and monitoring those risks that could prevent a Local Authority from achieving its strategic or operational objectives or plans, or from complying with its legal obligations".

There is currently no formal Risk Management process being implemented for the roading activity within Council. A risk management strategy has been described in Section 8 of this AMP. The use of this strategy as outlined in the Improvement Plan should be completed with high priority. In particular issues surrounding emergency management and insurance require full review and inclusion in this plan.

1.12 LIFE CYCLE MANAGEMENT PLANS

Life cycle management plans outline the work planned to keep the assets operating at the current levels of service defined in Section 4 while optimising lifecycle costs. The overall objective of the Life Cycle Management Plan is:

> ***To provide the identified Levels of Service at the lowest lifecycle cost for present and future needs.***

In this AMP the lifecycle management plan has been separated into asset groups. Each section of the Lifecycle Management plan covers the following:

- **Background Data** including current capacity and performance, current condition and historical data including costs.

- **Operations and Maintenance Plan** covering planning for on-going day to day operation and maintenance to keep assets serviceable and prevent premature deterioration or failure.

- **Renewal/Replacement Plan** covering Major work which restores an existing asset to its original capacity or its required condition (e.g. resurfacing, rehabilitation or footpath reconstruction).

- **Asset Development/Improvement Plan** covering the creation of new assets (including those created through 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 (e.g. forestry harvesting routes).

- **Disposal Plan** covering activities associated with the disposal of a decommissioned asset.

The review the AMP completed in January 2015 focused strongly on “Section 8 – Life Cycle Management” This section needs to be read in its entirety.

1.12.1 ASSET CONDITION AND PERFORMANCE

The basis of the lifecycle management plans is the current condition and performance of the asset. These allow comparison with the prescribed level of service, and from this a gap analysis can be completed to determine future work requirements.

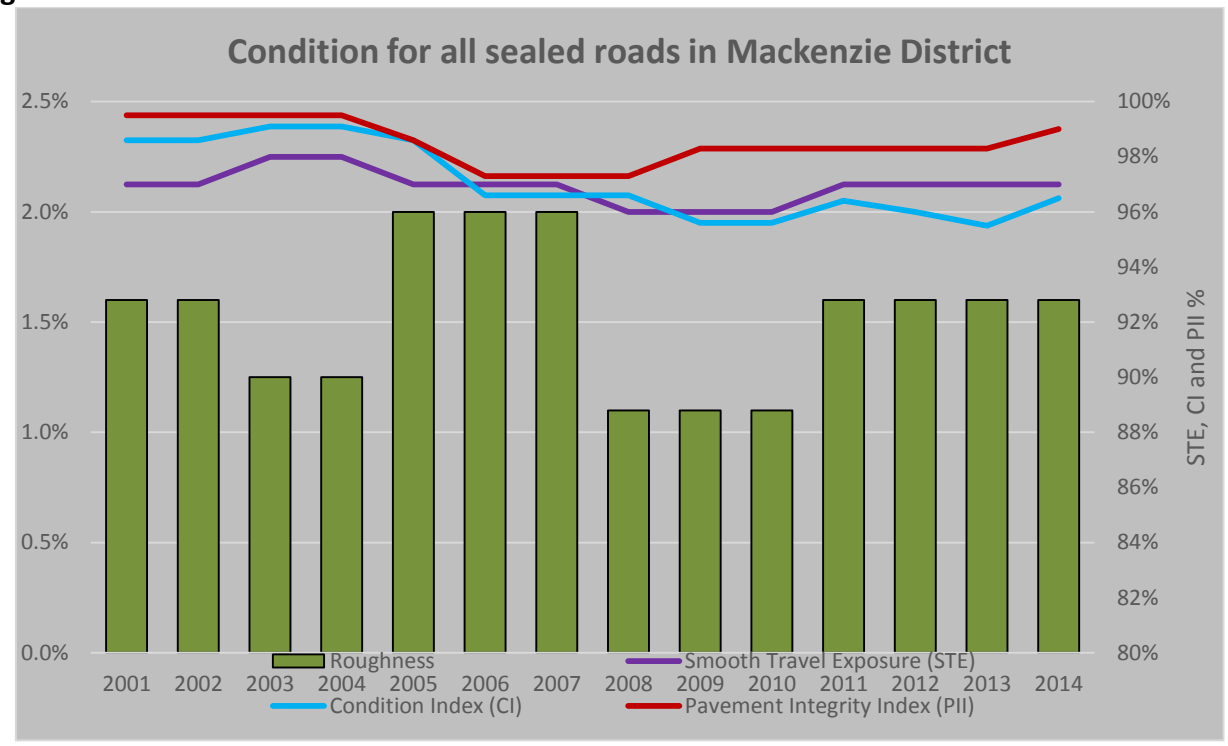
MDC has recently implemented RAMM Contractor and Pocket RAMM, and is utilising this, along-side their contractor, to undertake more formal condition and performance analysis of the network. Historically, Council were relying on the practical experience and knowledge of the engineering staff to provide a gauge of the networks overall performance. This knowledge is still used extensively, and is very valuable for planning purposes. Regular condition surveys of the asset components are undertaken and results recorded within RAMM. Intermediate and long term planning of asset renewal are partially based on the results of these surveys, the performances

obtained compared to that desired, the remaining expected life of the asset component and the decision making processes outlined within this plan.

1.12.1.1 Asset Condition

Specific condition for each asset is not currently measured. There is reasonable condition information for sealed roads but these only make up 23% of the network. Figure 1.2 shows that over the last three years there has been a static or slight rise in PII and CI, albeit small at less than 2%. Roughness has also remained static corresponding to the STE stabilising on 97%.

Figure 1.2 – Historical Condition Data for Sealed Roads



1.12.1.2 Safety Performance

The Briefing Notes Crash Analysis Canterbury Region 2006 to 2010, outlines crash statistics for Mackenzie District local roads. Between 2006 and 2010 in Mackenzie District, there were 33 injury crashes on local roads. Table 1.3 shows the number of injuries resulting from these crashes by rural or urban areas. Rural is defined as an area with a speed limit of 80km/h or more. 71% of injuries were caused by crashes on rural roads.

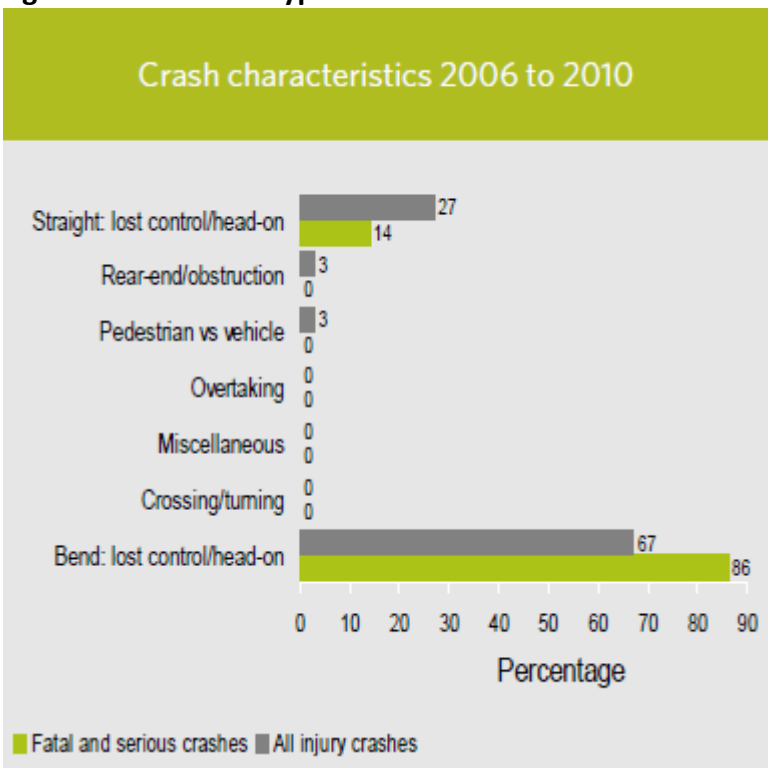
Table 1.3 – Injuries resulting from crashes on Mackenzie District Roads 2006 to 2010

	Fatalities	Serious Injuries	Minor Injuries	Total
Rural	2	2	28	32
Urban	0	3	10	13
Total	2	5	38	45

Figure 1.3 shows that loss of control crashes represent 86% of fatal and serious crashes and 94% of all injury crashes. The three most common types of crashes are: When there is a 'loss of

control turning right at a bend' (12 crashes), followed by a 'loss of control turning left at a bend' (7 crashes) and a 'loss of control towards the left on a straight road' and a 'loss of control towards the right on a straight road' (both equal) (4 crashes each). There are no sites where multiple crashes have occurred.

Figure 1.3 – Crashes types in Mackenzie District



21% of all injury crashes and 14% of serious and fatal crashes were related to road factors.

The most common type of crash involves loss of control on a bend which may indicate a lack of appropriate signage, poor gravel maintenance on unsealed roads or driver related issues may be primary factors influencing crashes. Road width and specifically lack of shoulders could be a concern on sealed roads.

Within the MDC road safety outcomes are influenced by the following:

- community safety programmes
- road engineering improvements, - Minor Improvement Programme, delineation, signage
- road maintenance programme (grading, re-metalling, drainage improvements)
- Regional Safety Programmes in conjunction with TDC

The outcomes that these programmes are focused on are varied but the overall aim is to reduce the number and cost of crashes on the District's roads as reported each year by NZTA. The Mackenzie District Council, Waimate District Council and Timaru District Council all belong to the South Canterbury Joint Road Safety Committee which is tasked with delivering community road safety initiatives. Each Council makes a financial contribution towards the employment of a Road Safety Coordinator for South Canterbury.

1.12.2 ROUTINE MAINTENANCE PLAN

Council staff manage the roading network with minimal assistance from consultants. The maintenance on the network is delivered through a competitively tendered multi-year contract. Any large renewal projects are let as competitively priced contracts on an annual basis. The resurfacing contract is a shared service agreement with Timaru District Council and is let every two years.

To ensure activities are providing the best efficiencies possible, work is generally clustered in such a way that works are carried out within set corridors. The existing maintenance contract encourages a joint approach to solve roading issues for the lowest whole of life cost.

Current practice is to apply a combination of "reactive" condition driven and network lifecycle depreciation techniques to determine the work necessary to maintain the network within pre-determined financial constraints. The majority of maintenance is reactive so budgets have been based on historical expenditure. Increases to costs for some asset groups are projected in future due to increased asset quantity or levels of service requirements. See Lifecycle Management Section 7.

1.12.3 RENEWAL/REPLACEMENT PLAN

This plan recommends renewal works in most asset groups, however the significant renewal expenditure requirements are in the following areas:

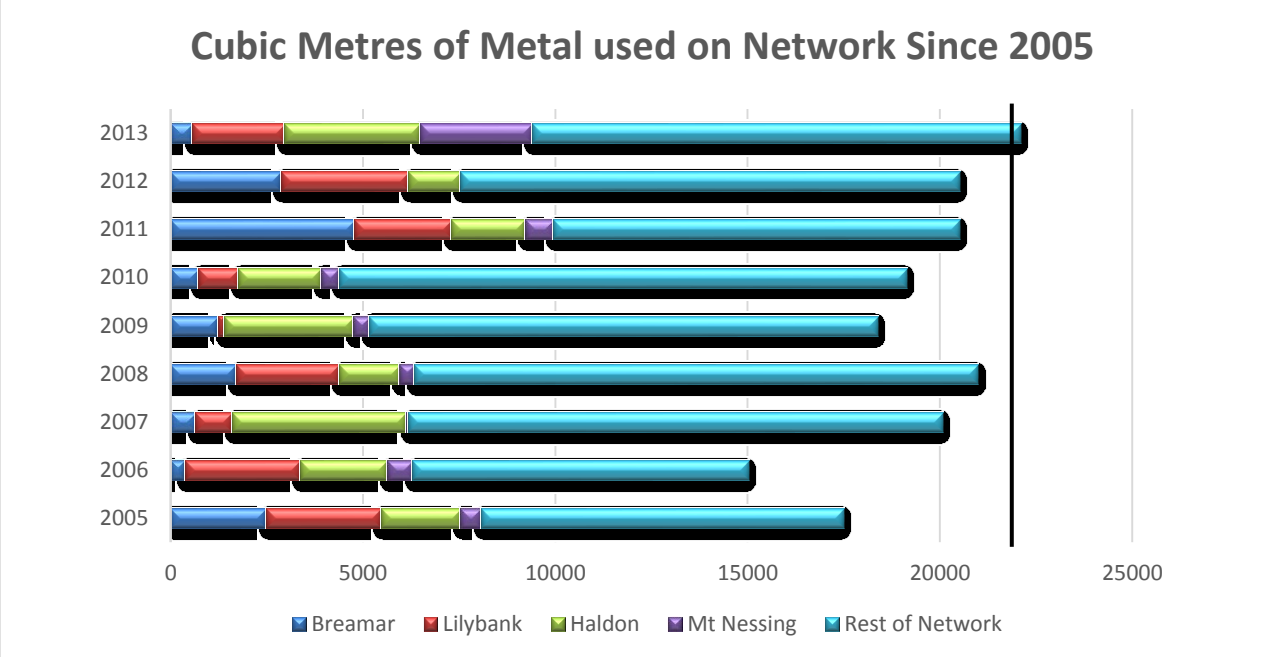
- **Sealed road resurfacing** – A full review of Mackenzie District seal histories using an average reseal life of 18 years and 8 years for 1st coats was completed. As part of the FWP exercise, the existing back log of resurfacing (i.e. where the existing seal age is older than the agreed default seal lives) has been calculated. This shows there is theoretically 154,000 m^2 (approx. 26km) of deferred maintenance. These seals are between 22 and 34 years old. The backlog has been partially caused because over the last ten years 16km of sealed roads have been added to the asset register either though development or LINZ handing over Hayman Road (5.2km) to Mackenzie District. The other impact is the ever increasing cost of bitumen against a fixed allocation from NZTA and no allowance for inflation. For the next 5 years MDC needs $725,000 dropping to $275,000 for a further 7 years, with an ongoing investment of approximately $525,000 pa (all figures are in today's dollars) This will maintain the asset with an average seal lifecycle of 18 years.

- **Sealed Pavement Rehabilitation** – Normally, the average pavement renewal required based on the assumed life of 75 - 100 years. However, current funding levels dictate Council renew their pavements at a rate of approximately 800m per annum, based on a sealed network of 205.53km Current Co-investment levels from NZTA allows for a replacement lifecycle of 257 years. This is clearly an unstainable position, especially when MDC must allow for the rehabilitation of areas that have suffered significant frost heave. Whilst these areas of weak pavement are identified and there is a significant investment on drainage improvements, the nature of Mackenzie harsh winters, means that this approach is not always successful. The nature of frost heave can be from a minor pavement failure, that will self heal, to a complete breakup of the road surface, exposing unsuitable subgrades, that results in the only access road being completely impassable to all traffic. However, there have been significant changes in land use and intensification of

farming practises over the last 8 years. This has resulted in increased heavies on a network which has not been designed for such loadings. Pavements are showing signs of increasing pavement deterioration due to that traffic. The level of funding will have to be significantly lifted as clearly they will not last 257 years.

- **Unsealed road metalling** – The road user perception of unsealed roads is that they are of inferior quality to sealed roads due to issues with carriageway width, roughness, dust, mud, corrugations, potholes, soft areas and increased vehicle operating costs. These issues are being continually assessed by the maintenance contractor with work programmed and executed to keep the roads within agreed LoS.
  The Council recognises that some unsealed road users may never be satisfied until "their" road is sealed, but acknowledges that this is not always viable given the length of the unsealed network, low use and cost involved. Therefore, maintenance is aimed at maintaining the asset to an acceptable Level of Service. However, on some routes significant fluctuations in traffic volume affect both condition and the ability to maintain acceptable LoS economically. The Roundhill Ski area on Lilybank Road has seen increased Ski traffic of up to 600vpd on a road designed to take its normal loading of 80 vpd to the high country stations. This increased loading impacts the pavement at the worst possible time of the year. As such, the higher priority roads, that receive the most traffic also attract a greater portion of the re-metaling budget. Figure 1.4 clearly shows MDC's higher traffic volume roads receive a higher portion of wearing and running course annually.

Figure 1.4 – Distribution of wearing and running course across the network



Wearing course application is budgeted on an annual basis based on good historic records, and regular gravel loss surveys taken from 18 sites across the network. Unsealed roads are prioritised yearly from Priority 1-3. Priority 1 condition is very poor and needs a full stabilisation treatment to be able to continue to function as a road safely trafficable at 70km/ph. Priority 3 is in poor condition showing corrugations and bony patches and evidence of topsoil showing through. Programmes over recent years have been very

reactive and it has been identified that further funding will enable completion of P1 and intervention on P2 roads and begin a gravel replacement programme to counter gravel loss/migration.

- **Bridges** - MDC's Bridge Replacement Strategy lists the bridges which are to be replaced over the next 10 years. Seven bridges will realise their end of remaining useful life in this period, however, only five have been identified for replacement, with the remaining two to be removed or handed over to the adjacent landowner. These have been included under the Minor Improvements programme as detailed in "Section 8 - Lifecycle Management". Whilst these were previously funded from Bridge Renewals, NZTA have advised that these small structures are to be first call on our Minor Improvement allocation.

Other renewal type works including sign replacement, street lighting replacement and footpath resurfacing are allowed for within the maintenance programme.

1.12.4 ASSET DEVELOPMENT PLAN

This plan recommends minimal capital improvements or acquisitions to the existing transport infrastructure. The works included are as follows:

- **Minor Improvements** – improvements up to a budgeted expenditure amounting to $250,000 (2012-15 approved programme). Note, there is no guarantee that we will be funded at this level going forward. Also due to changes in funding rules bridge replacements and other minor works must be funded out of our minor improvements budget. We have approximately $1,153,800 costs forecast for bridge replacement over the period 2015-2025.
- **Seal Extensions** – Prioritised sites for seal extension to reduce life cycle costs and provide improved Levels of Service are based on strategic importance and local knowledge have been identified however there is no provision for funding these in place at this time. Under the present NZTA funding regime and funding constraints it is unlikely that subsidy will be available in the foreseeable future. Council's current policy is to only complete seal extensions if NZTA financial assistance is available. If Council is serious about reducing life cycle costs and improving LoS through seal extensions a review of that policy should be considered.

1.12.5 ASSET DISPOSAL PLAN

Council currently has within its asset register 22 bridges that service only one landowner. Further discussions and policy/legal decisions need to be made in regards to future ownership and replacement of these bridges.

At this stage other than the two bridges outlined in section 1.12.3 above, the Council has no specific plans for disposal of components of the roading asset. Asset disposal is dealt with on a case by case basis.

1.13 ASSET MANAGEMENT PRACTICES

MDC employ an Asset Manager, a Roading Manager and an Engineering Technician who are responsible for the management of the road asset.

Management planning is actioned in-house generally based on the knowledge of the Asset Manager/Roading Manager assisted by such planning tools as the RAMM software tools, condition modelling using graphs and excel spread sheets.

Occasionally elements of the management of the network may be negotiated with consultancy services.

Physical works are managed in accordance with the procedures documented in the flowcharts shown in Appendix VI. Routine maintenance is undertaken through a competitively tendered contract of normally 3 to 5 year duration. Other works such as resurfacing, road marking and large Pavement Rehabilitation (>1000m in length), bridge renewals are let as competitively priced contracts generally on a year by year needs basis.

MDC accounts for revenue and expenditure on an accrual basis. All works are identified through a job cost ledger with appropriate breakdown level to be able to monitor and report on revenues and expenditure to NZTA and Audit NZ requirements. All external reports are prepared in compliance with Generally Accepted Accounting Principles.

1.13.1 ASSET MANAGEMENT PROCESSES

Council uses the LTP process to identify community concerns and issues which are incorporated into levels of service that are expressed by performance measures written into the professional services and physical works contracts. The satisfactory execution of these performance measures result in levels of service compliance that ensures the MDC's outcomes are achieved and the community vision of a district they wish to live in is accomplished.

Well documented standards and processes exist for an on-going inspection programme of pavements, surfacing and bridges (see appendix VI).

Maintenance and renewal costs are recorded against activities that relate to NZTA categories in the general ledger.

There is no formal risk management process.

1.13.2 ASSET MANAGEMENT SYSTEMS

The RAMM database is used as the Asset inventory management system and should be the depository for all the available asset data, currently staff are working with Netcon, the sole supplier for lighting maintenance, to get all asset data in relation to street lighting included in the RAMM database.

A regular counting programme is in place to monitor traffic volumes on the network. Traffic counts are completed primarily on roads that are targeted for improvement or are showing signs of accelerated failure. Actual count data exists in RAMM since 2010, and then estimated for other similar roads within the network that have not been counted that year giving consideration to the number of households using the road and the nature of the adjoining land-use.

Accident data is recorded from police reports to the CAS database by NZTA. MDC obtains crash information, and other reports as required by direct request to NZTA.

Other systems operated by the Council are:

- ArcGIS Geographic Information System
- NCS Corporate financial management system
- Hardcopy plan filing systems

1.14 PLAN IMPROVEMENT AND MONITORING

This AMP has previously been reviewed and updates incorporated including improvements to move towards "Core+" level Asset Management. Council is committed to a continual improvement as outlined in Section 10. A key objective is to dovetail the asset management planning process with the other key planning processes particularly the 30 year infrastructure plan and the Community Long Term Plan (LTP).

The review and improvement of this AMP requires resource and budget in order to complete the selected improvement tasks. Table 10.1 outlines the items for improvement, relative urgency, resource, priority, budget and the authority sought to give approval to complete each item.

1.15 KEY ASSUMPTIONS AND CONFIDENCE LEVEL

There are a number of significant assumptions that have been made in the development of this AMP as outlined below.

1.15.1 ASSET DATA

The level of confidence in our data has significantly increased since the last iteration of this AMP completed in 2013. Council has carried out a significant auditing and validation programme on its RAMM data, completed by OPUS Consultants Ltd. All previous assets excel spreadsheets and modelling practises have been integrated with this validated data.

Table 9.1 gives the assessed data confidence quality of the MDC RAMM and spread sheet data tables as described in the 2010 Roading Asset "Mackenzie District Infrastructure Revaluation" report.

1.15.2 FINANCIAL FORECASTS

NZTA's 10 year National Land Transport Programme (NLTP) for Mackenzie District is based on targeted maintenance of the existing and increased roading infrastructure paired with an escalation in renewal programmes. Over the 10 year period there has been no allowance for cost increases due to inflation.

The forecast total Mackenzie District National Land Transport Programme for 2015/18 for operations, maintenance and renewals totals $10,380,949 (inclusive of all administration costs and professional service fees). 47% ($4.85M) of this forecast is to be spent on maintenance and operation with 53% ($5.53M) to be spent on renewals. Whilst Council realise this is an increase of nearly 36% over the approved allocation for the 2012/15 NLTP, the real cost is under $1M per annum and addresses the network needs, which deals with deferred maintenance, due to restricted funding for a number of years. This is not an increased level of service. The $250,000 approved in the 2012/15 NLTP, for WC 341, has been requested to continue to allow for minor improvements to address structures replacements and safety issues.

Funding for the management and maintenance of the road network is provided from the District roading rate and co-investment received from NZTA. Funding for improvements is provided from NZTA co-investment and the targeted roading rates.

As at 1 July 2010 the total optimised replacement cost of the Roading Infrastructure was assessed to be $128,229,017. The total optimised depreciated replacement cost was assessed to be $84,910,105. The annual depreciation or decline in service potential has been determined to be $1,814,050 per annum.

A check of the annual renewal expenditure against the Annual Depreciation (AD) for each asset component gives an indication whether the renewal expenditure is appropriate for the age and condition of the network. For asset components nearing the end of their expected lives a figure greater than the depreciated costs would be expected to be spent. For situations where the asset component is new or only partially through the expected life the budgeted expenditure would be expected to be less than the AD with the balance banked so as funding will be available when required. Table 1.5 shows the 2014/15 forecast renewal expenditure compared to the AD.

Table 1.5 – Comparison between Forecast Expenditure and Annual Depreciation

Asset Type	2015/16 Renewals Forecast	Annual Depreciation Cost
Pavement	$1,575,000	$1,144,384
Footpaths	$100,000	$118,218
Structures	$28,000	$285,473
Drainage	$60,000	$172,079
Traffic Services	$140,000	$93,897

From the comparison shown in Table 1.5, it can be seen that expenditure is probably appropriate for most assets in relation to the Annual Depreciation. However, underinvestment is indicated for Structures and Drainage assets. It has been identified that the condition and performance of the drainage and structures assets does not currently need this level of investment and staff are targeting the areas of most need in the network, which are replacement of unsealed road metal, resurfacing and/or replacement of sealed pavements.

Key assumptions made in the financial forecasts are as follows:

- NZTA will continue to provide financial support to Council for the road network
- The Council will continue to fund the level of service currently set out in this AMP and consulted on in the 2012-22 LTP
- The dollar values shown in this Plan are January 2015 dollars
- Renewal costs are best available estimates, based on current network needs, some especially very long term estimates (greater than five years), are rough order of cost estimates that need to be further researched and refined
- The effects of known very likely or future developments are included.
- Assumptions made on Total Useful Lives and Residual Useful Lives of the assets in relation to the asset valuation.
- The asset data is considered to be reliable and fit for the purpose for developing the long term financial forecasts.

- Reduction in NZTA's Funding Assistance Rate (FAR) by 1% every year to a base co-investment rate of 51%
- No account has been made for potential increased reporting costs as a direct result of implementing One Network Road Classification(ONRC)
- No account has been made for potential change in level of service and resultant co-investment as direct result of implementing One Network Road Classification.
- The reason no account has been made for implementation of ONRC is due to the delays from NZTA in providing sufficient details to allow Council staff to model the impacts and therefore include transitional details in this plan.

1.16 FINANCIAL FORECASTS

TABLE 1.4 – 10 YEAR NATIONAL LAND TRANSPORT PROGRAMME (NLTP) FOR MACKENZIE DISTRICT

			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
	Expenses (Operational)	Work Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
	Sealed Pavement Maintenance	111	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
	Unsealed Pavement Maintenance	112	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000
	Routine Drainage Maintenance	113	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
	Drainage Maintenance - Street Cleaning	113	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
	Structures Maintenance Bridges	114	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000
	Structures Maintenance Cattlestops	114	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	Environmental Maintenance	121	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000
	Minor Events	140	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
	Traffic Services Maintenance	122	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
	Street Lighting - Maintenance	122	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
	Street Lighting - Electricity	122	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
	Network and Asset Management	151	383,908	394,133	383,908	363,278	414,403	353,153	373,603	383,828	373,603
	Subtotal **for Operations and Maintenance**		**1,613,908**	**1,624,133**	**1,613,908**	**1,593,278**	**1,644,403**	**1,583,153**	**1,603,603**	**1,613,828**	**1,603,603**

ROADING CAPEX

Roading Capex	Actual	Budget	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	Actual	Budget	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)
Roading												
Roading												
Capex												
0868001. Computers	9	26	-	-	-	-	-	-	-	-	-	-
0868925. Plant and Equipment	-	-	5	5	21	5	5	6	6	6	6	6
0868999. Transfer to Assets	- 9	-	-	-	-	-	-	-	-	-	-	-
2548193. Vested Assets	-	290	-	-	318	-	-	896	-	-	272	-
2548211. Unsealed Road Metalling	447	425	650	659	673	690	707	726	746	769	792	819
2548212. Sealed Road Resurfacing	590	520	725	735	751	769	789	307	316	325	335	347
2548213. Drainage Renewal	140	44	60	61	62	64	65	67	69	71	73	76
2548214. Sealed Road Pavement Rehabilitation	-	121	-	203	414	212	218	223	230	237	244	252
2548215. Structures Component replacements b	4	16	20	20	124	21	22	22	23	24	24	25
25482151. Structures Component replacements	3	10	8	8	8	-	9	-	9	-	10	-
2548222. Traffic Services Renewals	55	74	80	81	83	85	87	89	92	95	98	101
2548231. Associated Improvements	-	5	-	-	-	-	-	-	-	-	-	-
2548310. Footpaths - Surfacing	229	70	20	122	166	106	109	112	115	118	122	126
2548341. Minor Improvements	81	250	50	254	466	265	272	279	287	296	305	315
2548390. Streetscape Improvements	-	21	-	-	-	-	-	-	-	-	-	504
2548395. Sealing Past Houses	-	10	10	10	10	11	11	11	11	12	12	13
2548396. Manuka Terrace	343	80	-	-	-	-	-	-	-	-	-	-
2548999. Transfer to Assets	- 1,892	-	-	-	-	-	-	-	-	-	-	-
Total Capex	**-**	**1,962**	**1,628**	**2,158**	**3,096**	**2,228**	**2,294**	**2,738**	**1,904**	**1,953**	**2,293**	**2,584**

2. INTRODUCTION

2.1 PURPOSE OF THE PLAN

The objective of Asset Activity Management planning is:

"To provide the required level of service, in the most cost effective manner, through management of assets for existing and future customers."

Activity Management Planning is a management tool that provides the link between strategic planning and managerial areas of Council's business and community's desired outcomes.

The need for Activity Management Plans for Council's major infrastructure and other major assets is an implied requirement of the Local Government Act 2002 and the Long Term Plan (LTP). Such Activity Management Plans define agreed levels of service, and the expenditure required to maintain these agreed service levels for the period of the plan.

Levels of service are the definitions of service quality resulting from operation of the particular asset against which the assets service performance may be measured. Levels of Service are one of the key outputs from the strategic planning process and typically comprise the following elements.

- Quantity
- Quality
- Cost
- Timescales
- Performance Measures
- Sustainability

2.2 RELATIONSHIP WITH OTHER PLANNING DOCUMENTS

The Activity Management Planning process analyses the impact of the Levels of Service on the business and should be structured to be compatible with other key planning mechanisms and documents, including:

LTP: Council's LTP 2012 – 2022 sets out the broad strategic direction for the period of the plan, defining the District Vision, Outcomes, Strategic Objectives, Projects and Tasks and the Financial Framework that will be required. The outcomes are directly related to Governance, Community Well-Being, Environment Protection, Sustainability, Economic Development, and Organisation Performance.

District Plan: The Mackenzie District Plan assists the Council in carrying out its functions under the Resource Management Act 1991 so that it may achieve the purpose of the Act which is to "promote the sustainable management of natural and physical resources." The Plan was developed in consultation with local communities and interest groups. The Plan controls such activities as:

- Erection, relocation, or demolition of structures, buildings, network utilities and signs.
- Commercial activities.
- Earthworks.
- Use of hazardous substances.
- Planting, trimming or removing vegetation.

- Subdivision of land.

30 Year Infrastructure Strategy: Section 93 of the Local Government Act 2002 every Local Authority must have a long term plan and it must cover a period of not less than 10 consecutive financial years. Section 101A of that same act every Local Authority must prepare and adopt a financial strategy for all of the consecutive years of the long term plan.
As a consequence generally, Asset Management Plans covered that same period.
The Local Government Act 2002 – Amendment (No3) section 101B requires every Local Authority as part of its long-term plan, prepare and adopt an infrastructure strategy for a period of at least 30 consecutive financial years.

The purpose of the infrastructure strategy is to—

> "identify significant infrastructure issues for the local authority over the period covered by the strategy; and
> "identify the principal options for managing those issues and the implications of those options.

Annual Plan and Budget: The works identified in this AMP will form the basis on which future annual plans are prepared.

Procurement Strategy: This is required by the Land Transport Management Act and signals Council's intentions for procurement of subsidised land transport activities.

Contracts: The levels of service, strategies and information requirements contained in AMP's are translated into contract specifications and reporting requirements.

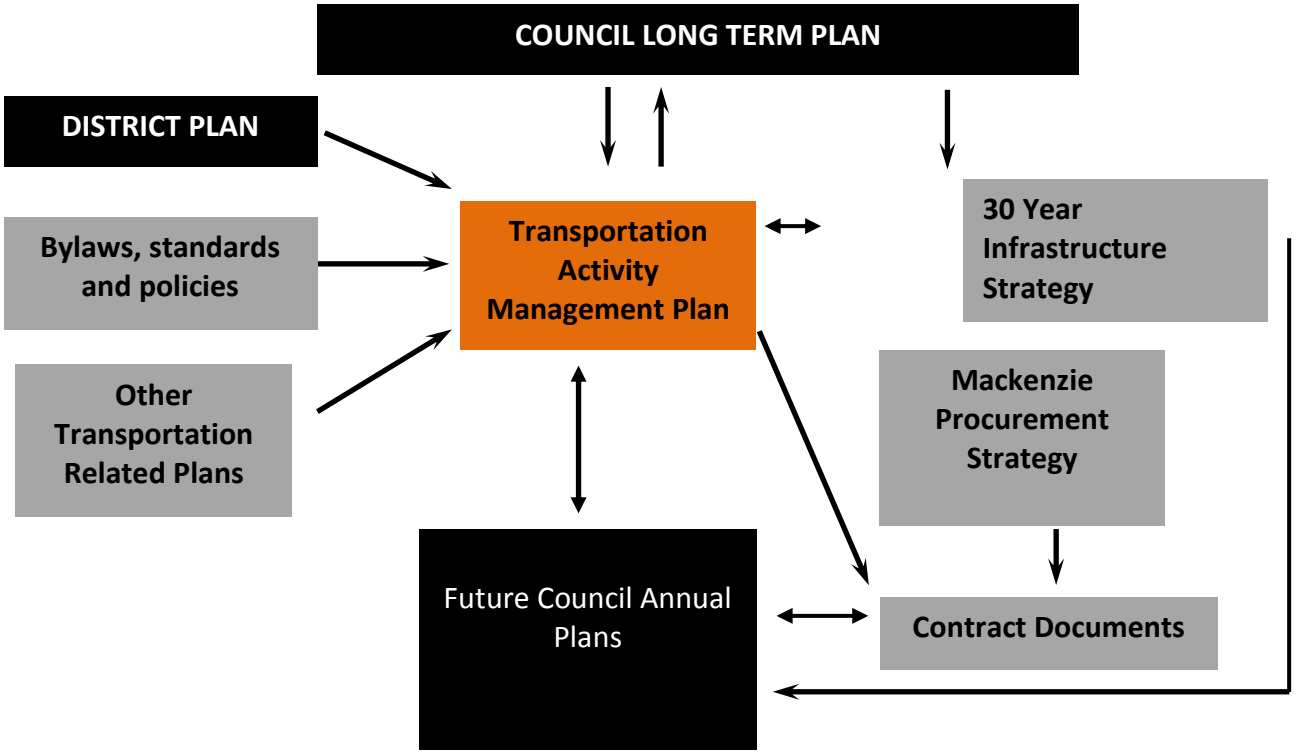
Bylaws, standards and policies: These tools for asset creation and subsequent management are needed to support AM tactics.

Other Transportation Related Plans: These include:

- Walking and Cycling Strategies
- Regional Policy Statements
- Regional Land Transport Strategy
- Regional Passenger Transport Plan
- New Zealand Transport Strategy
- New Zealand Walking and Cycling Strategy; Getting there on foot, by cycle.

Figure 2.1 illustrates the relationships between this LTAMP and other Council plans.

Figure 2.1 – Relationship between the Transportation Activity Management Plan and Other Plans

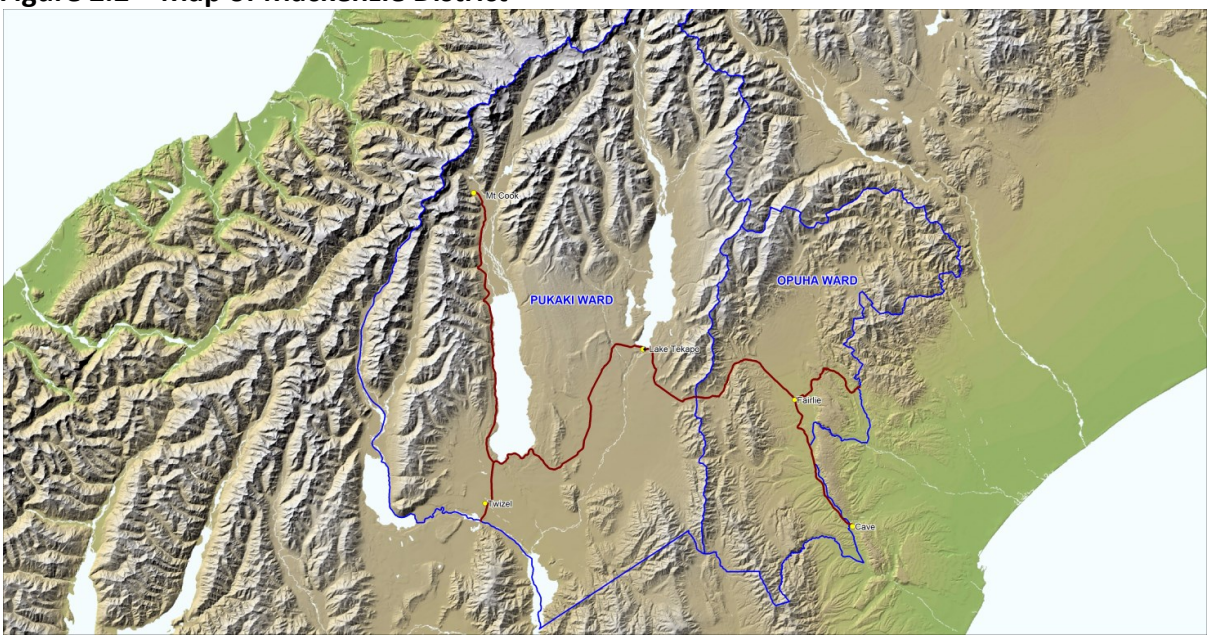


2.3 ASSETS INCLUDED IN THIS PLAN

2.3.1.1 Location

Figure 2.2 shows the location of the district within the Canterbury Region. The Mackenzie District is bounded in the north and east by the Timaru and Waimate Districts, in the south by the Waitaki District and to the West by the Southern Alps/ Westland District boundary. There are two wards: **Pukaki** which in effect takes in the Mackenzie Basin and **Opuha** being the remaining area to the west of a line following the upper reaches of the Hakataramea River through Burkes Pass to Mt Musgrove in the Two Thumb Range.

Figure 2.2 – Map of Mackenzie District



- State Highways 8, 79 & 80, the responsibility of the NZTA form the backbone of the road network. The Mackenzie road network consists of "Principal" roads that lead from the State Highways into the remote areas of the District, form routes through the District or are the main through roads in the urban settlements. "Local" roads generally extend from these "Principal" roads to serve the remaining urban and rural areas.

- The condition of the roads is continually changing due to climatic conditions, topography and traffic changes.

- As some inter district boundaries follow rivers there are three boundary bridges. These have joint ownership.

2.3.1.2 The Asset

The transport asset includes all Council owned road reserve, roads, streets, bridges, footpaths and related infrastructure within the District as shown in Table 3.1.

Table 2.1 – Transportation assets included in this plan

Asset Description	Sub-Asset Description	Quantity
Land		1,395Ha
Roads	All roads	722.85km
	Urban - Sealed	47.43km
	Urban - Unsealed	5.12km
	Rural - Sealed	158.1km
	Rural - Unsealed	512.2km
Footpaths		62km
Drainage	Culverts	17.75km
	Catch Pits	305
	Side Drains	16.2km
	Soak Pits	40
	Earth Surface Water Channel	722.85km
	Kerb and Channel	62.47km

Bridges	Bridges - Timber	11
	Bridges – Other (Including 7 large Box Culverts)	86
	Cattle stops	56
	Concrete Fords	20
Signage	Signs	5711
	Posts	2,498
Lighting	Lanterns (include brackets)	791
	Columns	346
Features (gates, Intersections, Monuments, stockpile sites)		164

Unformed roads are not included except in the land total.

2.4 KEY STAKEHOLDERS AND CUSTOMERS

Key Stakeholders

The Council as the ultimate owner of assets and the Crown (through The New Zealand Transport Agency Co-investment Rate) wishes to ensure that its investment is secure and that the operational capability of the network is ensured. The Crown entity established to manage Transportation activities is the NZ Transport Agency (NZTA). Other key stakeholders of the roading network include:

- Regional Council through the Regional Land Transport Committee.
- Owners and operators of inter-connecting or co-located networks, including NZTA state highways
- Significant representative user-groups such as Road Transport Association (RTA)

Funding Partners

Funding is provided by several parties and in particular the following are significant contributors:

- NZ Transport Agency – The District Transportation Programme is financially assisted by NZTA in accordance with operational requirements set out in NZTA Programme and Funding Manual.
- Ratepayers – Rates provide funding for non-subsidised activities and the Councils "local share" of subsidised works.
- Both NZTA and Council are partners in delivering Transportation Activities to the community.

Customer Groups

MDC's customers fall into three different groups: associated service providers, users and the wider community. These are shown in Figure 2.3 and further detailed in Table 2.2.

Figure 2.3 – Customer Groups (Ref IIMM Figure 2.1.5)

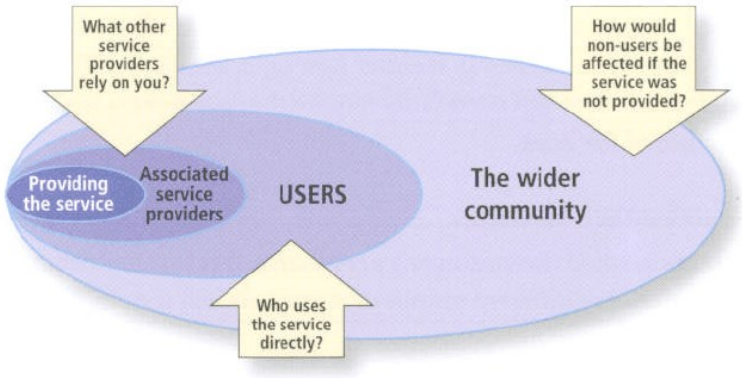


Table 2.2 – MDC Roading Customer Groups

Customer Group	Description	Customers
Associated Service Providers	These are other service providers who rely on the transportation network	• Contractors • Utilities service providers – use the road corridor to access their assets • Transport operators • Emergency Services
Users	Those who directly use the service	• Private drivers • Commercial road users • Drivers of public and other transport services (e.g. tourist buses) • Pedestrians and cyclists
The Wider Community	Non-users that are affected if the service is not provided	• Citizens • Tourists • Residents who live beside the roads • Local businesses – requiring access

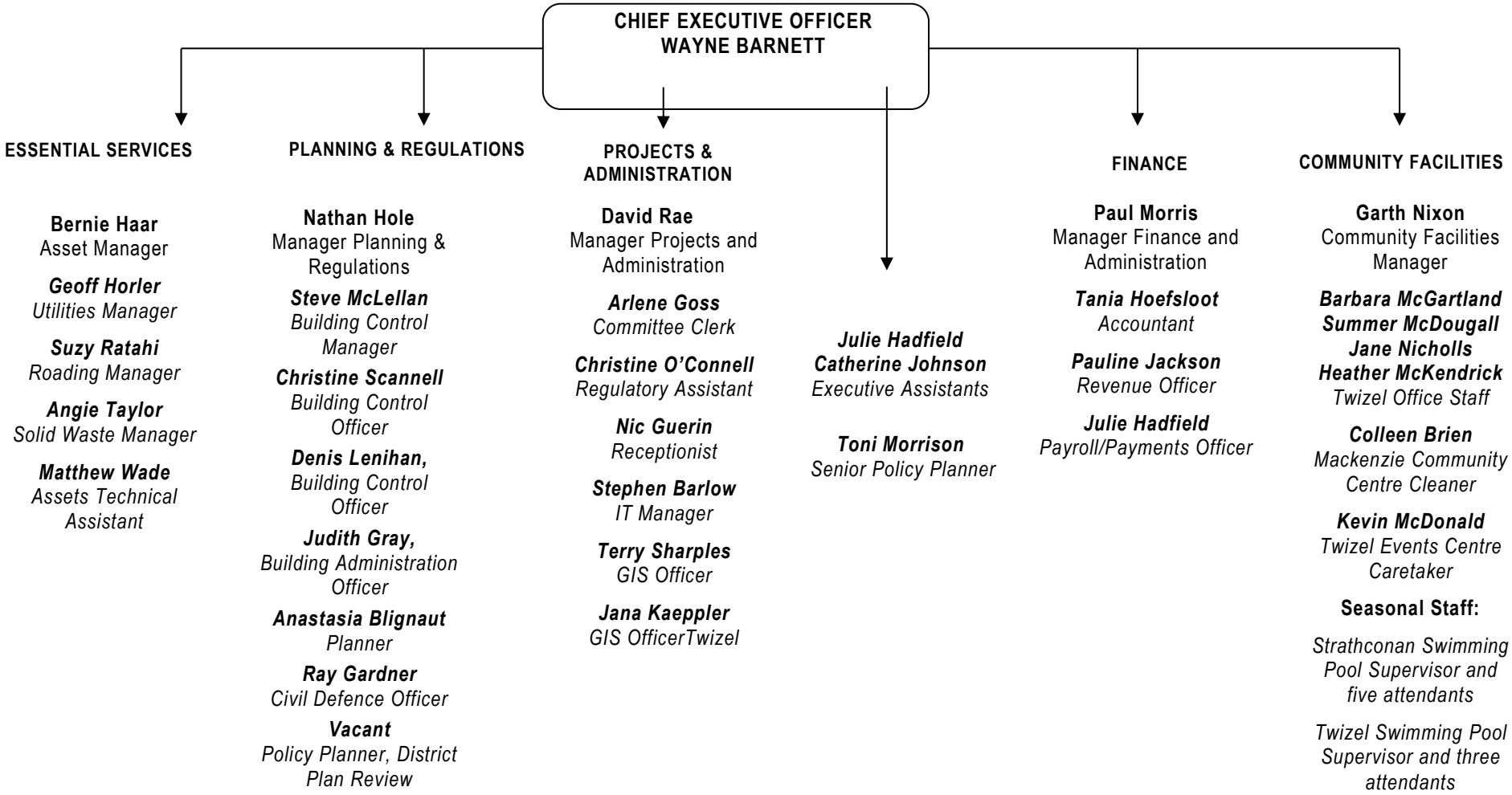
Other Parties

Other parties with an interest in MDC's AMP include Council employees, consultants and contractors who manage and work on the asset.

2.5 ORGANISATION STRUCTURE

Mackenzie District Council's organisation structure is shown in Figure 2.4. This AMP covers activities included under Essential Services, led by the Council Asset Manager and Roading Manager.

Figure 2.4 – MDC Organisation Structure - as at January 2015



2.6 GOALS AND OBJECTIVES OF ASSET OWNERSHIP

Purpose of Ownership
Council provides a safe, efficient, convenient and comfortable roading network to ensure appropriate property access and freedom of travel for all people including pedestrians. The provision of a roading corridor also accommodates the infrastructure of utility service providers throughout the District. The Council's overriding goal is:

"To provide a safe and well maintained roading network with a progressive improvement programme."

Review of Activities and Funding
The LTP identifies planned activities, defines the rationale for justifying these activities, and identifies the appropriate funding source.

Legal Authority for Council Action
The ***Local Government Act 2002*** gives local authorities the full capacity, and full rights, powers and privileges, to carry on or undertake any activity or business, do any act, or enter into any transaction wholly or principally for the benefit of its district.

Along with these wide powers comes the requirement to identify all reasonably practicable options before making a decision, and to assess the benefits and costs of each option against the likely economic, environmental, social and cultural impacts.

Local authorities are also required to consult widely, effectively and appropriately with the community to determine the communities' wishes and to seek feedback on all potentially significant activities – not only when a particular course of action is proposed, but at the various stages of the decision-making process.

A significant aspect of this consultation process is the development of the LTP, which forms the long-term (not less than ten years) direction for all Council's activities.

2.7 LINKS TO ORGANISATION VISION, MISSION, GOALS AND OBJECTIVES

VISION
Mackenzie will be a district in which:

- We foster the unique attributes and strong sense of community that makes the Mackenzie District special.
- Our natural environment is protected and enhanced in balance with achieving social and commercial objectives.
- A dynamic economy provides employment and investment opportunities consistent with the quality of life aspirations of existing and future generations.
- Democracy is respected and equal opportunity and the rights of the individual are upheld.
- A variety of sporting, recreational, cultural, spiritual, welfare and educational resources are available to enrich the lives of our people.
- Safe, effective, sustainable water, waste, communication, energy and transport systems are in place.
- People are encouraged to use their skills and talents for the benefit of the community.

MDC's outcomes and objectives for the road network are stated in the LTP 2012-2022

These outcomes and objectives have been translated into various targets for maintenance and renewals to be achieved in each financial year. The outcomes are reported in each Annual Report.

The principal goal is to provide an effective, efficient, accountable and sustainable range of services that meet the actual needs of the residents. The road network provides access to each residence in the District and allows the free, safe and efficient movement of all types of traffic.

The over-riding management strategy is that the roading infrastructure as it presently exists will be maintained to deliver at least the current Levels of Service in perpetuity.

Table 2.3 and 2.4 outline the community outcomes and transportation levels of service

.

Table 2.3 – Community outcomes

'Safe, effective and sustainable infrastructure'
'A thriving economy'
'An attractive and highly valued natural environment'
'A fit and healthy community'

Table 2.4 – Performance Measures

Statement of Service Provision

Levels of Service	Measure of Service	Target
Council provides safe, smooth, quality sealed roads in order to reduce travel times and vehicle wear.	Smoothness of urban and rural sealed roads as compared with rest of New Zealand. The average roughness of urban roads as measured by NAASRA counts. The average roughness of rural roads as measured by NAASRA counts. % of road users are satisfied with the roading network.	Smoothness higher than national average. Average <100 counts with less than 10% exceeding 150 counts. Average <80 counts with less than 10% exceeding 110 counts. 85%
Council provides a safe and efficient roading network.	Minor improvements to the network identified that will benefit the road user and programmed for completion. Number of fatal accidents due solely to road factors.	Two projects completed each year. Nil.
Ready access is provided around the District except in extreme weather conditions.	The roading network is trafficable and contracted emergency response times are met – on site within 1.5 hours to begin reinstatement.	100%.
Footpaths are maintained in good condition and are fit for purpose	% of footpaths defects made safe within 48 hours. % of road users satisfied with the condition of Council footpaths.	95% 70% with improving trend

2.8 ASSET MANAGEMENT DRIVERS

The business drivers, which define the need, priority and scope for improved AM practices within Council may be summarised as follows:

Customer Service
Customers require that agreed levels of service be delivered reliably, efficiently and economically. The use of AM techniques provides the following benefits in satisfying these demands:

- focuses on identifying and satisfying customer requirements
- provides a basis for customer consultation when determining levels of service preferences by identifying the range and cost of service level and service delivery options
- enhances customer confidence that funding is being allocated in an equitable and cost effective manner; that assets are being well managed and improves understanding of service level options and requirements

Financial Responsibility
"The Local Government Act section 101A Financial Strategy":

(1) A local authority must, as part of its long-term plan, prepare and adopt a financial strategy for all of the consecutive financial years covered by the long-term plan.
(2) The purpose of the financial strategy is to—
(a) facilitate prudent financial management by the local authority by providing a guide for the local authority to consider proposals for funding and expenditure against; and
(b) provide a context for consultation on the local authority's proposals for funding and expenditure by making transparent the overall effects of those proposals on the local authority's services, rates, debt, and investments.
(3) The financial strategy must—
(a) include a statement of the factors that are expected to have a significant impact on the local authority during the consecutive financial years covered by the strategy, including—
(i) the expected changes in population and the use of land in the district or region, and the capital and operating costs of providing for those changes; and
(ii) the expected capital expenditure on network infrastructure, flood protection, and flood control works that is required to maintain existing levels of service currently provided by the local authority; and
(iii) other significant factors affecting the local authority's ability to maintain existing levels of service and to meet additional demands for services; and
(b) include a statement of the local authority's—
(i) quantified limits on rates, rate increases, and borrowing; and
(ii) assessment of its ability to provide and maintain existing levels of service and to meet additional demands for services within those limits; and
(c) specify the local authority's policy on the giving of securities for its borrowing; and
(d) specify the local authority's objectives for holding and managing financial investments and equity securities and its quantified targets for returns on those investments and equity securities.

The implementation of the optimised work programmes and resulting long-term cash flow projections contained in AMP's will aid compliance with these requirements.
AMP's (supported by appropriate processes, systems and data) should provide clear justification for forward works programmes (and associated funding programmes) and provide the ability to even out peak funding demands and account for changes in asset service potential.

Environmental Responsibility
Asset Management (AM) Planning demonstrates how MDC is addressing sustainable management of its physical resources while enhancing the protection of the environment as required under the provisions of the Resource Management Act.

Safety
AM planning addresses MDC's safety obligations through:

- adoption of appropriate design standards for the creation of new assets
- development of risk management practices
- monitoring and reacting to road safety issues

Economic Efficiency
The techniques incorporated into this AMP support economic efficiency by:

- providing a basis for monitoring asset performance and utilisation
- enabling asset managers to anticipate, plan and prioritise asset maintenance and renewal expenditure
- identifying under-funding of asset maintenance and renewal
- quantifying risk, leading to minimisation of high impact (financial and service level) failures and environmental effects and resulting in savings where asset renovation is less than the cost of replacement
- extending the life of an asset by optimising maintenance programmes and demand management

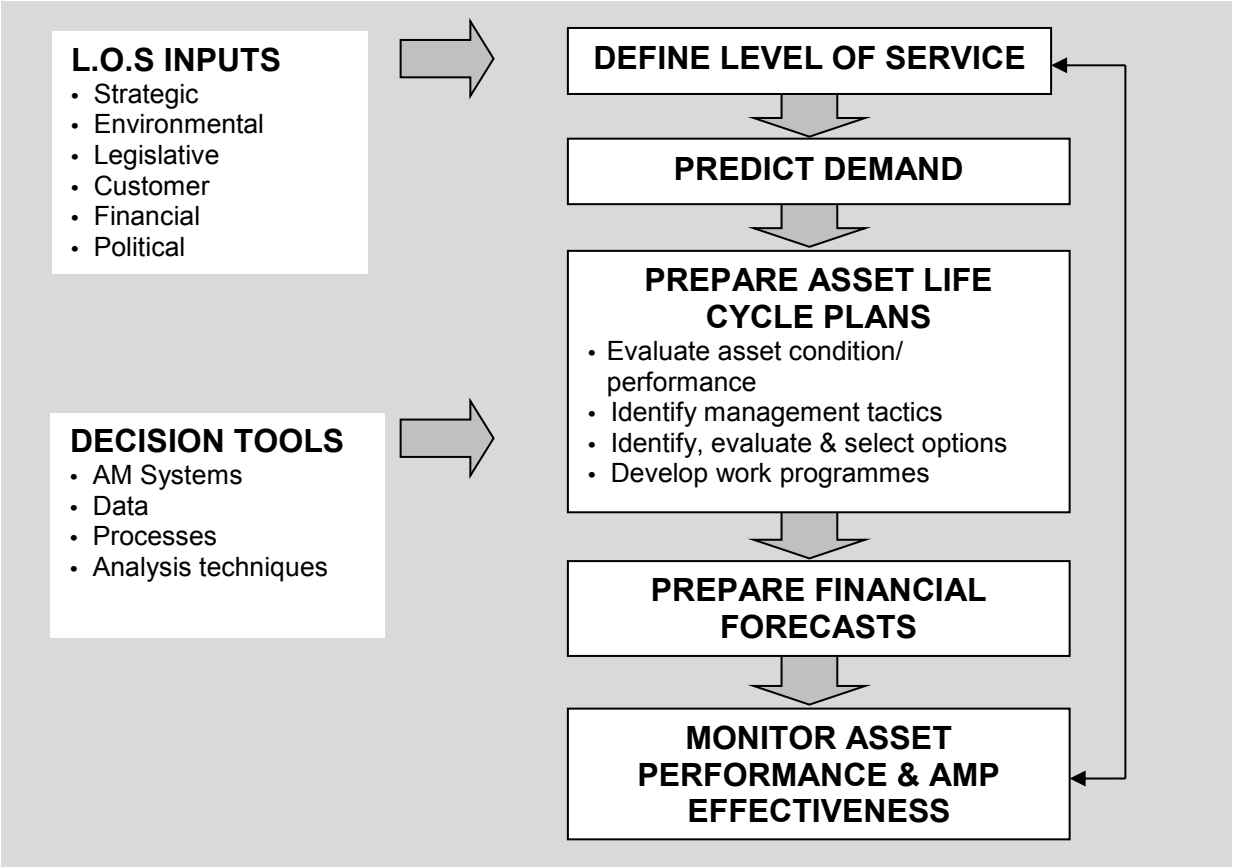
Achieve Strategic Goals
MDC has a strategic intent to "achieve sustainable development" and other goals relating to growth, building communities, protecting the environment, supporting the economy and providing quality customer service. This activity plan for transportation has been developed to implement this intent.

2.9 PLAN FRAMEWORK

This AMP is structured around the current asset inventories, the existing levels of service and consequential financial management plan for at least the next ten years. It includes Maintenance requirements, Renewals, and Capital improvements in terms of NZTA and Council requirements.

This AMP generally follows the format recommended in the National Asset Management Steering Groups (NAMS) Infrastructure Asset Management Manual to a core level. Figure 2.5 shows the framework of this AMP.

Figure 2.5 – Transportation AMP Framework



This AMP assumes that the current road network will be maintained in perpetuity.

2.10 APPROPRIATE LEVEL OF ASSET MANAGEMENT

The International Infrastructure Management Manual (IIMM) provides a summary of the different degree asset management complexity: Minimum, Core, Intermediate and Advanced. The degree of complexity differs according to an organisation's corporate needs. The level of complexity of Asset Management is dependent on the following:

- The costs and benefits to the organisation
- Legislative and other mandated requirements
- The size, condition and complexity of the assets
- The risks associated with failures
- The skills and resources available to the organisation
- Customer expectations

A core Activity Management Plan will meet minimum legislative and organisational requirements for financial planning and reporting. It provides basic technical management outputs such as statements of current levels of service, forward replacement programmes and associated financial projections and is appropriate for the needs of the network.

MDC considers the required sophistication of their plan in the short to medium term need not progress beyond a **"Core"** planning level, as:

- the cost at this time to move to an advanced plan would provide little significant benefit to Council or its' customers
- the size, complexity and use of the assets is consistent with a rural sparsely populated district
- the risks associated with failure are low

The current Activity Management Plan generally meets "Core" requirements as outlined in the IIMM 2011. By implementing improvement planning Council can assess the asset management performance and identify gaps to drive improvement actions.

3. DESCRIPTION OF TRANSPORTATION ASSET

3.1 DESCRIPTION OF ACTIVITY

Roading is the largest Council activity with 26% of Council's current expenditure devoted to this activity.

The Mackenzie District Council owns and is responsible for the day-to-day operation, maintenance, renewal and improvement of the District's local roading network excluding State Highways No 8, 79 and 80 which are owned by the Crown and managed by the New Zealand Transport Agency. The Council also provides other assets such as footpaths and street lights. State Highways 8, 79 and 80 are an important part of the overall roading network of the District. The Council works with New Zealand Transport Agency and the Regional Transport Committee to meet its obligations with regard to roading and to be consistent with the
Regional Land Transport Strategy.

The purpose of road assets is to provide a sustainable, safe, convenient, comfortable and cost effective road network for the free movement of people, goods and vehicles throughout the Mackenzie District.

The transportation asset is made up of the following components, which are described in more detail in the sections below.

- Land
- Road pavements - sealed and unsealed
- Bridges, fords and other structures
- Drainage
- Traffic services
- Footpaths
- Street lighting

3.1.1 MAINTENANCE ROAD GROUPS

The Mackenzie District roading consists of a network of "Principal" and "Local" roads leading from the state highways to many remote localities and providing convenient access in and around the three main urban centres of Twizel, Lake Tekapo and Fairlie (Mt Cook Village is administered by the Department of Conservation). The network is predominantly rural (93%), unsealed (72%) and with light average daily traffic volumes (less than 500 vehicles per day)

The MDC has adopted a five level "Pavement Use" system based on Urban and Rural traffic volumes as shown in Table 3.1.

Table 3.1 - MDC Maintenance Group Table

MDC Maintenance Group	MDC Hierarchy	NZTA Group Name	MDC Average Daily Traffic Volumes (Average Number of vehicles per day)
Urban (As defined in the MDC RAMM Database)			
Urban Use 1	Principal	C 1,000 - 5,000	ADT > 500
		D 200 – 1,000	
Urban Use 2	Local	D 200 – 1,000	ADT 100 - 500
		E < 200	
Urban Use 3	Local	D 200 – 1,000	ADT < 100
		E < 200	
Rural			
Rural Use 1	Principal	D 200 – 1,000	ADT > 100
		E < 200	
Rural Use 2	Local	E 50 – 200	ADT ≤ 100
		F < 50	

These hierarchies have been established in RAMM.

Set out below is a general description for each road maintenance group giving its length and percentage of the total network.

- **Urban Use 1** (4.097km, 0.58%):
  Urban Use 1 roads are two lane, sealed roads in an urban area with average daily traffic in excess of 500 vehicles per day (vpd). They primarily form the traffic routes between urban zones and the main access to the State Highways.

- **Urban Use 2** (7.058km, 0.99%):
  Urban Use 2 roads are predominantly two lane, sealed roads in an urban area with average daily traffic in excess of 100 but less than 500vpd. These roads generally form the secondary urban road framework that distributes traffic to and from the Urban 1 roads.

- **Urban Use 3** (36.840km, 5.18%):
  Urban Use 3 roads are a mix of single and two lane, generally sealed roads in an urban area with average daily traffic less than 100 vpd. These roads are the residential streets providing property access. Pedestrian and residential amenity functions predominate with the roads not intended for through traffic or non-residential activities.

- **Rural Use 1** (64.262km, 9.04%):
  Rural Use 1 roads are two lane, sealed roads in a rural area with average daily traffic in excess of 100vpd. These roads form important links with other districts and form the secondary framework that collects and distributes traffic to and from the State Highway network in the rural environment.

- **Rural Use 2** (598.533km, 84.21%):
  Rural Use 2 roads are two lane, generally unsealed roads in a rural area with average daily traffic less than 100vpd. These roads are mostly used as access within the network. A significant number are no exit. As Rural Use 2 makes up the bulk of roads within the District it can be seen that the network caters mainly for low volume rural traffic on unsealed roads which in turn dictates a minimal maintenance philosophy.

3.2 ROAD PAVEMENTS

Mackenzie District Council owns, operates and maintains a total of 722km of road pavements. There are 205.53km of sealed 47.43km of urban roads (i.e. where the legal speed limit is 70kph or less) and 158.1km of rural roads sealed.

There are 517.4km of unsealed roads within the network and only 5.12km of these in the urban area. The unsealed roads, which are spread throughout the district and are generally lower volume roads that provide access from individual properties to "Principal" roads and the State Highway Network. They generally have lower speed values than sealed roads, with the aim of providing a suitable surface for the public to travel comfortably at 70 km/hr. on straight sections.

90% of urban roads are sealed and 24% of rural roads are sealed.

The amount of each type of road based on road hierarchy groups is detailed in Table 3.2.

Table 3.2 – Sealed and unsealed pavement quantities

Road Type	Group	Traffic Volumes Range for Group (ADT)	Length approx (km)
Sealed Roads	Rural 1	> 100	58
	Rural 2	≤ 100	89
	Urban 1	> 500	5
	Urban 2	100 to 500	10
	Urban 3	< 100	37
Unsealed Roads	Rural 1	> 100	6
	Rural 2	≤ 100	506

3.3 BRIDGES

MDC manages a total of 97 bridges with a combined length of 3,476m including 33 large culverts (considered bridges as they have a waterway area over 3.4m^2). The types of bridges include:

- 88 single lane bridges (98% by length)
- 11 timber bridges (13% by length)
- 11 speed and weight restricted bridges (12% by length)
- 20 fords with improved access.

3.4 DRAINAGE

Mackenzie District Council owns, operates and maintains drainage assets associated with the road pavements. The quantities of each type of drainage asset is detailed in Table 3.3.

Table 3.3 – Drainage asset quantities

Drainage Type	Quantity
Kerb and channel concrete	17km
Dished Channel Concrete	1km
Mountable Kerb and Channel	2km
Mountable Kerb Concrete	0.5 km
Kerb only Concrete	2km
Dished Channel Sealed	39km
Kerb and Dished Channel Concrete	1km
Total	**62km**
Surface Water Channel (Deep) Surface Water Channel (Shallow)	380km 362km
Total	**741km**
Culverts < 300mm dia.	1.7km
300 - 599mm dia.	11.9km
600 - 1,199mm dia.	3.5km
1,200 - 1,799 mm dia.	0.5km
> 1,800 mm dia.	0.1km
Total	**17.7km**
Catch pits	305
Soak pits	40
Side Drains	16.2km

3.5 TRAFFIC SERVICES

MDC manages 5,711 signs, 2930 culvert markers, 150km of road marking, 1183 road marking symbols.

Within RAMM there is an inventory for these traffic services asset components:

- signs
- culvert markers
- railings

There are currently no road markings or EMPs recorded in the RAMM database. Road marking data capture is currently being obtained by the contractor and inserted into a user defined table within RAMM.

3.6 FOOTPATHS

There are 62km of footpath on the transportation network. These are principally designed for and used by pedestrians. The majority (36.7km) of the footpath is within the Twizel Township Urban area. A smaller amount (16.4km) is in Fairlie area and a further (9.2km) in Tekapo area. Footpaths on State Highways are included in this asset as they are the maintenance responsibility of the Council.

A summary from the current spread sheet inventory of formed footpath is included in Table 3.4.

Table 3.4 – Footpath assets

Footpath Type	Length (m)	Area (m2)
Asphalt concrete	4,693	9,656
Asphalt concrete / Grass	1,929	3,490
Asphalt concrete / Gravel	715	1,155
Chip Seal	39,237	118,249
Chip Seal / Grass	512	707
Chip Seal / Gravel	75	90
Cobbles	70	140
Gravel	2,575	5,020
Concrete	4,456	7,194
Grass	8,011	12,509
Total	**62,273**	**158,210**

3.7 STREET LIGHTING

MDC administers the maintenance and power consumption of street lights throughout the district including those on the state highways owned by NZTA, whose direct costs are recovered from NZTA. Street lighting asset details (excluding NZTA owned assets) are summarised in Table 3.5.

Table 3.5 – Street Light assets

Lanterns			Poles		Brackets
Type	Engineering Equivalent	Number	Material	Number	Number
Fluorescent	GL_500	1	Concrete	302	
3 ft. fluorescent	GL_500	24	Wood	191	
Goughlite 500	GL_500	395	Spun Concrete	128	
Goughlite 600	GL_600	28	Fibreglass	18	
Goughlite 700	GL_600	36	Steel	32	
GEC	GL_500	1	ocylite	1	
GEC Fluorescent	GL_500	2			
Kowhai 100	Ornate	9			
Major Diadem	Diadem	1			
Ornate	Ornate	7			
Unspecified		163			
		672		**672**	**672**

3.8 ENVIRONMENTAL EFFECTS

Dust Nuisance

With its large proportion and length of unsealed roads, dust can be a significant nuisance, to dwellings situated near roads, to following/passing vehicles and adjacent land uses. The Council does not use dust suppression agents, as these are costly and short lived. Council has introduced clay bound wearing course for unsealed roads, which has helped to mitigated dust to some extent. Also Council has been undertaking trials with locally sourced materials "rotten rock", this is showing significant dust suppression qualities. It is not intended to roll this out to large areas.

The Council has a current policy for sealing past houses where a significant dust nuisance is identified. These short lengths of seal are carried out on a cost sharing basis with the dwelling owner. On-going maintenance is carried out by the Council. However, this policy needs to be reviewed, as Council funds a maximum of $10,000 per site and there is reluctance from adjacent land owners to fund the balance. These isolated seals are expensive to maintain and resurface. The is already an amount of deferred maintenance of resurfacing MDC's sealed network and adding these isolated sections adds further pressure to that.

Physical Works Impacts

Roading maintenance activities generally do not have major adverse environmental effects. The control of dust and water pollution at work sites is carried out under the contractors' quality and environmental management plans. Work in riverbeds requires resource consent from Environment Canterbury. The only long term impact on the environment is the creation of borrow pits for the extraction of aggregate for unsealed road maintenance. Both the Council and contractors take care in how these are managed and rehabilitated after use.

3.9 FUTURE IMPROVEMENTS

The current age and remaining life of all assets are reviewed regularly, as more accurate information and knowledge becomes available. As the confidence in this data grows the accuracy of the life cycle management requirements improves significantly.

4. LEVELS OF SERVICE

4.1 DEFINING THE LEVEL OF SERVICE

Asset management planning requires a clear understanding of customer needs and preferences and the minimum obligations that must be met. A key objective of this activity plan is to match the level of service provided by the asset with the expectations of the customers given legislative, financial, technical and safety constraints. Service standards, set to meet this objective, provide the basis for the life cycle management strategies and work programmes identified in Section 7.

The service standards defined in this section will be used:

- to ensure legal and legislative requirements are met
- to inform customers of the type and level of service offered
- as a focus for the asset management strategies developed to deliver the required level of service
- as a measure of the effectiveness of this Plan
- to identify costs and benefits of the services offered
- to enable customers to assess the suitability, affordability and equity of the services offered

The MDC levels of service for Transportation reflect current industry standards and are based on:

- **Customer Research and Expectations:** Information gained from the community on their expectations of quality and price of services
- **Strategic and Corporate Goals:** Provide guidelines for the scope of current and future services offered, the manner of service delivery and define specific levels of service which the MDC wishes to achieve
- **Legislative Requirements:** Environmental standards, regulations and acts that impact on the way assets are managed (i.e. resource consents, building regulations, health and safety legislation, Local Government Act)
- **Demands on the Roading Network:** Service demands that are placed on the network by the mix of road users and how this demand varies across the District.

4.2 CUSTOMER RESEARCH AND EXPECTATIONS

The Council utilises the following methods to determine and measure customer expectations:

- Public meetings
- Consultation via the Annual Plan and LTP process
- Feedback from customers and elected representatives
- Publicity
- Council are currently undertaking a Customer Survey

Road users want full time availability of safe, smooth roads and adjacent land owners/occupiers want to minimise the impact these roads have on them and their properties but retain maximum benefit from the access and convenience that the roads provide.

Customer expectations are one of the key considerations used to determine the acceptable target levels of service prescribed for the MDC Road Network. The MDC classifies road users as customers in the context of service provision although not all road users are ratepayers.
The community's expectations can be summarised as being:

- Roads address the needs of network continuity
- Roads serve demands for access consistent with the needs of the time
- Roads can be traversed at a level of safety, comfort and speed appropriate with their usual use
- Roads are constructed and maintained to avoid unjustified or avoidable expenditure
- Minimal interruption to use of roads

In order to achieve the above community expectations there are five specific strategies that the MDC will implement:

- The maintenance of roads to provide appropriate ride quality for each road, based on the road's usual purpose and number of vehicles using the road
- The Council will maintain a road network where preferred routes are supported, where practicable, by sufficient alternative routes to minimise the impact of disruptions such as planned maintenance, storm/weather damage, accidents and other occasional hazards
- The Council will meet and coordinate operations with other Councils, agencies and the private sector (e.g. NZTA, Police, South Canterbury Road Safety Co-ordinating Committee) to improve road safety.
- The Council will employ preventative maintenance and monitoring systems to protect the District's roads, bridges, culverts and supplementary roading infrastructure to reduce avoidable damage, disruption and cost
- Roads will be maintained and improved in keeping with the demands of residential users, commerce, business and agriculture, where the level of use justifies the cost to ratepayers

MDC have recently started using the Napier Computer Systems service request system so there is no historic record, however this information will be used in future as input into defining and reporting against levels of service.

4.3 STRATEGIC AND CORPORATE GOALS

The road network must be operated to meet Council policy, objectives and various NZTA requirements where financial subsidies are involved. Council's goals and the community's expectations are stated in the LTP which provides the framework for the operation and development of the roading infrastructural assets.

Organisation Mission, Goals and Objectives

The Council's mission statement is: ***"FOSTERING OUR COMMUNITY"***. The particular aspects of the overall mission that relate to the roading activity are:

SERVICE
We are a service organisation. Providing efficient and cost-effective services is our prime responsibility.

SUSTAINABILITY
We are committed to the sustainable management of all the resources of the district.

Roading Activity Goal and Principal Objectives

As outlined in Council's Community Plan (LTP) Council, the roading asset contribution to achieving Council's governance goal and the community outcomes identified in Section 2 is through the **Roading Activity Goal**:

To ensure all roading assets are managed to provide the desired level of service and safety in the most cost effective and achieveable manner for existing and future customers.

The specific **Objectives** of the roading activity are as follows:

- To develop an activity management plan for roading
- To contract cost-effective service delivery
- To ensure all roads are adequately maintained
- To identify and prioritise key areas for safety improvements and progressively correct these
- To develop and implement a planned programme of seal extension (NZTA funding is likely to be difficult to obtain)
- To establish footpath standards and implement them over time
- To be proactive in ensuring adequate funds are provided to maintain and develop the District's roading network

4.4 LEGISLATIVE REQUIREMENTS

Legislative requirements set the framework for the minimum standards of service that Council as the Road Controlling Authority has to meet. The key legislation relating to the Council's responsibility to manage the Transportation asset is:

- Local Government Act 2002
- Local Government Act 1974
- Land Transport Management Act
- Resource Management Act 1991
- Building Act 2004 and 2005 Amendment
- Health & Safety Act in Employment Act 1992
- Civil Defence Emergency Management Act 2002
- Traffic Regulations Act 1976
- Public Works Act 1981
- Land Transport Rule: Setting of Speed Limits 2003
- Land Transport Rule: Traffic Control Devices 2004

The ***Local Government Act 2002*** gives local authorities the full capacity, and full rights, powers and privileges, to carry on or undertake any activity or business, do any act, or enter into any transaction wholly or principally for the benefit of its district.

Along with these wide sweeping powers comes the requirement to identify practicable options before making a decision, and to assess the benefits and costs of each option against the likely economic, environmental, social and cultural impacts.

Local authorities are also required to consult widely, effectively and appropriately with the community to determine the communities' wishes and to seek feedback on all potentially significant activities – not only when a particular course of action is proposed, but at the various stages of the decision-making process.

The MDC has determined that it will consult its communities where practical, reasonable and within the resources available to it. A significant aspect of this consultation process is the development of the LTP, which forms the long-term (not less than ten years) direction for all Council's activities.

The remaining sections in the ***Local Government Act 1974,*** *in respect to roads*, give local authorities the authority to construct, upgrade, and repair all roads with such materials and in such manner as the Council thinks fit. It also gives Council the power to name roads, set road gradients, charge betterment for any road improvement and the right to lay pipes under the roadway.

It also gives Council the power to "stop or close" a road.

The ***Land Transport Management Act (LTMA)*** requires Council to prepare a three year land transport programme (which is reviewed annually and fully redeveloped at the completion of the three year period) through a special consultative procedure, unless the local authority includes the matters that are required to be in such a programme in its LTP or Annual Plan, and provide details of those matters in a form acceptable to Land Transport New Zealand (NZTA).

When preparing its land transport programme Council must take into account how road maintenance:

- assists economic development
- assists safety and personal security
- improves access and mobility
- protects and promotes public health
- ensures environmental sustainability

Levels of service provided and maintenance practices used should be in line with the objectives of the New Zealand Transport Strategy and the requirements of the Land Transport Management Act 2003.

The ***Resource Management Act 1991*** requires Council to:

- sustain the potential of natural and physical resources to meet the reasonably foreseeable needs of current and future generations
- comply with the District and Regional Plans
- avoid, remedy or mitigate any adverse effect on the environment and structures (e.g. adverse effect of surface run-off from roads)

The ***Building Act 2004*** requires Council to:

- Ensure all buildings and facilities constructed comply with the Act
- Produce Project Information Memoranda (PIM's) which supply all available information relating to an individual property. For the roading network the relevant information may include details of access restrictions, approvals, leases, plans, relevant records, notices, etc.

The ***Health and Safety in Employment Act 1992*** requires Council to:

- Ensure that its employees, contractors and road users are protected from injury as a result of its activities
- Notify the Occupational Safety and Health Department of serious harm or fatal accidents as a result of its activities within 7 days

The ***Civil Defence Emergency Management Act 2002*** requires Council to:

- Establish and be a member of a Civil Defence Emergency Management Group
- Co-ordinate, through regional groups, planning, programmes and activities related to civil defence emergency management across the areas of reduction, readiness, response and recovery, and encourage co-operation and joint action within those regional groups
- Improve and promote the sustainable management of hazards in a way that contributes to the well-being and safety of the public and also to the protection of property

The ***Traffic Regulations Act 1976*** requires Council to:

- Comply with the rules for pedestrian crossings, traffic islands, road markings etc.
- Plan activities such that the network complies with driving rules

The ***Public Works Act 1981*** requires Council to:

- Set requirements for the acquisition of land by local authorities for roading works
- Sets requirements for stopping of roads and removal of trees on adjacent land

Land Transport Rule: Setting of Speed Limits 2003 and it's amendments requires Council to:

- Establish Speed Limits By-Law;
- Establish speed limits of 50km/hr. in urban traffic areas and 100km/hr. on rural roads and motorways;
- Authorise the setting of speed limits other than 50km/hr. on urban roads and less than 100km/hr. on rural roads, and to set temporary speed limits associated with work on or near the road and for special events.

Land Transport Rule: Traffic Control Devices 2004 and it's amendments requires Council to:

- Authorise and install traffic control devices in accordance with the rule;
- Ensure safe practice in the design and installation of traffic control devices and how they are used for traffic management.

Legislation (e.g. Resource Management Act) requires Council to consult with the Tangata Whenua and take into account the principles of the ***Treaty of Waitangi*** in the management of road infrastructural assets.

4.5 CURRENT AND TARGET LEVELS OF SERVICE – NZTA "ONE NETWORK ROAD CLASSIFICATION"

Council's community outcomes and their contributions to the roading activity are included In Table 4.1. Council's key levels of service and performance measures as defined in the 2012-2022 LTP are summarised in Table 4.2. These show how levels of service contribute to the community outcomes and provides a technical measure that enables Council to monitor current levels of service against target levels of service.

This AMP was written on the basis of agreed levels of service, consulted on through the LTP process since 2009, with our customers. NZTA's One Network Road Classification recently confirmed (late January 2015) indicates a different level of service from that previously confirmed by Council. The lateness of delivery of this new confirmed classification system has not allowed staff sufficient time to complete the necessary gap analysis to allow the development of the Transitional Plan as required by NZTA by the 31st March 2015. This Transitional Plan will be a very important document that NZTA will apply a high level of significance and likely impact on future funding. As such it cannot be rushed any will require a significant investment in staff and consultancy time to give it the attention it deserves and attempt to achieve this deadline.

Table 4.1 – Community Outcomes and How the Roading Activity Contributes

Community Outcome	How the Roading Activity Contributes
An attractive and highly valued natural environment	By providing vehicular access to areas while minimising the effect on the natural environment.
A thriving economy	By providing a safe and efficient highway network for the transport of people and goods.
A fit and healthy community	By providing safe roads that provide access to sporting, recreational, social and medical amenities.
Safe, effective and sustainable infrastructure	By ensuring appropriate maintenance standards for roads and footpaths are adhered to and the network is steadily improved. By ensuring that sufficient funds are allocated to meet this philosophy.

Table 4.2 – Key Levels of Service and Performance Measures

Levels of Service	Measure of Service	Target
Council provides safe, smooth, quality sealed roads in order to reduce travel times and vehicle wear.	Smoothness of urban and rural sealed roads as compared with rest of New Zealand. The average roughness of urban roads as measured by NAASRA counts. The average roughness of rural roads as measured by NAASRA counts. % of road users are satisfied with the roading network.	Smoothness higher than national average. Average <100 counts with less than 10% exceeding 150 counts. Average <80 counts with less than 10% exceeding 110 counts. 85%
Council provides a safe and efficient roading network.	Minor improvements to the network indentified that will benefit the road user and programmed for completion. Number of fatal accidents due solely to road factors.	Two projects completed each year. Nil.
Ready access is provided around the District except in extreme weather conditions.	The roading network is trafficable and contracted emergency response times are met – on site within 1.5 hours to begin reinstatement.	100%.
Footpaths are maintained in good condition and are fit for purpose	% of footpaths defects made safe within 48 hours. % of road users satisfied with the condition of Council footpaths.	95% 70% with improving trend

***NAASRA counts** - National Association of Australian State Road Authorities counts are generated utilising a laser profilometer fitted to a vehicle travelling at speed on the Districts sealed roads, which records the road profile and converts the results into a roughness count/kilometre. The higher the roughness count/kilometre, the rougher the road surface which may lead to reconstruction of the surface.

Further to the levels of Service in Table 4.2 there are requirements that form part of the maintenance contract specifications. These are detailed in the following sections.

4.5.1 SAFETY LEVELS OF SERVICE

Council is focused on reducing the number and cost of crashes on the District's roads by maintaining the Operational Safety Measures as included in Table 4.3 and by providing the Traffic Services Levels of Service as detailed in the Table 4.4. Traffic services are devices used for the safe and orderly control of vehicles and people on public roads. The function of these devices is to:

- Regulate
- Warn
- Guide, and
- Inform road users

Table 4.3 – Operational Safety Measures

MDC Maint Group	Vegetation Control	Signs		Response Time (to repair any defects)			
		Regulatory	Warning, Guide, Chevrons, Markers	Regulatory Signs	Warning Signs	Guide Signs	Markers
Urban 1 Urban 2 Urban 3	Vegetation not to obstruct sight distance	100% of signs without defect	95% of signs without defect	24 hrs.	24 hrs.	21 Days	7 Days
Rural 1	Mow 4 times per year with max grass height of 200mm, Vegetation not to obstruct sight distance at intersections and Bridges	100% of signs without defect	95% of signs without defect	2 Days	6 Days	10 Days	15 Days
Rural 2	Mow 4 times per year with max grass height of 200mm, Vegetation not to obstruct sight distance at intersections and Bridges	100% of signs without defect	95% of signs without defect	2 Days	6 Days	1 month	1 month

Table 4.4 – Traffic Services Levels of Service

MDC Maint Group	Centre Line Marking	Signs			EMPs*, Culvert & Bridge End Markers	Street Lighting
		Road Name	Warning	Guide		
Urban 1 **Urban 2** **Urban 3**	Yes	Name sign at each intersection	Adequate warning of safety decisions required by drivers	Information on significant destinations	No	AS/NZS 1158.1.1:2005 Road Lighting – Vehicular Traffic (Category V3) lighting; MDC District Plan requirements AS/NZS 1158.1.1:2005 Road Lighting – Vehicular Traffic (Category V4) lighting; MDC District Plan requirements
Rural 1	Yes	Name sign at each intersection	Adequate warning of safety decisions required by drivers Chevrons, curve warning signs	Information on significant destinations	Yes	
		Name sign at each intersection	Adequate warning of safety decisions required by drivers Chevrons, curve warning signs	Information on significant destinations		

***RRPMS - Raised Reflectorised Pavement Markers**
EMPs – Edge Marker posts

4.5.2 ASSET PRESERVATION MEASURES

MDC is committed to maintaining and improving the network where current levels of service may not be being met. Analysis of the network condition over time provides an indication of asset behaviour and performance achievement. Table 4.5 outlines the measures that will be used to determine the network condition and performance.

Table 4.5 - Asset Preservation Measures

Measure	Explanation	Method of Measurement	Target Values	Response Times
Change in Pavement Integrity Index (PII)* of sealed network	Change over previous 3 years for the sealed network, and the predicted change over the next 10 yrs. resulting from proposed works programme	As recorded in RAMM		
The length of the sealed network overdue for resurfacing	The aim is to reseal at the optimum time	RAMM remaining life report	All reseals completed in optimum year	
Structural integrity of structures is not diminished by lack of maintenance	Structures, such as: - Bridges - Retaining Walls	Inspection programme[1] Superficial – 1 month Maintenance – 1 year Engineering Structural – 3 years	All structures regularly inspected and faults remedied	2 Weeks
All bridge waterways clear of significant obstructions	Significant obstructions such as: - Debris at piers	Visual inspection	At all times	2 Weeks
All drainage facilities functioning satisfactorily	Drainage facilities, such as: - Sumps - Cut out drains - Culverts - Kerb & channel	Visual inspection	Sumps – detritus in sump shall be the lesser of not exceeding 50mm in depth or be closer than 50mm to outlet invert Cleaned out at least twice a year. Cut out Drains – Water flows freely from outlet into target discharge structure Culverts – no more than 20% of the cross sectional depth at any point filled with debris. No structural damage	24hrs for routine clearing 2hrs to relieve surface flooding 4hrs for matters advised as urgent by Engineer Inspected at least 6 monthly 48hrs to clear blockages Inspected at least 6 monthly 48hrs to clear blockages
Adequate[2] pavement	Adequate metal replacement is	Annual programmed	Metal spread replaces estimated	

Measure	Explanation	Method of Measurement	Target Values	Response Times
wearing course maintained on unsealed roads	programmed	quantity of metal spread	loss[3]	
Maintain cross-sectional shape (4 - 6% cross fall) on unsealed roads	By maintaining this cross fall overall pavement maintenance is kept to a minimum	Grader operation observation and visual inspection	4 - 6% cross fall on straights 10% max for corners	

*** PII is a composite condition index that will provide an indication of a pavements health. The index is a function of rutting, cracking, roughness, shoving, potholes and patches within the pavement**
[1] A special inspection to be actioned after flooding or earthquake events
[2] Adequate equates to the quantity lost due to climatic conditions and traffic use
[3] Development of a 3-5 year replacement programme after completion of all P1,2 and 3 roads.

4.6 GAP ANALYSIS

4.6.1 LEVELS OF SERVICE DEVELOPMENT WITH USERS AND STAKEHOLDERS

The current LOS being provided has been established through Council's LTP process. Meaning there is approval with the current regime.

Options to further examine this issue in the future could include:

(a) Monitor and interpret customer feedback through customer feedback and complaints. This information can be analysed for any trends or common factors related to current service levels (e.g. number of complaints received from identified road sections can be compared to current conditions)

(b) Review agreed (with Stakeholders) Levels of Service on other local authority road networks as a means of benching these on this network as there may be opportunities to consider some reduction in service levels where any reduction would result in savings or enable some reallocation of expenditure between activities

(c) Engage customers in a formal process. Council is currently undertaking a customer survey.

(d) Engagement with key stakeholders. These include the Regional Council, NZTA, transport operator groups, Automobile Association and others. Good input information to these engagements will produce valuable feedback.

4.6.2 LEVELS OF SERVICE DEFINITION

The current LOS are documented as a combination of:

- LTP LOS documentation based on real or perceived customer feedback
- Contract processes which describe some elements of the quality of service provided, mainly travelling surfaces and intervention levels

This can be improved by:

(a) Augmentation of existing information e.g. clearer relationships between alternative service levels for roughness, street lighting etc. and their associated costs.
(b) Utilisation of a LOS model defining quality, quantity, location, and timeframe. This would be based on the IIMM and define the transport service in terms of Accessibility, Health and Safety, Quality, Reliability and Responsiveness, Sustainability, Functionality.

These would form the basis for a consultative process as outlined above.

4.6.3 PERFORMANCE MEASURES

Currently performance is measured as per contractual requirements and changes in indicators such as road roughness.

This gives a partial indication of the performance of the Transportation Activity. Options to improve include:

(a) Augmentation of existing performance measures in line with clearer LOS definitions in either of the options listed above.
(b) Development of new performance measures that can be included into future contracts and then linked to market rates.
(c) Additional regular customer surveys with defined targets and linked to achievement of community outcomes.

4.6.4 AFFORDABILITY AND WILLINGNESS TO PAY

Hand in hand with the current LOS vs. Desired LOS is the issue of cost. This needs to be addressed at two levels:

(a) Cost for different Levels of Service options within the Transportation Activity
(b) Cost of the Transportation activity within the total Council programme.

The first level can be addressed using the options outlined above where fully described and costed service level options are consulted with the community.

The second level needs to be addressed as an assessment of the relative contribution the Transportation Activity makes towards the achievements of Community Outcomes at the current level vs. greater or lesser levels of service.

If the indications around One Network Road Classification (ONRC) are correct the NZTA will only co-invest to a lower level of service than currently experienced. Council may have to consider funding 100% of the shortfall to maintain a suitable level of service for its ratepayers and road users.

5. ASSET MANAGEMENT PRACTICES

5.1 INTRODUCTION

MDC has a full time Roading Manager, with assistance from the Asset Manager and an Assets Technical Assistant, who are responsible for the maintenance management of the road network. Overall responsibility lies with the Asset Manager. Occasionally design and management are negotiated to consultancy services. The Roading Manager and the Road Maintenance Contractors regularly inspect and monitor the network. Any work identified is directly tasked to the incumbent maintenance contractor or, if it is beyond the scope of the maintenance contract, tendered or negotiated using NZTA Competitive Pricing Procedure guidelines. This may or may not need the involvement of consultants depending on the nature or extent of the work.

MDC accounts for revenue and expenditure on an accrual basis. All work under the Works Programme is identified through RAMM Contractor with a significant level of breakdown using analysis codes. The costs are summarised into the general ledger where operational/maintenance costs are identified separately to capital/renewal items. Specialist reports have been developed to match analysis code costs to the work categories required for NZTA reporting.

All contract works are claimed monthly against each of the contract item numbers by the physical works and professional services contractors. MDC and/or consultants confirm the payment value for all physical works and the MDC confirms the payment of any professional services. The accounts job number and account codes are included on the payment certificate. These certificates are forwarded to MDC for payment. The types of work that this system relates to are maintenance, renewals and capital expenditure.

A variety of reports are prepared in order to comply with the requirements of Council, NZTA and Audit NZ. All external reports are prepared in compliance with Generally Accepted Accounting Principles (GAAP)

5.2 ASSET MANAGEMENT PROCESSES AND SYSTEMS

5.2.1 PROCESSES

5.2.1.1 Levels of Service

The Council currently has a level of service that has been consulted on over several the Long Term Plan iterations. It is noted that ONRC has a developed its own level of service requirement for each or the road categories. It would appear that this is at odds with the Community agreed levels of service, however, a gap analysis has not yet been completed to understand the implications of this and thus develop the NZTA required Transition Plan. The relevant documentation from NZTA was only released the last week in January, there is a requirement to have ONRC fully embedded and back data gathered by the 31st March 2015. There is not sufficient time to include this gap analysis and do justices to the process.

5.2.1.2 Knowledge of Assets

The process of capturing as-built records for the on-going enhancement of asset registers is included as a requirement of the maintenance contracts. The information is supplied to Council via

RAMM contractor and assets are updated accordingly. Projects undertaken outside the maintenance contracts have a requirement within their contract and/or resource consent requirements for the relevant information to be collected and forwarded to Council for them to update RAMM. There are minimal observed gaps in the securing of data for new road infrastructural assets (e.g. subdivisions). Consultant time will be utilised to address any gaps.

5.2.1.3 Accounting/Economics

Maintenance and renewal costs are recorded against broad activities in the general ledger. Valuations are currently based on straight line depreciation and assumed effective lives. On the completion of capital projects and the acceptance of vested assets associated with new subdivisions all the asset infrastructure data is passed to the Financial section of Council for updating their systems to ensure the correct amount of depreciation is allocated.

5.2.1.4 Condition and Performance Monitoring

Well documented standards and processes exist for an on-going inspection programme of pavements, surfacing, culverts, cattle stops and bridges. Other assets are inspected on an as required basis.

Processes for regularly monitoring the performance of pavements, (e.g. roughness, gravel loss, defects, crash statistics) surfacing, culverts and bridges are well documented and the information is used for identifying and prioritising upgrading and development of projects. The monitoring of other assets is informal and mostly reactive.

5.2.1.5 Risk Management

Although processes are in place for the monitoring of some critical assets (e.g. bridges), risk management is generally practised informally based on the knowledge of experienced staff.

5.2.1.6 Operations

Operational processes are documented in service delivery contracts or specified in NZTA standards, and are subjected to regular review.

5.2.1.7 Maintenance

Competitively tendered contracts are entered into regularly for major budget items.

5.2.1.8 Optimised Life Cycle Strategy

Systems are in place for optimising pavement and surfacing renewals using a combination of inspection, RAMM Treatment Selection algorithm and assumed expected economic lives. Work optimisation for other assets is based on the judgement of experienced staff, and renewal projections are based on assumed economic lives.

5.2.1.9 Road Utilisation

Current traffic volumes are recorded within RAMM to monitor demand within the network.

5.2.1.10 Design, Project Management

NZTA project management procedures are used as a guide but no specific procedures are formally documented for MDC. Fit for purpose procedures are used during the project evaluation, design phase, and contract management on all minimal expenditure low risk projects. Larger projects are

designed and managed by external consultancy services. The supervision of assets constructed within sub-divisional development and subsequently taken over by MDC is considered to be adequate however, it requires periodic auditing by the Asset Manager during crucial construction phases to ensure a high quality subdivision, with a low lift cycle cost is vested with Council on completion.

5.2.1.11 Quality Assurance/ Continuous Improvement

Audit NZ audits performance measures reported in the annual plan annually and NZTA regularly audits financial Transportation practices. Recommendations for improvements are generally adopted and implemented as resources permit. There are no recommendations that have been identified by either Audit and NZTA.

5.2.2 SYSTEMS

Several data management systems are used to assist in the decision making process for Transportation network issues.

5.2.2.1 Road Assessment and Maintenance Management System (RAMM)

The RAMM system is the main information systems used in the management of the road network. RAMM contains a schedule of all roads in the network and information on carriageway widths, surfacing types and ages, pavement composition, bridge data, footpaths, traffic volumes and loadings and road condition data.
Street lighting is the only asset currently stored on Excel spread sheets. Staff are currently working with the sole supplier contractor to move this information into RAMM.

The bridge asset is managed, under a professional services contract by DCL Consulting. They use a RAMM database to manage the asset.

The information held on RAMM is continually being updated and improved following the completion of roading maintenance and renewal treatments, capital improvements, traffic counts and road rating condition assessments.

The use of RAMM or an equivalent asset management system is mandatory to obtain financial assistance from NZTA.

Table 9.1 gives the assessed data confidence quality of the MDC RAMM and spread sheet data tables as described in the 2013 Roading Asset "Mackenzie District Infrastructure Revaluation" report.

Table 9.1 – Data Confidence Levels

Valuation Element	Pavement	Footpath	Structures	Drainage	SWC	Signs	Lights
Asset Registers or Databases	H	G	H	H	G	G	P
Attribute Details	G	G	G	H	A	H	A
Asset Categorisation	VH	H	VH	H	H	H	A
Optimisation Information	H	G	H	H	H	H	H

Useful Lives Information	A	G	A	A	A	A	G
Unit Rates	H	H	G	G	G	A	G

The table Data Confidence Levels are:

VH	very high confidence	H	high confidence	G	good confidence
A	average confidence	P	poor confidence		

5.2.2.2 RAMM - Condition Assessments

Data on road condition is collected through road roughness and condition rating surveys.

Roughness surveys that measure the quality of ride experienced by motorists when travelling on the road are undertaken bi-annually. The measurements are obtained using a vehicle mounted response meter which records the vertical displacement or roughness of each 100 metres of traffic lane. These measurements are then converted to NAASRA and IRI counts which are the standard measure of road roughness and stored on the RAMM database.

Condition rating surveys involve a visual assessment of pavement surface condition and are undertaken bi-annually over the sealed network. They involve a detailed walkover and identification of defects on the carriageway over an approximate 10% sample each sealed road length. The defects recorded include the number of potholes and the area or length of other defects such as rutting, shoving, flushing, scabbing, cracking, edge break. Drainage assets are not rated other than to state whether they are adequate, inadequate or non-existent.

5.2.2.3 RAMM -Treatment Selection Algorithm (TSA)

The RAMM system contains a treatment selection algorithm that utilises the condition data, roughness, traffic counts and other road inventory data to make recommendations as to preferred treatments on the network. The outputs from the treatment selection are utilised at a network level and also at an individual treatment section level.

At a network level the treatment selection summary report identifies the length of the network recommended for resealing in the current and following year and also makes recommendations as to the length of the network requiring major treatments such as smoothing or strengthening. The treatment selection algorithm undertakes an economic analysis of the maintenance options for each treatment length to identify the most cost-effective treatment option. This is based on the on-going cost of maintenance, vehicle operating costs and the unit costs of the various maintenance and renewal treatments.

The treatment selection summary report is a useful tool in assessing the effectiveness of the maintenance and renewal strategies being followed and is an indicator of the future maintenance needs of the network. The treatment selection output identifies sections of road with various faults and makes recommendations as to which specific road sections should undergo resealing or rehabilitation. These outputs are used in the preparation of the annual resealing and rehabilitation programmes. However, NZTA does not necessarily meet the co-investment required to achieve these recommended programmes.

The treatment selection algorithm is run after updating of the RAMM database to reflect completed physical work and forecasts are adjusted to exclude sections of road where renewal works are programmed in the current year or underway.

5.2.2.4 Traffic Data Collection

A regular counting programme is in place to monitor traffic volumes on the network. Traffic counts are completed primarily on roads that are targeted for improvement or are showing signs of accelerated failure. Council currently has four permanent counts stations set up on Braemar, Lilybank, Haldon and Mount Nessing Roads. These count AADTs but can not provide classification data. In addition seasonal trending data is gathered on a number of roads on an annual basis to provide certainty to the impacts of growth on these networks. Actual count data exists in RAMM since 2010, and then estimated for other similar roads within the network that have not been counted that year giving consideration to the number of households using the road and the nature of the adjoining land-use.

5.2.2.5 Bridge Data

Bridge data is currently held in MDC's RAMM database such that the bridge valuation can be undertaken. MDC has recently undertaken updating the RAMM database with DCL Consulting Dunedin who is tasked with the annual structural inspection of the bridge stock, to include all available asset data.

A bridge maintenance inspection of a third of the bridge stock is undertaken on a yearly cycle to identify and prioritise repairs. A full report of these inspections is provided to MDC. Superficial inspections are undertaken by the maintenance contractor on a regular basis.

5.2.2.6 Pavement and Surfacing

All road sections are monitored by the maintenance contractors to determine routine maintenance needs. This ensures the road network is kept to the minimum levels of service required by their contracts. MDC staff also monitors the road network condition when undertaking their daily duties to ensure contractor compliance.

5.2.2.7 CAS Database

CAS is an online NZTA live database of official crash data and includes sophisticated spatial, analysis and reporting capability. Access to this data is available by direct enquiry to NZTA.

Other systems operated by MDC include the following:

- ARC Geographic Information System developed by Esrii
- NCS Corporate financial management system
- Hardcopy plan/filing systems

5.3 INFORMATION FLOW REQUIREMENTS AND PROCESSES

General maintenance work is continuous throughout the year and responds to the needs of the network. The data from the repairs carried out is entered into RAMM Contractor daily with

maintenance costs being updated monthly. Signs data, culvert replacements and traffic count data are entered into the RAMM database as they become available.

New subdivisions in the District result in additions to the roading infrastructure. In the past there have been difficulties with developers not supplying the additional asset information. A process has been established to ensure that this data is recorded in RAMM, at the cost of the developer, and is available for on-going effective Road Asset management.

5.3.1 PROGRAMMING OF WORKS AND FUNDING

Currently the network is funded to the level at which NZTA has deemed appropriate based on historical spending. As such there is some deferred maintenance, particularly in resurfacing and re-metalling, as discussed in considerable detail under the "Lifecycle Management" section. Extensive modelling has been undertaken to show that the level of funding approved previously is not meeting network demands. This shortfall in funding needs to be addressed and either met by NZTA or the ratepayer. For example, our level of approved funding for pavement rehabilitation means that all sealed roads within the network must last 257 years before they are renewed.

Maintenance and renewals on the Roading network are prioritised on the following categories;

- Situation in the network
- Increasing signs of failure
- Current traffic loadings and demand

Budgets are expended in the work category that is required at the right time to ensure the lowest lifecycle cost is realised. This practise of "just in time" and "sweating the asset" is unsustainable and is leaving the road network, in particular the sealed roads, at risk of significant failure that will be expensive to rehabilitate when in reality all they require is a waterproofing seal coat.

The budget figures defined in this AMP reflect network requirements based on current contract rates and agreed levels of service. Items that are likely to impact on this are;

- Level of Service Changes from ONRC
- Contract Rate Changes as a result of retendering
- Failure by NZTA to recognise the level of co-investment required

During the NLTP period there is an ability to reallocate funds between work categories depending on network requirements. This reallocation endeavours to provide the best final outcome for the long term benefit of the network.

Minor improvement projects are carried out to improve the network where funding is not available through other means, provided that there are approved funds available for such projects after the programmed bridge replacements.

Bridge replacement/renewals are based on benefit cost analysis, and funded under the minor improvements programme, where replacement is expected to be under $300,000. All bridge projects are ranked on their merit, taking in to account;

- Situation in the network

- Increasing signs of failure
- Current traffic loadings and demand

When a bridge reaches the end of its economic life, Council reviews the need for replacement and looks at the full range of options such as removal, replacement, wash over ford culverts etc.

5.3.2 VALIDATION

Each year when the annual programme is developed unit rates are checked and amended to reflect the current seasons contract prices.
The RAMM database system is the main management tool used to ensure the annual works programme is providing the correct balance of maintenance and renewal work to keep the network operating at the appropriate levels of service. Condition and performance reports from RAMM are analysed and trends produced that provide measures of the appropriateness of the work practices.

Lifecycle costs are analysed at a projects design phase using criteria laid out by NZTA. This assists in the selection and ranking of projects. Project design is standardised by use of the Austroads and NZ Supplement Pavement Design Manual, Road Geometric Design Manual (recognised nationally and internationally) and local knowledge.

5.3.3 STANDARDS AND GUIDELINES

The management of the road asset is constrained by the funding available to maintain the network as a viable entity. The requirements of NZTA which channels Government funding that provides a substantial portion of the roading funds available, are detailed in their “Programme and Funding Manual” and the “Project Evaluation Manual”.

Another key manual is the International Infrastructure Management Manual which provides guidelines on the structure and format for Asset Management Plans and practice.

6. FUTURE DEMAND

6.1 DEMAND DRIVERS

The significant future demands affecting roading in Mackenzie District to be considered are:

➔ **Growth Trends –** Trends in population growth or decline give a good indication of future growth and in turn demand on the network.

➔ **Economic Changes** – Changes in land use, farming intensification, freight movements and tourism can all affect the demand on the roading asset.

➔ **Vehicle Mix and Use Changes** – The available modes of transport, vehicle ownership, heavy vehicle trends and the increasing width of agricultural equipment using the road can all impact on future demand on the network.

➔ **Improvements to Levels of Service** - Continual demand for improvements in the levels of service. This can result from:

- Advances in available technology
- A greater understanding of customers' use, perceptions and expectations – using survey currently being completed.
- A higher level of road safety consciousness – Joint TDC Road Safety
- Changing legislative requirements
- One Network Road Classification (ONRC)
- Dropping of NZTA Funding Assistance Rate (FAR)
- Shortfalls in funding due to ONRC, Canterbury Earthquake Recovery

Table 5.1 indicates how these factors are expected to be reflected in changes in use of the roading network.

Table 5.1: Transportation Demand Drivers

Transport Demand Drivers	Urban - Sealed	Urban - unsealed	Rural - sealed	Rural - Unsealed
Growth	Population changes	Not significant (only 5km)	Not significant	Not significant
Economic	Tourism, parking, walking and cycling	Not significant (only 5km)	Changes in land use & Tourism increased due to self driving	Changes in land use and commercial operations due to farm intensification (irrigation) Tourists driving on unsuitable roads.
Vehicle Mix and Use	Changes in vehicle	Not significant (only 5km)	Increased heavy vehicle usage	Increased heavy vehicle usage and

	ownership			heavier vehicles, HPMV, 50 Max
Improvements to Levels of service	Increased parking, signage and walking and cycling requirements	Increased pressure to seal these 5km due to dust nuisance and safety	Adequate depth of pavement to allow for large vehicles, lane width perception, passing opportunities, direction of road user,	Changes of farm operations, more contractors coming in, deliveries, station owners/managers travelling to town centres daily for school etc.

6.2 DEMAND FORECASTS

6.2.1 GROWTH TRENDS

6.2.1.1 Population Projections

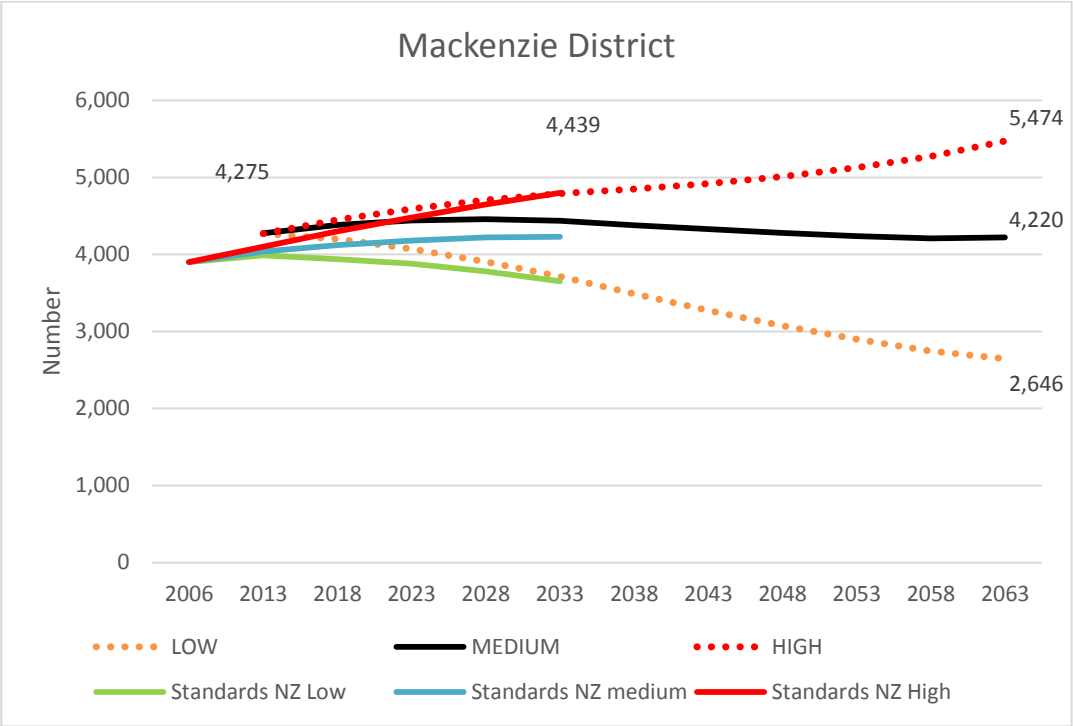
The Mackenzie District has seen an increase in population of 9.3% since 2006, this is a significant change from the 2001-2006 period where the population grew by a modest 2.3%

As we cannot predict the future population level and when it will occur, it will be inappropriate to extrapolate this trend to a 20 – 25 year horizon.

The projected population trends (2013) from a collaborative study completed for the three South Canterbury Councils is demonstrated in Figure 6.1. This shows that a medium population projection indicates that the population will remain stable. As, we have identified, the Mackenzie District has had a 9.3% increase in normal resident population, therefore are tracking slightly above the medium growth projection, however, the results are slightly skewed due to the longer period between census surveys.

Consequently the following graph predicts a relatively static population growth over the period of this asset management plan. As a result there will not be any significant increase or decrease in demand for Council services based on change in population.

Figure 6.1 Estimated and projected population (Statistics NZ)



5.2.1.2 Development

Analysis of the future urban and rural residential subdivision over the next 4 years shows and average of 10 sections per year, long with associated infrastructure, to be vested in Tekapo and an average of 46 per year in Twizel.

During the 2015/17, 5km of sealed road and 4.8 km of unsealed road will be vested in Council. Whilst developers have to construct this to Councils standard before vesting the ongoing maintenance costs have to be allowed for.

It is assumed that this level of development will slow down to about a third of this but continue at that rate for the duration of this strategy.

6.2.2 ECONOMIC CHANGES

The economy of the District is built on tourism, farming and hydroelectric development.

The District is fortunate in having Lake Tekapo and Aoraki Mount Cook, the international tourist icons, within its boundaries. They provide an excellent platform from which to develop the tourism potential of the District.

Land use intensification, due in part to increased irrigation, such as dairying, cropping, horticulture and forestry are becoming increasingly common and offer considerable scope to grow the local economy.

FUTURE DEMAND

Change in land use is ongoing and something that is hard to predict. The following factors influence those land use changes.

- Tourism
    - Mt John Tourism along with the Night Sky Reserve are putting increasing pressure on Godley Peaks Rd as people want to travel to the top of Mt John.
    - Lake Alexandrina. Having been to the top of Mt John and observed the lake the tourist wants to visit these scenic attractions. Challenge here is keeping them on the "right" side of the road, along with the associated wear of the sealed and un-sealed pavements.
    - Haldon Camp. This is on the shore of Lake Benmore and puts high summer traffic on Haldon Road.
    - Ski Fields. As these open the traffic on the feeder roads can increase by 1200%
    - Alp2O cycle trail. This new attraction is starting to put increased demands on Mt Cook Station Road and Hayman Road creates conflict with other road users especially the logging operations.
- Tenure Review
    - There are a number of High Country Stations still to go through tenure review. Historically this has involved part of the station passing into the public estate and being opened up for access. There is a higher expectation from the Department of Conservation and other road users for better access to be made available with no extra funding from either NZTA or DoC. Staff are working with DoC to try to minimise this effect so significant allowance has been made for this.
- Meridian shoreline protection
    - Lake Pukaki continues to erode the various shorelines around it and puts Hayman Road and Mt Cook Station Road at risk of that erosion. Meridian Energy has an agreement that they are responsible for that erosion and rectifies it at their cost.
- Land Use Intensification
    - Godley Peaks Station – New water take consent obtained and it is projected to significantly add to the 30,000 lambs that come off the property and the 1500 tonnes super applied to the property last year. 250 HCV movements on and off the property, all towed through the Cass River by a dozer.
    - Dairy Conversions
    - Mt Cook Station 50yr forestry programme
    - Primary Produce increase as the result of increased irrigation

  Due the difficulty in predicting where this demand might be over the next 30 years, it is important to recognise that it will happen and plan for it as early as the knowledge and effects become better understood.

6.2.2.1 Tourism

Local Government and the Tourism Strategy

Outcome Four of the New Zealand Tourism Strategy 2015 is, "The Tourism Sector and Communities to Work Together for Mutual Benefit". The Strategy states that the role of local government is to provide:

- Infrastructure and facilities, such as roads, water, waste management, lighting, and, in some areas, public transport. Many local authorities also operate attractions such as museums, art galleries, gardens, sports venues, and events for the enjoyment of both locals and visitors
- Visitor information and marketing services through the i-SITE network, signs and the Regional Tourism Organisations
- Planning support for the tourism sector, including regional tourism strategies, destination-management plans, Long-Term Plans and District Plans.

Tourism makes up a large component of transportation demand within the district. The Ministry of Tourism states that total visits by travellers to Mackenzie RTO (Mackenzie District) are forecast to rise from 960,377 in 2009 to 1,075,079 in 2016 - an increase of 11.9% or 1.6% per annum. Growth is shown in Figure 6.2.

Tourist traffic can be categorised as overseas tourists and domestic holiday-makers. Tourists have previously travelled through the District as part of a larger south island tour; however, we are noticing a significant change in free independent travelers, particularly from the Asian market. Where previously the group travelers generally used the State Highway network, the free independent travelers roam all over the Mackenzie local roading network.

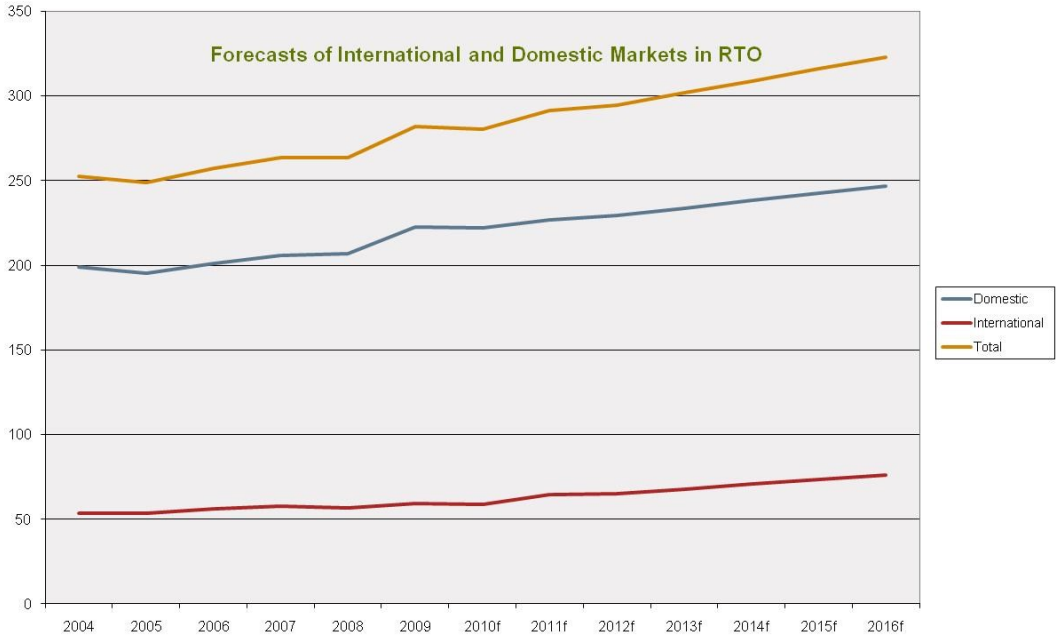
Many international tourists are accustomed to travelling on the right-hand side of the road. On unsealed roads there is no centerline to provide visible orientation, and operate at open road speed limits. These factors intimidate overseas visitors and as such often travel slowly and in the middle of the road creating a greater risk for all other road users. Lilybank, Haldon and Godley Peaks Roads attract both domestic and international tourists receive higher traffic volumes in their respective peak seasons. Round Hill Ski Area on Lilybank Road installed snow making facilities in 2011 to attract more visitors, which has increased the traffic and impact on maintenance of this unsealed road.

The influx of domestic holiday-makers into the district, particularly the Mackenzie Basin, has a significant impact on roading. On some unsealed roads summer traffic volumes double or treble, at a time when the roads are extremely dry and particularly sensitive to wear. The route from State Highway 1 at Albury over the Mackenzie Pass to Lake Benmore is an example of this traffic loading.

Also with the implementation of Alps to Ocean Cycle Trail (http://nzbybike.com/alps-2-ocean-cycle-trail/), which runs on 32km of unsealed road, adjacent to Lake Pukaki, has already generated considerable international interest. Whilst this is positive for the Region, the traffic mix between Mount Cook Station and State Highway 8 has caused a significant road safety issue. Heavy vehicle use to harvest logs and carry out shoreline protection projects is incompatible with cyclists. The

combination of heavy vehicles, cyclists, narrow roads and poor visibility due to dust raises the likelihood of an accident occurring, and the consequence of that accident would be catastrophic. The heavy vehicle firms operating on this section of road are diligent in ensuring their vehicle operates at a sensible speed and drivers are aware of the dangers. Increased signage has been installed on the route to inform both cyclists and motorists of the risk, and cyclists are reminded at various pinch points to ride single file and keep left. However, the only long term solution is to construct a parallel cycle way set well off the carriageway.

Figure 6.2 – Forecast Tourism for Mackenzie District (Ministry of Tourism)



6.2.2.2 Changes in Land Use, Practices and Resource Use

Rural change can take several different dimensions, which might include:

- Land cover (e.g. grass, indigenous vegetation)
- Land use (e.g. livestock and/or crops)
- Farming practices/infrastructure: e.g. fertiliser, irrigation, contractors
- Farm types
- Employment, ownership, daily use of network for social interaction etc.

Over the last decade there has been a move towards converting land for dairy use. In this period there have been more than 12 Dairy conversions and there are more in planning stages. This is a significant change in land use that can impact the road network in terms of increased heavy vehicle volumes. MDC are currently assessing the overall impacts that dairy conversion is having on network demand.

6.2.3 VEHICLE MIX AND USE CHANGES

6.2.3.1 Traffic Counts

Mackenzie District Council has been actively completing traffic counts over the last 10 years. Traffic counts are completed primarily on roads that are targeted for improvement or are showing signs of accelerated failure. The 2010/11 count data in RAMM is based on actual count data for roads surveyed and then estimated for other similar roads within the network that have not been counted that year giving consideration to the number of households using the road and the nature of the adjoining land-use.

It is difficult to draw conclusions from this data as different lengths of road have been counted each year. Average Annual Daily Traffic (AADT) for each road type is shown in Table 6.3.

Table 6.3 –Average ADT

Road Group	1		2		3	
	Length (km)	ADT	Length (km)	ADT	Length (km)	ADT
Rural	75.5	180	584.0	45		
Urban	4.4	919	9.1	227	36.7	48

In 2013 Council purchased 3 classifier counters and are now are reviewing their traffic counting procedure and have developed a strategy for Traffic Counting that allows for regular annual traffic counts to be completed on all of council roads, particularly highly trafficked roads. This will allow historic comparisons and from this predictions on future growth. Council also have 5 permanent counting sites in strategic locations that continuously count the number of vehicles.

6.2.3.2 High Productivity Motor Vehicles (HPMVs)

The Land Transport Rule: Vehicle Dimensions and Mass Amendment 2010 (**VDM Rule Amendment**) implemented on 1 May 2010, allows for High Productivity Motor Vehicles (HPMVs) to travel on approved roads within New Zealand.

The VDM Rule Amendment makes changes to the 2002 rule for some heavy vehicles requirements and allows for long-term permits to be issued for HPMVs to operate (with divisible loads) on approved roads. The main changes affecting the road network are:

- HPMVs can operate by permit at a gross mass above 44 tonnes up to a maximum of 62 tonnes.
- HPMVs can operate by permit at lengths greater than 20m.

The mass limits allowed as-of-right (i.e. without a permit) are not changed by the VDM Rule Amendment.

Because specific HPMV routes have to be approved with input from road controlling authorities, MDC has some control over the impacts of this rule change on the district's roading network. However, In 2011, 2012 and 2013 when the NZTA made a blanket dispensation to the rule for

Fonterra, MDC had no control or consultation on the dispensation which is of concern. Council has no approved HPMV routes, of significance, and treats every request for access as an overweight permit situation.

6.2.4 CHANGES TO LEVELS OF SERVICE

6.2.4.1 Changes in Technology

Changes in technology can effect road construction and the vehicle fleet. The following are considered the most likely technology advancements affecting future demand and performance on the network:

➔ Stabilising and recycling for road construction and maintenance. Where there is sufficient pavement depth this will reduce the need for heavy vehicles to carry aggregate and waste material over the network. Unfortunately many of Mackenzie's pavements lack adequate depth to successfully complete this repair method.

➔ In recent years the vehicle fleet in New Zealand has changed markedly. Some of the changes that will continue to have an effect on driver expectation or road performance have included:

- Increased power and changes to drive train configuration in trucks leads to greater potential damage on steep hills and intersections as trucks change gear, accelerate and decelerate.
- The improvements to power steering lead to greater damage with turning vehicles, including cars, entering and leaving the roadway and at intersections.
- Larger Trucks require wider intersections and corners to accommodate increased turning circles.
- Cars with thinner metal on the body that are more prone to damage from loose metal and lower chassis requiring unsealed roads to be graded more frequently. With these changes road users expect a higher standard of road with fewer changes in standards across a network.

6.2.4.2 Changes in Customer Expectations

In recent years there has been an increasing awareness on the part of drivers with respect to safety issues. It is anticipated that the following safety issues will become an increasing priority for Council in determining design and operational standards.

- Increased carriageway and shoulder widths
- Improved surface condition of unsealed roads
- Upgraded Intersection controls
- Bridge end protection
- Destination signage for tourists
- Reduction in the number of loss of control crashes

6.2.4.3 Changing Level of Service Demands

The intended Levels of Service defined in Section 3 are considered to be representative of the service demands of the current and the future community. However, if the New Zealand Transport Agency continues to underfund the operations, maintenance and renewals of the Mackenzie District roading network then Council may have consider the following;

- A reduction in maintenance and renewal of low trafficked roads
- Review its Policy in maintaining access to the last house which may result in - Disposal of asset components (e.g. bridges, cattle stops, sections of roads)
- Review its dust suppression assistance Policy by removal of existing sealing past houses
- Fund the shortfall via ratepayer contributions

6.2.4.4 Policy or Management Changes

Changes to transportation practises, driven by NZTA, will have an effect on Councils' current levels of services as defined in section 3. The eventual implementation of One Network Road Classification has not been well defined by NZTA, without reliable information on the proposed performance measures, which define the levels of service for ONRC, staff have been unable to complete a gap analysis to determine if Mackenzie's level of service is over or under delivering on it's roading network, in terms of the ONRC. NZTA require a plan to be written to transition from our current ratepayer consulted and agreed levels of service to those as defined in the ONRC. The indications in the ONRC are that there will be a significantly increased monitoring and reporting requirement, across over approximately 70 performance measures. To date it hasn't been demonstrated that this will drive efficiencies in road maintenance and renewals. Council needs to be aware of possible implications of any legislative or NZTA imposed changes, which have a direct impact on the transportation activity so that they can be acted on if required. It is important to consider them when developing asset management risk forecasts and strategies.

Land Transport Management Amendment Act 2008 (LTMA)
The introduction of the LTMA saw the establishment of the NZTA with greater flexibility in determining funding alternatives to Transportation and methods of improving the efficiency of the Transport Sector in New Zealand.

The Act has changed NZTA's objective from allocating resources to achieve a "*safe and efficient Transportation system*" to allocating resources "*in a way that contributes to an integrated, safe, responsive and sustainable land transport system*."

Specific targets have been set for the whole transport sector which are detailed in two key documents that are part of a raft of changes contained in the LTMA and are to be the driving force behind achieving an affordable, integrated, safe, responsive and sustainable transport system throughout New Zealand. The two documents are:

- New Zealand Transport Strategy 2013 (NZTS)
- Government Policy Statement on Land Transport Funding (GPS 2014)

Under the Act, all land transport programmes (including those prepared by local authorities) must take into account all the NZTS objectives and the purpose of the Act, which includes ensuring funding is allocated in an efficient and effective manner.

When preparing the NLTP, NZTA must also take into account relevant regional land transport strategies and the National Energy Efficiency and Conservation Strategy (NEECS).

NZTA expects all activities proposed for inclusion in the NLTP will come from processes which exhibit the principles of integration, sustainability, responsiveness and safety, and have the attributes of being forward-looking, collaborative, accountable and evidence-based.

NZTA has undertaken to work with organisations during planning and strategy processes to assist with these requirements.

Connecting New Zealand
The objectives are to provide;

- Economic growth and productivity
- Value for money
- Road Safety

The implementation of Connecting New Zealand included the setting up of "Safer journeys" which has priorities around;

- Increasing the safety of young drivers
- Reducing alcohol/drug impaired driving
- Safe Roads and Road sides – Classification system on network and improvements on High risk rural roads.
- Increasing the safety of motorcycling

Government Policy Statement on Land Transport Funding (GPS)
The Government Policy Statement on Land Transport Funding (GPS) sets out what the Government expects to be achieved from its investment in land transport through the National Land Transport Fund. It states how large the investment will be, broadly how it will be spent and how the revenue for it will be raised.
The GPS is issued by the Minister of Transport every three years.

Essentially the GPS directs funding to high trafficked areas of the country (including state highways), rebuilding Canterbury land transport system, Auckland transport and public transport. This suggests that rural local roads, especially in low trafficked areas are less likely to be high priority for subsidised funding.

Financial Contributions
Financial Contributions are another means of funding network infrastructure, reserves or community infrastructure. Mackenzie District Council does not have a 'Financial Contribution Policy' for transportation funding. A contribution policy should be developed and include a methodology for calculating the cost of the effects a development will have on existing community infrastructure including roads. This should ensure that the negative effects of development are in part funded by the developer rather than the ratepayer.

6.3 EFFECTS OF DEMAND ON ASSETS

Overall implications for the network of continual demand for improvement in levels of service tied to a relatively static population and with increasing tourist traffic generated vehicles and changes in land use and farming intensification practises on the road are:

- A possible increased rate of deterioration on road pavements, as maintenance cannot keep up with road user use
- An increasing focus on road user safety
- An increased level of expenditure to attain current consulted levels of service
- A relatively static ratepayer base to fund Mackenzie District Council's contribution to the roading budget

Projections must be based on an understanding of the composition of the district's roading network. The network has 206km of sealed and 517km of unsealed road. Given that increases in demand are expected mainly from heavy vehicles servicing agricultural industries and that only 7% of the network is in an urban environment, the analysis will focus on demand aspects for the rural portion of the network.

The majority of the district's roads were originally constructed with thin pavements, these pavements were not expected to carry either the numbers or weights of the heavy vehicles they presently do, let alone any projected increases. Most of the districts roads and bridges were built to carry single axle trucks and trailers, with occasional dual axle trucks. The gross mass of these trucks was around 16 tonne, current HCV classified vehicles can be up to 50 tonne. There is little understanding of the rate of failure of these pavements under heavy loading, as most analyses are based on the assumption of strong pavements constructed to best practice. Many rural roads only carry a small volume of heavy traffic but this changes significantly when land use intensification, including dairy conversions occurs. Small changes can result in rapid deterioration, this may make it necessary to monitor the effects of specific industries on individual roads. In the case of on-farm development projects, in particular dairy conversions, it will be necessary to closely monitor individual developments. Funding for road improvements as a direct result of these changes has to be funded within existing constrained budgets.

Traffic volumes are low within the District. Current demand focuses on the standard of roading and in particular the sealing of unsealed roads to remove dust nuisance and to provide a better level of roading surface. Satisfying this demand through seal extensions is being carried out to the greatest extent that Council can manage. It is limited by the availability of NZTA financial assistance. Whilst the Council is committed to continue with seal extension projects where NZTA co-investment can be achieved, currently it is very difficult to obtain NZTA approval.

Significant urban and rural land subdivision has occurred in the District. When each subdivision is completed its roading network is vested in the Council, which then takes over responsibility for on-going maintenance. Whilst there should be no major repairs or maintenance required for several years, street cleaning and street lighting costs do impact immediately. New subdivisions can also increase traffic volumes on existing roads which, in turn, can increase maintenance requirements. Council require developers to complete a second seal coat prior to vesting of the asset in Council. Council is aware that the two coat seal on cul-de-sac heads carries risk of failure, due to the construction traffic associated with property development. Council should review its policy on the surface type in these areas, with a view to moving to a structural asphalt surface.

6.4 DEMAND MANAGEMENT PLAN

There are three recognised components to a demand management strategy:

- ***Transport demand management*** – a transport system approach which seeks to achieve modal shift (i.e. to low impact modes such as cycling and walking)
- ***Traffic demand management*** – a single network approach which seeks to optimise or reduce traffic flows
- ***Travel demand management*** – focuses on the individual travelers and seeks to change travel behavior through various initiatives (such as education and marketing).

The **Canterbury Land Transport Strategy 2012-2042** outlines that currently, the use of privately owned and operated motor vehicles is the dominant mode of transport for people in Canterbury. This is supported by walking to reach the final destination at the end of the trip and as a mode in its own right for local trips. Cycling, public transport, coaches, taxis, trains, shuttle services and vehicle hire also play an important but relatively small role in meeting travel needs in Canterbury. These modes play a minimal role in the Mackenzie District.

The strategy also outlines that the forecast for the future in rural areas is the continued use of private motor vehicles as the primary mode of travel, or between rural areas and urban areas as the distances to be travelled are often too far and the population too dispersed to provide realistic alternatives. Maintenance of the rural road network is essential to maintain high levels of access and mobility in rural Canterbury. Other modes of transport will be limited in rural areas, but may include Walking, cycling, and public transport.

In terms of freight movement, again roads will continue to serve most local freight transport needs such as the movement of goods to and from farms or from processing plants to export terminals.

The draft regional strategy supports a minimal demand management plan for this district given it is a large rural area with a low population. Therefore, demand management consists predominantly of **traffic demand management**.

6.4.1 ASSET BASED DEMAND MANAGEMENT

Asset Based demand management encompasses traffic demand management. For this network it is best managed through “Pavement Use” Hierarchy. The adoption of a roading hierarchy, which identifies a tiered roading system based on road function and planned levels of service, is important to enable the effective management of traffic. The hierarchy of MDC roads is defined and classified in Table 3.1.

In essence, given the nature of the Mackenzie District network, the hierarchy reflects use rather than traffic volumes.
There are minimal asset based demand options that do not have a significant cost attached. However, provision of differing standards of pavement, surfacing, traffic services etc. dependent on the MDC Maintenance Groups as detailed in Section 4.

6.4.2 NON-ASSET BASED DEMAND MANAGEMENT

Non-asset based solutions for managing demand are available as alternatives to asset based solutions and generally fall into the transport and travel demand management categories. Possible non-asset based solutions are:

- Traffic Bylaws on heavy commercial vehicles on preventing use on lightly constructed roads within the district
- Threshold and speed hump installation
- Education communication programmes targeted at stakeholder expectation
- Speed restrictions
- Subdivision bylaws restricting development from existing roads that are of sub-standard width and safety
- The use of development impact fees (DIF)
- Closure of public road serving only one property and lying entirely within that property

National non-asset based demand management solutions include **alternative transport modes**. Although vehicle ownership and usage is high in Mackenzie District due to the rural nature of the district, it is important to consider the use of other modes of transport as ways to manage demand on the network where possible. Public transport systems, car-pooling or alternative transportation (including cycling and walking) are sustainable and environmentally friendly transportation modes as convenient pedestrian, bicycle, and public transport networks can reduce reliance on vehicle transport. However, low volumes of population, combined with dispersed communities, means that public transportation is not a cost effective option at present and is unlikely to be so in future given static population in the district.

6.5 ASSET PROGRAMMES TO MEET DEMAND

The **Draft Canterbury Land Transport Strategy 2012-2042** outlines that in rural Canterbury the focus of implementation of the strategy will be on improving safety and the efficient use of motor vehicles as there are limited opportunities to use other modes. Given the highly dispersed population and low volumes of traffic on most rural roads there is little need for large scale improvements to infrastructure or services. Because of the relatively small numbers of people living in the Mackenzie District there are significant challenges surrounding the funding of transport initiatives. The focus of implementation in rural Canterbury will be on maintaining and renewing road networks to retain community connectedness and reliable travel times. Low cost measures that help remote communities maintain affordable access to key services are also considered.

The capital works programme includes works that will assist with meeting the current and future demands on the network.

The significant capital works improvements for the next 10 years include:

- **Bridge renewals and component replacements** – this will ensure that accessibility to all parts of the network is maintained.
- **Associated improvements** – a limited budget has been allowed for associated improvements.

- **Seal Extensions** – With recent NZTA requirements to put forward a better business case model it is highly unlikely any seal extensions will be completed in the foreseeable future
- **Minor Improvements** –Under new NZTA guidelines (General Circular investment – 11/04) we will be required to primarily fund Council's Bridge replacements, any surpluses will then fund worthwhile minor improvement projects that cannot be funded through another work category. Minor improvements have maximum individual project cost of $300k.

The issue of under width pavements could possibly be considered as a capital improvement item and would go some way to contributing to the economic and safety outcomes of the network, although Council's ability to obtain funding for such a programme of works is currently severely limited. The process of seal widening is catered for through the pavement renewal process where the widening of the seal is justified. Details of the costs associated with these works are outlined in Section 8.

6.6 FUTURE IMPROVEMENTS

In order to have a more accurate idea of the impacts of demand on the network and managing any growth, Council should consider the following:

Traffic Count Data
Direct measurement of current demand through annual traffic counting should be completed through a targeted approach ensuring that traffic counts are completed on an annual cycle for high use/high wear roads to give information on past traffic trends. This data can then used to extrapolate future traffic trends, based on this and other demand data.

Development contributions policy
Development Contributions policy needs to be developed to ensure that the negative impact of development is in part funded by the developer rather than the ratepayer.

Land Use Research Study
Further research should be conducted to review changes to land use which may impact on demand. This should include a review of the impact of District Plan changes and future predictions of development and asset creation within the MDC area, which potentially could impact on the roading asset.

Customer Demand Changes
Council is currently Completing a Customer Survey, including local industry, to establish any changes in customer expectations as they relate to demand on the network.

7. RISK MANAGEMENT

7.1 INTRODUCTION

The following outlines a suggested risk management procedure for the MDC road network. The procedure establishes the basic parameters within which risks must be managed and sets the scope for the risk management process.

The risk management process proposed is based on the Guidelines in AS/NZS 4360:2004, "Risk Management" and SNZ HB 4360:2000 New Zealand Handbook "Risk Management for Local Government" that defines the risk management process as:

"The systematic application of management policies, procedures and practices to the task of identifying, analysing, evaluating, treating and monitoring those risks that could prevent a Local Authority from achieving its strategic or operational objectives or Plans or from complying with its legal obligations".

These plans may include the 30 Year Infrastructure Strategy, Long Term Plan, Activity Management Plan, Annual Plan, Financial Strategies, corporate plans and policy documents.

It is important for Council and its stakeholders to understand and appreciate that the risk management structure for the road asset management system will inevitably be different from that which is appropriate for capital works projects, and will be greatly influenced by the structure of existing asset management systems. With capital projects, risk management systems are very much focussed on the early identification of live or emerging risks and then developing treatments or strategies to minimize or mitigate their negative effects.

Because the capital project has a beginning and an end, the identification of these risks is a dynamic process that must focus on actively managing known risks, and also expending resources on identifying those risks that were unanticipated. In the capital project, one would expect a significant number of unanticipated events that may affect the completion date or the financial performance of the project, but the majority of these risks then decline to zero as the project nears completion.

In contrast, asset management and network operations are on-going activities that have been functionally providing expected results to Council for many years. Within this environment, the risk management practitioner is likely to find fewer emerging risks, particularly because existing systems have been established to minimize their occurrence.

Road asset management and network operations as a management activity has evolved as it has matured as an industry and the modus operandi has been structured over time to minimize the risk of unexpected events. In many cases these existing controls were likely implemented with risk being one of several motivators for the control. In most cases, these controls will materialise as a set of policies, procedures, and detailed systems that manage some of the network risks in more detail. One tenet within "Risk Management" is "once the risk actually occurs, it ceases to be risk management, and becomes incident management". While incidents continue to occur, in the asset management case, many of these incidents will have occurred early in the industry's history.

RISK MANAGEMENT

Policy, procedure and micromanagement have therefore already been developed to minimize their frequency and consequences.

From the asset manager's perspective, the existing system for managing risk to a standard level will be reliant on a defined level of funding, and further investment and effort will be required to allow for an increase in the level of control of existing risk exposure.

The risk management system requires a reporting function that informs management personnel, who are likely to be outside the day-to-day activities of asset management, of the impact their existing decisions have on their risk exposure, along with the effective communication of emerging risks that may be exceptional. This reporting function should be composed of both a standardised format at a defined frequency in addition to an exceptional reporting mechanism that will occur at a higher frequency as the need arises. It is through this reporting mechanism that Council can be:

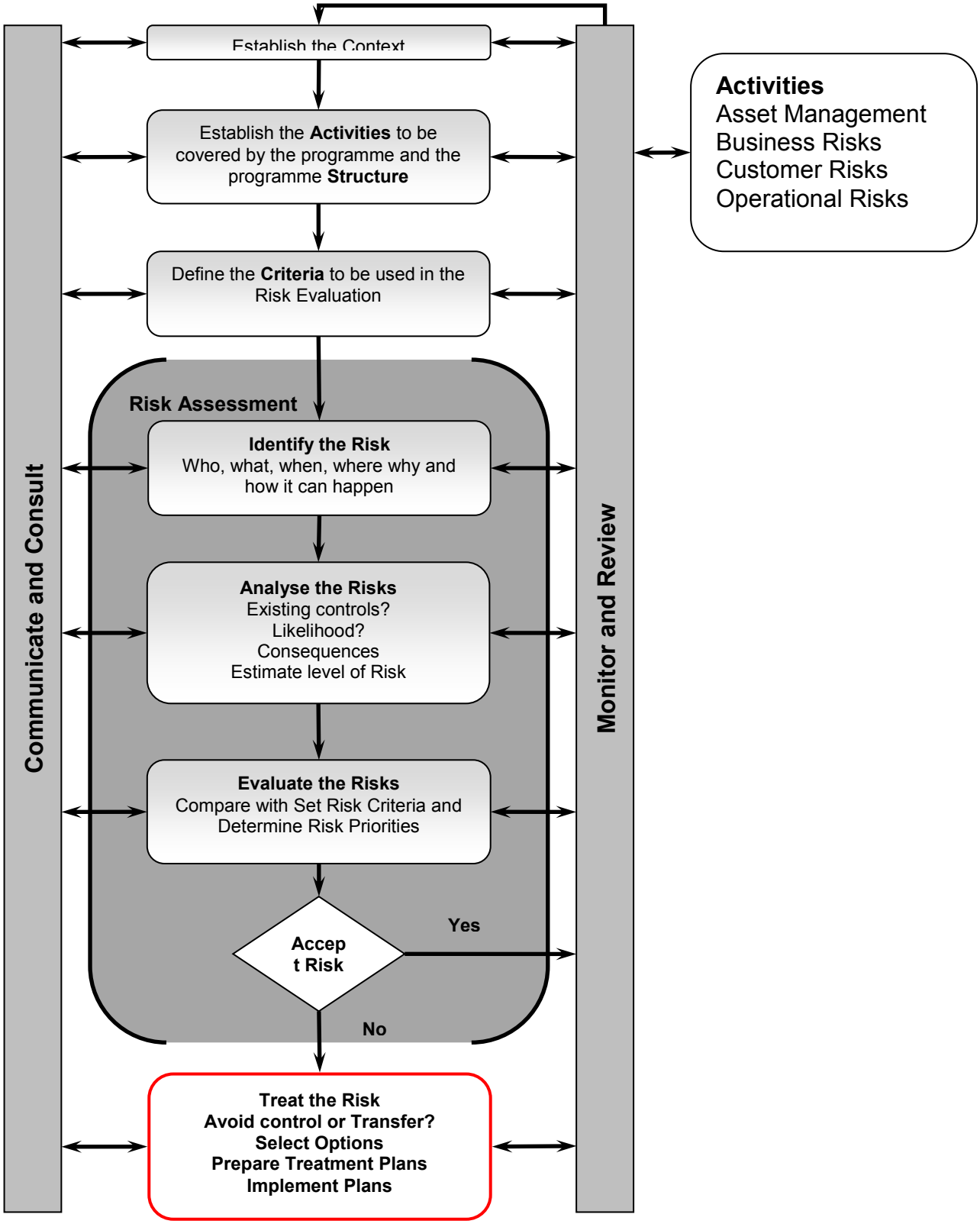
- Informed of current risk levels given the existing funding regime
- Appraised of emerging risks that may require immediate or exceptional attention and resources

This information will assist Council personnel to assess where risk reduction efforts should be focussed based on their corporate accepted risk level. The reporting mechanism will also allow the asset management teams the opportunity to provide alternatives to decrease the current risk levels based on Council's priorities and assist with the development of preferred strategies which can be effectively implemented at the functional level.

Assessment of risks is initially based on a qualitative analysis. More sophisticated analysis or quantitative risk analysis may be carried out as part of the risk treatment plan for specific high risk events.

The overall risk management process is illustrated in Figure 6.1. Some of the concepts and criteria may be applied to other Council activities or assets but this risk management framework has been developed for planning and operation of the Council's road transportation corridor.

Figure 6.1 – Risk Management Process



7.2 THE RISK MANAGEMENT PROCESS

7.2.1 UNDERSTANDING THE CONTEXT

As for the levels of service, the context for the application and development of risk must be set to ensure that risk development is not completed in isolation, as the identification analysis and treatment of risk will impact at all levels in the management of the asset; from community outcomes through to service level delivery, strategic goals and operational delivery.

Context refers to strategic context, organisational context and risk management context.

7.2.1.1 Strategic Context

This AMP for Roading sets out the strategic context as it relates to risk management. It outlines the relationship to identified community outcomes, activity goals, strategic result and strategic action. Further the plan sets out the relationship to other plans, legal requirements, financial strategies, regulatory and policy obligations of the roading activity.

7.2.1.2 Organisational Context

The organisational context is approached through the identified activities of managing the roading asset, as the activity identifies the risk associated with staffing, the elected representatives and work areas, location and IT systems.

7.2.1.3 Risk Management Context

The risk management context refers to the risk-related activities undertaken within the roading activity. The remainder of this section sets out the risk management context in terms of risk management activities, likelihood scale, and consequence scale. A risk assessment matrix and risk register are introduced, as are the required analysis and format for a risk treatment plan.

7.2.2 ESTABLISHING THE ACTIVITIES

Table 7.1 sets the areas of activity associated with the MDC roading activity. Under each heading is a process that might occur within these activities (not an exhaustive list). These processes have associated with them a number of risks. By setting the activity and their associated processes the development of the risk register and all associated risks can be considered and analysed and related to the AMP for Roading.

Table 7.1 – Risk Management Activities

Road Transportation Risk Management Activities				
	Asset Management	**Business**	**Customer Services**	**Operational**
Processes	Forward Planning	Funding Provision	Public Request Management	Routine Maintenance - Sealed
	District Roading Programme	Governance	Managing Response Times	Planned Maintenance - Sealed
	Information Management	Legislation Compliance	Customer Expectation - Raise/Reduce	Routine Maintenance - Unsealed

Road Transportation Risk Management Activities				
	Asset Management	**Business**	**Customer Services**	**Operational**
	Standards and Guidelines	Policy Development	Level of Service change	Planned Maintenance - Unsealed
	Demand Change	Service Provision Purchasing	Customer not understanding service levels	Routine Corridor and Safety Maintenance
	Data Storage	Employment	Customer Consultation	Capital/Renewal Physical Works (QA, Management, Timeliness)
	Information Systems	Financial Reporting /Management		Routine Inspections - (Contractor/Consultant/ Asset Owner)
	Consultant	Political – Elected Representative		Contract Administration
	Contractor	Council Staff		Footpath Maintenance
	Safety Management			Drainage Maintenance

7.2.2.1 Relationship of Risk

The relation of risk in the AMP is achieved through the risk management activities. The activities relate to the plan in the following way:

Table 7.2 – Relating Risk to Land Transport Management Activity Plan Sections

Risk Management Activity	Plan Section
Activity Management	Life Cycle Management, Future Demand, Level of Services, Asset Management Practice
Business	Financial Summary, Level of Service, Asset Management Practice, Plan Improvement and Monitoring
Customer Services	Levels of Service, Life Cycle Management, Plan Improvement and Monitoring
Operational	Life Cycle Management, Asset Management Practice

Risks apply across all processes in the management of the asset. The risk register holds the identified risk and which activity the risk impacts on.

The outcome of the process, illustrated in Figure 7.1, will be development and on-going maintenance of a Road Transportation Risk Register. This register will contain a prioritised list of all of the identified risk within each of the above four Risk Management Activity areas.

7.2.3 RISK CRITERIA

Criteria are used to evaluate the level of risk. They may be measured by key performance indicators. Risk is a function of consequence and probability/likelihood of an adverse event. Risk management procedures set out in AS/NZS 4360:2004 provide a general frame work for different organisations and activities. The following tables suggest criteria for the MDC road network.

7.2.3.1 Likelihood (L) Scale

Likelihood Scale applicable for road transport activities are based on frequency or return period, rather than an absolute probability. These are set out in Table 7.3 below.

Frequency and probability of occurrence in 10 years are indicative only. Values are rounded off where appropriate to avoid giving a greater impression of accuracy than is justified by the qualitative analysis that is undertaken. The prime objective of this process is to determine a set of applicable likelihood criteria which are also reasonable within the context of road transport corridor management activities.

Table 7.3 – Likelihood Scale

Likelihood Scale (L)				
Level	**Descriptor**	**Description**	**Indicative Frequency**	**Probability of at least one occurrence in 10 years**
A	**Probable**	The threat is expected to occur frequently	> 1 year	>99.9%
B	**Common**	The threat will occur commonly	1 to 5 years	90% to 99.9%
C	**Possible**	The threat occurs occasionally	5 to 10 years	65% to 90%
D	**Unlikely**	The threat could occur infrequently	10 to 50 years	20% to 65%
E	**Rare**	The threat may occur in exceptional circumstances	>50 years	<20%

7.2.3.2 Consequence (C) Scale

The scale of consequence is focused around a quantitative approach and includes categories of health and safety, image/reputation, annual costs, obligations, network condition and serviceability.

The following provides explanatory notes for each consequence type:

- **Health and Safety**: Self explanatory
- **Image Reputation**: Self explanatory
- **Environment**: The possible impact on the environment from an event taking place
- **Annual cost**: The risk assessment for annual cost is the whole cost of negative events, without considering the potential subsidies from Central Government for reducing the risk

or dealing with the potential consequences. This is something that maybe taken into account at 'Treatment Plan' stage.

- **Obligation**: Relates to those issues of sound governance and includes the ability of the Council to meet identified Community Outcomes as stated in the LTP in relation to the LGA2002's four well beings
- **Network Condition**: Is the net reduction of the asset value in the case of an event occurring. This is a subjective measure and is used to indicate the unexpected loss of service potential in the asset.
- **Serviceability**: Relates to accessibility and the impact on accessibility from an event.

Where an event may impact upon more than one outcome area, then the one scored as having the highest level should be used for the risk rating calculation.

Table 7.4 – Consequence Scale

Level	Descriptor	Consequence Scale (C)						
		Health and Safety	Image / Reputation	Environment	Annual Cost	Obligations	Network Condition	Serviceability
I	**Severe**	Multiple fatalities	International media cover	Permanent widespread ecological damage	>$10M	Central government takeover	Net reduction to asset value > $10 million	Prolonged (> 1 Month) disruption to major facility or large area
II	**Major**	At least one fatality	Sustained national media cover	Heavy ecological damage	$1M to $10M	Government or independent commission of Inquiry	Net reduction to asset value $2 to $10 million	Temporary (5 Days – 1 Month) disruption to large area or prolonged disruption to smaller area
III	**Moderate**	Serious injury	Regional media cover or short term national cover	Significant, but recoverable, ecological damage	$100k to $1M	Abatement Notice, RMA prosecution, Audit tags	Net reduction to asset value $0.5 to $2 million	Temporary disruption to small area and significant reduction in Levels of Service. Detour > 10 km
IV	**Minor**	Minor Injury	Local media cover	Limited, medium term, ecological damage	$10k to $100k	Minor claims, excessive rate payer complaints.	Net reduction to asset value $100 to $500 thousand	Moderate reduction in Levels of Service. Significant traffic delay or short detour in place for < 1 day.
V	**Negligible**	Slight Injury	Brief local media cover	Short term damage	< $10k	Occasional rate payer complaints	Net reduction to asset value < $100,000	Minor traffic delay (< 2 hours)

7.2.3.3 Risk Rating

The risk ratings have been assigned 4 categories, based upon the actions required to mitigate the risk set out in Table 7.5. These actions are:

- For risks in the **Very High** category are considered intolerable and immediate action is required to reduce the likelihood or consequence to reduce the risk to a lower category. Risk treatment options may be required that are not justifiable on strictly economic grounds. Safety, legal and social responsibility requirements may override financial considerations. As a minimum there must be a specific risk treatment plan for each entry in the "very high risk" category.
- **High Risks** are undesirable, but may be accepted if they cannot be reduced or avoided. All reasonable measures should be undertaken to reduce these risks to as low a level as possible, regardless of cost, inconvenience or other factors. As a minimum there must be a specific risk treatment plan for each entry in the "high risk" category.
- Items in the **Medium Risk** category should be evaluated on a case by case basis. Action to reduce these risks will be undertaken only when the potential benefits of the risk treatment outweigh the expected costs. Normal project evaluation criteria can be used to asses potential risk treatment measures for medium risks.
- No action required for **Low Risks**, other that monitoring to ensure they do not progress into higher risks.

Table 7.5 – Risk Rating Categories

Rating	Description
Very High	**Intolerable. Urgent action required. Mitigation plan required for each risk**
High	**Take actions to reduce risk to as low as reasonable possible. Mitigation plan required for each risk.**
Medium	**Tolerable. Consider mitigation measures on case by case basis. Measures to reduce risk if justified.**
Low	Business as usual.

Table 6.6 summarises the outcome of the various likelihood x consequence (LxC) combinations producing a risk rating matrix. When the analysis of the risk is undertaken any item on the register that receives a rating of high or very high will require further work according to the rating outcome.

Table 7.6 – Risk Rating Matrix

Likelihood (L)		Consequence (C)				
		I	II	III	IV	V
		Severe	Major	Moderate	Minor	Negligible
A	Probable	Very High	Very High	High	High	Medium
B	Common	Very High	High	High	Medium	Medium
C	Possible	High	High	Medium	Medium	Low
D	Unlikely	High	Medium	Medium	Low	Low
E	Rare	Medium	Medium	Low	Low	Low

7.2.4 RISK ANALYSIS

The next steps in the risk management process are to develop a comprehensive list of risks (Identify the Risks), analyse the risks and to evaluate each one against the criteria defined above. The risks will be entered in a risk register, Appendix V, in the form shown on example table 7.7. Ideally, a risk should be identified in the following terms:

Table 7.7 – Example Risk Register

Ref	Name	Description	Existing controls	Likelihood (L)	Consequence (C)	Risk Rating (LxC)	Treatment option	Treatment cost

(Something happens) leading to a (negative outcome). The description should include additional information, such as:

- the source of the risk
- what are the existing controls or influences on the risk
- what (specifically) are the consequences
- is it dependent on other risks or conditions

The risk may trigger several categories of consequence, or if it has a range of probability/likelihood and consequence, it should be rated according to the combination that gives the highest risk rating.

Risks fall under the general headings of the Activities as outlined in table 7.1 “Risk Management Activities”:

- Asset Management (Ref A for example placed under “Management Activity” in the Risk register)
- Operational (Ref; O)
- Customer Services (Ref; C)
- Business (Ref; B)

The reference is then used to relate the identified risk to the Asset Management Plan for Roading.

An event leading to a negative outcome to Council's objectives is regarded as a **Threat.** However the process of risk analysis can also occasionally identify positive outcomes or **Opportunities**, and it is quite appropriate to use this register as a means of recording these in addition to the more common approach of only just considering the Threats.

The description should include additional information, such as: the source of the risk, what are the existing controls or influences on the risk, what **(specifically)** are the consequences, is it dependent on other risks or conditions.

Residual Risk

The Consequence and Likelihood values applied to derive Risk Rating on the register need to reflect the level of residual risk remaining after the Risk Treatment Plans have been developed and implemented and their effectiveness in mitigating or eliminating the initial level of risk has been assessed.

7.2.5 TREAT RISKS

A risk treatment plan should be created for all risks rated high or very high in the form shown in Figure 7.2, to document how the risk treatment options will be implemented.

Risk treatment options generally fall into the following categories:

- Avoid the risk by deciding not to start or continue with the activity that gives rise to the risk. This includes considering the possible risks within a project when a project is being considered
- Reduce the likelihood of the negative outcomes
- Reduce the consequences
- Sharing or transferring the risk with other organisations
- Retaining the risk, after all reasonable treatment measures have been considered.

Some risks may be rated high initially due to uncertainty in the likelihood or effects and the risk treatment plan may consist of further investigations or assessments to better define the level of risk. Other risk treatment options may consist of financial controls (e.g. insurance), operational improvements, contingency planning or physical works to reduce risks.

Figure 7.2 – Risk Treatment Plan

Risk Treatment Plan			
Risk:			**Ref:**
Summary			
Proposed actions			
Resource Requirements			
Responsibility			
Timing			
Reporting and Monitoring			
Compiled By:	Date:	Reviewed By:	Date:

7.2.6 RISK TRANSFER

A fundamental concept in Risk Management is that the Risk Treatment activities should be the responsibility of, and carried out by, the party who is in the best position to manage them; which may be Council staff, Consultant(s), the Maintenance Contractor(s) or other third parties. To assist with this understanding, Council is encouraged to seek and evaluate as much information as possible on the spectrum of risk associated with all practical alternatives along with their associated costs.

Through this process of risk/cost trade off they will be able to then determine an appropriate balance of accepted risk and associated cost. In some situations the Council may feel that it is

appropriate for them to carry a higher level of risk rather than bare a much higher level of expenditure that would otherwise be necessary to see the risk transferred to another party.

7.3 IDENTIFIED RISKS

7.3.1 CRITICAL RISKS

The most critical risks are:

- Identifying and agreeing the risk management context, i.e. consequence/likelihood frame work. Without this agreement the risk rating process may lead to an extensive number of high to very high risks requiring funding to mitigate or fix
- The changing legislative environment requirements
- Incomplete management and supervision of this activity due to limited staff resources

7.3.2 CONSIDERED RISKS

MDC Contract Procedures Manual

- The various contracts for the operation and maintenance of this activity require the contractors to provide Quality Plans for the execution of the contract requirements. The Quality Plans include procedures for work to be carried out. The risk is that the MDC and contractors procedures are not followed.

Health and Safety

- Council has a comprehensive Health and Safety Programme for its operations. Internally there is no risk in the implementation of this Programme.
- The various contractors involved in this activity have Health and Safety Programmes in operation. Reports are received from the contractors about any incidents relating to health and safety. Council's risk is that no inspection of work sites is undertaken by Council staff or their consultant to ensure that the requirements of the Council's and the contractors' Health and Safety Programmes are being carried out on site.

General Management Issues

- **Contract Observation** - The various contractors are not being observed sufficiently to ensure that all aspects of the contracts are being carried out or met.

- **Legislative Compliance -** Council staff practitioners supported by their experience and training, believe that all legislative requirements that impact on this activity are being complied with.

- **Resources -** The financial provisions shown in this Plan should be sufficient to provide the service required for this activity.

- **Service Agreements -** There are no specific service agreements in place between each department to ensure everyone is aware of their roles in this activity. However being a small Council with a small staffing level, interdepartmental discussion in relation to any facet of this activity is normal practice.

- **Council Policies Clear** - Council's policies are held in the Policy Manual. Updated road activity policies are currently under review and will be put to Council for approval as they are completed.

Financial

- **Cost 'Overruns' -** Council staff manage expenditure by:
  - ordering work only if finance is available and approved
  - reviewing expenditure monthly
  - reporting exceptions

- **True Costs – Costs Not 'Manipulated' -** The financial forecasts that have been made in this Plan portray the true cost of this activity, given the assumptions made in making those forecasts.

- **Financial Assistance -** for this Activity is received from NZTA in accordance with their policies. The 2015/2018 financial assistance rates are heading to a base rate of 51% for maintenance, renewals and construction, and calculated as per NZTA formula for emergency works (max Base +20%)

7.4 INSURANCE

There is no current insurance cover for roads within the Mackenzie District. Council are currently considering insurance for the Market Place/Town Square (including roading & car park) in Twizel.

In general Council has reserves to cover any additional funding required resulting from road asset damage.

7.5 EMERGENCY MANAGEMENT

7.5.1 OPERATIONAL EMERGENCY MANAGEMENT

Operational Risks are those associated with the day to day operation of the District. The most prevalent of these are snow events followed by flooding and serious wind events. Initial response to all these events is managed through the Network Maintenance management Contract, and is covered in our specifications "MDC C9 Emergency Work (Storm Damage, debris, slips, snow clearance)". This specification covers response times, liaison, notifications, plant and personnel requirements. We also have a detailed snow clearance policy which ensures emergency services and high risk/use areas are cleared initially with the lower priority areas then being cleared.

7.5.2 LIFE LINES EMERGENCY MANAGEMENT

Council has held discussions on the "Life Lines" philosophy with the various groups that provide services within the district and is reviewing its "Disaster Resilience Summary". Council has participated in an Engineering Lifelines project, Earthquake Hazard Assessment, and the summary of the assessment is outlined below.

7.5.2.1 Earthquake Damage Assessment

Table 7.8 Damage Assessment Chart has been compiled for use in conjunction with the Waimate, Mackenzie and North Waitaki Districts Engineering Lifelines Project, Earthquake Hazard Assessment, Report to Environment Canterbury, May 2008, (Ecan Report no. U/08/18) prepared by Geotech Consulting Ltd. It should be read in conjunction with Sections 6, 7 and 8 of that report. Section 9 outlines three earthquake scenarios, and it is recommended that these also be read to provide a perspective on the contents of Table 7.8.

Chart Zones

Table 7.8 has been set out for each of the three Ground Shaking Zones as shown in Figure 6.13 of the above report. Because of the large area of the Districts, and the range of expected earthquake shaking intensities for any single earthquake event, or on a probabilistic basis, indicative damage is shown for a range of shaking intensities for each zone. The damage is indicative only and a wide variation can be expected within each zone due to variations in subsurface conditions, geology, terrain and orientation of the site with respect to the earthquake source.

Chart Limitation

The Damage Assessment Chart is an indicative guide only. This table is derived from a similar chart originally prepared for the Christchurch Engineering Lifelines Study (Risks and Realities, 1997). It is based on damage reports from historical earthquakes in New Zealand and overseas. There is little information on damage ratios for structures or infrastructure other than buildings, (this particularly applies to in ground pipework) and the relative damage is necessarily somewhat subjective. The damage to structures should be read in conjunction with the description of damage in the Modified Mercalli Intensity Scale, Appendix C of the Report. It may be used for coarse screening of effects, but must not be used as the basis for any design. Any decision involving expenditure or engineering design requires a more detailed evaluation of the conditions pertaining at that particular site.

Liquefaction

The Damage Assessment Chart does not include reference to liquefaction. Areas of significant liquefaction hazard in the Districts are limited. The majority of the areas are underlain with alluvium are older Pleistocene surfaces. Both the relatively old age and the predominantly coarse grading of this gravel make widespread liquefaction very unlikely. Liquefaction is more likely to occur within the ground shaking Zone 3 areas. If liquefaction occurs, the damage outlined in the chart could be significantly greater. For an indication of the effect of liquefaction, refer to Table 2.2, page 28 of Risks and Realities, report of the Christchurch Engineering Lifelines Group, CAE,, 1997

RISK MANAGEMENT

Table 6.8 – Damage Assessment Chart

Zone	Shaking Intensity	Roading	Railway	Bridge Structure	Bridge Abutments
1	MM VI	Little to no damage	Little to no damage	Refer section A - Structures	Little to no damage
	MM VII	Minor damage to kerbs and cracking of seal	Minor damage to alignment		Minor slumping
	MM VIII	Some damage to kerbs. Some distortion and cracking of seal.	Distortion of rail lines, some fissuring and spreading of embankments		Some slumping of abutment fill common
	MM IX	Widespread damage to kerbs, Distortion and cracking of seal, some ground fissuring. Permanent ground distortion and settlement.	Marked distortion of rail lines, both horizontal and vertical, significant embankment damage		Slumping of abutment fill at nearly all bridges, many of significant magnitude. Translational or rotational movement at some abutments.
2	MM VI	Little to no damage	Little to no damage		Little to no damage
	MM VII	Minor damage to kerbs and cracking of seal. Small slips on steep batters.	Minor damage to alignment		Minor slumping
	MM VIII	Some damage to kerbs. Some distortion and cracking of seal. Slips in batters	Distortion of rail lines, some spreading of embankments		Some slumping of abutment fill common
	MM IX	Damage to kerbs, distortion and cracking of seal, Land sliding in steep slopes and batters, cracking of ground	Distortion of rail lines, both horizontal and vertical, significant embankment damage		Slumping of abutment fill at most bridges, many of significant magnitude. Translational or rotational movement at some abutments.
3	MM VI	Little to no damage	Little to no damage		Little to no damage
	MM VII	Rockfall and small slips on steep batters.	Minor damage to alignment		Minor slumping
	MM VIII	Rockfall and slips in steep batters	Distortion of rail lines, some spreading of embankments		Some slumping of abutment fill common
	MM IX	Land sliding in steep slopes and batters, cracking of ground, large volume rockfall possible	Distortion of rail lines, both horizontal and vertical, significant embankment damage		Significant slumping of abutment fill at most bridges. Translational or rotational movement at some abutments.

7.6 FUTURE IMPROVEMENTS

Development of Risk Management

It is important to have input from a broad range of people and organisations so that the risk register is as comprehensive as possible. Often the greatest risks arise from events that were not anticipated or considered beforehand. Initially the risk register and assessment should be created in a workshop environment from a number of stake holders including Council staff and input from other stakeholders (e.g. contractors). Once the risks have been identified these should then be analysed in the consequence / likelihood frame work to assess the validity of the scales. If the risk outcome for all identified areas of risk is too great then the consequence and likelihood scales may need to be adjusted. At this stage a second review of the scales and reassessment of the identified risk can be completed.

After rating the risks and creating the risk register, Council will need to determine which parties are in the best position to carry out risk treatment planning for each of the high and very high risks, so that the appropriate actions may be taken.

Cross-Asset Risk Management Process

Risk Management procedures set out in AS/NZS 4360:2004 and SNZ HB 4360:2000 are generic for a wide range of activities and organisations. The Risk Management system proposed in this Activity Management Plan is based on the assessment of Council values and goals for its road transportation network. Council will need to review the risk management process and provide feedback on the proposed risk rating criteria.

To ensure a robust and fair approach is taken with all of these assets, it is recommended that Council consider the development of a Cross-Asset Risk Management process in the future. This would then provide a greater level of assurance to Council that the prioritisation of the risks associated with its entire asset base, along the allocation of Council funds required to manage them, has been based upon an approach that is both rational and equitable.

On-Going Review

To ensure that emerging risks are identified and captured and that the Risk Treatment Plans are monitored for effectiveness over time, both the register and treatment plans must be reviewed on a regular basis by Council and other stake holders. The frequency for these reviews should be agreed and included in the Councils Operating Procedures.

Any significant additions or changes to the risk register will be noted as they occur through regular reporting procedures. It is recommended that the risk register should have a comprehensive update at each AMP review.

8. LIFECYCLE MANAGEMENT PLANS

8.1 LIFECYCLE MANAGEMENT – AN OVERVIEW

This section of the AMP outlines the work planned to keep the assets operating at the current levels of service, defined in Section 4 at the lowest lifecycle costs. The overall objective of the Life Cycle Management Plan is:

> ***To maintain performance measures to ensure that the current strategies do not consume the asset leading to an unexpected increase in maintenance/renewal expenditure in the future.***

This lifecycle management plan covers the following:

➔ **Background Data** identifying where possible:

- Physical parameters of the assets as outlined in the description of the transportation asset included in Section 3
- Current capacity and performance of the asset relative to the levels of service defined in Section 4 and demand projections of Section 5
- Current condition of assets
- Asset valuations
- Historical data

➔ **Operations and Maintenance Plan**: This covers planning for on-going day to day operation and maintenance to keep assets serviceable and prevent premature deterioration or failure. This plan includes:

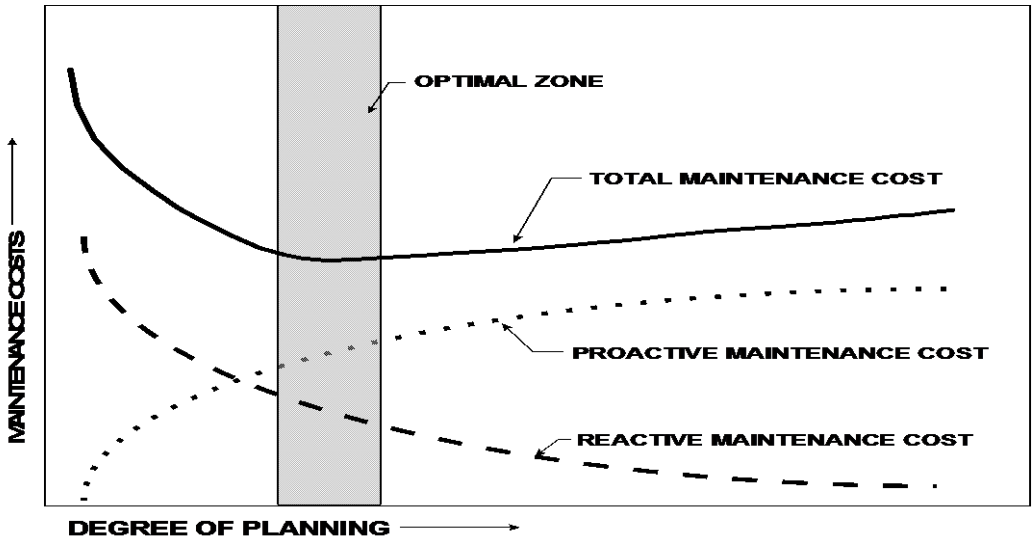
- Current trends and issues, including results from growth analyses, LoS shortfalls, etc
- Any deferred work and associated risks
- Maintenance decision making process
- Strategies required to meet levels of service
- How tasks are prioritised
- Future Costs, current and future works in detail for the first three years and in summary form for the balance.

Two categories of maintenance are carried out:

- Unplanned Maintenance: Reactive work carried out in response to reported problems or defects (e.g. pothole repair, dig-outs)
- Planned Maintenance: Proactive work carried out to a predetermined schedule (e.g. metalling, grading, bridge inspections).

A key element of asset management planning is determining the most cost effective blend of planned and unplanned maintenance as illustrated in Figure 8.1.

Figure 7.8 – Balancing Proactive and Reactive Maintenance



➔ **Renewal/Replacement Plan**: This covers Major work which restores existing assets to their original capacity or their required condition (e.g. resurfacing, rehabilitation or footpath reconstruction). This plan includes:

- End of life projections, , including results from growth analyses, LoS shortfalls, etc
- Future Costs, current and future works in detail for the first three years and in summary form for the balance

➔ **Asset Development Plan**: This section of the plan covers the creation of new assets (including those created through 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 (e.g. forestry harvesting routes). This plan includes:

- End of life projections, , including results from growth analyses, LoS shortfalls, etc
- Renewal decision making process
- Renewals strategies and methods to meet required LOS
- How renewals are identified, prioritised and to what standard they are replaced
- Future Costs, current and future works in detail for the first three years and in summary form for the balance

➔ **Disposal Plan**: This covers activities associated with the disposal of a decommissioned asset. Assets may become surplus to requirements for any of the following reasons:

- Under utilisation
- Obsolescence
- Provision exceeds required level of service
- Uneconomic to upgrade or operate
- Policy change
- Service provided by other means (e.g. private sector involvement)
- Potential risk of ownership (financial, environmental, legal, social, vandalism).

The lifecycle plans are developed separately for the following assets:

- Sealed roads
- Unsealed roads
- Bridges, fords and other structures
- Drainage control facilities
- Traffic services
- Footpaths
- Street lighting

The maintenance and construction standards and response times for these components vary according to road user demands that are reflected in the Road Maintenance Groups (see Table 3.1).

8.1.1 NZ TRANSPORT AGENCY WORK CATEGORIES

NZTA's Work Categories (WCs) were reviewed and new categories established in 2008 and outlined in their Planning, Programming and Funding Manual[1] shown in Table 8.1. These are the WCs used for all financial reporting. This Life Cycle Management Plan reports on work within these WCs. For clarity we have identified the WC numbers for the work within each section of the Life Cycle Management Plan.

Table 8.1 – NZ Transport Agency Work Category Structure

Activity class 1 – Transport Planning		
Activity	**Work category No.**	**Work category name**
Transport Planning	001	Regional land transport planning management
	002	Studies and strategies
	003	Activity management plans
Activity class 8– Maintenance and Operation of Local Roads		
Activity	**Work category No.**	**Work category name**
Structural maintenance	111	Sealed pavement maintenance
	112	Unsealed pavement maintenance
	113	Routine drainage maintenance
	114	Structures maintenance
Corridor maintenance and operations	121	Environmental maintenance
	122	Traffic services maintenance
	123	Operational traffic management
	124	Cycle path maintenance

[1] The NZTA Planning, programming and funding manual, First Edition, 2008

Level crossing warning devices	131	Level crossing warning devices
Emergency reinstatement	141	Emergency reinstatement
Network and asset management	151	Network and asset management
Property management	161	Property management (state highways)
Financial grants	171	Financial grants
Activity class 10 – Renewal of local roads		
Activity	**Work category no.**	**Work category name**
Structural renewals	211	Unsealed road metalling
	212	Sealed road resurfacing
	213	Drainage renewals
	214	Sealed and Unsealed Pavement rehabilitation
	215	Structures component replacements
Corridor renewals	221	Environmental renewals
	222	Traffic services renewals
Associated improvements	231	Associated improvements
Preventative maintenance	241	Preventive works
Activity class 12 – Improvement of local roads		
Activity	**Work category no.**	**Work category name**
New road infrastructure	321	Traffic management facilities
	322	Replacement bridges and structures
	323	New roads and other road improvements
	324	New road reconstruction
	325	Seal extension
Property	331	Property purchase (State highways)
	332	Property purchase (local roads)
	333	Advance property purchase
Minor improvements	341	Minor improvements

8.2 MANAGEMENT PROGRAMME

8.2.1 METHOD OF SERVICE DELIVERY

Council staff manage the roading network with some assistance from consultants. Maintenance of the network is through a competitively tendered multi-year contract. Other works such as resealing (currently co-bundled with Timaru District Council) and large renewal projects are let as competitively priced contracts on an annual basis.
The current contracts let are included in Table 8.2.

To ensure activities are providing the best efficiencies possible, work is generally clustered in such a way that works are carried out within set corridors. The maintenance contract encourages a joint approach to solve roading issues for the lowest whole of life cost.

The current road maintenance contracts (3 year + 1 yr. + 1 yr.) place considerable onus on the contractors to self-manage all road maintenance activities; this involves regular inspection of roads, locating maintenance requirements and carrying them out.

Table 8.2 – 2011 Physical Works Contracts

Contract No.	Contract Name	Length (Years)	Responsibilities	Contractor
1186	Road Maintenance (October 2010 – October 2013)	3+1+1	▪ Sealed pavement maintenance ▪ Pre-seal repairs ▪ Unsealed pavement maintenance ▪ Vegetation control ▪ Tree Removal ▪ Traffic services maintenance ▪ Drainage maintenance ▪ Footpath maintenance ▪ Minor bridge maintenance ▪ Sealed/Unsealed AWPT ▪ Culvert replacements ▪ Slip removal ▪ Flood damage repairs	Whitestone
	Sealing District Roads	Bi-annual	All resurfacing (chip seals). Combined contract with Timaru District Council	Fulton Hogan
1206	Pavement Marking	Annual	Road Marking and RRPMs	Fulton Hogan
1195	Street Lighting Maint.	Annual	All lighting maintenance	Negotiated annually
1186	Bridge Maintenance	Annual	Routine and structural bridge repairs	
1186	Sealed Pavement Rehabilitation	Annual	Rehabilitation and AWPT's for sealed roads where quantity warrants a standalone contract	
Priced Work	Improvement Works	Annual	▪ Seal Extensions ▪ Major Safety Improvements	
Priced Work	Minor Safety Works	Annual		
	Seal Extensions	Annual	Let if applicable	

Council's Subsidised Roading Activity Procurement Strategy provides full details of how all subsidised work will be procured. Regular tendering of contract activities helps to ensure reasonable marketplace price is accomplished for all phases of the work.

Council is also currently investigating combining specific operations (e.g. renewal activities) with other Local District councils to improve value for money by achieving best market rates available and optimising the efficient and effective use of the existing infrastructure.

8.2.2 FORWARD WORKS PROGRAMME

Historically the sealed roads in the Mackenzie have been in good condition and there has not been enough approved funding available to embark on a significant renewal programme. The available funds are spent on the areas of greatest need on the network.

However, a forward works programme has been developed to protect the assets in the condition they are in, avoid consuming that asset and improve the resilience of the network. It is difficult to predict fully the areas requiring sealed road rehabilitation due to the harsh winters in the Mackenzie and the effect of frost heave on the network.

A 30 year resurfacing FWP has been developed based solely on RAMM data. In any one year, the age and condition of the oldest or at risk seals are assessed to determine the remaining useful life and thus formulate that years reseal programme.

This programme has been used as a basis for works included in this AMP.

8.2.3 ASSET VALUATION

A valuation is undertaken every three years in order to assess the value of the network, the depreciated value and the annual depreciation. Details on Asset Valuation and Depreciation are held in Section 8 Financial Summary.

8.2.4 HISTORICAL DATA

Historical data is used to make an assessment of past performance and to see if future trends can be applied. At a network level, these trends can indicate if the condition of the network is deteriorating or improving. The different forms of historical data and their location are outlined in Table 8.3.

Table 8.3 – Historical Data

Type	Location	Comment
Roughness	RAMM	
Sealed Rating Data	RAMM	Faults are manually rated. Some interpretation discrepancy may exist between rating teams.
Carriageway surfacing data	RAMM	Holds surfacing history. Surfacing data must be maintained to obtain confident surfacing history.
Past Unsealed Pavement	Spread sheet	Provides a full summary of grading and

Maintenance		metalling completed over the last 10 years
Past Maintenance Costs	RAMM	Provides summary of maintenance costs and works completed.
As Built Drawings	RAMM from As Built Plans each year	Collected at end of construction verified and entered into RAMM.
Pavement Structure	RAMM	All new pavement construction records include pavement composition details

Historic expenditure summaries have been produced from the NZTA website http://www.smartmovez.org.nz/references/refs/data/road_network_condition. This information should be updated with every review of this AMP. The most useful comparisons are made with other areas or authorities with similar characteristics, rather than with the whole country. The data for MDC is compared with a peer group of similar council authorities. The peer group used for comparison with Mackenzie District is Group E which consists of largely rural areas with small provincial towns with low traffic volumes. 25 local authorities are included in Peer Group E, with approximately half in each of the North and South islands.

Figure 8.2 show the total maintenance based on Lane Kilometre, compared to average costs for Peer group E. These figures show that overall costs have increased over the last 10 years. The costs in $/lane-km for the district are slightly higher than the average for the peer group.

Figure 8.2: Total Maintenance and Renewal Costs and $/lane.km for Mackenzie DC and Peer Group E

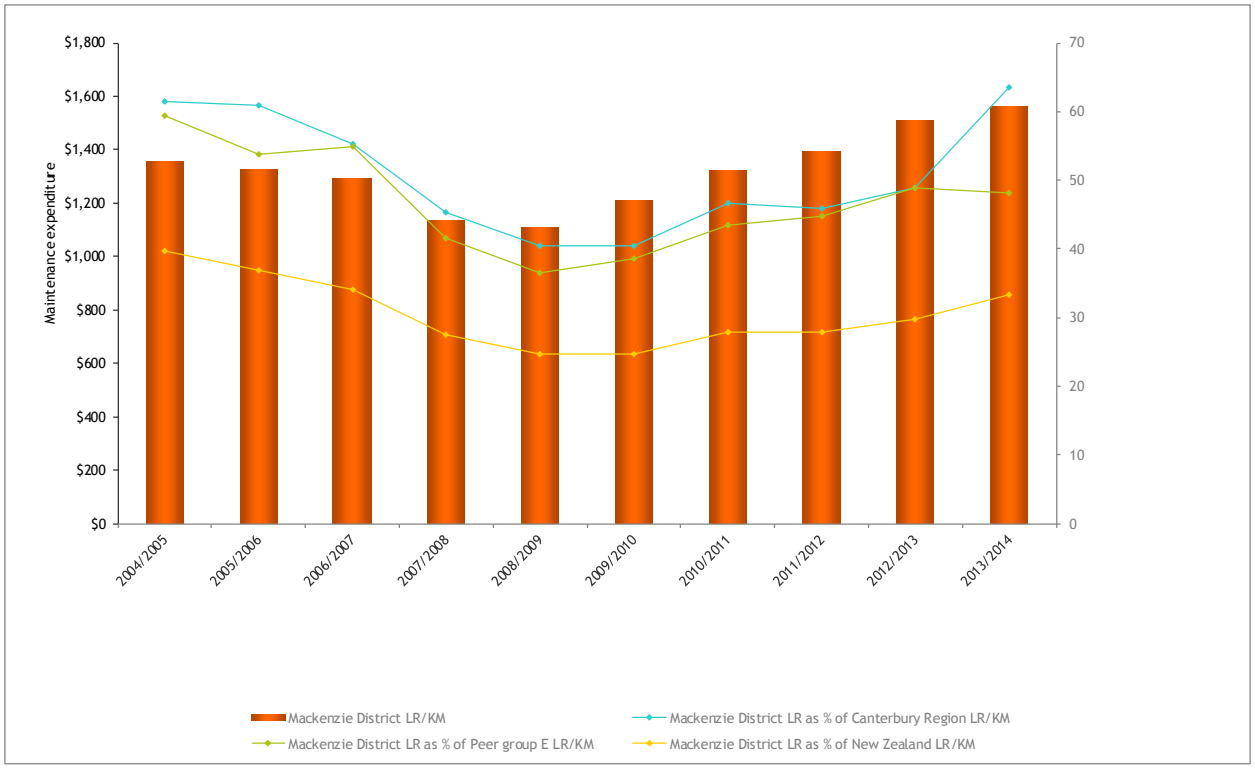
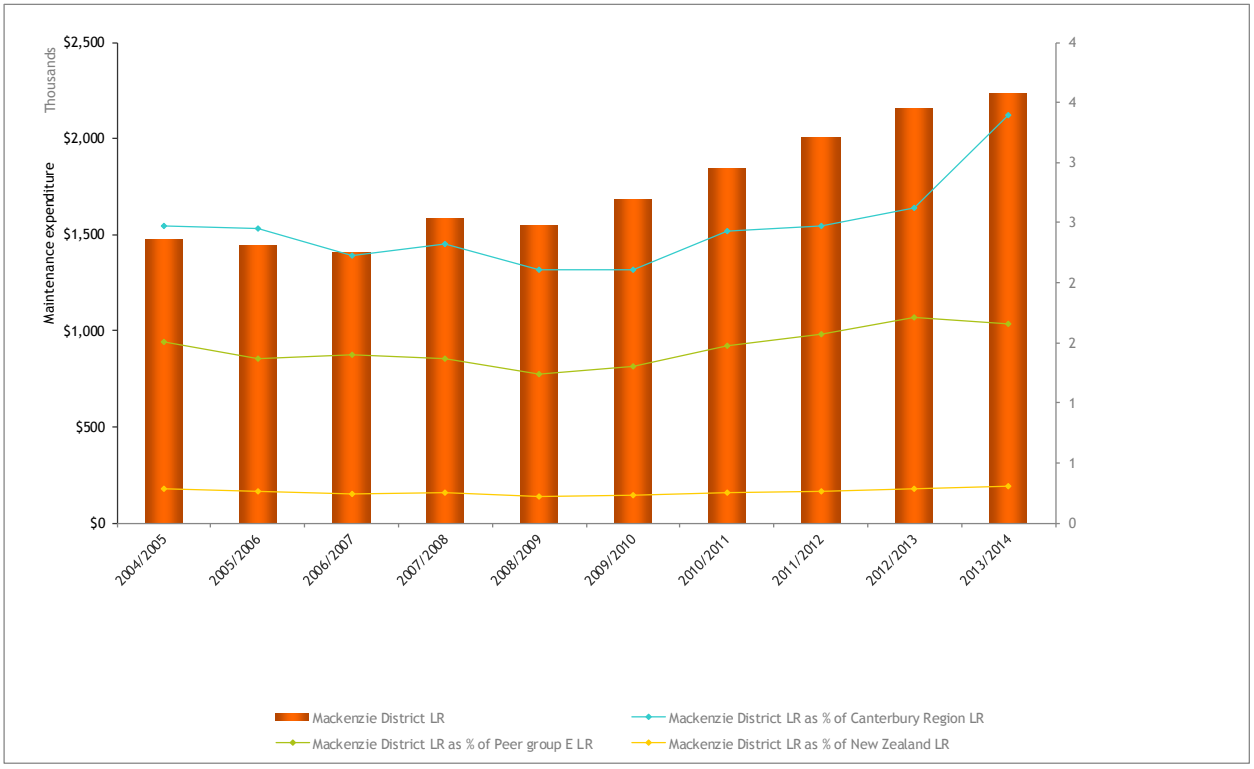


Figure 8.3 - EXPENDITURE comparisons
(10 years expenditure totals only, compared to peers, region, NZ)



8.2.4.1 Safety Standards

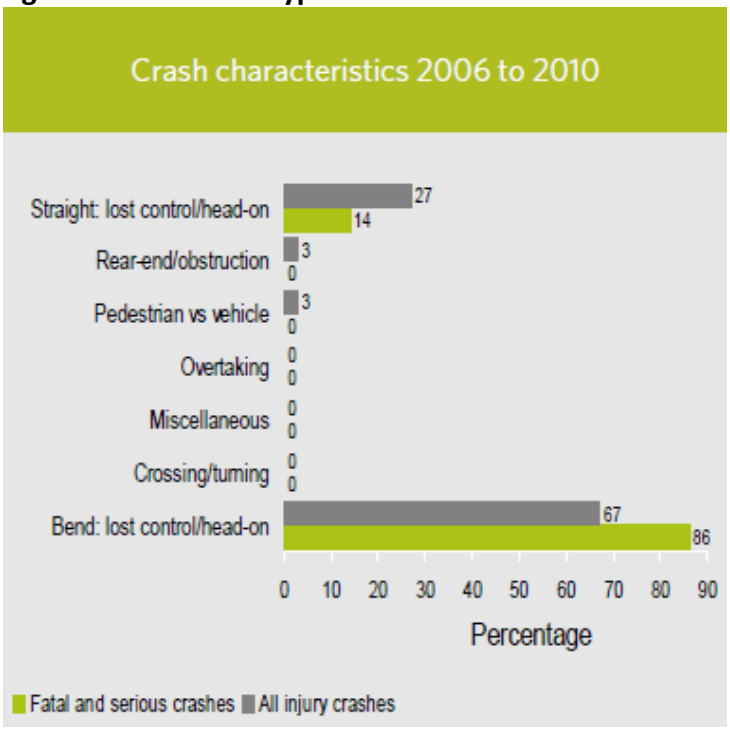
The Crash Analysis Canterbury Region 2006 to 2010 Briefing Notes, outlines crash statistics for Mackenzie District local roads. Between 2006 and 2010 in Mackenzie District, there were 33 injury crashes on local roads. Table 8.4 shows the number of injuries resulting from these crashes by rural or urban areas. Rural is defined as an area with a speed limit of 80km/h or more. 71% of injuries were caused by crashes on rural roads.

Table 8.4 – Injuries resulting from crashes on Mackenzie District Roads 2006 to 2010

	Fatalities	Serious Injuries	Minor Injuries	Total
Rural	2	2	28	32
Urban	0	3	10	13
Total	2	5	38	45

Figure 8.5 shows that loss of control crashes represent 100% of fatal and serious crashes and 94% of all injury crashes. The three most common types of crashes are: When there is a 'loss of control turning right at a bend' (12 crashes), followed by a 'loss of control turning left at a bend' (7 crashes) and a 'loss of control towards the left on a straight road' and a 'loss of control towards the right on a straight road' (both equal) (4 crashes each).It should be noted that there has been no crashes on local roads in Mackenzie District in the last 3 years due to road conditions.

Figure 8.5 – Crashes types in Mackenzie District



21% of all injury crashes and 14% of serious and fatal crashes were related to road factors.

The most common type of crash involves loss of control on a bend which may indicate a lack of appropriate signage, poor gravel maintenance on unsealed roads or driver related issues may be primary factors influencing crashes. Road width and specifically lack of shoulders could be a concern on sealed roads.

Within the MDC road safety outcomes are influenced by the following:

- community safety programmes
- road engineering improvements, - Minor Improvement Programme, delineation, signage
- road maintenance programme (grading, re-metalling, drainage improvements)

The outcomes that these programmes are focused on are varied but the overall aim is to reduce the number and cost of crashes on the District's roads as reported each year by NZTA. The Mackenzie District Council, Waimate District Council and Timaru District Council all belong to the South Canterbury Joint Road Safety Committee which is tasked with delivering community road safety initiatives. Each Council makes a financial contribution towards the employment of a Road Safety Coordinator for South Canterbury.

8.3 SEALED ROADS

8.3.1 SEALED ROADS BACKGROUND DATA

8.3.1.1 Sealed Roads Scope and Nature of Asset

The purpose of a sealed road is:
To provide a paved network suitable for the efficient movement of vehicles and people, with an all-weather surface appropriate to its location and function in terms of skid resistance, noise reduction and smoothness, and that has a structure suitable for legal traffic loading requirements.

Only 205.53km or 29% of the districts roads are sealed – 47.43km of urban roads and 158.1 km of rural roads.

The key issues relating to the sealed pavements are:

- Optimising the use of limited funds to maintain the condition of the asset
- Setting levels of service that align road user expectation and lifecycle costs
- Providing adequate seal width capacity on higher trafficked roads (if funding is available)
- Land Use intensification, water consents increasing productivity, Forestry and dairy conversions.
- Development, creating and vesting new roads with Council and no increase in funding from NZTA

8.3.1.2 Sealed Roads Current Condition

Many of the District's roads evolved from tracks to unsealed roads that were constructed to absolute minimum standards in terms of pavement strength, width and drainage facilities. As traffic volumes increased individual roads were widened, extra metal added as considered appropriate and surfaces sealed. Construction consisted of river run or pit sourced gravel sub base, a thin layer of crushed aggregate base course and a single coat chip seal surface. The metal courses were often laid over silty clay subgrade of unknown bearing capacity with little or no consideration given to whole of life strength requirements needed to satisfactorily carry the expected traffic loads over the roads expected life. Only since the 1970's have pavements been designed to carry expected traffic loading over a projected 25 year design life, and the1970's design loads were significantly less than the current design loads

Maintenance work includes the following activities:

- repairing minor defects: pot holes, depressions, heaving, cracking, edge breaks, chip loss, shoulder damage and bleeding bitumen

The condition of the sealed road network is monitored as follows:

- Regular routine inspections by Council and contractor personnel. Defects found are included in the programme of works to be undertaken by the maintenance contractor. The number, size, location and date of defects are logged in RAMM Contractor to provide a measure of conformance with the key performance measures required within the contract

- A formal biennial road condition roughness and rating survey. The information from this survey is recorded in RAMM and used to:
    - Assist with the development of a forward reseal and reconstruction work programme
    - Provide surface and pavement condition data for the "Treatment Selection Algorithm" in RAMM
    - Calculate surface condition indices that provide a measure of the performance of the sealed surface
    - Report to NZTA

- Biennial roughness surveys of the sealed network to ascertain the current condition and provide a measure of performance against the required levels of service

- Annual maintenance costs per kilometre for work types are calculated from the costs recorded within the maintenance contract and the trends used to establish relative network surface condition

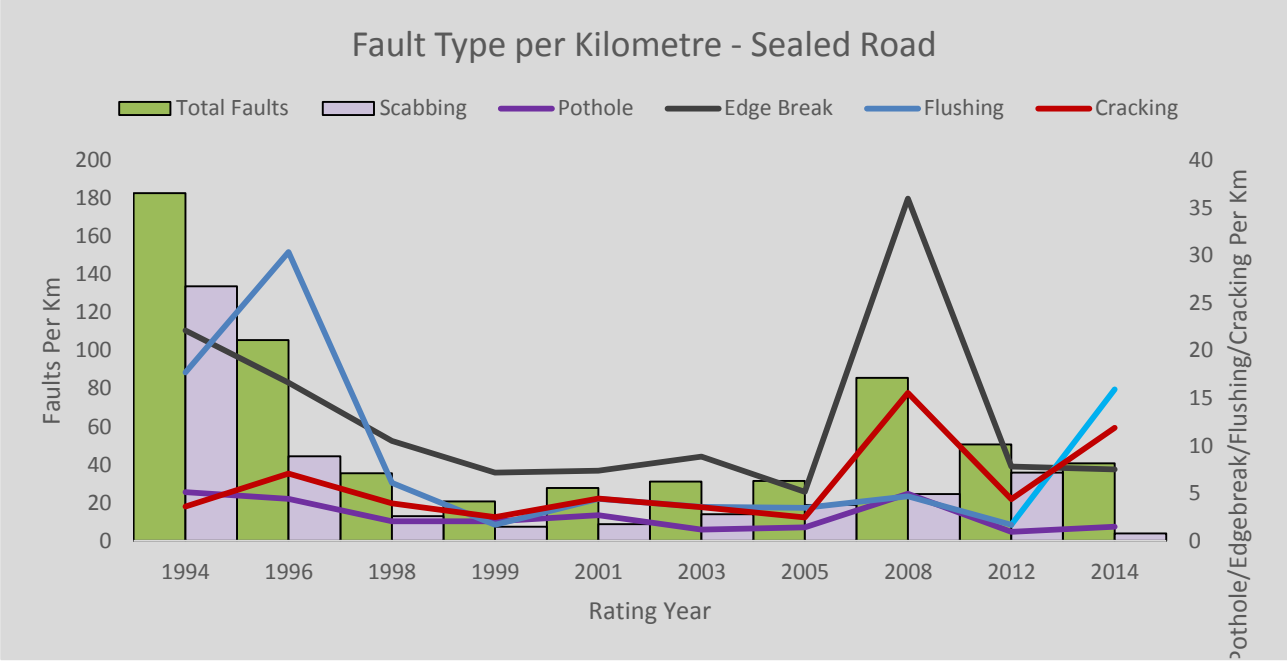
- The safety of the network is gauged by recording accident information (including near misses where reported), analysing accident trends and the statistical data produced in the NZTA "Road Safety Issues" and "briefing notes" reports. All serious crashes on local roads are assessed by the Roading Team to investigate if road conditions were a factor in the crash.

RAMM Rating historic trends graph

The biennial visual road condition rating survey is used to measure and record defects shown by each road element in a standard and objective manner. This provides a measure of the condition of each road element, which can be used to assess routine maintenance and rehabilitation needs.

Figure 8.6 shows the historical results from visual condition rating. The latest condition rating data in RAMM is from 2014.

Figure 8.6 – Historical Visual Condition Rating Data for Sealed Roads



The historical data shows that condition significantly improved in 1998 and since then has remained relatively stable, with the exception of potholes which have increased in the 2008 survey. This survey also shows very low percentages of alligator cracking, rutting, shoving and slightly increased percentage of flushing to just over 1%. The data shows that although the general condition of the pavement and surfacing remains stable, there is an increase in isolated pothole pavement failures. This indicates that maintenance levels for sealed roads are appropriate to maintain the condition of the pavements at an acceptable level, but more focus may be required on completing pavement repairs to a good standard in isolated areas.

Even though there has been a significant amount of pavement drainage improvements on the seal road network, The number of heaving and shoving failures appears to be increasing. This is most likely to an increase in HCVs across the network. Traffic classification data is showing a range of 10% to 27% HCVs with an average of 16% across the network. Which is higher than the industry standard of approximately 10%.

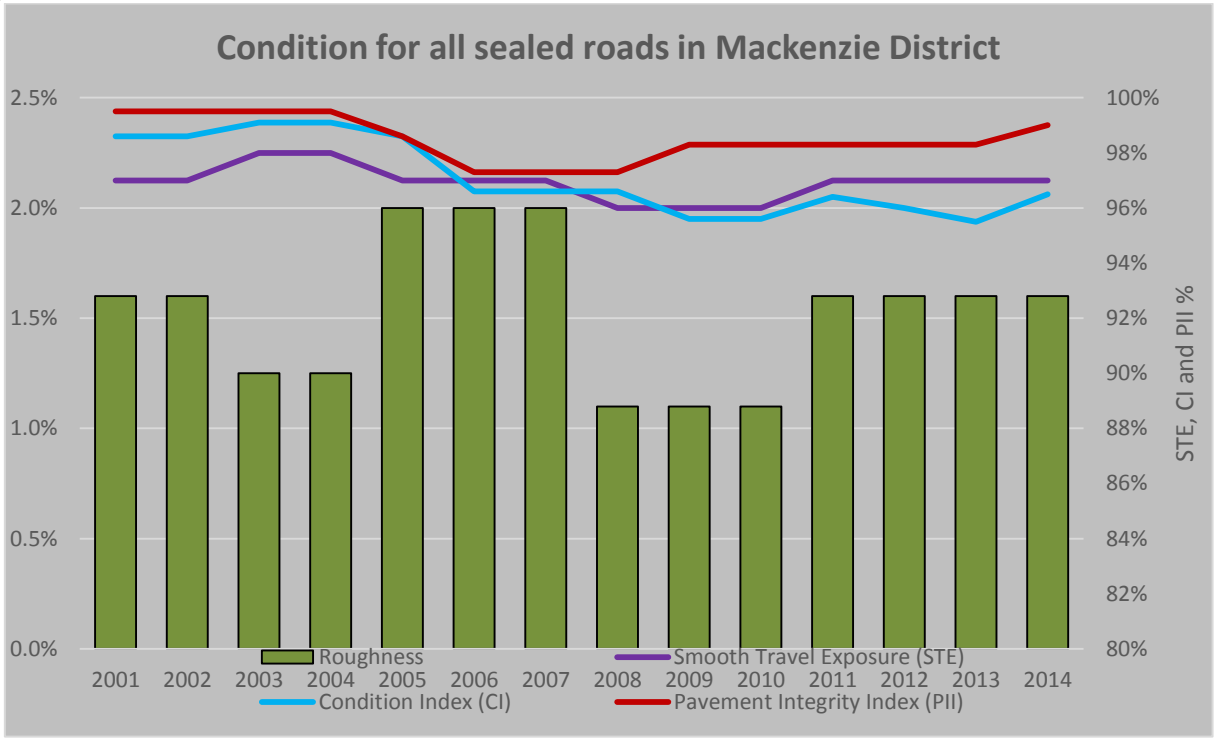
Roughness, Pavement Integrity Index and Condition index

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 total lane length. PII combines surface faults (CI) with rutting and shoving. **A high PII corresponds to high pavement integrity.**

Surface Condition Index (CI) is an overall condition value that reports an aggregation of a number of surface defects over a specified length of road pavement.

Figure 8.7 shows that over the last three years there has been a static or slight rise in PII and CI, albeit small at less than 2%. Roughness has also remained static corresponding to the STE stabilising on 97%.

Figure 8.7 – Historical Condition Data for Sealed Roads



8.3.1.3 Sealed Roads Current Capacity and Performance

The capacity and performance of the sealed carriageway is directly related to its condition. The intention of this plan is to maintain condition at an optimal level that maximises road user benefits whilst optimising lifecycle costs. However this objective has had to be compromised to minimise current road costs due to lack of NZTA financial support. The result of which is minimisation of life cycle costs and appropriate Levels of Service had to be compromised

Arriving at an optimum level of maintenance is a complex process that has to be based on an accurate and detailed asset inventory, actual condition data and a sound working knowledge of the asset component and its mode of deterioration.

The asset's capacity is a measure of its ability to meet its design standard, agreed levels of service and any perceived future demand that may be placed on the asset. The current capacity and performance of the sealed carriageway component of the MDC road network is shown in Levels of Service Table 4.2.

8.3.2 SEALED ROADS OPERATIONS AND MAINTENANCE PLAN (WC 111)

Current practice is to apply a combination of "reactive" condition driven and network lifecycle techniques to determine the work necessary to maintain the network within financial constraints (see chart Appendix VI). These methods rely heavily on:

- an Asset Manager's knowledge of the network
- annual or biennial inspections to obtain the condition data used in the RAMM Treatment Selection Algorithm (TSA)

- accurate base inventory
- life and cost information of each asset component
- historical maintenance cost of each road (From 2014 this data will be recorded by carriageway section in RAMM)

Over the last three years, due to inflation the maintenance costs have increased annually (CPI being applied to 5 year maintenance contract) with the resulting condition generally remaining static but with an increase in shoving and heaving failures. This indicates that in order to keep the network at the same condition level, future maintenance cost increases will be required.

Advanced asset management techniques that model asset performance under varying maintenance and financial conditions could be used to further optimise and prioritise road maintenance effort and expenditure. It is considered however that the low traffic loading and low maintenance requirement, coupled with detailed knowledge held, on the majority of this network, doesn't warrant this sophistication of approach.

Maintenance Standards
The technical LoS required are detailed in the maintenance standards that implement these technical LoS is set out in MDC specifications contained in the road maintenance contracts.

Maintenance Programme
The majority of the pavement maintenance is reactive so budgets are based on historical expenditure, particularly that of the last three years. As noted above with the increase in heaving and shoving failure being identified, at risk areas have had or are programmed for extensive drainage improvements. The financial forecasts are presented in Appendix III. However, adjustments are included for new roads and to reflect significant improvements. There is a need to increase maintenance to reflect lack of timely renewal works, which are also influenced by NZTA funding decisions.

8.3.3 SEALED ROAD RESURFACING & SEALED PAVEMENT REHABILITATION (WC 212 & 214)

Renewals include resurfacing, smoothing and pavement rehabilitation. The identification of sealed pavement requiring renewals is brought about in a number of ways:

- Regular drive-over inspections
- RAMM rating surveys
- Ratepayer service requests
- Contractor inspections/reports
- Annual maintenance costs

The required level of renewal varies depending on:

- The age profile of carriageway surfacing and structure
- The condition profile of the carriageways
- The deterioration of the top surface
- The level of on-going maintenance demand
- The likely future demand on the road

This information is used as base data in the generation of road condition forecasts, forward works programmes and road renewal programmes. NZTA project evaluation methods are used to determine Benefit/Cost ratio. Road rehabilitation is carried out only if NZTA co-investment can be met.

8.3.3.1 Renewals Treatments

Sealed Road Resurfacing
Sealed Road Resurfacings are pavement resurfacing where the reseal is to be applied to an established sealed road. Examples of these activities include:

- Conventional chip reseals, including second coat seals (generally two coat)
- Void filling seal coats
- Texturising seals
- Other special purpose surfacing (polymer modified seals) that fall into the maintenance chip seal NZTA category

Sealed Road Pavement Rehabilitations
Rehabilitation is pavement renewal of generally of a limited area in which there are no geometric improvements to be actioned. These may include:

- Thin asphaltic overlays
- Unbound granular overlays
- Treatments involving ripping and/or reshaping
- Chemical stabilisation treatments.

Initially the first call on the budget set aside for this work in any one year is to repair frost heave damage caused winter freeze/thaw conditions. At these sites the drainage is improved if required and then generally a 150mm overlay is constructed.

Basic rehabilitation works are not to increase the existing seal width or provide a seal width greater than the standard for the traffic use of the road. Formation widening may be undertaken where it is required for support or structural integrity. Consideration should be given at this stage to provide the final overall width of the rehabilitated section to tie in with the required width of the whole road to reduce long term maintenance costs (i.e. constant edge break).

Historically, in any one year, sealed road pavement rehabilitation has been as a result of damage caused by winter freeze/thaw conditions. Godley Peaks Road and Haldon Road have been the most at risk roads in the District. This has not completely used the available budget and any surplus has been used for sealed road resurfacing to reduce the overdue list.

MDC have made substantial improvements to drainage in sections that are known to cause issues, this has abated the need somewhat, but there is still a generally requirement to carry rehabilitation on sections of Haldon Road, Godley Peaks Road, Lilybank Road.

Future needs are 1200m on Clayton Road and 2000m on Hamilton Road caused by changes in land use and a corresponding increase in HCVs. Records show that the Average Annual Daily Traffic on Clayton Road has almost doubled in the last 12 years from 289 to 419 with 24% HCVs remaining constant. Thus the number of HCVs has also almost doubled.

8.3.3.2 Sealed Road Improvements

Seal Widening

Seal widening allows for the widening of existing surfacing where this is the least-cost maintenance treatment necessary to overcome edge break or to reduce shoulder maintenance. Work may include shoulder strengthening and/or formation widening where this is necessary to maintain the structural integrity of the pavement. This work may also be carried out to improve safety. Due to lower traffic volumes on a number of roads that should be widened it is difficult to get a qualifying B/C to get the projects approved by NZTA. In the past, deserving roads were widened using the Minor Safety allocation, but due to a change in stance by the NZTA this is no longer possible.

Minor Improvements

Minor Improvements are described by NZTA as low-cost/low-risk improvements. The Minor Improvement budget is set at a maximum of $300,000 for each project, with a co-investment rate equal to our base rate. The maximum annual amount is generally capped at 5% of the combined expenditure on:

- Pavement maintenance
- Bridge maintenance
- Corridor maintenance
- Structural maintenance (renewals)

Council still needs to fund almost half of all work costs and so this restricts the quantum of work actioned each year. Selection criteria in this category are based on improved safety and optimising lifecycle costs including road user costs.

Minor improvements typically include:

- small, isolated geometric road and intersection improvements
- traffic calming measures
- lighting improvements for safety
- installation of new traffic signs and pavement markings, or upgrading these to the current standard, where the cost is in excess of $10,000
- provision of guard railing
- sight benching to improve visibility
- construction/implementation of new or improved pedestrian facilities
- construction/implementation of new or improved cycle facilities, and shared pedestrian and cycle paths
- stock access structures
- formation of ‘trailer parks’
- minor engineering works associated with community programmes

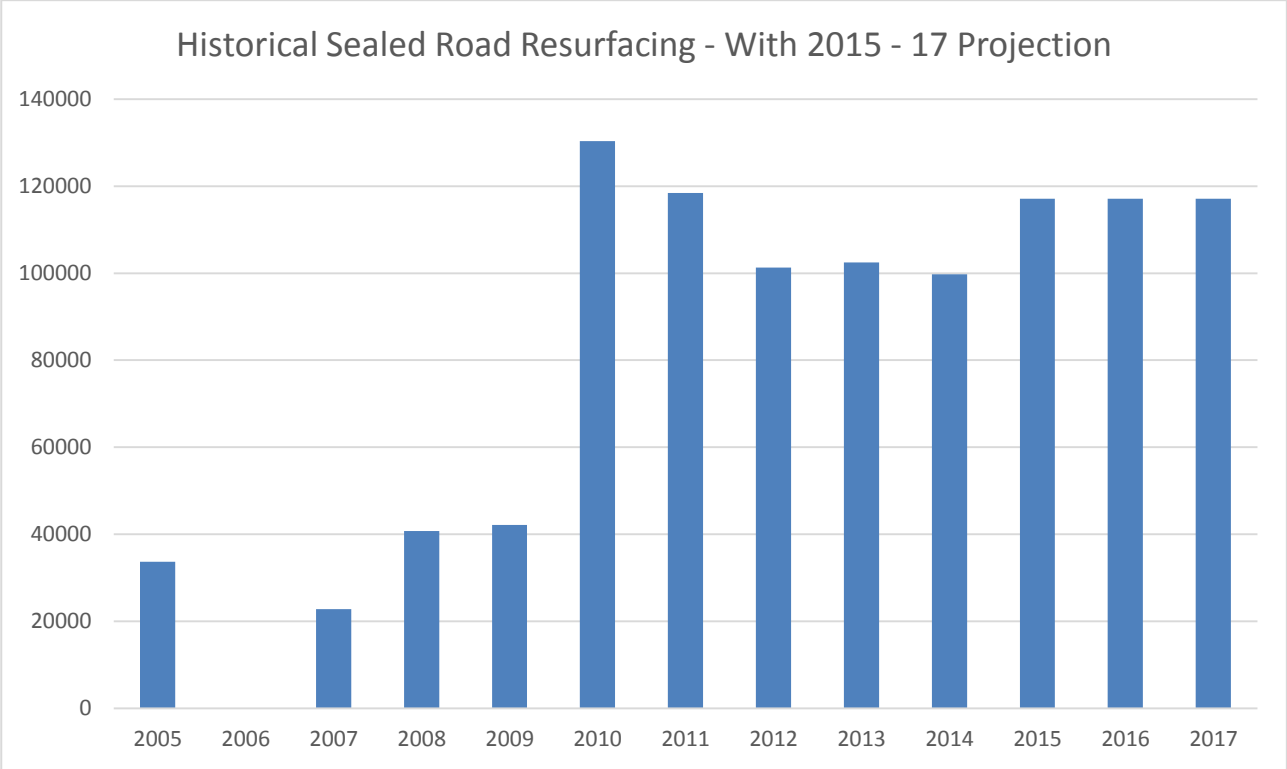
NZTA have determined that all projects with a value less than $300,000 will be funded from Councils minor improvement allocation. This means that Council’s bridge replacement programme is funded from this. There are only two bridges with an estimated construction cost greater than $300,000 and these will have to be applied for separately. Due the ruling on bridge replacements, NZTA approved an allocation of $250,000 per annum for the 2012-15 NLTP. As we have two

bridges programmed for replacement during the next NLTP application has been made to continue with that level of funding.

8.3.3.3 Sealed Road Resurfacing

Figure 8.8 shows the amount of renewal activity achieved for each of the last 10 years. The average annual resealing achieved over the 10 year timeframe is 8.6km per year. The average annual first coat sealing achieved over the previous 10 years is 5.6km per year. It is unlikely for this level to be maintained in the future.

Figure 8.8 – Historic Surfacing from RAMM

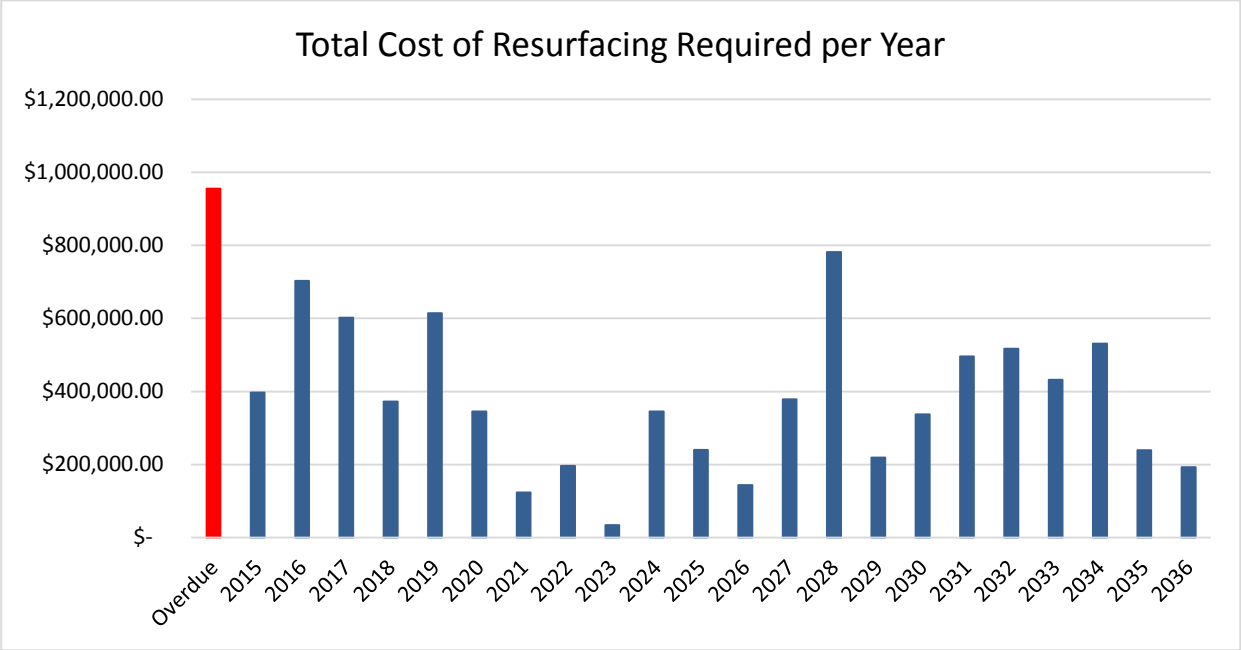


The expected life of a seal is dependent on whether it is a first coat or reseal, what type of seal (e.g. single coat or two coat, large or small grade chip), and the amount of traffic using the section of road. Based on a Councils sealed pavement length a target average annual reseal length of approximately 8% could be regarded as the average annual need. Actual resurfacing over the last 10 years has been less than this amount to fit in within approved budgets

A full review of our seal histories using an average reseal life of 18 years and 8 years for 1st coats was completed. As part of the FWP exercise, the existing back log of resurfacing (i.e. where the existing seal age is older than the agreed default seal lives) has been calculated. This shows there is theoretically 154,000 m^2 (approx. 26km) of deferred maintenance. These seals are between 22 and 34 years old. The backlog has been partially caused because over the last ten years 16km of sealed roads have been added to the asset register either though development or LINZ handing over Hayman Road (5.2km) to Mackenzie District. The other impact is the ever increasing cost of bitumen against a fixed allocation from NZTA and no allowance for inflation.

As seen in the Figure 8.9, there is a large deferred maintenance of both 1st coat and reseals coupled with a significant amount or reseals required in 2015/2017. In order to clear the backlog of 154,000m^2 over the next five years MDC will need to seal approximately 115,000m^2 (approx. 20km) per annum for 2015-2022. Our 22 year programme as depicted in Figure 7.9 (red line) shows the need for Mackenzie District to spend a minimum of $725,000 for the next 5 years reducing to $275,000 per year for the next 7 years with a lift back to $500,000 to clear the back log and maintain an average seal age of 18 years. This smoothed programme allows for various seal sections to be brought forward or extended out, based on local knowledge and is yet to be fully verified in the field.

Figure 8.9 – 20 Year Resurfacing FWP



Single Coat or Two Coat Seals

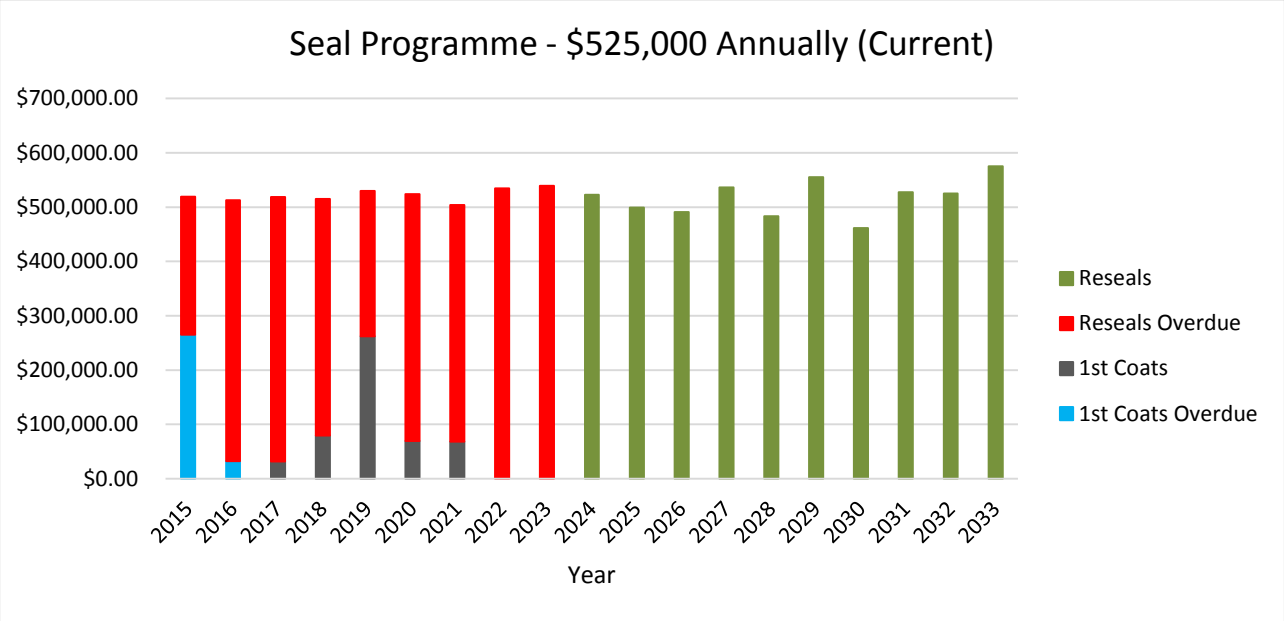
Historically single coat reseals, completed in 2006-2011, were used to extend the available budget as far as possible to make inroads into an increasing list of overdue seals. This has not generally been successful, so a move to two coat seals was implemented in 2012 to reduce the risk of premature failure and hopefully get the full life expectancy of at least 18 years from those seals.

8.3.3.4 Sealed Road Resurfacing Funding Models

Various funding options were modelled to address not only the current back log but also to ensure the flow on effect in 18 years from addressing the back log did not reappear.

Currently the annual budget is $525,000 for reseals, so it this was used as the first funding option to see if the allocation was sufficient to deal to the back log of 154,000 m^2, at a nominal width of six metres this equates to approximately 26km.

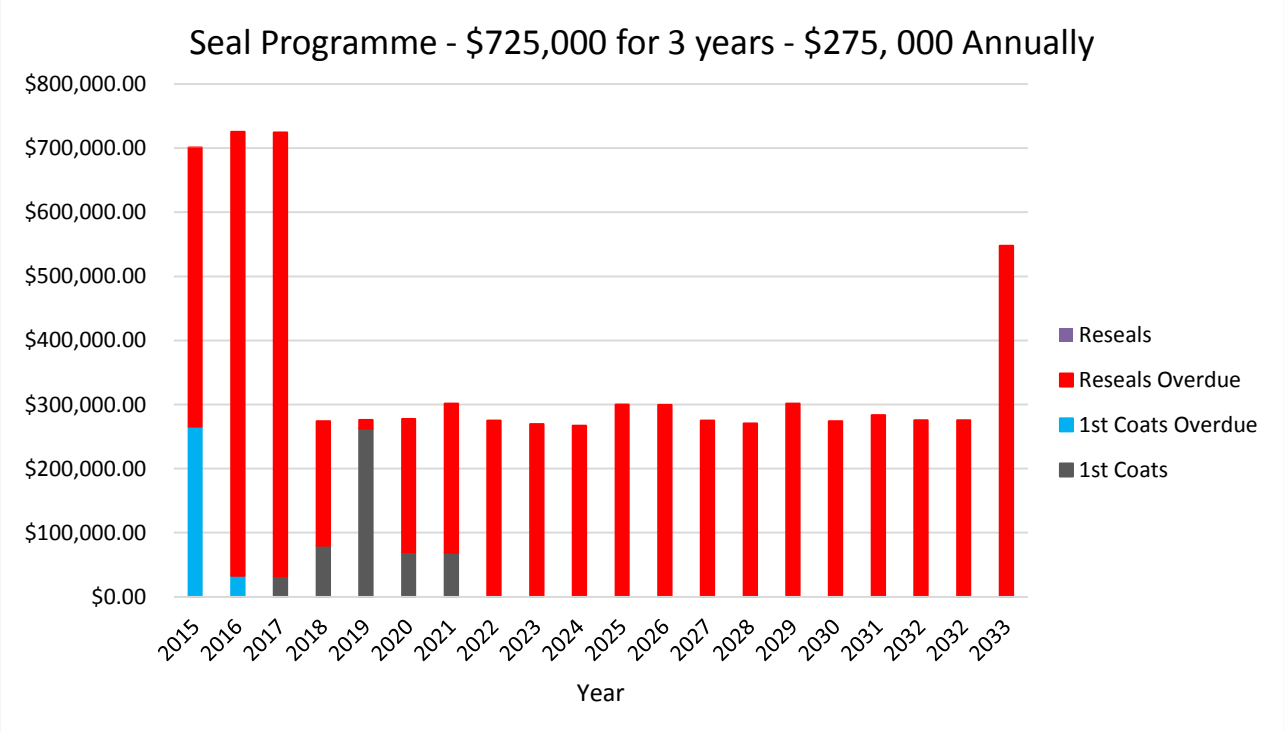
Figure 8.10 - $525,000 Annually (Current)



This is the current level of approved investment from NZTA, as the graph shows this isn't sustainable as level of funding only sustains an average of seal age of 22 years and therefore takes 8 years to catch up on some significant old seals. It is not until 2024 that the projected seal for that year are 18 years old. The risk with this approach is that some seals may have a much shorter life and thus effect the model.

The next consideration modelled, was a significant injection of funds for a three year period (one NLTP) with a reduced allocation of $275,000 through to 2033.

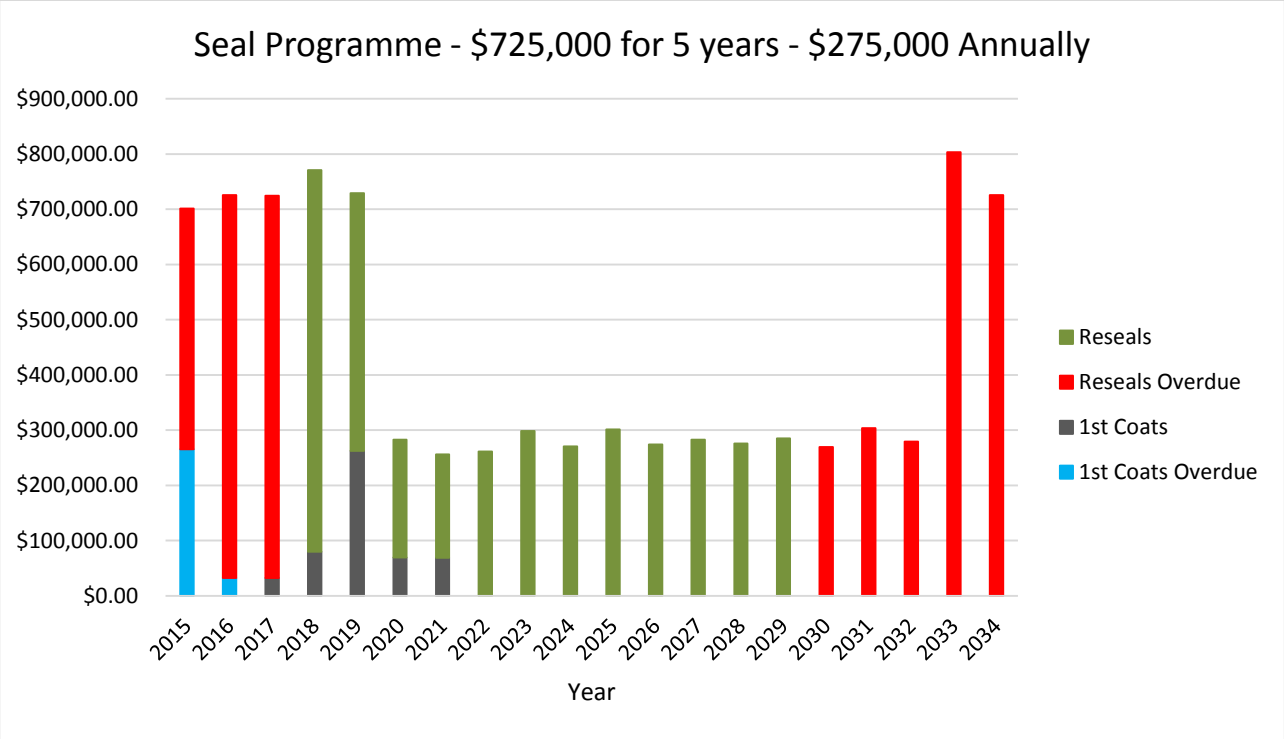
Figure 8.11 – $725,000 for 3 years - $275, 000 Annually



This scenario is also not sustainable as the sealing programme for years 2015 to 2033 as we never catch up on seals greater than 19 years old. The current back log comes back into play again in 2033 to produce another peak.

The next consideration was a significant injection of funds for a five year period with a reduced allocation of $275,000 through to 2033.

Figure 8.12 – $725,000 for 5 years - $275,000 Annually



Whilst this is acceptable in the short term, as the back log is dealt with by 2017/18 and from then on the average age of the remaining sealed roads is no more than 18 years through to 2030 when the influence of the current backlog starts to make an impact again. The obvious answer is an injection of funds towards the end of the cycle to address this. The next two scenarios modelled, determined that there should be an injection of funds and also when that should be, at year 2029 or 2027.

Figure 8.13 – $725,000 for 5 years - $275,000 for next 9 years - $500,000 on-going

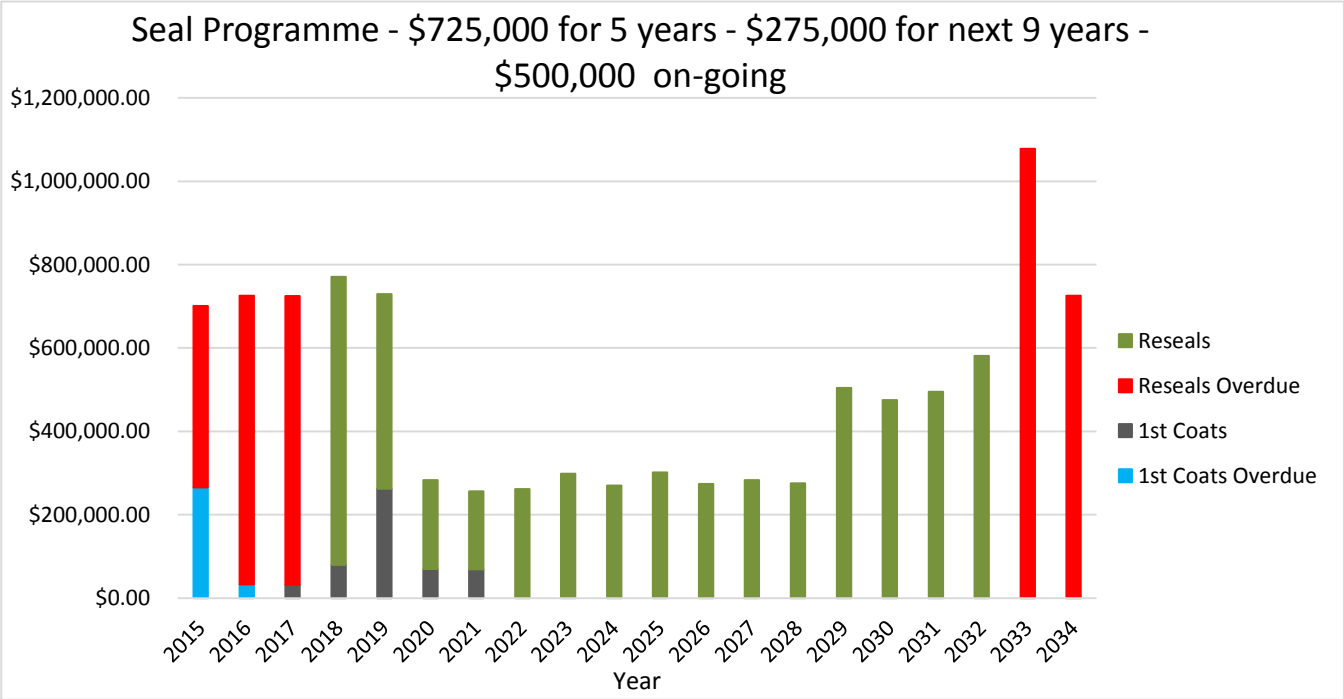
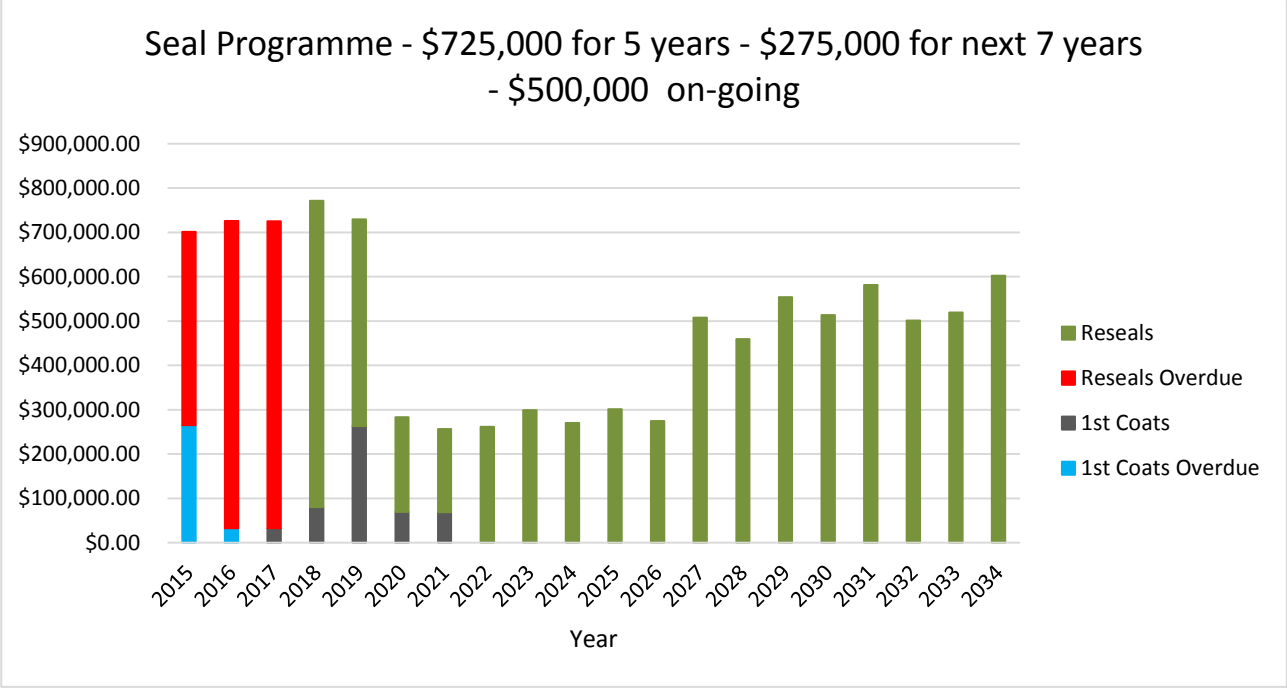


Figure 8.14 – $725,000 for 5 years - $275,000 for next 7 years - $500,000 on-going



This graph show s that an allocation of $725,000 for 2015-19 would deal with the current back log, then the allocation could be reduced to $275,000 for the next seven years where an increased allocation of $500,000 is required to keep the average seal no older than 18 years.

It should be noted that this is an ideal situation that does not allow for early failure of any seal or inflation. It is also modelled on the re-sealing rates for 2013/14.

8.3.4 SEALED ROADS ASSET DEVELOPMENT PLAN (WC 323 & 324)

This plan includes for sealed pavement created through subdivision development, road reconstruction, minor improvement projects, seal extensions and seal widening. Seal Extensions and New/Upgraded Roads is covered under the Unsealed Roads Asset Development Plan.

Only those projects that either meet NZTA criteria and attract subsidy or meet Council Policy are carried out.

8.3.4.1 New/Upgraded Roads for Development

Within the last 10 years significant urban and rural land subdivision has occurred in the District. When each subdivision is completed, any internal roading network is vested in the Council, which then takes over responsibility for on-going maintenance. While there should be no major repairs or maintenance required for several years, operating costs such as street cleaning and street lighting costs do occur immediately. New subdivisions can also increase traffic volumes on existing roads which, in turn, can increase maintenance requirements. To reduce costs and minimise risk to Council and NZTA, Council requires that all sealed roads have a two coat second coat seal applied before they are vested with Council.

The construction of roads within new subdivisions is generally funded by the developers and must be constructed in accordance with The Mackenzie District Plan and the Council's Engineering Standards. On completion, provided the roads and associated assets comply with the Engineering Standards, they are vested in the Council (i.e. Council takes over ownership). There are few capital expenditure implications with this type of asset creation; the more significant implications are maintenance and renewal related. During the period 2004-2014, 16 km of new roading assets with associated drainage, lighting and footpaths were vested with Council.

The costs of upgrading of roads external to new sub divisional development is a significant issue in the Mackenzie District Council, especially with development involving clusters of life style units. It is recognised that development within the District adds to the demands on the infrastructure of the District. The provision of major capital works ahead of developments, presents difficulties in who should provide the funding. Council, in communication with the community, needs to formulate a policy to provide a guiding framework for road improvement decisions and funding within the Mackenzie District.

The urban and land subdivision in MDC has slowed in the last 2 years and it is not forecast to increase to previous levels for some time but is displaying steady growth. For example in 2015 we are expecting to have 2.9km of sealed roads and 4.8km of un-sealed roads vested with Council.

Council is in the early stages of discussions with a developer to construct two hotel complex's in Tekapo They will have an effect on transportation activities in the wider area and will have to be considered as part of the resource consent process.

8.4 UNSEALED ROADS

8.4.1 UNSEALED ROADS BACKGROUND DATA

8.4.1.1 Unsealed Roads Scope and Nature of Asset

The unsealed road network in Mackenzie District comprises 71% of the districts road asset and carries approximately half of the total vehicles travelling on the network. Pavement design standards have not been specifically set for the unsealed road network.

The roads are surfaced with a modified M/4 AP20 aggregate and constructed to achieve a 4 to 6% cross fall along straights with a maximum 10% super elevation on corners, however many have adverse camber due to the effects of traffic wear and past maintenance.

Details of the unsealed road network are held in the RAMM system. This mainly involves inventory data such as the length, width and start and end points of a section of road.

The network is divided into two portions: the roads in the Pukaki Ward and in the Opuha Ward.

Roads in the Pukaki Ward consist of six long no-exit roads that provide access to farming areas. Due to the extreme climate in the Mackenzie Basin, the unsealed roads are very dry during the summer months. Little maintenance can be done except grading the loose stone back over the road surface to remove windrows and to protect the bound pavement beneath. Dust nuisance can be a significant problem. Metalling of unsealed roads is normally carried out in Spring and Autumn when the roads are sufficiently damp for the new metal to adhere to the existing road surface. However drought conditions can exist at any time of the year and limit what maintenance works can be carried out.

The Opuha Ward roads have less demanding maintenance needs and level of service issues. The climate does not present the extremes encountered in the Mackenzie Basin. As a result, road maintenance activities are able to be planned and executed in a more programmed and controlled manner. During periods of extreme dryness a high number of complaints regarding dust are received. It is not Council policy to apply dust suppression to any of unsealed in response to those complaints even though we are having good response to our “rotten rock” trials in relation to reduced dust generation.

8.4.1.2 Unsealed Roads Current Condition

The unsealed road asset is in a constantly changing condition depending on traffic use, weather, position in its maintenance cycle etc. This condition is monitored through Contractor and Roading Engineer inspections. Complaints and queries from users are an additional source of information on potential issues.

No formal condition rating information is collected and it is not intended to do so in the future as condition changes very frequently on these roads (up to daily on some roads) and such formal surveys would provide no meaningful data. Technology is becoming available to efficiently capture meaningful data on the unsealed network that could provide valuable insight into the

performance and levels of service on the network. Staff are currently investigating costs v benefits of obtaining such equipment.

Maintenance is aimed at maintaining the asset to an acceptable Level of Service. However, on some routes significant fluctuations in traffic volume affect both condition and the ability to maintain acceptable LoS economically. The Roundhill Ski area on Lilybank Road has seen increased Ski traffic of up to 600vpd on a road designed to take its normal loading of 80 vpd to the high country stations. This increased loading impacts the pavement at the worst possible time of the year.

8.4.1.3 Unsealed Roads Current Performance and Capacity

Performance

The road user perception of unsealed roads is that they are of inferior quality to sealed roads due to issues with carriageway width, roughness, dust, mud, corrugations, potholes, soft areas and increased vehicle operating costs. These issues are being continually assessed by the maintenance contractor with work programmed and executed to keep the roads within agreed LoS.

The Council recognises that some unsealed road users may never be satisfied until "their" road is sealed, but acknowledges that this is not always viable given the length of the unsealed network, low use and cost involved. Life cycle costs of all but the shortest sealed roads (< 200m or so) are significantly greater than those of unsealed roads. That is why the District has so many of the latter. The change-over point in terms of total life cycle costs, including road user costs, is between 120 and 200 vehicles per day, depending on the road characteristics. However as NZTA requires a benefit cost ratio in excess of 4 before it will consider co investing in such work and as the Council is generally not prepared to carry the full costs of such work it is only programmed when there is very strong justification.

Despite this there is on-going pressure for seal extensions, mainly for dust mitigation.

Capacity

Where traffic volumes are low and the terrain is open a single lane carriageway of approximately 3.5 to 4.0m in width can suffice as long as there are sufficient passing opportunities. Councils normal operating width is 5.6m. When there are more than about 80vpd and the road is longer than 1 to 2km it must be wider to allow opposing vehicles at careful speeds if necessary.

A carriageway width of 3.5m is acceptable where:

- the road is in a low speed environment
- there is good visibility
- the environment places stringent controls preventing a wider carriageway
- adequate passing opportunities are available
- safety records are satisfactory

Before proceeding to rebuild any unsealed carriageway the Roading Team assess whether:

- The data currently held in RAMM is accurate (road inventory, traffic estimates, etc.)
- Landuse or any proposed change in land use
- Any crash statistics

- the change to carriageway width warrants the level of expenditure anticipated
- Local knowledge

8.4.1.4 Unsealed Roads Historical Data

Little historic data is formally held in RAMM on the physical construction and maintenance cost of the unsealed roads. However, Council has built up significant maintenance data over the past decade including grading frequencies, quantity of maintenance metalling applied etc. and their respective costs. These records are held and updated regularly on spread sheets. This data is being loaded into RAMM per road. From October 2014 the maintenance data will be recorded in RAMM by carriageway section.

Cross Section Surveys and Gravel Loss

Council has 18 Sites where the road surface is levelled to a datum to analyse the gravel loss over time. The sites are surveyed every two to three months and the information compared over time. The three most highly trafficked roads, being Haldon Road, Lilybank Road and Braemar Road are most closely reviewed due to their high traffic counts and fragile nature. Information gathering at some of these sites has been going on for some years but the programme has been ramped up considerably in the last three years.

The graph below shows one of the sites on Haldon Road as a typical example.

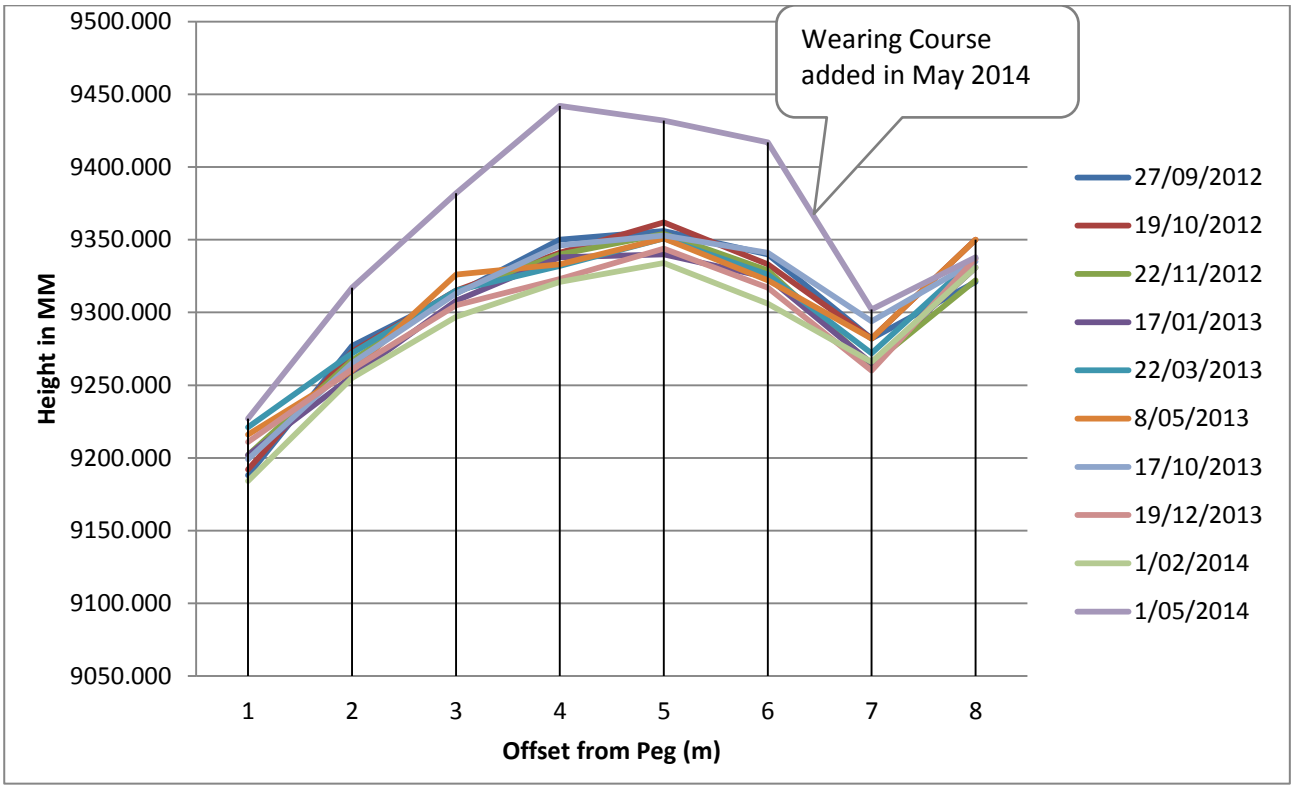


Figure 8.14 – Haldon Road Gravel Loss – Site 2

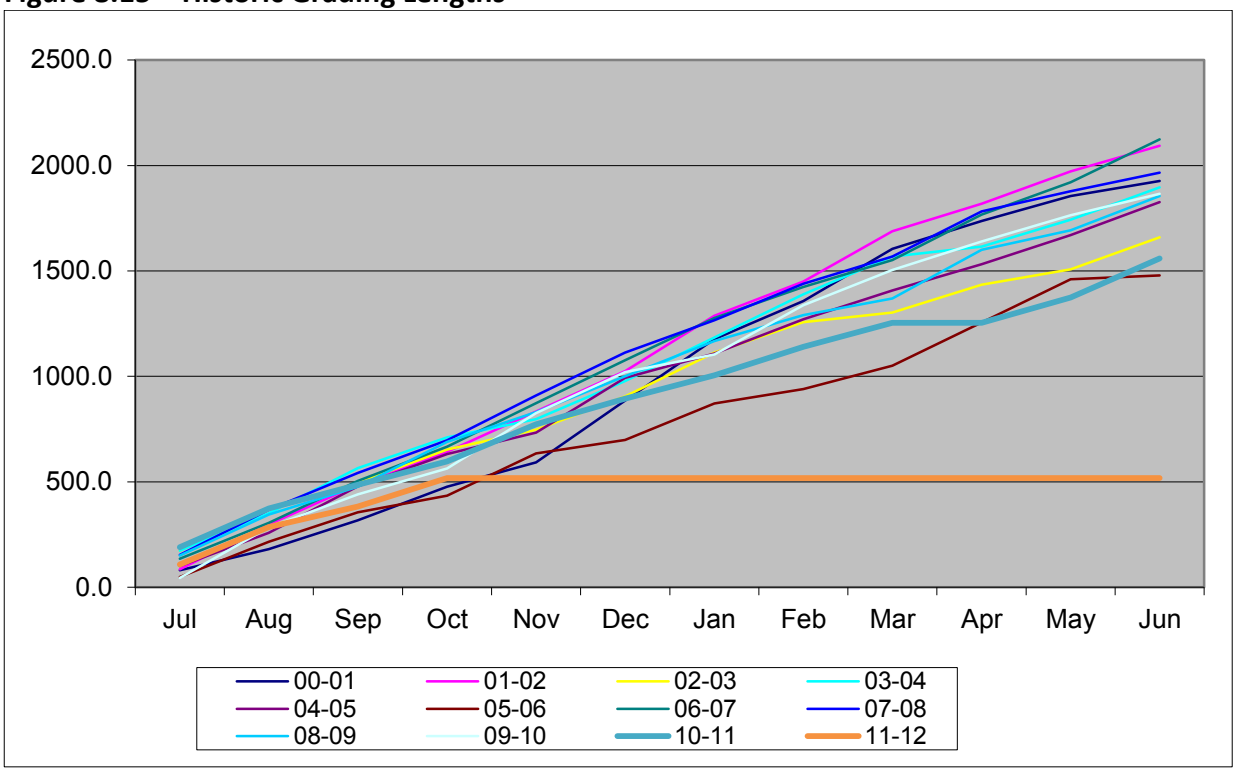
Analysis of this data shows that, for the big three roads we lose 17mm off the crown annually, equating to 6,000m^3. For the balance of the unsealed network the loss is on average 7mm of the crown, equating to 15,500m^3.

To avoid consuming the asset this metal loss needs to be replaced on a regular cycle. At current contract rates the cost to replace 21,600 m^3 across the network is $650,000.00.

Annual Grading Lengths

Figure 8.15 shows the length of grading completed each year over the last 10 years. The cumulative length of grading completed each year has decreased over the last 10 years, with the 2010/11 quantities being significantly less than previous years. This drop is in part due to the addition of Clay to our maintenance metal. Therefore more funding has been made available for Unsealed Road Metalling, which could further decrease in maintenance costs in future.

Figure 8.15 – Historic Grading Lengths



Annual Metalling Quantities

Figure 8.16 shows the historic quantities of aggregate applied to unsealed pavements as running course and wearing course within the District. Running course is surfacing material, whereas wearing course is a thicker application of metal compacted with a roller to build up the pavement structure and improve the cross fall resulting in a stronger roadway with improved drainage characteristics.

The current maintenance strategy is to minimise the amount of running course applied to the unsealed road network. The available funds are generally being used to apply wearing course to provide a stronger pavement and reduce whole of life costs.

Haldon Road, Lilybank Road, Braemar and Mt Nessing Road (the big four) have significantly more traffic than the balance of the unsealed network and therefore the greatest gravel loss in any one year.

As can be seen in Figure 8.16 total
metalling has not been able to achieve the required amount of 21,600m3 of metal to avoid consuming the asset. This is due to insufficient funds being provided by NZTA as part of its co-investment of the maintenance of the network. Council does not fund non-subsidised any road maintenance. An increase in funding is required to enable MDC to maintain the current level of service on those roads already upgraded and improve the strength of the balance of the network. The current funding levels are in sufficient to avoid consuming the asset.

Figure 8.16 – Annual Metalling Quantities

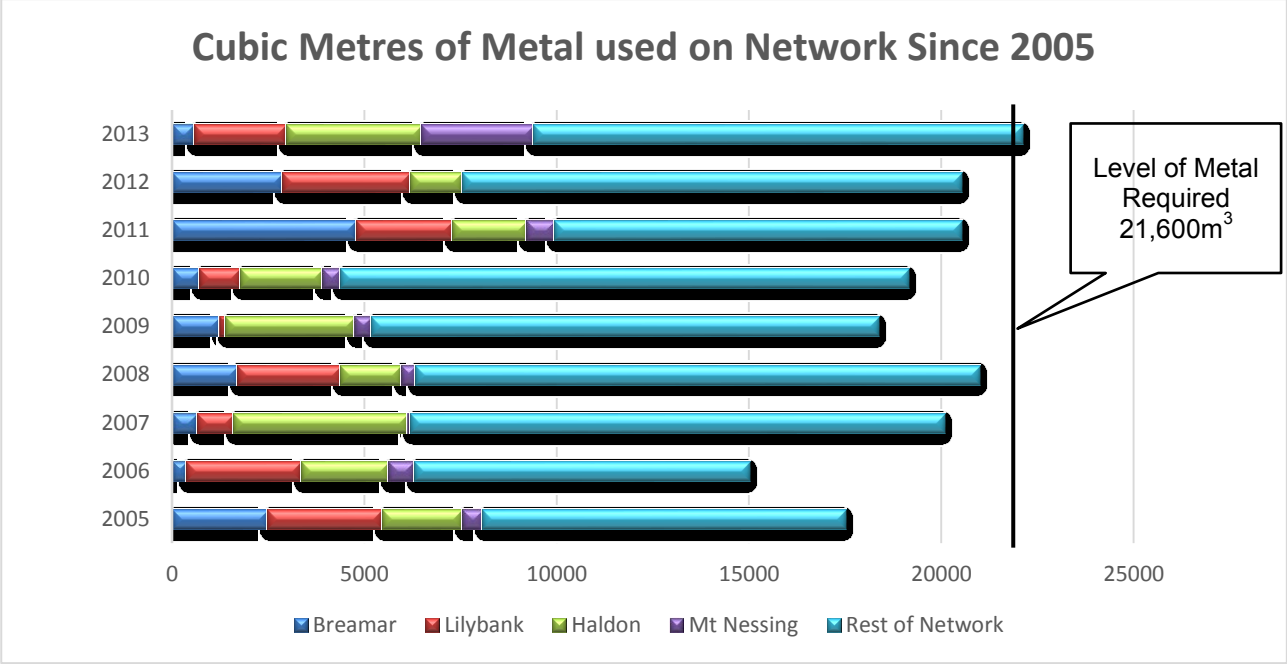
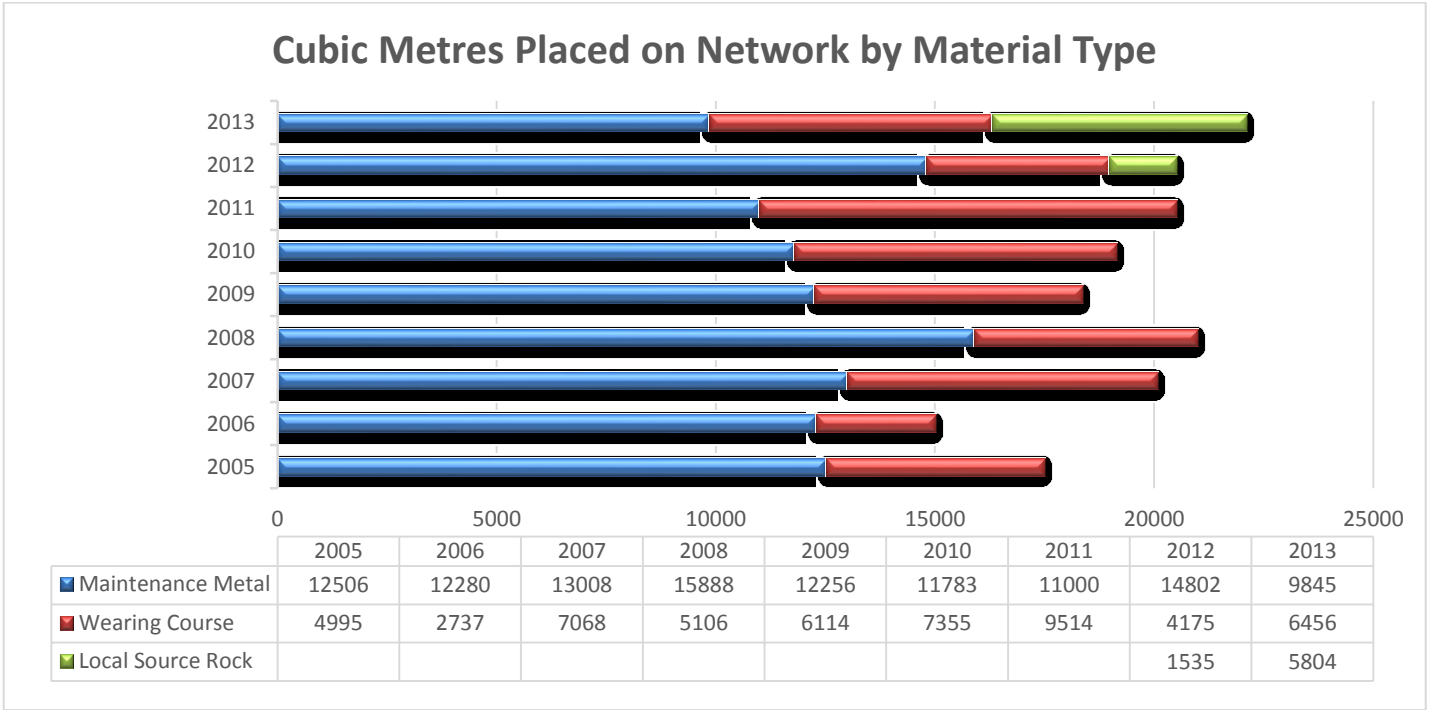


Figure 8.17 – Historic Running and Wearing Course Application



	2005	2006	2007	2008	2009	2010	2011	2012	2013
Maintenance Metal	12506	12280	13008	15888	12256	11783	11000	14802	9845
Wearing Course	4995	2737	7068	5106	6114	7355	9514	4175	6456
Local Source Rock								1535	5804

8.4.2 UNSEALED ROADS MAINTENANCE AND RENEWALS (WC 112 & 211)

Maintenance Standard

Maintenance is delivered through competitively tendered contracts. The Contractor is paid at scheduled rates to maintain the network of unsealed roads to the required standard. The rates cover all work including:

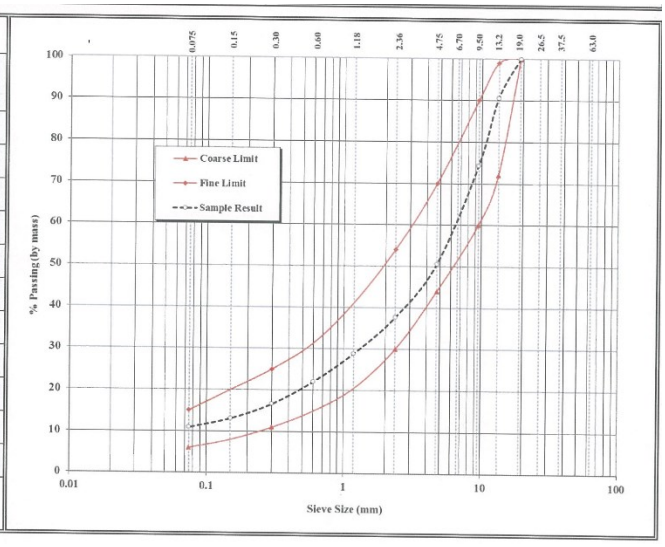
- pothole repairs
- surface and shape restoration (grading)
- laying additional maintenance aggregate
- vegetation control (spraying)
- maintenance of surface water channels
- traffic services maintenance

Resources are applied to unsealed roads on a needs basis. Unsealed roads are prioritised yearly from Priority 1-3. Priority 1 roads are in very poor condition and need a full stabilisation treatment to be able to continue to function as a road safely trafficable at 70km/h. Priority 3 are in average to poor condition showing corrugations and bony patches. Programmes over recent years have been very reactive and it has been identified that further funding is required to complete P1 and intervention on P2 roads and begin a gravel replacement programme to counter gravel loss/migration. Council is working towards having a 3-5 yearly forward works programme instead of completely reactive maintenance.

8.4.2.1 Maintenance Metal Supply

Currently, most materials are sourced from local rivers and streams within the Pukaki and Opuha areas. As these are alluvial materials there is a large number of round rock in the mix, even when passed through the crusher many round stones are retained whole. This means that the mechanical interlock of river won materials is of a lesser quality, with a resulting roading surface that is friable and hard to retain a good cross fall. As extraction of suitable materials from rivers becomes increasingly difficult, with constant delays as a result of increasing consenting requirements, Council is moving towards more pit materials, which contain more broken faces and provide a better mechanical interlock. This in turn provides a safer, more durable driving surface.

PARTICLE SIZE ANALYSIS (NZS 4407:1991, Test 3.8.1)		
Sieve Size (mm)	% Passing (by mass)	Contract Specification
26.5		
19.0	100	100
13.2	91	72 - 99
9.50	74	60 - 90
4.75	51	44 - 70
2.36	38	30 - 54
1.18	29	
0.60	22	
0.30	17	11 - 25
0.15	13	
0.075	11	6 - 15
Note: The percentage passing the 75μm test sieve was obtained by difference.		



Currently there are two trial pits with a further two pits being investigated.
The first pit is privately owned, on Mount Nessing Road, Aorangi Downs. This pit provides good "rotten rock" material. But, as this material is high in clay content we are awaiting a harsh winter period to see how it will perform in freeze thaw cycles before extending the use of this material further.
The second pit is a slip face in the Mackenzie Pass, which frequently spills and causes large rock slips and build up over Mackenzie Pass Road. This material is durable, but lower in clay content. There is a section laid on Haldon Road, the performance of this material will be closely monitored over its first busy, summer season since being applied. This material has required a modified AP20 light running course to be applied over the completed construction to provide additional suitable fines.
The two trial pits being investigated are in Council owned forestry blocks, one in the Ashwick/Opuha Area, on Monument Road, the other is in the Pukaki area which could provide a suitable source for Hayman, Mount Cook station and Braemar Roads.
Care is taken to ensure no metal is carried from one basin to another to limit weed seed spread where practicable. As such this means that clay and metal sources must be found in both basins. This also has the added benefit of shorter cart times resulting in lower whole of life costs.

8.4.2.2 Clay Maintenance Metal Initiative

A major initiative commenced in 2010/11 was the introduction of clay to maintenance metal and wearing course aggregate. Historically, maintenance metal available in the area has been deficient in fines and has poor cohesion. This resulted in roads having to be graded more frequently and replacement metal applied more often to maintain roads to the required standards. Research has shown that material loss can be minimized by the addition of clay to the aggregate and this results in cost savings through reduced maintenance grading and material application frequency.

Beginning with the spring metalling programme in October, 2010, several clay sources were identified within the Mackenzie District and stockpiles established in strategic crushing locations. This proved to be quite an exercise in logistics since clay deposits are not abundant, particularly in the Pukaki Ward. However most of the clay for the Pukaki Ward was eventually found there and did not have to be carted on a long haul from Fairlie. It also avoids any concerns of weed distribution between the Mackenzie Basin and Fairlie Basin. The crushing subcontractor then

thoroughly mixed the clay in the desired proportion with the river or bank run material using a loader. This mixture was then fed into the crusher resulting in a homogeneous stockpile of clay-infused aggregate.

Sixty one unsealed roads received maintenance metal. Wearing course was constructed on four roads: Godley Peaks, Haldon (part), Hamilton, and Middle roads. Similar to wearing course, stabilisation using clay binder was applied to Lilybank, Lochaber, and Godley Peaks roads.

The results of the clay initiative have, so far been very encouraging. Figure 7.2 shows grading has reduced in 2010/11, while the overall standard of surface shape (lack of potholes, corrugations etc.) and pavement drainage (surface water channels clean etc.) has remained acceptable. The savings formerly used for grading have been made available for other improvements.

The exceptions to the above are roads with minimal aggregate thickness or flat surface shape which receive occasional heavy traffic loadings such as logging activities, carting in winter feed and feeding out using large tractors and silage wagons. Examples of roads effected in this way are the top end of Lilybank Road and Godley Peaks Road. These will always need additional grading following such activities to restore surface shape.

The clay material is proving to perform well through the worst of the winter period, but the condition of the network where this material has been used continues to be monitored for performance and if necessary changes to the blend may be made as a result of field observations.

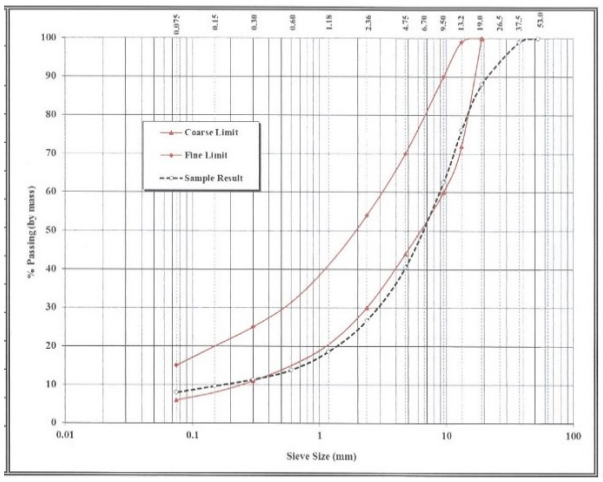
The only downside so far, is that cars have been observed travelling faster on the hard surface of these unsealed roads. Obviously this is not completely desirable since it is still an unsealed road with loose material on the surface and the potential for loss of control crashes exists. Additional signage has had to be erected at the change in road surface to warn motorists of the change.

8.4.2.3 Maintenance Metal Trials and Unsealed Road Network Resilience

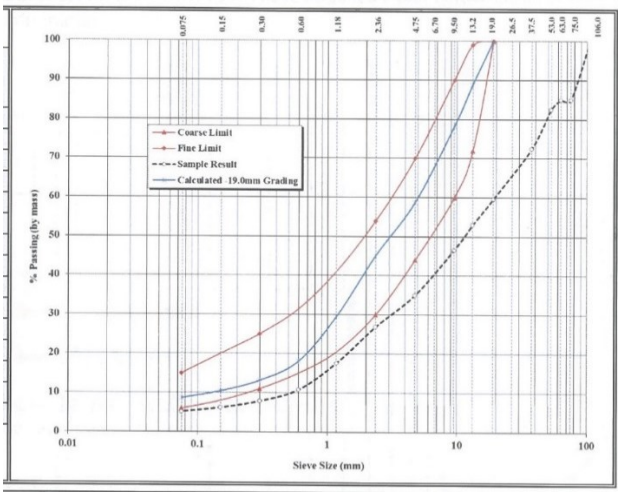
During 2012/13, a number of roads were significantly scoured out by heavy rain and these areas were rebuilt using local sourced materials, namely rotten rock, as a quick and economical fix to reopen the road. The material performed well having a high number of broken faces that provide a great mechanical interlock thus resisting any future scour.

Observations showed this material had a lower dust generation and required less grading to maintain the required level of service. These observations encouraged staff to use more of this product on various locations to test the viability of the various sources as a replacement for conventional AP 40 with a high clay content. Some material was won direct from the pit and laid on the road where the rock size was small but in other cases it was crushed and screened to a maximum size of 32mm.

The results of these trials are being closely monitored for required maintenance and gravel loss with encouraging results being recorded to date. Grading has been significantly reduced as has the recorded gravel loss. The surface has good skid resistance in all conditions and reduced dust generation making it a safer alternative to conventional materials.



Aorangi Downs Weathered Rock



Mackenzie Pass Weathered Rock

Staff used this material straight out of the pit on a 1km section of Blainslie Road and a similar length on Stoney River Road. We observed the improved strength of the subgrade and after the passage of traffic the road settled to a smooth mosaic with good ride qualities. It also seemed to have reduced dust generation.

Following the success of these sites it was decided to apply 100mm of weathered rock from the Aorangi Downs pit on a 300m section of Hamilton Road following a complaint of serious dust nuisance.

This section of road was laid down and compacted in place and has required no grading for 9 months. After that time maintenance required was five passes with a grader that had sandvick bits attached to redistribute the fines and has had no further grading in 14 months. Traffic count on this section is 180vpd and during the dairy season has 4 tanker movements per day along with associated farm traffic. Not only is the regular maintenance significantly reduced there has been no dust complaints either. The dust particles are quite a lot larger than normal and do not travel far.

Gravel loss is less than 1mm off the crown annually. The success of this trial has encouraged further trials using other local sourced materials.

The Aorangi Downs pit is on private property and Council should try to obtain long term access to it to ensure its availability in the future if the farm is ever sold.

Braemar Road

The next trial site was a 1km section on Braemar Road. Braemar Road has a high number of HCVs using the road, from Meridian Energy carting rock, logging operations from Mt Cook Station Road and the NZ Defence Force with their large personnel carriers using the road regularly.

The initial costs to construct this were higher than maintenance metal due to the long cart from Mackenzie Pass source even though there was no cost to acquire the material. Just had to load out from a face. A significant improvement in the strength of the sub grade has been obtained with no frost heave through winter and only 1mm material loss off the crown in 12 months.

Mt Nessing Road

Mt Nessing Road in the Albury area was the next road to be added to the trial. This was chosen as it is a key route to high country properties in the area that also passes close to the Mt Nessing Golf Course. In the past Council has had to apply a significant of maintenance metal to maintain an

acceptable level of service but still received a number of complaints half way through the grading cycle due to surface deterioration and dust generation.
Six kilometres from the end of seal was constructed with 100mm overlay of locally sourced material from the Aorangi Pit, with no further processing. The cost complete this was $14,600 per kilometre. If we had completed this with our normal clay enhanced wearing course it would have been $18,000 per kilometre.

Haldon Road
Haldon Road in the Mackenzie Basin is one of our "Big Three" that has an average traffic count of 96 and peaks between 300 and 350 vpd. This road has high number of holiday traffic heading to Haldon Camp during the summer period as well as the normal traffic associated with servicing a number of high country stations. This is also a road where in the past Council has had to apply a significant of maintenance metal to maintain an acceptable level of service due to that high number of holiday traffic.
Four kilometres from RP 23050 - 27290 was constructed with 100mm overlay of locally sourced material from the Mackenzie Pass slip. This material had been further processed by screening out the material larger than 32mm. The cost complete this was $22,000 per kilometre. If we had completed this with our normal clay enhanced wearing course it would have been $17,700 per kilometre. .

Results to Date

It is too early in these trials to roll it out over larger areas of the network due to higher cost in some areas, unavailability of the source material and it has not been fully tested in all environmental conditions.

The weathered rock material has yet to be tested and proven to perform through the worst of the winter period. The condition of these trial sites are closely monitored for material loss, performance and maintenance costs as part of the overall trial.

Maintenance Programme
Changes in land use and increased tourist traffic have significantly increased traffic volumes on some areas of the unsealed road network so that the current quantum of road maintenance work is barely adequate to maintain the roading network to current standards and performance measures. Although the clay maintenance metal initative has helped with unsealed maintenance condition, an increase in unsealed maintenance expenditure is still required to improve road condition.

The current budget for 2015/16 is $370,000 for maintenance and $650,000 for metalling. Metalling costs are forecast to increase due to retendering the maintenance contract and eventual cost escalations.

8.4.3 UNSEALED ROADS IMPROVEMENTS

On unsealed roads renewals include area wide pavement treatment (generally stabilisation) and replacement of wearing course metal. The MDC emphasis is on wearing course metal replacement and this is budgeted for on an annual basis. Rehabilitation projects are included on an as needed basis and are identified from regular network inspections. Rehabilitation is generally

based on complete failure of the subgrade i.e Ski field traffic on Lilybank Road, which creates soft spots in the road surface after traversing areas which have experienced recent frost heave. These sites, under normal traffic loadings (under 50vpd) would not cause an issue. MDC has rebuilt Lilybank Road to the ski field turnoff, this has tied up a large portion of our current available budgets reducing the works that can be carried out on other lower need but bony/failing roads. The same issues arise on Braemar Road due to NZ Army winter exercises and Haldon Road due to the camp reserve traffic.
Although Lilybank Road has been rebuilt with a minimum of 60mm wearing course from the end of seal, 2km from SH8, to the skifield turnoff it requires a large amount of running/wearing course in any one year to hold the surface at an acceptable level of service for the 600vpd the frequent the Roundhill Ski Area. Monitoring sites have shown an average loss of material off the crown of 17mm. Over the 25km to the turn off a minimum of 2100m3 is required annually to hold the road and avoid consuming the asset.

8.4.4 SEAL EXTENSIONS

Since 2001 the Council has embarked on an ambitious road improvement programme. Over 40 kilometres of seal extension, spread throughout the District, has been achieved.

There is however areas of the District where residents are required to travel over relatively long lengths of unsealed road before encountering a sealed road. Farming families are becoming more mobile and are travelling these unsealed routes far more frequently than in the past. The lower travelling speed, greater ride discomfort and dust nuisance is becoming unacceptable and considerable pressure is being applied to the Council to seal these roads. It is beyond the Council's financial means to fully fund the sealing and NZTA funding assistance criteria allows funding only for seal extensions where there is particularly high traffic volumes coupled with high unsealed road maintenance costs (neither of which are prevalent in the Mackenzie District).

The influx of domestic holiday-makers into the District, particularly the Mackenzie Basin, has a significant impact on roading. Unsealed roads summer traffic volumes double or treble, at a time when the roads are extremely dry and particularly sensitive to wear. Also tourist traffic using Lilybank Rd to access the Round Hill Ski Area causes considerable pavement damage and there will be continual pressure applied to have this road improved.

Subsidised Seal Extensions
Subsidised seal extensions included as part of the District Land Transport Programme are subject to NZTA benefit/cost procedures that must show benefit to the road user. Benefits include safety, travel time cost savings, reduced roughness, reduced vehicle operating costs and maintenance cost savings. Roads which may meet the benefit conditions usually have high heavy traffic volumes such as the major routes to production forests or roads which have high maintenance costs (e.g. due to steep grades).

MDC will consider written applications for seal extending a maximum of 200 metres to suppress dust in front of dwellings. Applicants will be prioritised by the severity of the nuisance and preference will be given to cases where the use of the road has markedly changed. To gain approval for the work the following must be met:

- applicant to fund 50% of the cost up to $20,000 total cost then any costs over and above are to be covered by the applicant

- MDC must have funds available (total $10,000 per year)

MDC undertakes seal extensions when NZTA co-investment funding can be secured and the local share of the funding is available.

Non-Subsidised Seal Extensions

Seal extensions which do not qualify for NZTA financial assistance require 100% Council funding. Sealing can provide tangible (for which a monetary value can be assessed) and intangible (cannot usually be easily quantified in monetary terms e.g. improvements to air and water quality, reduction in carbon dioxide emissions etc.) benefits. Tangible benefits generally fit into four main categories:

- productivity gains for properties alongside the road to be sealed
- improvements to ride for driver and passengers
- vehicle operating cost savings
- travel time savings

MDC has adopted a ranking system to determine the relative priority for seal extension options. The advantages of a ranking system are:

- it can take into account many factors with a weighting solely applicable to the Mackenzie District
- provides relativity to assist in deciding the seal extension priorities

Manuka Terrace Financial Contributions

The reserve fund generated by financial contributions towards the sealing of Manuka Terrace from the various subdivisions since 2004 has been extinguished by the sealing of the first 2.4km of the road form the south end. Council should no longer collects financial contributions on those developers subdividing in Manuka Terrace.

8.5 BRIDGES

8.5.1 BRIDGES BACKGROUND DATA

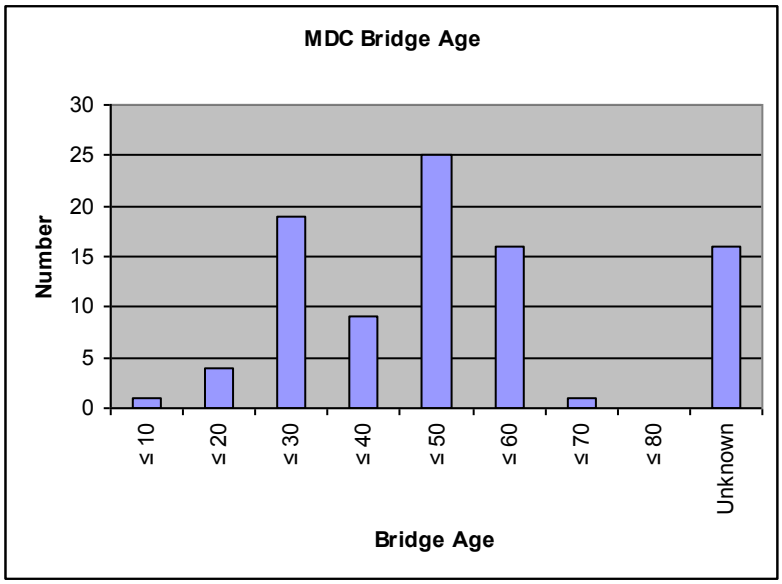
8.5.1.1 Bridges Scope and Nature of Asset

The purpose of road bridges is to provide convenient continuous all weather access over rivers, streams and similar obstacles. Other structures included in this lifecycle management plan are culverts with a waterway area greater than or equal to 3.4m^2, cattle stops and fords.

The key issues relating to the management of road bridges are:

- Funding to replace bridges
- Replacement of/or disposal of uneconomic bridges eg Cass River Bridge.
- Ensuring the bridge foundations are protected against scour, degradation and aggradations
- Maintaining the structural integrity of bridges

Figure 8.18 – Ages of MDC Bridges



There are 97 bridges (includes 7 large culverts) in the District with a combined length of 1,842m. They range from small, simple timber structures to multi-bay modern steel and concrete structures. Generally the District's bridges are in good order.

Figure 8.18 shows the distribution of all bridge ages. Given the large percentage of unknown age, work needs to be undertaken to provide an estimate of the remaining lives of these structures.

Eleven timber bridges have no construction date recorded but the age of timber bridges is not as important as their condition. We're unlikely to be able to establish construction dates, but these do get checked annually and our consultant's report gives updated estimates of remaining useful life so this is covered by procedure. Seven of the fourteen bridges have adjacent fords; 21 provide access to single properties.

8.5.1.2 Bridges Current Condition

Condition inspections are undertaken by both the maintenance contractor and the bridge maintenance professional services contractor. RAMM used to store inventory information, results of inspections undertaken and any other relevant data.

The main reason for the deterioration of concrete structures is carbonation (loss of ability of concrete to prevent corrosion of reinforcement) but in the arid atmosphere prevailing in the Mackenzie District, carbonation is not a problem. Timber is a less durable material suffering from

decay and insect attack (which can be controlled by chemical treatment), natural defects such as cracking and splitting and, in the case of timber decks, surface abrasion from traffic.

8.5.1.3 Bridges Current Capacity and Performance

Load Capacity
Design loadings have increased as vehicle sizes and carrying capacity have been increased. Appendix IV provides details of the 23 bridges that do not meet current standard Class 1 loads and are weight and/or speed restricted. Three of these bridges are currently under contract for replacement

Traffic Capacity
All bridges except one are single lane bridges, however given the low traffic volumes on the roads they serve this is considered appropriate for capacity purposes.

Natural Hazards
Bridges are at risk from natural hazard events such as floods, earthquakes and slips. It is only in recent times that earthquake standards have been incorporated into bridge design. Most bridges were designed to have sufficient waterway area capacity to handle design flood flows. Erosion and scour of piers is a concern for some bridges.

MDC has a number of bridges that are at risk from natural flood disasters and earthquakes. Some of these are being replaced and others have had work completed to improve their resilience.

8.5.2 BRIDGES OPERATIONS AND MAINTENANCE PLAN (WC 114)

The routine maintenance contract is tendered every three to five years and includes the routine inspection, maintenance and repair of bridges. Works are carried out in accordance with NZTA specifications and manuals.

Maintenance works are undertaken to:

- ensure safety to the public
- protect the investment in assets by extending the life of the structure
- minimise repair costs

The type of maintenance work activity undertaken includes:

- planned maintenance inspections
- repairing structural defects (e.g. concrete spalling, corroded fastenings, rotten timber, undermining of foundations)
- repairing/replacing damaged components (e.g. handrails and guard-rails)
- restoring protective coatings (e.g. painting)
- maintaining drainage
- waterway area clearing (debris removal from piers and waterway)
- Seismic retrofitting to increase the earthquake resistance of strategic bridges

Maintenance Strategy
Maintenance programmes are arranged from inspection reports. Steel superstructures are generally painted at regular intervals as required.

Councils inspection and programming regime:

- on-going superficial inspections co-ordinated with other routine maintenance work
- general inspections and a full structural inspection of all timber bridges and a third of the remaining bridges undertaken each year on a three year cycle by a Bridge Engineer, taking into account such factors as structural integrity, defects, safety and appearance
- special inspections after specific events such as earthquakes, severe floods or instances of overloading

Maintenance programmes are developed from the schedules of defects identified during the inspections. Repair treatments and priorities are determined by considering the effects on:

- public safety (top priority)
- traffic movement
- future costs if the work is not done

Each item of the bridge maintenance programme is the most cost effective response to the defect identified, except where a bridge is programmed for replacement but urgent works are necessary, shorter term but lower cost remedy is selected.

Standard NZTA economic evaluation criteria are used to evaluate treatment options.

Maintenance Standards
The technical LoS required are detailed in the maintenance standards that implement these technical LoS is set out in MDC specifications contained in the road maintenance contracts.

Maintenance Programme
The bridge consultant has prepared a bridge replacement plan that provides the Council with increased certainty on the cost of maintenance and renewals over the next ten years. From this it has been forecasted that a budget of $130,000 will be required for on-going routine and structural maintenance in 2015/16. The increased Structures component replacements budget allows for significant replacement of the bridge components (Running boards, wheel guards, side rails etc.) and will extend the life of the structure, which may mean that total replacement can be avoided. It also allows for the clearance of gravel and debris buildup under the bridge to reinstate the design flow carrying capacity.

Appendix III details the current expected annual expenditure on Bridge Maintenance for the next 10 years.

8.5.3 BRIDGES RENEWAL/REPLACEMENT PLAN (WC 341)

Bridge replacements will be included within the Minor Improvements category for 2015-2018 as per NZTA requirements.

LIFECYCLE MANAGEMENT

Asset renewal is undertaken when a structure, or significant components of a structure, has reached the end of its economic life. Renewal provides for the following work:

- replacing a structurally inadequate bridge
- replacing a bridge for non-structural reasons such as inadequate width or waterway area
- structurally modifying an existing bridge to increase its standard capacity to a level higher than originally provided

Replacement of Fox Peak Road Bridge will be funded from the Minor Improvements programme but Fraser Road #2 is a structure component replacement because only the super structure needs replacing utilising the existing abutments.

Renewal Strategy

MDC has a robust Bridge Replacement Strategy (2010-2050) which details bridges due for replacement or complete removal. This should be read in conjunction with this section.

The Council's general policies on river crossings (bridges) are:

- River crossing projects are economically evaluated in accordance with NZTA project evaluation methods for possible inclusion within the subsidised District Land Transport Programme.
- River crossing projects which cannot be economically justified in terms of NZTA project evaluation methods are recommended on a case-by-case basis to Council.

The NZTA Bridge Manual is adopted for the design of new structures and for the evaluation of existing structures.

Renewal needs are identified from the planned inspection programme and are largely condition/over- weight restriction (performance) based. Prioritisation of works and the selection of renewal options are made on the basis of an economic evaluation using NZTA criteria. Cost/benefit calculations include an assessment of risks associated with earthquakes and floods. The lowest cost option, considering all life cycle costs over a 25 year period, is selected except where funding limitations necessitate shorter term (lower cost) options for works that cannot be deferred.

Renewal Standards

The applied standard is the NZTA Bridge Manual.

Renewal Programme

MDC's Bridge Replacement Strategy lists the bridges in Table 8.20 which are to be replaced over the next 20+ years.

Table 8.20 – 20+ Year Bridge Renewal Programme

Bridge No	Bridge Name	Replacement Timeframe	RUL (Years)	Costing Parameters			Replacement			Notes
				Length	Width	Rate/m2	Cost	Year		
9	Fraser Rd No 2	3 - 10	3	7	3	$4,030.00	$98,700	2017	2018	Replace
26	Goodmans	3 - 10	5	17	2.1	$3,910.00	$169,500	2019	2020	Don't Replace
70	Grampians	3 - 10	0	5.6	2.3	$4,030.00	$62,100	2014	2015	Don't Replace
77	Fox Ski Field	3 - 10	0	4	2.5	$4,030.00	$48,400	2014	2015	Replace
58	Single Hill	3 - 10	5	12	2.6	$3,910.00	$143,100	2019	2020	Replace
1	Otama Road	3 - 10	8	6	2.7	5,403.00	$77,400	2022	2023	Replace
13	Coal Pit Rd No 2	10 - 15	10	12	4	$3,910.00	$208,000	2024	2025	Replace
78	Cass River	10 - 15	15	124	2.8	$3,910.00	$1,600,000	2029	2030	Replace
87	Black Birch Stream	10 - 15	15	6	3.2	$4,030.00	$89,500	2029	2030	Replace
89	Mowbray Road	20+	25	8	3.2	$4,030.00	$119,300	2039	2040	Replace
41	Clayton Settlement	20+	35	66	2.8	$3,910.00	$838,700	2049	2050	Replace

8.5.4 BRIDGES ASSET DEVELOPMENT PLAN

Council has no plans for bridge asset development.

8.6 DRAINAGE CONTROL FACILITIES

8.6.1 DRAINAGE CONTROL BACKGROUND DATA

8.6.1.1 Drainage Control Scope and Nature of Asset

Drainage control assets consist of kerb and channel, surface water channels, catch pits and their connection to the nearest reticulation, soak pits, side drains, and culverts of less than 3.4 m2 cross sectional area. The purpose of these assets is to provide a storm water carrying capacity for runoff from the carriageway, footpaths, berms and adjacent properties to:

- allow the convenient and safe movement of pedestrians and traffic
- protect paved areas from water ingress and resulting structural deterioration

The use of concrete kerb and channels, as opposed to open drains, is a recognised and accepted sign of urban development although urban design is now moving to swale drains with associated vegetation and plantings to assist in the removal of hydrocarbons and heavy metal deposits prior to storm water discharge to waterways or water table. With the flat profile of the districts urban areas, ponding and stagnant water can easily eventuate if well-formed channels are not used.

The key issues relating to drainage control are:

- poor inlet detail to catch pits and culverts minimising hydraulic capacity
- blockages
- need for regular cleaning programmes

8.6.1.2 Drainage Control Current Condition

Council does not formally rate the condition of surface water channels, culverts, catch pits or drains. There is an on-going inspection and maintenance regime under the routine maintenance contract.

8.6.1.3 Drainage Control Current Performance and Capacity

Performance issues for drainage control assets relate to:

- coverage (i.e. are there open water channels or areas where water accumulates that should be serviced by pipe drains or formed channels?)
- pavement damage due to drainage problems
- improving drainage where storm events cause recurring scour problems
- entrance capacity of culverts
- a large quantity of wash over culverts/fords
- river fords may require closing four to five times per year
- conformity with standards (kerb and channel in all urban streets)

Overall the performance of drainage assets is generally adequate as there has been replacement and up sizing of culverts in recent years. The major concern is coverage, with a number of urban streets without any kerb and channel. Twizel and Tekapo are were built to have relatively short life during the construction of the adjacent hydro works. As such most streets were constructed with a sealed swale drain instead of kerb and channel. These are often quite flat and pond water that freezes in the winter. Without extensive drainage works it is not possible to correct this problem.

Most existing drainage assets are performing well and have been adequately designed. The lack of an extensive stormwater network in Twizel means that water flows in sealed swales on the edge of the roadway using bubble up sumps to convey road run-off to the nearest reticulation. This has two problems associated with it:

- Water ponding in the swale causing icing and pavement deterioration
- Poor definition of the separation between the carriageway and the pedestrian areas.

Neither of these two problems can be economically resolved as the cost is prohibitive to construct kerb and channel in every street in Twizel and Tekapo that does not have it.

8.6.2 DRAINAGE CONTROL OPERATIONS AND MAINTENANCE PLAN (WC 113)

Drainage maintenance work is included under the main road maintenance contract and covers:

- minimum maintenance standards
- frequency of routine inspections
- response times to correct defects

Drainage continues to be an area of focus for road maintenance activities. A wet pavement is at least three times weaker than a dry pavement of the same material. Therefore quickly diverting rain water away from the pavement so that it does not have an opportunity to penetrate and weaken the pavement structure is of paramount importance in reducing costs of repairing base course and sub base failures. On hilly sections water travelling down the Surface Water Channel (SWC) must be diverted off the road pavements and shoulders before it accumulates enough velocity to scour out the side of the road.

Apart from roadway surface considerations, maintaining good drainage is achieved by keeping the SWC, cut-outs and side drains clean, keeping culverts clear and in good condition, providing headwalls at the culvert inlets and outlets, and soak pits where side drains or ditches cannot provide an outlet for the flow.

Drainage maintenance is achieved by undertaking the following activities annually:

- Chemical weed control in the surface water channels and side drains of both unsealed and sealed roads in the entire network
- Surface Water Table Rehabilitation
- Side Drain (Ditch) cleaning
- Culvert inspections - All culverts in the network are inspected on a regular basis. Following significant rain events, culverts are cleared of any flood debris.
- Culvert replacement when they are failed or under sized.
- Headwalls maintenance and construction to maximise culvert efficiency, preventing scour around the ends of the culvert and preventing water entering the roadway sub base by migrating along the outside wall
- Soak pit construction

Maintenance Strategy

Condition inspections: The maintenance contractors are required to report any defects observed during day to day road maintenance activity.

Unplanned condition assessments of critical drainage assets are required after each heavy downpour to assess the number of culverts, drains and sumps affected by blockages. This is completed by the contractor and the Roading Team immediately after the event. The Contractors are required to maintain an effective communication system and level of preparedness to ensure these and other emergency works are undertaken within the specified response timeframes.

Planned maintenance: Damaged and malfunctioning drainage assets identified by Council inspections or contractor reports are programmed for repair according to the following priority:

- public safety
- network resilience
- accelerated deterioration of pavement likely to occur
- inconvenience occurring to road users, pedestrians and/ or property owners
- untidy appearance

Maintenance Standards

The technical LoS required are detailed in the maintenance standards that implement these technical LoS is set out in MDC specifications contained in the road maintenance contracts.

All critical drainage assets eg bridges, culverts and back drains etc, are required to be inspected and cleaned following major storm events.

Maintenance Programme

The majority of the drainage maintenance is reactive so budgets are based on historical expenditure. However, in an effort to reduce future pavement maintenance costs for repairing soft spots and other types of premature pavement failure in both sealed and unsealed roads, the Council has adopted a strategy to improve substandard drainage along specific roads. In 2015/16 the total maintenance cost budgeted is $150,000, which is a significant increase from previous years. It is expected that this maintenance cost requirement will carry on into the future.

The financial forecasts are presented in Appendix III.

8.6.3 DRAINAGE CONTROL RENEWAL/REPLACEMENT PLAN (WC 213)

The renewal programme is prioritised on the basis of overall condition, hierarchy and extent of adjacent carriageway failure. Full renewal of kerb and dish channel is economical when more than 30% of the length of the channel is broken.

Drainage Renewals

WC 213 provides for drainage work which is not routine in nature but clearly demonstrated to reduce future maintenance costs to the roading agency.

Examples of qualifying work include:

- Renewal or installation of culverts with a diameter greater than 600mm, but having a waterway less than or equal to 3.4m^2 (approx. 2.1m dia).
- Repair and replacement of kerb and channel, provided that the deterioration is likely to adversely affect the performance of the pavement

- Installation of water channels, sub-soil drainage, or kerb and channel, where this is shown to be necessary to protect adjacent property from run-off from the road surface and the most cost-effective form of drainage control for the purpose of protecting the pavement

Preventive Maintenance
Preventative maintenance includes non-routine work required to protect the serviceability of the network and minimise the threat of road closure.

Rule: These works must be economically justified. They must be the long-term, least cost option for the road controlling authority, calculated in terms of PV.

Standards
The MDC preference is for a minimum diameter of 300mm concrete culverts under roads. Steel or aluminium culverts are not used where there is a likelihood of corrosion.

Renewal Programme
In 2015/16 the total renewal cost budgeted is $60,000. The financial forecasts are presented in Appendix III.

8.6.4 DRAINAGE CONTROL ASSET DEVELOPMENT PLAN

Most new assets are created as part of subdivisions and subsequently taken over by the Council.

The construction of new kerb and channel is driven by property development and, to a lesser extent, in response to customer/resident requests. The criteria used for justifying new construction includes evidence of ponding/flooding, incompatibility with urban standards, higher maintenance cost of existing storm water control and reduction/minimisation of life cycle costs for all affected assets and the network.

Prioritisation is evaluated on the basis of road hierarchy, location, safety issues, storm water control needs, the number of residential properties to be served and beneficial effects to adjacent assets.

Development Standards
MDC has adopted the Land Subdivision Standard NZS4404: 2004

Development Programme
The cost of drainage development works is included in the Council Structural Renewal Programme.

8.7 TRAFFIC SERVICES

8.7.1 TRAFFIC SERVICES BACKGROUND DATA

8.7.1.1 Traffic Services Scope and Nature of Asset

Traffic services are devices used for the orderly management and control of vehicles and people on public roads. They consist of road signage, road markings, edge marker posts (EMPs), culvert markers, traffic islands, roundabouts and railings. Their function is to:

- regulate
- warn
- guide
- inform

The key issues relating to traffic services are:

- Ensuring signs and markings comply with NZTA guidelines and amendments to them.
- Repairing sign damage due to vandalism and/or traffic accidents

8.7.1.2 Traffic Services Current Condition, Performance and Capacity

The condition of signs and road markings is assessed in routine inspections undertaken by the maintenance contractors with the results reported to the Engineer.

There is no formal condition rating system used for traffic services. Condition is assessed visually against the relevant NZTA standards.

The extent of deterioration of road markings depends on age, traffic volume, the materials used and the condition of the road (oil and grit reduce adhesion). Road markings are remarked each year under a separate Road Marking contract. However some centre line markings on rural roads have not been remarked. This not only reduces the remarking costs but also has had the effect, where traffic flow is light and good sight distances available, of reducing edge break as the vehicles are travelling more towards the centre of the road.

Most signs are replaced as a result of damage resulting from vandalism and vehicle accidents before they reach the end of their “natural” life. Loss of reflectivity through weathering is however the factor that determines the life of many signs.

Performance issues for signs and road marking relate to legibility, ease of comprehension, absence of too many signs, accuracy of placement, visibility and conformity with standards.

Overall the condition of traffic services assets is considered to be good.

8.7.2 TRAFFIC SERVICES OPERATIONS AND MAINTENANCE PLAN (WC122)

All traffic services maintenance is competitively tendered through inclusion in the maintenance contract. NZTA specifications and standards have been adopted for maintenance work.

Maintenance Strategy
Planned inspections: The maintenance contractor is required to routinely inspect all assets and repair any defects. The contractors are required to respond to directed faults and have the necessary repairs completed within agreed timeframes:

Unplanned Maintenance: The Contractor is required to maintain an effective communication system, level of preparedness and stocks to ensure emergency works are undertaken within the specified response timeframes.

Planned Maintenance: Obsolete, damaged, sub-standard and non-conforming assets identified during routine inspections are programmed for replacement according to the following priority:

- public safety
- traffic volumes
- convenience of road users

Maintenance Standards
The technical LoS required are detailed in the maintenance standards that implement these technical LoS is set out in MDC specifications contained in the road maintenance contracts.

Traffic Signs

- RSMA "Standard for the Manufacture and Maintenance of Traffic Signs, Posts and Fittings".
- NZTA "Manual of Traffic Signs and Markings" Part 1.
- NZTA Specification M/14: Marker Posts
- NZS 5414: 1977 “Specification for Construction of Traffic Signs”
- NZTA Specification P/12: Paint Application - Signs.

Road Markings

- NZTA "Manual of Traffic Signs and Markings" Part 2.
- NZTA Specification P/22: Road Markings

Maintenance Programme
The maintenance and budget is primarily based on historical levels of expenditure. However, in 2015/16 the total maintenance cost budgeted is $175,000, which is a significant increase from previous years. It is expected that this maintenance cost requirement will carry on into the future. The increase in forecast budget into the future is due to increased street lighting costs, predominantly increased electricity costs from new lighting installations being vested to Council from subdivision development. The financial forecasts are presented in Appendix III.

8.7.3 TRAFFIC SERVICES RENEWAL/REPLACEMENT PLAN (WC 222)

There is no separate Renewals Plan for Traffic Services. All renewals are funded under ‘Traffic Services Maintenance’.$80,000 included in 2015/16– for new signs and street lights.

TRAFFIC SERVICES ASSET DEVELOPMENT PLAN

There is no development work currently planned. All renewals and minor improvements are funded under 'Traffic Services Maintenance'.

8.8 FOOTPATHS

8.8.1 FOOTPATHS BACKGROUND DATA

8.8.1.1 Footpaths Scope and Nature of Asset

The purpose of footpaths is to provide a safe and efficient network of access ways catering for the movement of pedestrians. The need to provide formed and defined footpaths is based on a combination of the traffic volume, road/seal width and pedestrian demand. Footpaths also fulfil a social function providing areas with a sense of community.

The key issues relating to footpath management are:

- condition of existing asset
- adequacy of pedestrian facilities near schools, shopping centres, residential and recreational areas
- adequate provision of safety footpaths
- accuracy of the footpath age profile

Footpath asset data is now held in RAMM. Council which holds all current asset data including location, type, quantity, age, and condition rating.

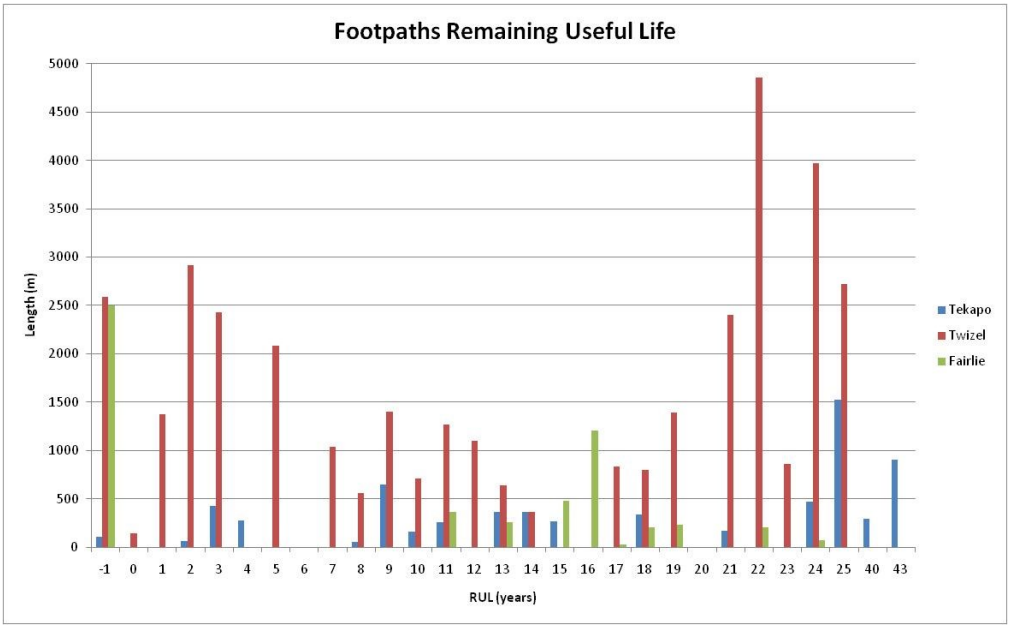
Sealed footpath construction dates have been recorded since 1985 but gravel footpath construction dates have not been recorded. However an age profile for the majority of footpaths can be determined from the resurfacing records held in the spread sheet database. An analysis of this surface record shows only one section on Aorangi Crescent (Tekapo) that has exceeded its expected life and should be inspected with a view to surface renewal.

8.8.1.2 Footpaths Current Condition

Figure 8.21 shows the Remaining Useful Life (RUL) of the footpath asset as currently recorded based on a useful life of 25 years for AC and Chip Seal surfaces and 50 years for concrete or cobblestone (grass and gravel surfaces have not been considered).

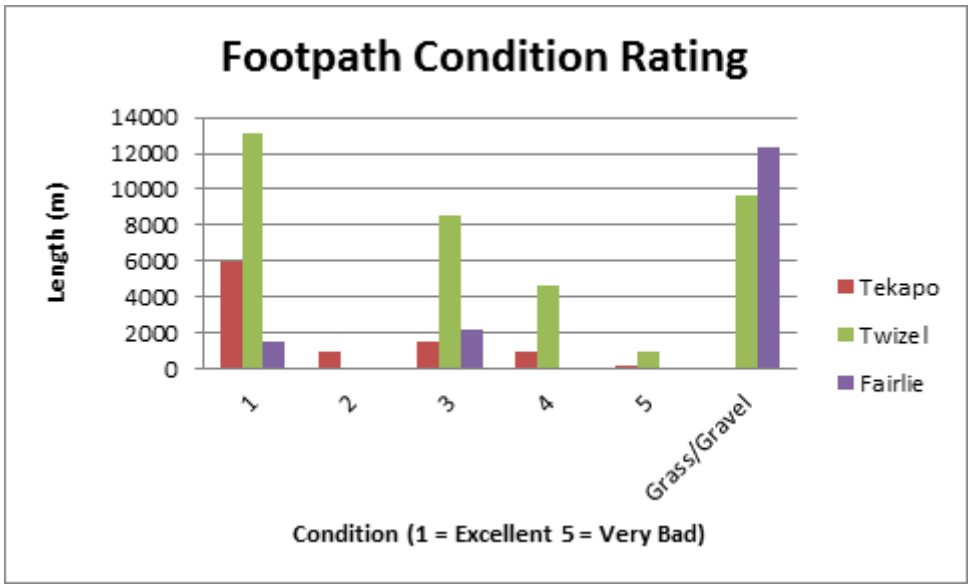
Over the next 10 years 40% of the current assets will reach the end of their "useful lives". This is probably due to similar age of 'Twizel' town taken over in 1985 and large area of Tekapo developed in the 1970's.

Figure 8.21 – Footpath Remaining Useful Life (based on length)



Condition rating is carried out, prior to LTP budgeting, for all footpaths with a condition scale of 1 to 5, 1 being excellent and 5 being very poor. Figure 7.15 shows the latest condition of pavements in each of the three urban areas in the District. There is a significant portion of the asset that does not have a current condition rating, however the majority of these lengths are grass or gravel.

Figure 8.22 – Footpath Condition Rating



8.8.1.3 Footpaths Current Capacity and Performance

The District Plan states that any new residential developments Mackenzie urban areas are to have footpaths on both sides of the street, 1.5m wide and be surfaced in AC. Safety footpaths are being considered for urban fringe development where the footpath will be 1.5m wide with a gravel surface.

8.8.2 FOOTPATH OPERATIONS AND MAINTENANCE PLAN

Footpath maintenance is undertaken by the main pavement maintenance contractor.

Footpath maintenance includes:

- repairing damaged sections of footpath, usually broken by vehicles, tree roots or old service trenches.
- pothole repair
- relaying uneven pavers and removing similar tripping hazards
- repairs around utility services
- old trench repairs
- removing weed or grass growth from the footpaths
- removal of overhead tree growth etc. to retain a "passageway" for pedestrians

Maintenance Strategy
Maintenance needs are identified from observations made by staff and contractors in the course of their duties. Works are prioritised using the following criteria:

- the safety of pedestrians may be compromised (attended to immediately)
- if it is likely that the area of distress may expand or the methods of repair change such that the cost of any repair will increase
- subsequent maintenance or renewal work depends on the completion of the maintenance repair
- aesthetics (e.g. minor water ponding/untidy appearance)

A 24 hour customer complaints service is provided. The maintenance contracts require the contractors to maintain a suitable level of preparedness for prompt and effective response to asset failures and emergencies and specify maximum response times.

Asset failures are responded to with the initial objective of making safe as quickly as possible by the most economic method available and/or making temporary repairs if major repairs or renewals are required.

Maintenance Standards
The technical LoS required are detailed in the maintenance standards that implement these technical LoS is set out in MDC specifications contained in the road maintenance contracts.
The consequences of lowering these standards are:

- reduced safety
- accelerated footpath deterioration and additional consequential costs
- lower level of service (ease of use, appearance)

Maintenance Programme
Footpath maintenance is ***funded under non-subsidised*** roading facilities maintenance. The maintenance budget is primarily based on historical levels of expenditure $35,000 allocated for 2015/16. The financial forecasts are presented in Appendix III.

8.8.3 FOOTPATHS RENEWAL/REPLACEMENT PLAN

The types of renewal work undertaken to restore footpaths to the required condition include resurfacing and reconstruction.

Resurfacing
This provides a smooth waterproof surface by overlaying with a thin layer of asphaltic concrete or chip seal coat. The existing surfacing is removed and replaced with a new surface (where the footpath profile is such that the surface level can't be built up with an overlay).

Reconstruction
This allows for full reconstruction of the base course and surfacing layers when the footpath structure has deteriorated to an extent where resurfacing is not practical. Justification for work can be based on the condition of the kerb and channel or the condition of the carriageway rather than the footpath condition. Footpaths may be constructed on different alignments from existing to improve safety, accessibility, avoid known problems, reduce life-cycle costs and/or improve aesthetics.

Renewal Strategies
Work needs are identified through inspections by staff and contractors with improvements programmed. Priorities are based on condition, pedestrian volume, and location to schools public and tourist areas.

Replacement of footpaths will proceed in commercial and shopping areas as funds are available with the priority being set by consideration of existing standards and pedestrian volumes.

Council notifies residents in the street before any works are undertaken to confirm requirements.

Renewal Standards
Levels of Service requirements are for all footpaths to be a minimum of 1.5m wide. They are optional in rural roads, required on both sides along urban streets for any new development. Asphalt is the preferred surface material used for all renewals and concrete for new construction because of its longer life and superior surface. Alternative materials are used for aesthetic reasons in new developments and to match existing materials or reduce costs

Renewal Programme
The renewal budget for 2015/16 is $100,000. The financial forecasts are presented in Appendix III..

8.8.4 FOOTPATHS ASSET DEVELOPMENT PLAN

The addition of footpaths and pedestrian access ways occurs in one of the following ways:

- Extensions constructed by Council where no footpath previously existed to improve the level of service (particularly in relation to special treatments in high profile commercial areas)
- Taking over new footpaths constructed within sub divisional development (constructed at the developer's expense)
- Requests form Councillors, Public, and Staff
- Safety improvements
- Pedestrian demand

Where possible this work is incorporated with other development work to save on establishment costs. For example, new safety footpaths on Mt Cook Road in by Fairlie were completed during the installation of the trunk water main along Mt Cook Road in December 2010. A 400m long gravel footpath was constructed over the pipe trench concurrent with the water main work, thus saving in establishment and excavation costs. People living in the Reserve and along Mt Cook Road are now able to safely and conveniently walk into town on a footpath well clear of SH8.

8.9 STREET LIGHTING

8.9.1 STREET LIGHTING BACKGROUND DATA

8.9.1.1 Street lighting Scope and Nature of Asset

The purpose of street lighting is to provide sufficient lighting levels in streets to allow the safe and efficient movement of vehicles, cyclists and pedestrians provided that this lighting does not adversely effect on the visual amenity of the District as defined in the District Plan (Section 11 Issues 2 & 3).

MDC administers the maintenance and power consumption of street lights throughout the District including those on the state highways owned by NZTA whose direct costs are recovered from NZTA.

The Council's streetlights are attached to poles either owned by the Council, NZTA or by Netcon. The maintenance contractor is required to maintain the light fittings and mounting brackets and those poles belonging to both the Council and NZTA. Netcon maintains its poles. The demarcation point is the pole fuse which is the supply point to the Netcon power network. Therefore the reticulation to each pole is not the Council's or NZTA's property.

Street lighting asset data is not currently held in RAMM. The maintenance contractor provides the Council with reports as requested and keeps records of the extent of the asset components. This data is not completely reliable but Council has a required Netcon to update the data and record it in RAMM.

8.9.1.2 Street Lighting Current Condition

The asset has been developed over a number of years. The majority of the light fittings are now low pressure sodium to meet the requirements of Council's District Plan that has provisions to protect the night sky. These fittings have been standardised to match makes in use in the surrounding districts to reduce maintenance expenditure. Council has strict lighting controls in the District Plan for Tekapo and Twizel to protect the night sky. Low pressure sodium lights are generally required to meet this standard.

The Council does not formally rate the condition of streetlights. There is an on-going inspection and maintenance regime under the routine maintenance contract.

Street Lighting Current Capacity and Performance

Streetlight capacity and performance issues relate to light intensity, reliability and safety.

The District street lighting other than on the state highways has evolved from perceived need rather than being based on standard performance design requirements. Older fluorescent and mercury vapour lanterns have been upgraded over the last ten years to low pressure sodium. The network performance however has not been assessed.

To date the management of the street lighting asset has been largely left to the maintenance contractor. This has generally worked well.

Reliability
Most complaints are largely about light outages and are negligible in number. Current level of maintenance and renewal is adequate and satisfies the public demand.

8.9.2 STREET LIGHTING OPERATIONS AND MAINTENANCE PLAN

Maintenance of MDC streetlights is competitively contracted out. Maintenance of streetlights covers regular inspections, the replacement of failed bulbs, and repair of damage. Maintenance works are undertaken to:

- Maintain LoS
- ensure safety to the public
- protect the investment in assets by extending the life of the assets
- minimise repair costs

Maintenance Strategy
The current maintenance strategy is:

- Failed assets are identified through inspections by contractors, staff observations, and customer complaints
- Repairs are carried out on demand and within the specified response timeframes. Faulty, accident damaged or vandalised lanterns, lamps, control gear columns and associated equipment, are repaired immediately when there is a hazardous situation.
- Develop maintenance programmes from the schedules of defects identified during routine inspections. Repair options and priorities are determined by considering the effects on:
    - public safety (top priority)
    - LoS (traffic movement and pedestrian safety)
    - future costs if the work is not done

Maintenance Standards
All replacement lamps are compatible with the lantern and control gear, and have illumination characteristics compatible with the original lamp.

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

Maintenance Programme
The majority of streetlight maintenance is reactive therefore budgets have been based on historical costs with an allowance made for increased costs associated with an increase in the number of lighting assets on the network and inflation. Maintenance costs are included for under Traffic Service maintenance. The financial forecasts are presented in Appendix III. MDC seeks to recover the cost of accident damage from those responsible.

Deferred Maintenance

Current maintenance funding levels appear adequate and there is no significant backlog of routine maintenance.

8.9.3 STREET LIGHTING RENEWAL/REPLACEMENT PLAN

Asset renewal is undertaken when a streetlight, or significant component of a light, has reached the end of its economic life. Renewal works involve the replacement of either the complete pole and lantern or individual components (e.g. lantern, controllers, bracket or pole).

Renewal Strategy
Renewal needs are identified from routine inspections and asset registers. The strategy relating to the renewal of streetlight assets, or components of those assets, is to:

- replace faulty or damaged assets when replacement is more economic than repair
- replace faulty or damaged lanterns which cannot be repaired because of obsolescence or replacement parts are unobtainable
- replace existing assets/components that do not meet current design/safety standards
- earlier than end of life replacement of obsolescent technology is the least cost solution.

Works are prioritised according to:

- public safety
- benefit/cost savings available (e.g. power efficiencies)

Guidelines
Future lighting installation will be designed to the AS/NZS 1158:2005 suite of standards adjusted to conform to the requirements of **Section 11 of the District Plan**.

The following gives a brief summary of each standard:
AS/NZS 1158.0:2005 Road Lighting – Introduction: Serves as a general introduction to the AS/NZS 1158 series and provides definitions of lighting categories and technical terms essential to the understanding of other Standards in the series especially Parts 1.1, 2, 3.1 and 6.

AS/NZS 1158.1.1:2005 Road Lighting – Vehicular Traffic (Category V) lighting – Performance and design requirements: Specifies performance and design requirements for Category V lighting schemes as described in AS/NZS 1158.0. Also specifies data needed to design for and assess compliance with those requirements.

AS/NZS 1158.3.1:2005 Road Lighting – Pedestrian Area (Category P) lighting – Performance and design requirements: Specifies performance and design requirements for Category P lighting schemes as described in AS/NZS 1158.0. It also specifies the luminaries' data and other data that is needed to facilitate the lighting design and the assessment of compliance with the requirements of this Standard.

Renewal Programme
The required level of renewal depends on:

- the age profile of streetlights
- the condition profile of streetlights

- the level of on-going maintenance
- the economical lives of the materials and components used

The assumed average economic life for streetlights is shown in Table 8.23.

Table 8.23 – Assumed Average Economic Life for Lighting Components

Component	Assumed Average Economic Life
All lanterns	20 years
Light columns	40 years
Brackets	40 years

The renewal budget is included under traffic services maintenance. The financial forecasts are presented in Appendix III.

8.9.4 STREET LIGHTING ASSET DEVELOPMENT PLAN

The installation of additional street lights will be assessed on the basis of the objectives and policies detailed in Section 11 of the District Plan.

Streetlights are acquired or upgraded as part of:

- power under-grounding work
- minor improvement works
- upgrading work to improve the level of service (e.g. spacing)
- extensions constructed by Council where no streetlights previously existed
- taking over new streetlights installed with sub-divisional development (constructed at the developer's expense)

Development Strategy

Candidates for minor street lighting and footpath lighting are ranked according to the criteria of:

- night time foot traffic
- night time vehicular traffic
- existing night time illumination levels
- geometry of the road or intersection
- special features (trees, parks, bridges, lack of footpaths, social conditions)

8.10 DISPOSAL PLAN FOR ALL ASSETS

The Council proposes to dispose of two bridges in the 2015-2025 LTP period that have reached the end of their useful life. Other than that, in general Council has no specific plans for disposal of components of the Roading asset. Details for specific assets are included in Table 8.24.

Table 8.24 – Circumstances for Disposal of Assets Summary

Asset Description	Disposal Plan	Comments
Land	**None**	Areas of unformed legal road reserve, berm areas surplus to requirements or areas being informally occupied by adjoining landowners may be identified for disposal in future. However issues of access will need to be considered in any road stopping and disposal considered.
Sealed Roads	**None**	Council may, when it is the lowest life-cycle cost, allow a sealed road to revert to an unsealed road.
Unsealed Roads	**None**	When the LoS provided by a formed public road is no longer required in that location
Bridges	**None**	See Bridge Replacement Strategy (2010-2050)) Bridges that are on no-exit roads, providing property access only (not to residences) that have reached the end of their economic life and that NZTA share of replacement funding is in doubt will be considered for disposal. Ownership would be transferred to the main users (local property owners). Old bridges that are being replaced by Council and there is no value in that structure may be disposed of for future by private parties.
Drainage	**None**	
Traffic Services	**None**	
Footpaths	**None**	
Street Lighting	**None**	Disposal activity for streetlights relates to lanterns, controls and poles which have been replaced with new components. Components which can be used as spare parts are retained in storage. Other surplus assets have no commercial value, and are disposed of.

8.11 ALPS TO OCEAN CYCLEWAY

8.11.1 ALPS TO OCEAN BACKGROUND DATA

8.11.1.1 Cycleway Scope and Nature of Asset

The proposed Alps to Ocean cycle trail is 312km long beginning in the Southern Alps at Aoraki/Mt Cook National Park, descending 780m through the Mackenzie basin down the Waitaki Valley to Oamaru and the Pacific Ocean with multiple access points and options to begin or end the ride or to ride only local sections/loops. The route traverses a unique geological glacial moraine alpine plateaus and alluvial river gravels. The route has been carefully selected to avoid major river crossings and utilises existing dam and bridge structures. The proposed route utilises a combination of on road low volume roads and off-road shared use (1.5 metre) paths.

For the purposes of the route description and cycle trail specification, the Trail has been divided into 8 logical segments. The route sections and distances are given below:

- Section 1 — Aoraki Mount Cook National Park — Braemar Station: 37 km
- Section 2 — Braemar Station to Twizel: 45 km
- Section 3 — Twizel to Lake Ohau Lodge: 39 km
- Section 4 — Lake Ohau Lodge to Omarama: 42 km
- Section 5 — Omarama to Otematata: 24 km
- Section 6 — Otematata to Kurow: 43 km
- Section 7 — Kurow to Duntroon: 27 km Section 8 — Duntroon — Oamaru: 53 km

MDC administers Sections 1, 2 and 3 are located within Mackenzie District.

8.11.1.2 Section 1: Mt Cook to Braemar Station, 37km

The Cycle Trail begins at the Hermitage Hotel site located in the Aoraki Mount Cook Village, and winds its way to the Tasman Road using existing sealed roads with less than 100 AADT. The trail will utilise an existing vehicle track and a newly constructed trail to access the Aoraki Mount Cook Airport.

One of the major hurdles for the proposed route has been the securing a safe and appropriate method for crossing the Tasman River. The preferred option for crossing the river is by way of helicopter from the Aoraki Mount Cook Airport. This option is preferred for its safety, reliability and minimal capital expense.

Thus from the airport cyclists are transported across the Tasman River by way of helicopter. The route then traverses conservation land and legal river bed following a combination of existing four wheel drive tracks and newly constructed track to the Jollie River Bridge.

From the Jollie River Bridge the trail is on the Braemar/Mt Cook Station Road (an existing gravel road with less than 100 AADT) to Braemar Station.

8.11.1.3 Section 2: Braemar Station to Twizel, 45km

From Braemar Station the trail continues along a combination of the Braemar/Mt Cook Station and Hayman Roads (unsealed) and lakeside trail to the Tekapo B Power Station.

From the Tekapo B Power Station the trail largely remains on Hayman Road (with short lengths of lakeside trail) through to the intersection with State Highway 8 (SH8). Immediately prior to the intersection of Hayman Road and SH8 the route joins an existing trail located on the lake margins before joining a formed gravel track (unnamed) and then a new track to the Pukaki Information Centre. From the Pukaki Information Centre the route crosses the State Highway and follows an existing gravel track through Meridian hydro land before traversing a trail through Department of Conservation tussock grasslands (a combination of new and existing trail) to SH8 on the outskirts of Twizel.

8.11.1.4 Section 3: Twizel to Lake Ohau Lodge, 39km

The trail leaves Twizel on an existing trail within the road reserve of 5H8.The track then follows an existing gravel t rack followed by a section of newly constructed track rejoining SH8 to cross the Ohau B Canal Bridge. The trail then continues along the shoreline of Lake Ruataniwha, firstly on an existing gravel track then on existing trail. The existing trail links with new trail leading to the Lake Ohau Weir. The trail will then follow a new track to be constructed within the marginal strip traversing the bottom of Lake Ohau. From this point a combination of existing track and new track is used, the trail roughly follows the Lake Ohau Road (but is in the road reserve) to the Ohau Lodge.

8.11.2 ALPS TO OCEAN TRAIL STANDARD

8.11.2.1 Grade Description

The whole cycleway is designed to be at a “grade 2” standard as defined in the “Trail Cycle Design Guide” prepared by the Ministry of Tourism. This allows cyclists a smooth ride with gentle climbs, with riders able to ride side by side at times. The sections 1 and 2 are generally on Mt Cook Station Road and Hayman Road.

8.11.2.2 Road Condition

Mt Cook Station Road(15.6km) is all gravel and parts of Hayman Road are gravel (16.5km) with the balance being sealed(5.9km). The unsealed portions of these roads only meet a Grade 2 standard immediately after maintenance grading or the application of a wearing Course (every ten years) or when cycling in smooth wheel tracks.

8.11.2.3 Maintaining the Standard

It is unsure who will or how the grade 2 standard is to be maintained in particular on the road sections but also the off highway sections. This will have to be closely monitored as the success of this venture and the economic benefits it brings to the District will only be realised if the track is well used and maintained.

9. FINANCIAL SUMMARY

9.1 INTRODUCTION

The total Mackenzie District National Land Transport Programme for 2014/15 for operations, maintenance, and renewals is $2.46M. The overall roading budget is $3.36M. The difference is for other "direct expenses" such as Administration, Employment, Consultancy and Non Funded Depreciation.

The following table summarise the budgets presented within the lifecycle management section. In addition budgets for "Other Direct Expenses" are developed and are included within the totals. In accordance with good practise, and the procedures used so far within this AMP, the budgets are shown in today's dollars unless noted otherwise.

9.1.1 10-YEAR FUNDING FORECAST

Table 8.1 sets out the Council's 10 year funding forecast for the Land Transport activity. This programme reflects the application for funding requested from NZTA for the 2015/18 NLTP period. This will be finalised once the NLTP programme is approved by NZTA. Council's funding strategies incorporates the requested level of funding as demonstrated in this document.

9.1.2 CAPITAL WORKS

The only capital works allowed for over the 10 years 2015-2025 is covered under minor improvements (WC 341). Work to be completed using this funding primarily consists of bridge renewals/replacements, other minor improvements and minor safety works. The amount forecast for Capital works is $250,000 per year over the 10 year period. Audit requires these capital works projects to be split to identify whether new capital is growth or LOS related. Generally capital projects identified are related to meeting LOS requirements.

Table 8.1 – 10 Year National Land Transport Programme (NLTP) for Mackenzie District

			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
	Expenses (Operational)	Work Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
	Sealed Pavement Maintenance	111	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
	Unsealed Pavement Maintenance	112	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000
	Routine Drainage Maintenance	113	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
	Drainage Maintenance - Street Cleaning	113	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
	Structures Maintenance Bridges	114	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000
	Structures Maintenance Cattlestops	114	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	Environmental Maintenance	121	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000
	Minor Events	140	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
	Traffic Services Maintenance	122	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
	Street Lighting - Maintenance	122	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
	Street Lighting - Electricity	122	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
	Network and Asset Management	151	383,908	394,133	383,908	363,278	414,403	353,153	373,603	383,828	373,603
	Subtotal **for Operations and Maintenance**		**1,613,908**	**1,624,133**	**1,613,908**	**1,593,278**	**1,644,403**	**1,583,153**	**1,603,603**	**1,613,828**	**1,603,603**

Roading Capex	Actual	Budget	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	Actual	Budget	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)
Roading												
Roading												
Capex												
0868001. Computers	9	26	-	-	-	-	-	-	-	-	-	-
0868925. Plant and Equipment	-	-	5	5	21	5	5	6	6	6	6	6
0868999. Transfer to Assets	- 9	-	-	-	-	-	-	-	-	-	-	-
2548193. Vested Assets	-	290	-	-	318	-	-	896	-	-	272	-
2548211. Unsealed Road Metalling	447	425	650	659	673	690	707	726	746	769	792	819
2548212. Sealed Road Resurfacing	590	520	725	735	751	769	789	307	316	325	335	347
2548213. Drainage Renewal	140	44	60	61	62	64	65	67	69	71	73	76
2548214. Sealed Road Pavement Rehabilitation	-	121	-	203	414	212	218	223	230	237	244	252
2548215. Structures Component replacements b	4	16	20	20	124	21	22	22	23	24	24	25
25482151. Structures Component replacements	3	10	8	8	8	-	9	-	9	-	10	-
2548222. Traffic Services Renewals	55	74	80	81	83	85	87	89	92	95	98	101
2548231. Associated Improvements	-	5	-	-	-	-	-	-	-	-	-	-
2548310. Footpaths - Surfacing	229	70	20	122	166	106	109	112	115	118	122	126
2548341. Minor Improvements	81	250	50	254	466	265	272	279	287	296	305	315
2548390. Streetscape Improvements	-	21	-	-	-	-	-	-	-	-	-	504
2548395. Sealing Past Houses	-	10	10	10	10	11	11	11	11	12	12	13
2548396. Manuka Terrace	343	80	-	-	-	-	-	-	-	-	-	-
2548999. Transfer to Assets	- 1,892	-	-	-	-	-	-	-	-	-	-	-
Total Capex	**-**	**1,962**	**1,628**	**2,158**	**3,096**	**2,228**	**2,294**	**2,738**	**1,904**	**1,953**	**2,293**	**2,584**

9.2 FUNDING STRATEGY

The first priority is to maintain and operate the existing network in its current condition, at the lowest lifecycle cost, then allow for renewal expenditure that revitalises a component of the network that has worn out. In the 2015/16 year $1.6M of budgeted expenditure is to be spent on maintenance and operation with $1.8M to be spent on renewals and $250k to be spent on minor improvements to address safety issues. The remaining allocation, as defined in the draft 2015-2025 LTP, is used to fund administration costs and also accounts for non funded depreciation.

Funding for the management, maintenance, renewals and improvements of the road network is provided from the District roading rate and co-investment received from NZTA.

In determining the larger improvement projects to be undertaken NZTA requires a full better business case be developed to justify the request for funding. Preference is given to projects which can be shown to be economically justified, attract subsidy and have the necessary Council funding available.

9.2.1 FINANCIAL ASSISTANCE

The co-investment rate for operation, maintenance, renewals and improvement works varies from one roading authority to another. There has been a major review of the co-investment rate determination process and this has equated to a drop in assistance given to the Mackenzie District.

Currently Mackenzie District Council receive a base Financial Assistance Rate of 53%. From 1 July 2015 the FAR will be 54%, dropping every year by 1% to a base of 51%. The other significant change the rate for Minor Improvements and other projects has been reduced from 10% above the normal base rate to match that of the base rate. Previously Council's base rate was 53% with Minor Improvements funded at 63%. As subsidised roading activities make up a large proportion of the roading budget and therefore the total Mackenzie District Council budget, this change in base rate will have significant effects on rating requirements. Hopefully this new determination will see the base FAR stabilise at that rate for some time to allow effective planning for managing the network effectively.

9.3 ROAD ASSET VALUATION

The last valuation of the roading infrastructural network and associated assets was undertaken as at 1 July 2013 and is summarised in the Table 8.2. The valuation is updated 3 yearly to take into account capital works and additions to the road network.

The valuation consists of an assessment of the replacement cost, depreciated replacement cost and the annual depreciation or decline in service potential of the network. The annual depreciation or decline in service potential is the amount the asset declines in value over a year as a result of the remaining life of the asset reducing. Provision is required to be made to fund this depreciation so as to make suitable allowance for the future replacement or renewal of the asset.

Depreciation is provided on a straight-line basis on all physical assets at rates which write off the cost of the asset to the estimated residual value at the end of its assumed effective life.

Expenditure on renewing or improving the capacity of the asset is capitalised annually as are assets which are vested in Council by developers. Capital work in progress is not depreciated. The total cost of this work is capitalised at the end of the financial year in which it is completed and depreciated from then onwards.

Table 8.2 – Roading Infrastructure Valuation

Summary	ORC 1 July 2013 ($)	ODRC 1 July 2013 ($)	Depreciation to Date ($)	Annual Depreciation ($)
Pavement	$76,766,987	$58,369,550	$18,397,438	$1,144,384
Footpath	$4,940,772	$3,295,511	$1,645,211	$118,218
Structures	$25,370,022	$12,434,134	$12,935,888	$285,473
Drainage	$8,692,932	43,678,421	$5,014,511	$84,955
SWC	$10,102,548	$6,328,412	$3,774,136	$87,124
Signs	$819,593	$159,504	$660,089	$43,443
Lights	$1,536,212	$644,574	$891,639	$50,454
TOTAL	**$128,229,017**	**$84,910,105**	**$43,318,912**	**$1,841,050**

The total optimised replacement cost of the Roading Infrastructure was assessed to be $128,229,017 as at 1 July 2013. The total optimised depreciated replacement cost was assessed to be $84,910,105.

9.3.1 VALUATION METHODOLOGY

All assets are valued using depreciated replacement cost (DRC). A DRC valuation requires:

- Determination of quantities of assets optimised to relate to those required for current service delivery and foreseeable demand
- Unit rates for replacement with modern engineering equivalent assets
- Effective lives that take account of local influences
- Depreciation that defines current value given a definable remaining life.

The NZ Infrastructure Asset Valuation and Depreciation Guidelines 2006 give direction as to the overall methodology applicable to a DRC valuation for roading assets. This has been applied in this case to achieve a suitable valuation for MDC Improvements and Infrastructure Asset Valuation.

Borrowing costs are excluded from the valuation.

The primary data source for this revaluation was MDC's RAMM database. For a number of assets RAMM was not populated or fully up to date at the time of re-valuation, therefore secondary sources were used as follows:

- **Bridges**: MDC bridge register
- **Cattle stops**: all data in RAMM except construction dates, which were based on data from the previous valuation
- **Footpaths**: MDC inventory data supplied in form of excel spread sheet
- **Street Lights**: provided by MDC's lighting contractor

9.4 ESTIMATED REQUIRED ASSET EXPENDITURE

When assessing the expected annual renewal expenditure an indication of the appropriate level of expenditure required can be gauged by comparing the estimated renewal requirement against the Annual Depreciation for each asset component in light of the average age of that asset component. If the asset is "young" then an amount less than the Annual Depreciation (AD) would be a likely requirement and as the asset ages a larger amount, probably greater than the AD would be likely. The 2013 MDC Valuation report is summarised in table 8.2. Networks with relatively evenly spreads of asset ages and expiry dates should approach a balance between these amounts. However, when Council is forced to defer maintenance to achieve NZTA budgetary constraints it will take longer to realise that balance.

The AD is an amount of money which represents the estimated annual renewal needs of the asset. It does not include the amount required to cover maintenance or running costs such as electricity for streetlights.

In considering the above it is possible to identify whether the current renewal expenditure is:

- approximately matching the theoretical renewal requirement
- less than the theoretical renewal requirement
- greater than the theoretical renewal requirement

Each Road Asset component has been looked at to determine the outcome in relation to its budgeted expenditure. A comparison between forecast expenditure for 2015/16 and the Annual Depreciation for each asset type is shown in Table 8.3.

Table 8.3 – Comparison between Forecast Expenditure and Annual Depreciation

Asset Type	Component Description	2014/15 Renewals Forecast	AD Cost (% renewals vs. AD)
Pavement	**Total Estimated Annual Need (AD)**		**$1,144,384**
	Unsealed Road Metalling	$650,000	(138%)
	Sealed road Resurfacing	$725,000	
	Pavement Rehabilitation	$200,000	
	Total Renewals	**$1,575,000**	
Footpaths	**Total Estimated Annual Need (AD)**		**$118,218**
	Footpaths - Surfacing	$100,000	(85%)
	Total Renewals	**$100,000**	
Structures	**Total Estimated Annual Need (AD)**		**$285,473**
	Structures component replacements (including	$28,000	(10%)

Asset Type	Component Description	2014/15 Renewals Forecast	AD Cost (% renewals vs. AD)
	bridges cattle stops and fords)		
	Total Renewals	**$28,000**	
Drainage	**Total Estimated Annual Need (AD)**		**$172,079**
	Culverts, catch pits, soak pits, side drains and all surface water channels (including all concrete K&C, dish channel, mountable kerbs, earth surface water channels)	$60,000	(35%)
	Total Renewals	**$60,000**	
Traffic Services	**Total Estimated Annual Need (AD)**		**$93,897**
	Signs	$70,000	(149%)
	Lights	$70,000	
	Total Renewals	**$140,000**	

From the comparison shown in Table 8.3, it can be seen that expenditure is probably appropriate for most assets in relation to the Annual Depreciation. However, underinvestment is indicated for Structures and Drainage assets. Council and roading staff will be required to continue to assess the budgeted expenditure level on an ongoing basis taking in to account the current use, age and condition of the network components.

9.4.1 MINOR IMPROVEMENT PROJECTS

Previously NZTA recognised the importance of road safety improvements that can be made to most networks and provided co-investment at a rate of 53%. NZTA's general approved level of improvements funding level amounts to 5% of the total maintenance and renewal programme. It would appear that the emphasis has shifted away from road safety with NZTA as now, those very worthwhile projects previously funded at 10% above base, are now to be funded at the base rate. The works that qualify for this expenditure include but are not limited to:

- Bridge Replacements
- Small isolated geometric improvements
- Intersection improvements
- Lighting improvements for safety
- Provision of guard railing
- Sight benching to improve visibility
- Safety footpaths that conform to NZTA policy

Council has allowed in its 2014/15 budget funding of $250,000 for Minor Improvements of local roads. It is anticipated that this application to NZTA will be approved in full and it has been supported by the bridge replacement programme.

9.5 KEY ASSUMPTIONS

Key assumptions made in the financial forecasts are as follows:

- NZTA will continue to provide financial support to Council for the road network
- The Council will continue to fund the level of service currently set out in this AMP and set out in the 2012-22 LTP
- The dollar values shown in this Plan are January 2015 dollars
- Renewal costs are best available estimates, based on current network needs, some especially very long term estimates (greater than five years), are rough order of cost estimates that need to be further researched and refined
- The effects of known very likely or future developments are included.
- Assumptions made on Total Useful Lives and Residual Useful Lives of the assets in relation to the asset valuation.
- The asset data is considered to be reliable and fit for the purpose for developing the long term financial forecasts.
- Reduction in NZTA's Funding Assistance Rate (FAR) by 1% every year to a base co-investment rate of 51%
- No account has been made for potential increased reporting costs as a direct result of implementing One Network Road Classification(ONRC)
- No account has been made for potential change in level of service and resultant co-investment as direct result of implementing One Network Road Classification.
- The reason no account has been made for implementation of ONRC is due to the delays from NZTA in providing sufficient details to allow Council staff to model the impacts and therefore include transitional details in this plan.
- The current level of development will slow down by about a third but continue at that rate for the duration of this plan.

FINANCIAL SUMMARY

10. ASSET MANAGEMENT IMPROVEMENT PLAN

10.1 STATUS OF AM PRACTICES

This section provides details of how Council plans to improve its transportation asset management practises, included in the Transportation AMP.

This AMP has previously been reviewed and updates incorporated including improvements to ensure "Core+" level Asset Management is met. Council is committed to a continual improvement as outlined in this section of the AMP. A key objective is to dovetail the asset management planning process with the other key planning processes particularly the Community Plan (LTP).

10.2 IMPROVEMENT PROGRAMME

The review and improvement of this AMP requires resource and budget in order to complete the selected improvement tasks. Table 10.1 outlines the items for improvement, relative urgency, resource, priority, budget and the authority sought to give approval to complete each item.

10.3 MONITORING AND REVIEW PROCEDURES

10.3.1 3 YEAR REVIEW

This AMP is to be reviewed on a 3-yearly basis, with the next full review taking place in 2017. During the three year period leading up to this review, the items in the Improvement Programme will be addressed within the timeframes indicated. These improvements can then be incorporated into the next review of the AMP.

This AMP is also audited externally with the review including process, data integrity and Levels of Service. The last external audit was completed by New Zealand Transport Agency in 2014.

10.3.2 ANNUAL REVIEW

At the completion of each annual budgeting period the financial forecasts are to be updated to include the new Yr. 10 figures and any changes made to the intervening budgets by the Council.

By the end of July each year asset inventory data to be updated in RAMM to reflect the previous financial year's maintenance and renewal activities. Data accuracy is to be verified by completing a random 10% network audit.

10.3.3 30 YEAR INFRASTRUCTURE STRATEGY

During the AMP review process the high level implications contained within the AMP are incorporated into the 30 year infrastructure strategy.

TRANSPORTION ACTIVITY MANAGEMENT IMPROVEMENT PLAN

Table 10.1 – Improvement Programme

Item	Task Name	Relative Urgency			Resource	Priority	Budget	Approval Sought	Timeframe
		1	2	3					
3.0	**Description of Asset**								
3.1	Current age and remaining life of all assets needs to be reviewed and determined.		✓		Council External Consultant	**Low**	**To be Confirmed if required**	Asset Manager	Ongoing
4.0	**Levels of Service**								
4.1	Complete gap analysis with One Network Road Classification Levels of services and current agreed levels of service	✓			Council External Consultant	**High**	**To be Confirmed**	Council	2015
4.2	Depending on the outcome of 4.1 above, consult with ratepayers through a formal consulting process, to examine their willingness to pay for required Level of Service.	✓			Council External Consultant	**High**	**To be Confirmed**	Council	2015

ASSET MANAGEMENT IMPROVEMENT PLAN

Item	Task Name	Relative Urgency			Resource	Priority	Budget	Approval Sought	Timeframe
		1	2	3					
4.3	Complete Transition Plan	✓			Council External Consultant	**High**	**To be Confirmed**	Asset Manager	2015
5.0	**Future Demand**								
5.1	Monitor changes in land use and land use intensification to determine the impact on the Roading network.		✓		Council External Consultant	**Medium**	**To be Confirmed**	Council	Prior to next AMP revision
6.0	**Risk Management**								
6.1	All assets need to be assessed for criticality		✓		Council Workshop utilising External Consultant	**Medium**	**To be Confirmed**	Council	Within 24 months
6.2	Risk management register needs to be developed. Assessed risks can then be linked to maintenance and renewals programmes.		✓		Workshop utilising External Consultant	**Medium**	**To be Confirmed**	Council	Within 24 months
6.3	Significant negative effects need to be identified and provide an input into the AMP. Also identify procedures for mitigating significant negative effects.		✓		Workshop utilising External Consultant	**Medium**	**To be Confirmed**	Council	Within 24 months

ASSET MANAGEMENT IMPROVEMENT PLAN

Item	Task Name	Relative Urgency			Resource	Priority	Budget	Approval Sought	Timeframe
		1	2	3					
6.4	Emergency management (including lifelines) requires review. Require procedures in place for rapid response to emergency failures.		✓		Workshop utilising External Consultant	**Medium**	**To be Confirmed**	Council	Within 24 months
7.0	**Life Cycle Management**								
7.1	Review and update the RAMM database. Ensure all inventory data is captured.			✓	Council External Consultant	**Low**	**To be Confirmed**	Roading Manager	Ongoing
7.2	Complete a full review of the network assets (using both RAMM and field inspections) and develop a detailed 10 year Forward Work Programme for all asset groups.			✓	Council External Consultant	**Low**	**To be Confirmed**	Roading Manager	Ongoing
8.0	**Financial Forecasts**								
8.1	Review financial forecasts and lifecycle costs on announcement of 2015/18 NLTP	✓			Council	**High**		Financial Manager Asset Manager	June 2015

ASSET MANAGEMENT IMPROVEMENT PLAN

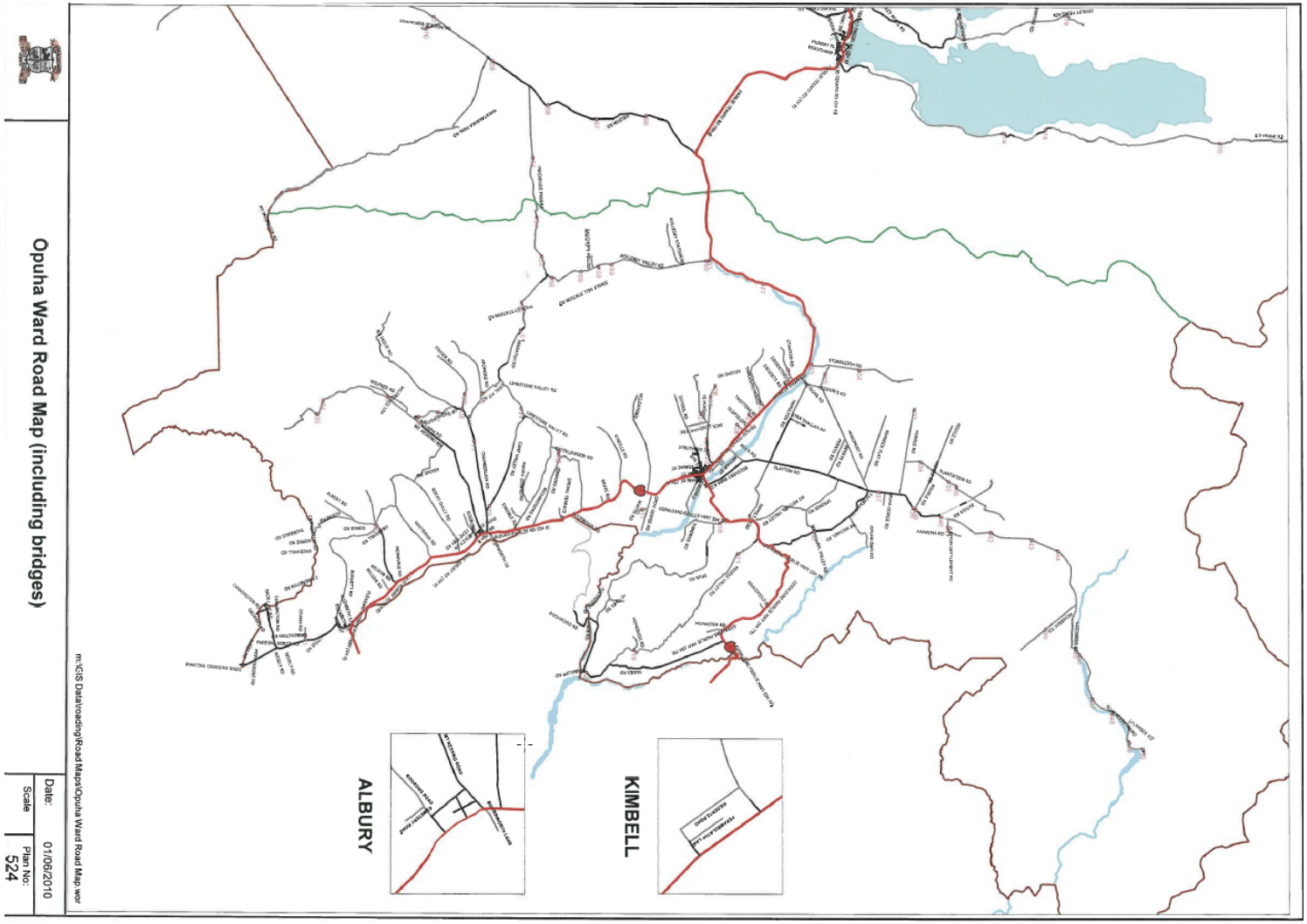
Item	Task Name	Relative Urgency			Resource	Priority	Budget	Approval Sought	Timeframe
		1	2	3					
8.2	Asset Valuation not completed using the RAMM Database due to previous incompleteness of RAMM asset registers. Utilising RAMM simplifies and standardises the valuation process.		✓		Council External Consultant	**Medium**		Asset Manager Roading Manager	Prior to next Valuation in 2016
9.0	**Asset Management Practices**								
9.1	Review the current status of the MDC RAMM database in light of the "Confidence Ratings for Roading Asset Data" and look to improve the "A" and "G" ratings		✓		Council	**Medium**	**To be Confirmed**	Roading Manager	Prior to next AMP revision
9.2	Amalgamate street lighting data into RAMM instead of having separate spread sheet			✓	Council	**Low**	**To be Confirmed**	Asset Manager	Within 24months
9.3	The currently adopted asset lifecycles require annual review based on current age and performance measures. This exercise will require a detailed assessment of remaining life.			✓	External Consultant	**Low**	**To be Confirmed**	Council	Ongoing
10.0	**Other Improvements**								
10.1	**Manuka Terrace** Re- assess the financial contribution policy around the sealing of Manuka Tce	✓			Council	**High**	**To be Confirmed**	Council	Within 12 months

ASSETMANAGEMENT IMPROVEMENT PLAN

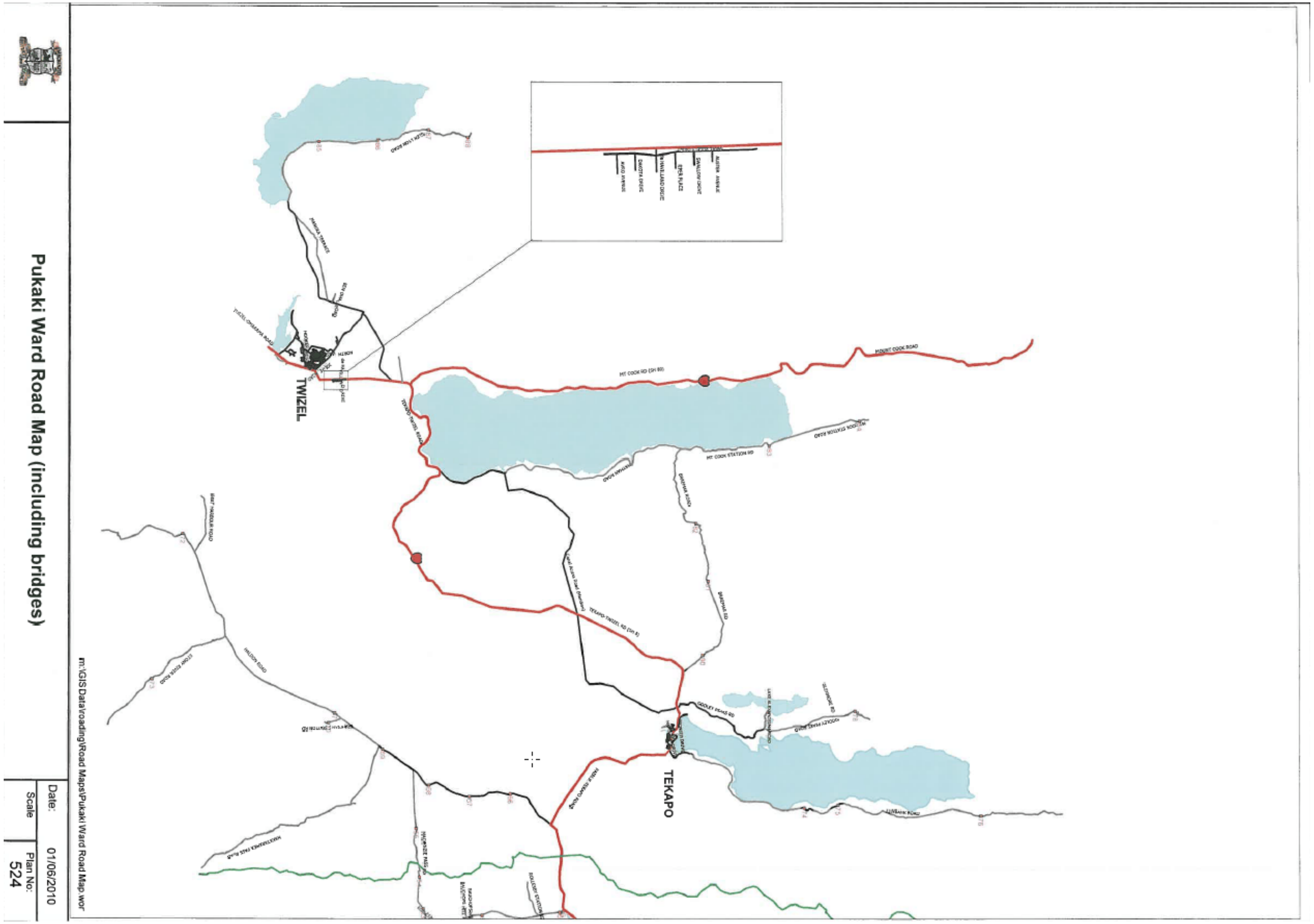
11. APPENDICES

APPENDIX I

11.1 DISTRICT MAP



APPENDIX I

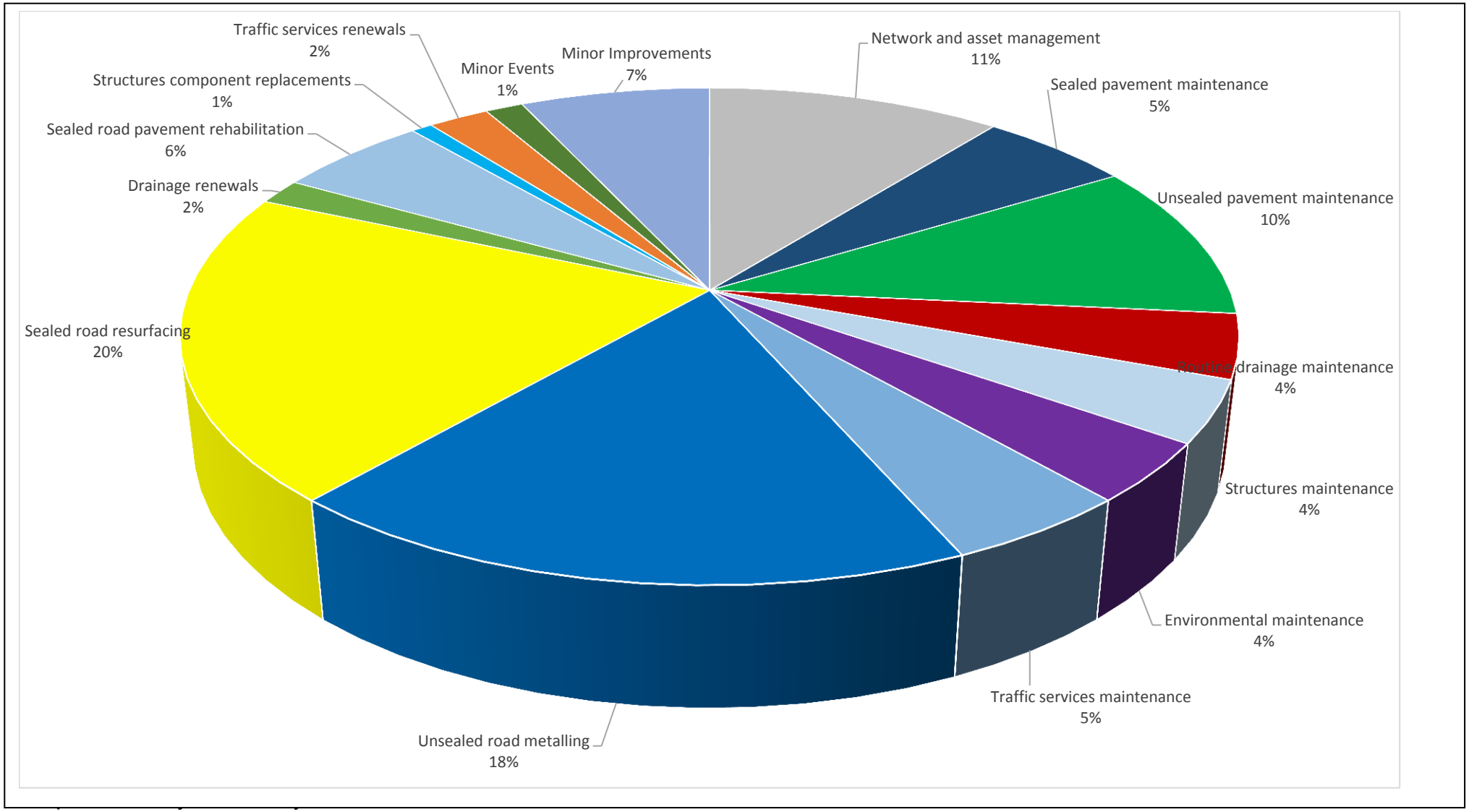

Pukaki Ward Road Map (including bridges)
TWIZEL
TEKAPO
MT COOK RD (SH 80)
MOUNT COOK ROAD
MT COOK STATION RD
m:\GIS Data\roading\Road Maps\Pukaki Ward Road Map.wor
Date: 01/06/2010
Scale
Plan No: 524

APPENDIX III

APPENDIX III

11.2 FINANCIAL FORECASTS

11.2.1 TRANSPORTATION PROPOSED EXPENDITURE BY TYPE 2015-2018



APPENDIX III

11.2.2 PROSPECTIVE 10 YEAR FINANCIAL FORECAST

			2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
	Expenses (Operational)	Work Category	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
	Sealed Pavement Maintenance	111	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
	Unsealed Pavement Maintenance	112	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000
	Routine Drainage Maintenance	113	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
	Drainage Maintenance - Street Cleaning	113	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
	Structures Maintenance Bridges	114	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000
	Structures Maintenance Cattlestops	114	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
	Environmental Maintenance	121	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000
	Minor Events	140	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
	Traffic Services Maintenance	122	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
	Street Lighting - Maintenance	122	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
	Street Lighting - Electricity	122	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000
	Network and Asset Management	151	383,908	394,133	383,908	363,278	414,403	353,153	373,603	383,828	373,603
	Subtotal **for Operations and Maintenance**		**1,613,908**	**1,624,133**	**1,613,908**	**1,593,278**	**1,644,403**	**1,583,153**	**1,603,603**	**1,613,828**	**1,603,603**

APPENDIX III

Roading Capex	Actual	Budget	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP	LTP
	Actual	Budget	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)	(000)
Roading												
Roading												
Capex												
0868001. Computers	9	26	-	-	-	-	-	-	-	-	-	-
0868925. Plant and Equipment	-	-	5	5	21	5	5	6	6	6	6	6
0868999. Transfer to Assets	- 9	-	-	-	-	-	-	-	-	-	-	-
2548193. Vested Assets	-	290	-	-	318	-	-	896	-	-	272	-
2548211. Unsealed Road Metalling	447	425	650	659	673	690	707	726	746	769	792	819
2548212. Sealed Road Resurfacing	590	520	725	735	751	769	789	307	316	325	335	347
2548213. Drainage Renewal	140	44	60	61	62	64	65	67	69	71	73	76
2548214. Sealed Road Pavement Rehabilitation	-	121	-	203	414	212	218	223	230	237	244	252
2548215. Structures Component replacements b	4	16	20	20	124	21	22	22	23	24	24	25
25482151. Structures Component replacements	3	10	8	8	8	-	9	-	9	-	10	-
2548222. Traffic Services Renewals	55	74	80	81	83	85	87	89	92	95	98	101
2548231. Associated Improvements	-	5	-	-	-	-	-	-	-	-	-	-
2548310. Footpaths - Surfacing	229	70	20	122	166	106	109	112	115	118	122	126
2548341. Minor Improvements	81	250	50	254	466	265	272	279	287	296	305	315
2548390. Streetscape Improvements	-	21	-	-	-	-	-	-	-	-	-	504
2548395. Sealing Past Houses	-	10	10	10	10	11	11	11	11	12	12	13
2548396. Manuka Terrace	343	80	-	-	-	-	-	-	-	-	-	-
2548999. Transfer to Assets	- 1,892	-	-	-	-	-	-	-	-	-	-	-
Total Capex	**-**	**1,962**	**1,628**	**2,158**	**3,096**	**2,228**	**2,294**	**2,738**	**1,904**	**1,953**	**2,293**	**2,584**

APPENDIX IV

11.3 BRIDGES – RESTRICTED

ROAD ID	Hierarchy	Use	BRIDGE NAME	WATERWAY	DISPL (m)	TYPE	RESTRICTED	NO. OF LANES	SPAN LENGTH	DECK WIDTH	BRIDGE AREA
157	Local	1	Rocky Gully Bridge	Rocky Gully	17057	CBS	SPEED	1	24.6	4	98.4
163	Local	1	Long Gully Bridge	Chaimberlain Stream	1225	TMB	WEIGHT	1	8	3.25	26
123	Local	1	Frasers Road Bridge No 2	Delamain Stream	1044	TMB	SPEED	1	7	3	21
119	Local	1	Coal Pit Road No 2	Little Opawa Stream	1730	TMB	WEIGHT	1	12	4.59	55.08
149	Local	1	Pioneer Park Bridge		4620	TMB	WEIGHT	1	8.8	4.55	40.04
159	Local	1	Goodmans Bridge	Wellshot Stream	5200	TMB	WEIGHT	1	17	2.05	34.85
162	Local	1	Oldfields Road Bridge	Wellshot Stream North Branch	560	TMB	WEIGHT	1	7.5	2.85	21.375
117	Local	1	Clayton Settlement Bridge	North Opuha	502	JBT	SPEED	1	66	3.15	207.9
144	Collector	1	Lockharts Stream Bridge	Lockharts Stream	530	SBS	WEIGHT	1	14	2.9	40.6
181	Local	1	Single Hill Bridge		200	TMB	WEIGHT	1	12	2.75	33
128	Local	1	Grampians Bridge		1375	TMB	WEIGHT	1	5.6	2.25	12.6
132	Local	1	Stoney Creek Bridge	Stoney Creek	41340	SBS	WEIGHT	1	20.6	3.25	66.95
187	Local	1	Stoney River Road Bridge	Stoney River	7360	TMB	WEIGHT	1	5	2.3	11.5
141	Collector	1	Washdyke Stream Bridge	Washdyke Stream	17175	SBS	WEIGHT	1	11	3.7	40.7
126	Local	1	Cass River Bridge	Cass River	16560	TMB	WEIGHT	1	124	3	372
154	Local	1	Jollie River Bridge	Jollie River	15520	SBS	WEIGHT	1	78	4.2	327.6
153	Local	1	Mowbray Road Bridge	unknown	2670	TMB	WEIGHT	1	6.3	3.12	19.656
187	Local	1	Stoney River Road Ford Bridge	Moffat Stream	6280	TMB	WEIGHT	1	5.8	2.28	13.224

APPENDIX V

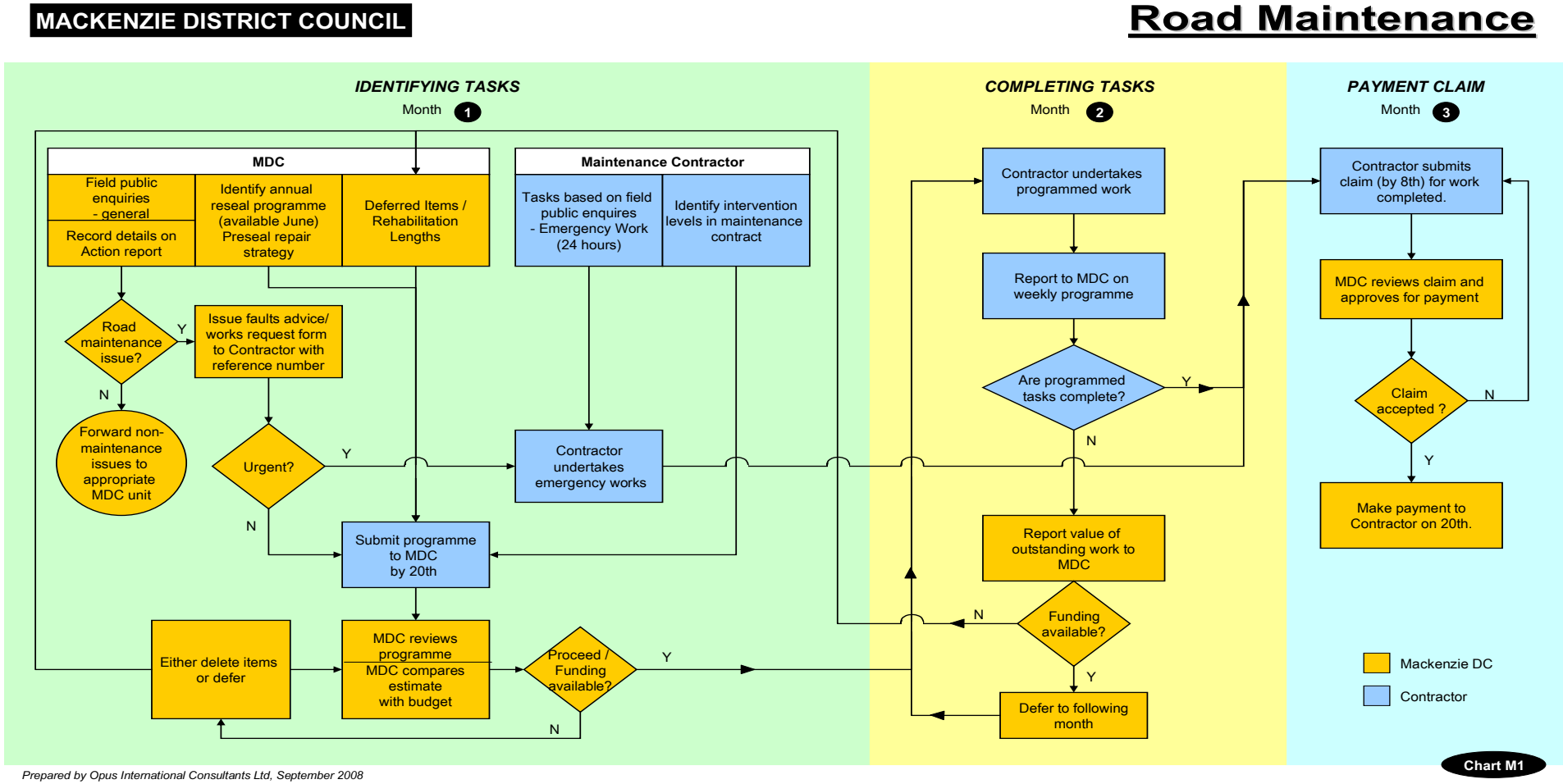
11.4 RISK REGISTER

Management Activity	*Name*	*Description*	*Existing Controls*	*Assessment*				
				Consequence	**Likelihood**	**Risk**	**Treatment Option**	Treatment Cost

APPENDIX VI

11.5 MAINTENANCE PROCEDURE CHARTS

11.5.1 ROAD MAINTENANCE



Prepared by Opus International Consultants Ltd, September 2008

APPENDIX VI

11.5.2 RESEALS

MACKENZIE DISTRICT COUNCIL

Reseals

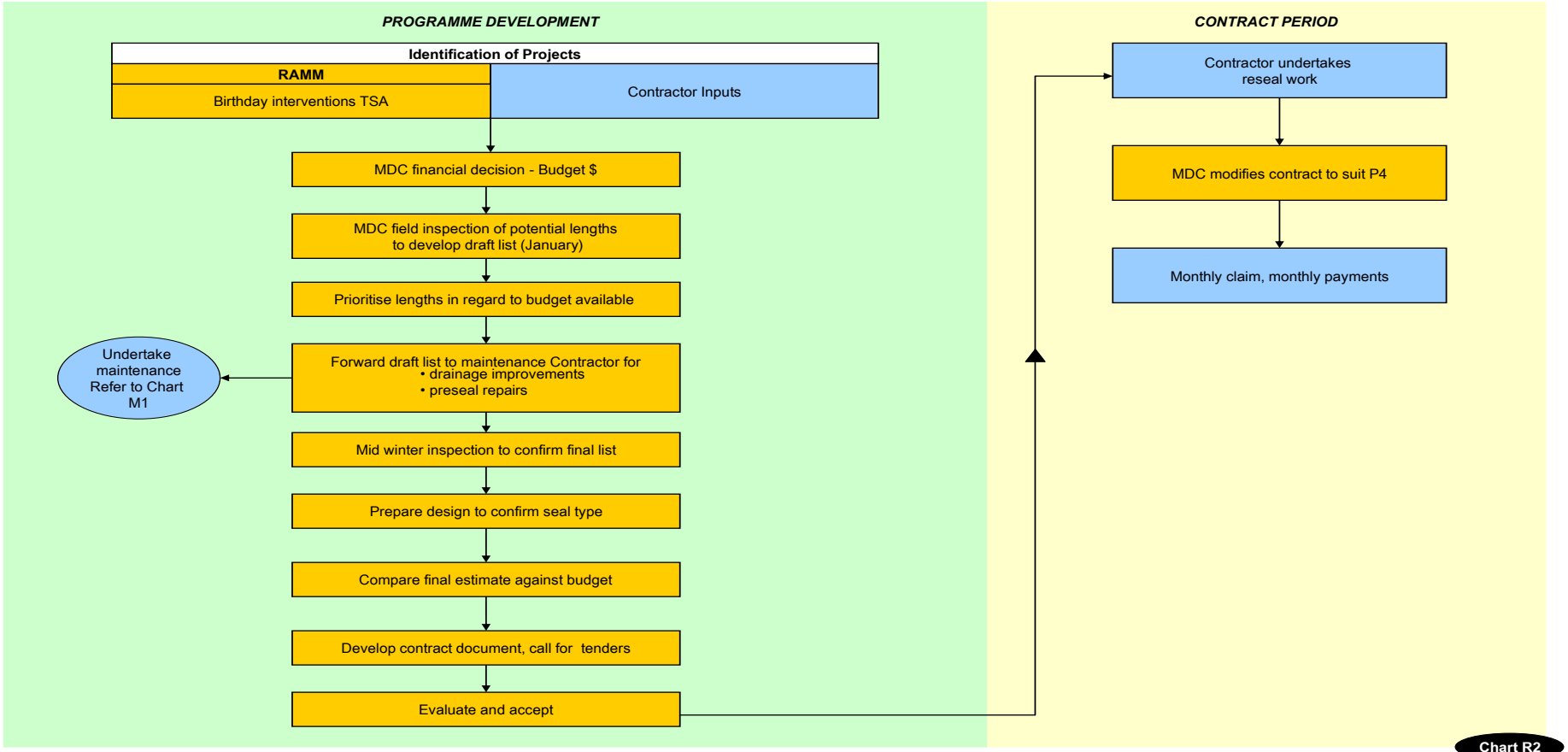


Chart R2

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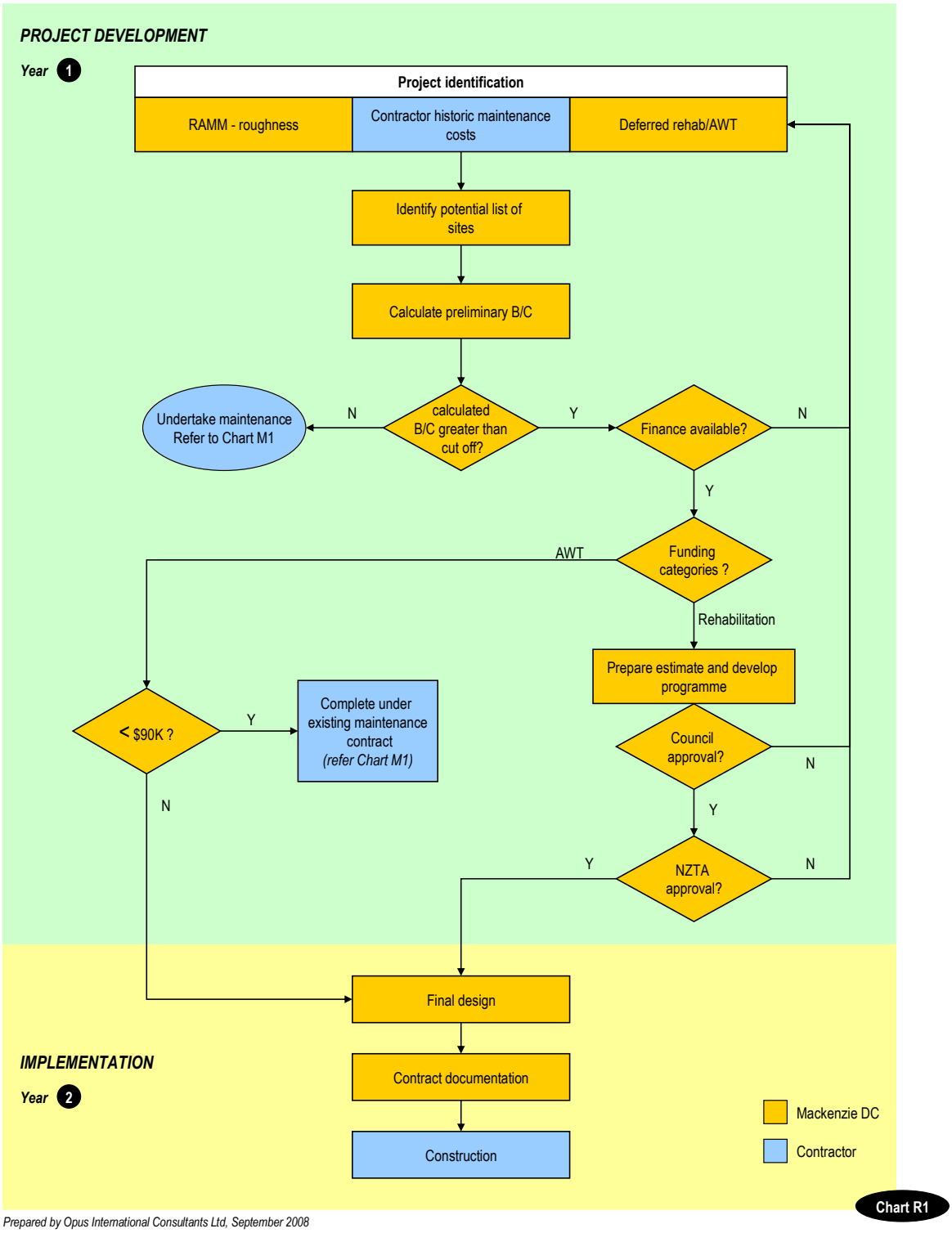
APPENDIX VI

11.5.3 REHABILITATION/RECONSTRUCTION/AWPT

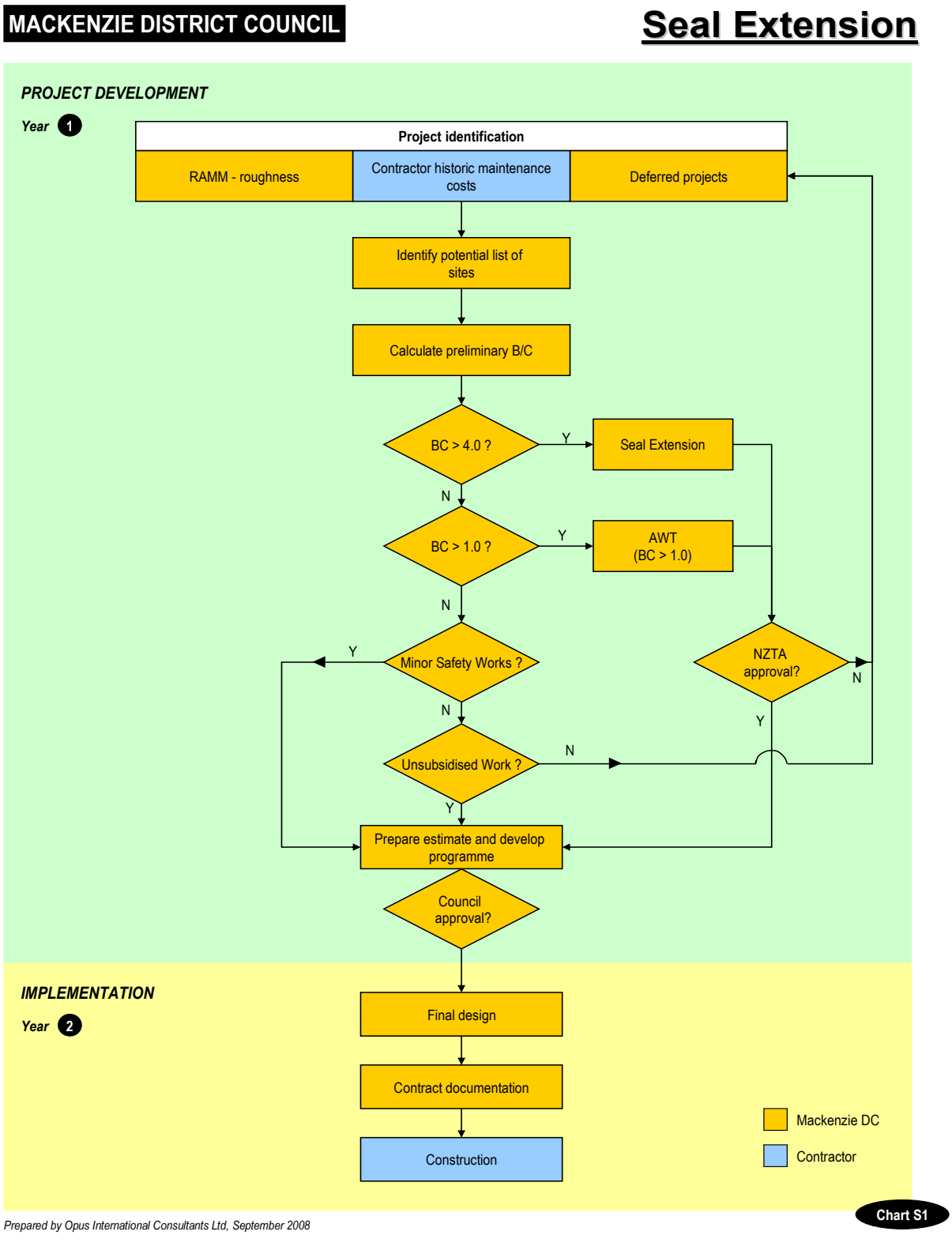
MACKENZIE DISTRICT COUNCIL **Rehabilitation/Reconstruction /AWT**



Prepared by Opus International Consultants Ltd, September 2008

APPENDIX VI

11.5.4 SEAL EXTENSION



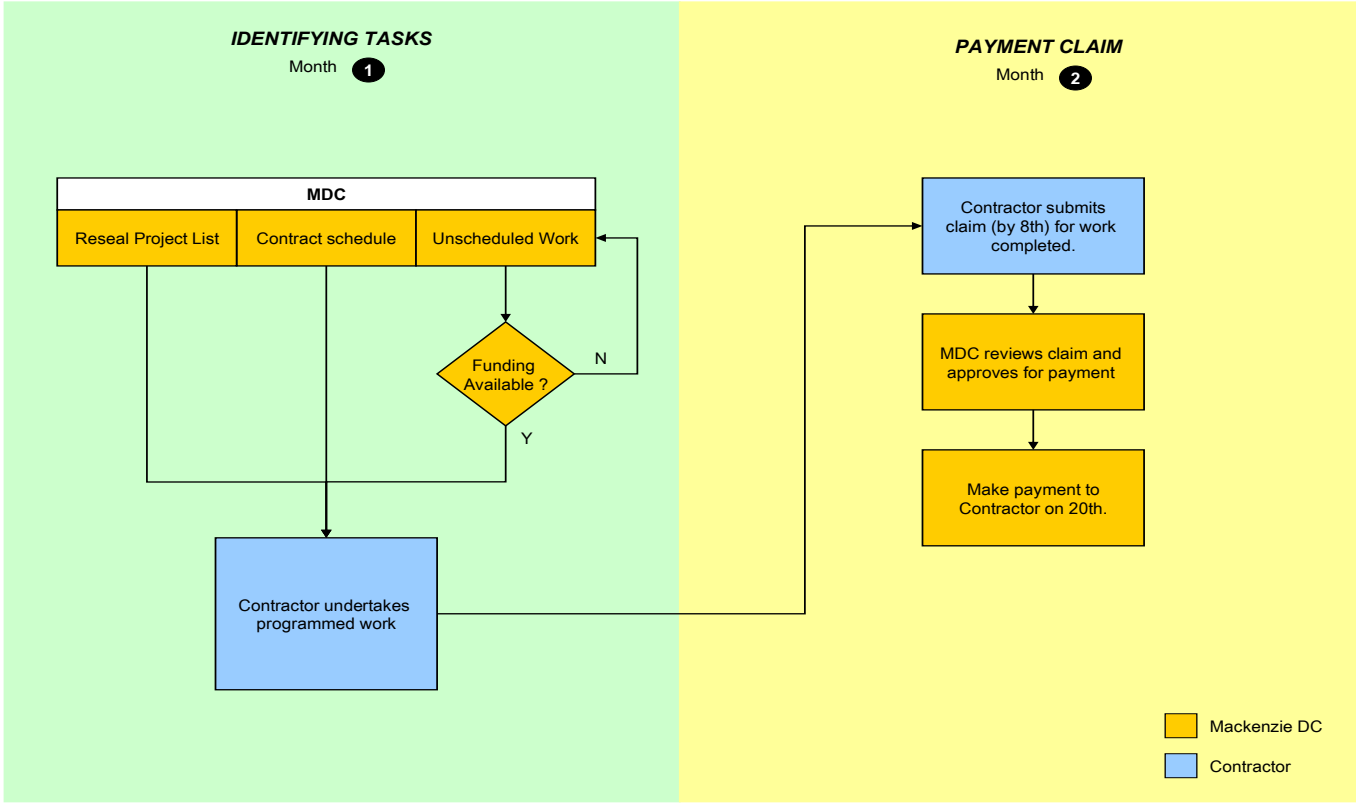
Prepared by Opus International Consultants Ltd, September 2008

APPENDIX VI

11.5.5 PAVEMENT MARKING

MACKENZIE DISTRICT COUNCIL

Pavement Marking



Prepared by Opus International Consultants Ltd, September 2008

Chart P1

APPENDIX VI

11.5.6 KERB AND CHANNEL

MACKENZIE DISTRICT COUNCIL

Kerb and Channel

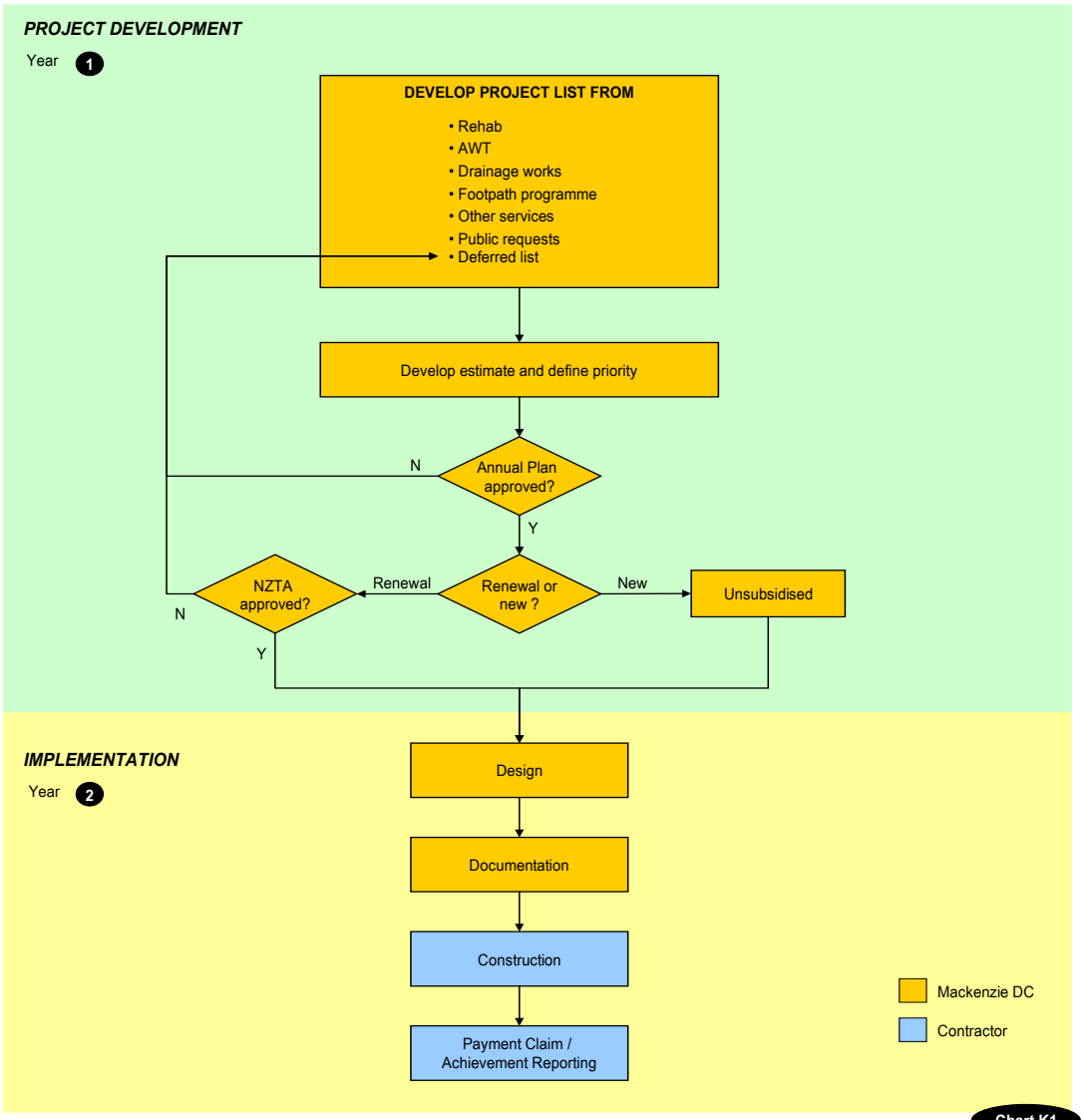


Chart K1

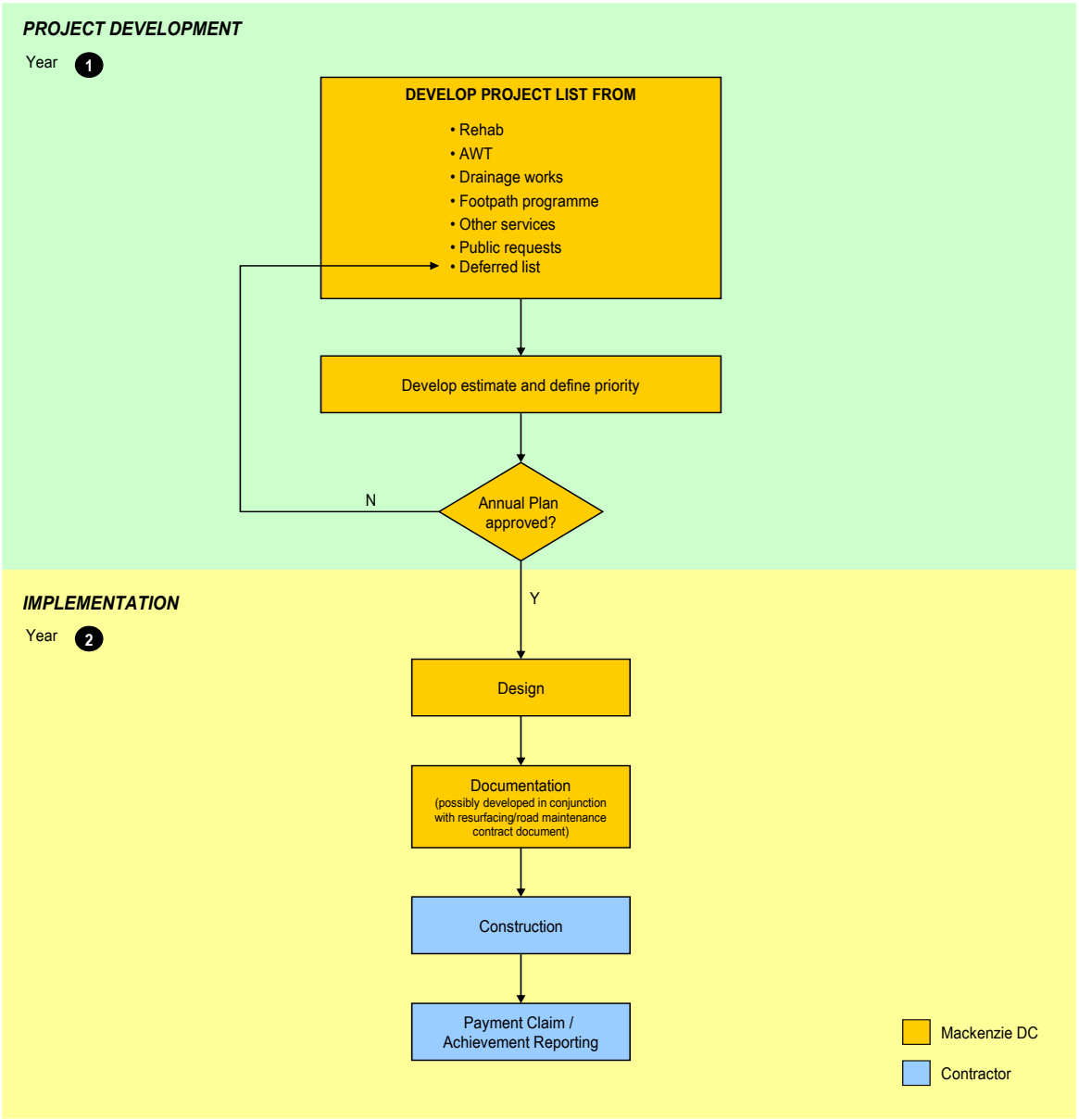
Prepared by Opus International Consultants Ltd, September 2008

APPENDIX VI

11.5.7 FOOTPATH CONSTRUCTION

MACKENZIE DISTRICT COUNCIL

Footpath Construction



Prepared by Opus International Consultants Ltd, September 2008

Chart F1

APPENDIX VI

11.5.8 FOOTPATH RESURFACING

MACKENZIE DISTRICT COUNCIL

Footpath Resurfacing

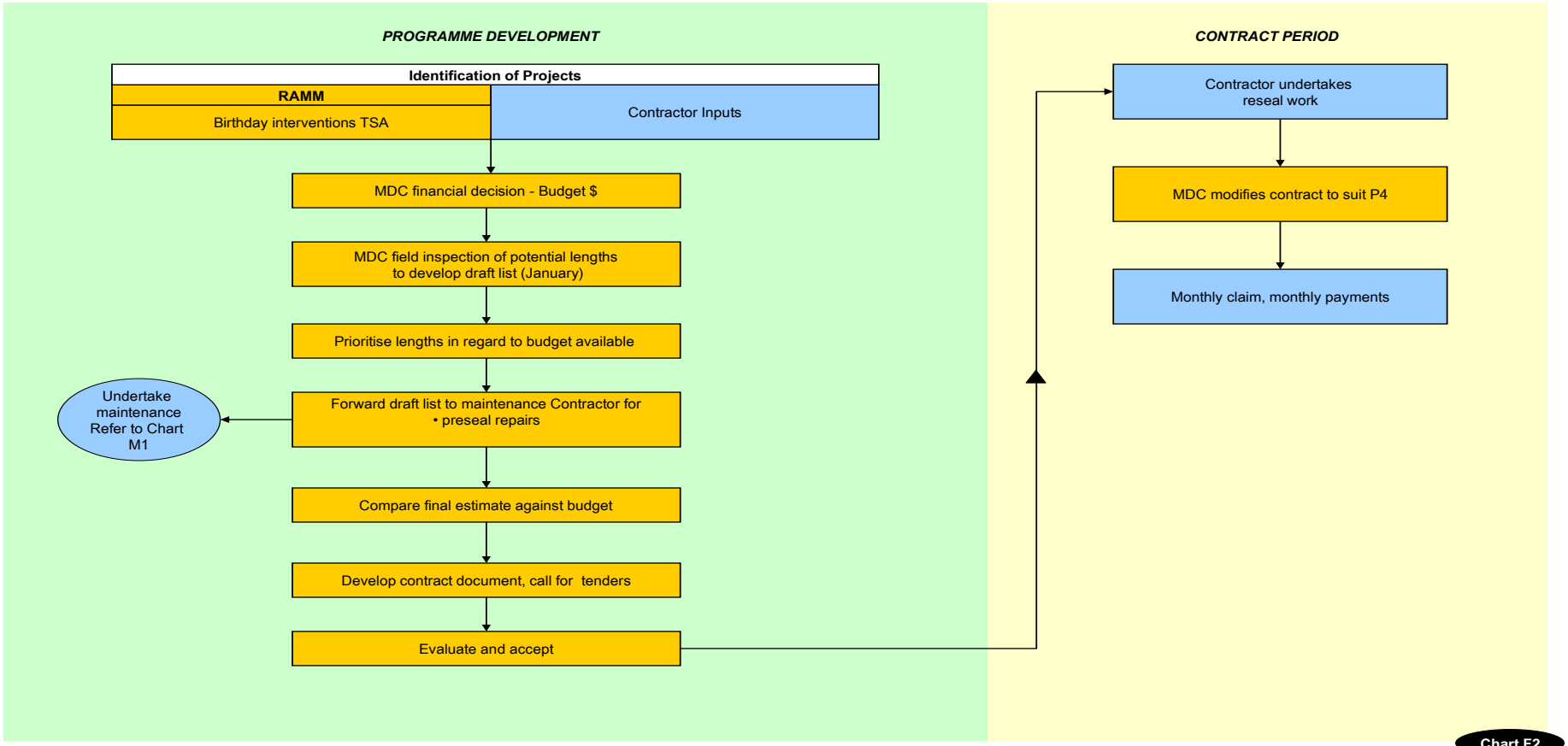
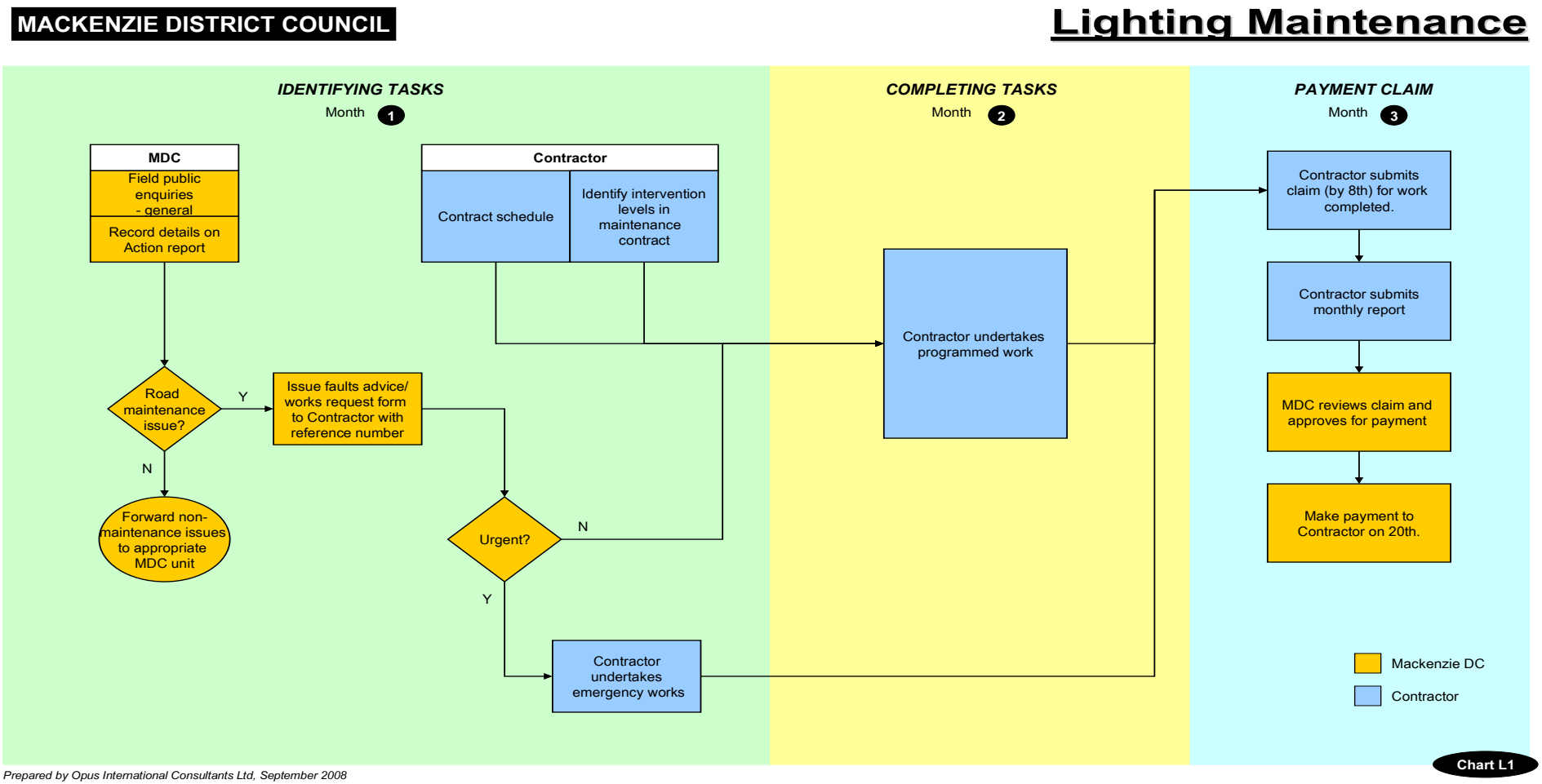


Chart F2

Prepared by Opus International Consultants Ltd, September 2008

APPENDIX VI

11.5.9 LIGHTING MAINTENANCE



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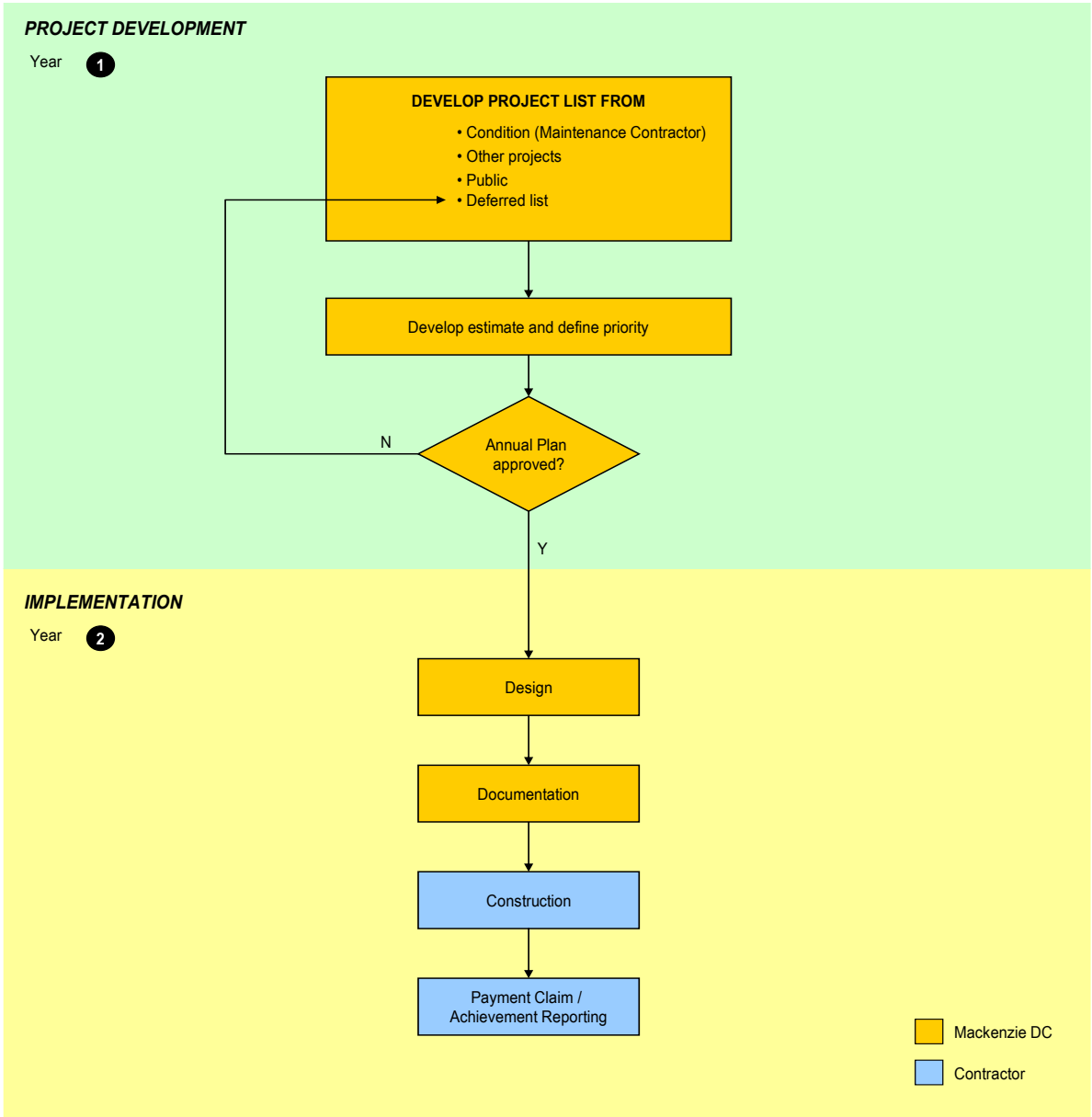
APPENDIX VI

11.5.10 LIGHTING REPLACEMENT

MACKENZIE DISTRICT COUNCIL

Lighting Replacement



Prepared by Opus International Consultants Ltd, September 2008

Chart L2

APPENDIX VI

11.6 Funding Impact Statement for Transportation

Mackenzie District Council											
Funding Impact Statement for 10 Years to 30 June 2025 for Transportation											
	Annual Plan 2014/15 ($000)	LTP Year 1 2015/16 ($000)	LTP Year 2 2016/17 ($000)	LTP Year 3 2017/18 ($000)	LTP Year 4 2018/19 ($000)	LTP Year 5 2019/20 ($000)	LTP Year 6 2020/21 ($000)	LTP Year 7 2021/22 ($000)	LTP Year 8 2022/23 ($000)	LTP Year 9 2023/24 ($000)	LTP Year 10 2024/25 ($000)
Sources of operating funding											
General rates, uniform annual general charges, rates penalties	-	-	-	-	-	-	-	-	-	-	-
Targeted rates (other than a targeted rate for water supply)	1,319	1,225	1,765	2,169	1,950	2,129	1,889	2,040	2,157	2,283	2,967
Subsidies and grants for operating purposes	646	896	899	897	891	914	938	964	994	1,024	1,058
Fees, charges, and targeted rates for water supply	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads recovered	-	6	18	31	21	22	12	12	12	12	35
Local authorities fuel tax, fines, infringement fees, and other receipts	95	26	26	26	27	28	28	29	30	31	32
Total operating funding (A)	**2060**	**2153**	**2708**	**3123**	**2889**	**3093**	**2867**	**3045**	**3193**	**3350**	**4092**
Applications of operating funding											
Payments to staff and suppliers	1,317	1,555	1,577	1,611	1,618	1,724	1,702	1,783	1,837	1,892	1,916
Finance costs	-	-	-	-	-	-	-	-	-	-	-
Internal charges and overheads applied	14	15	17	18	20	23	24	25	26	26	27
Other operating funding applications	-	-	-	-	-	-	-	-	-	-	-
Total applications of operating funding (B)	**1331**	**1570**	**1594**	**1629**	**1638**	**1747**	**1726**	**1808**	**1863**	**1918**	**1943**
Surplus (deficit) of operating funding (A - B)	**729**	**583**	**1114**	**1494**	**1251**	**1346**	**1141**	**1237**	**1330**	**1432**	**2149**
Sources of capital funding											
Subsidies and grants for capital expenditure	801	860	1,071	1,343	1,074	1,106	874	903	926	959	986
Development and financial contributions	-	-	-	-	-	-	-	-	-	-	-
Increase (decrease) in debt	-	-	-	-	-	-	-	-	-	-	-
Gross proceeds from sale of assets	-	-	-	-	-	-	-	-	-	-	-
Lump sum contributions	-	-	-	-	-	-	-	-	-	-	-
Total sources of capital funding (C)	**801**	**860**	**1071**	**1343**	**1074**	**1106**	**874**	**903**	**926**	**959**	**986**
Applications of capital funding											
Capital expenditure											
to meet additional demand	-	-	-	-	-	-	-	-	-	-	-
to improve the level of service	-	-	-	-	-	-	-	-	-	-	-
to replace existing assets	1,672	1,628	2,158	2,780	2,228	2,294	1,843	1,903	1,952	2,021	2,583
Increase (decrease) in reserves	-142	-185	27	57	97	158	172	237	304	370	552
Increase (decrease) in investments	-	-	-	-	-	-	-	-	-	-	-
Total applications of capital funding (D)	**1530**	**1443**	**2185**	**2837**	**2325**	**2452**	**2015**	**2140**	**2256**	**2391**	**3135**
Surplus (deficit) of capital funding (C - D)	-729	-583	-1114	-1494	-1251	-1346	-1141	-1237	-1330	-1432	-2149
Funding balance ((A - B) + (C - D))	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Mackenzie District Council

Infrastructure Strategy - The Next 30 Years

MACKENZIE DISTRICT COUNCIL

30 Year Infrastructure Plan

Prepared By: _____

Bernie Haar, Asset Manager
Mackenzie District Council

Reviewed By: _____

Suzy Ratahi, Roading Manager
Mackenzie District Council

Reviewed By: _____

Geoff Horler, Utilities Manager
Mackenzie District Council

Document Approved: _____

Chief Executive Officer,
Mackenzie District Council

Adopted by Council: _____

Mayor (on behalf of Council)

Document No

File No .....

Mackenzie District Council – 30 Year Infrastructure Strategy

UPDATE REGISTER

Number	Date	Description of Update	Updated by
Version 1	December 2014	Initial Strategy Produced	Bernie Haar
Version 1	March 2015	Adopted by Council	Bernie Haar

Contents

1 Executive Summary

1.1 Introduction

This Infrastructure Strategy has been developed to provide Mackenzie District Council with a long term (30 years) strategic document for the effective planning and management of its infrastructure assets. It sets out what issues are currently and likely to impact on those assets and the costs associated with maintaining, operating, renewing and developing the asset.

This Strategic Plan specifically covers the following assets:

Stormwater Disposal
Foul Sewer Disposal
Water Supply
Roads and Footpaths

This strategy is prepared from information contained within the respective Asset Management Plans for these activities and detailed asset data performance and condition is recorded in the Asset Registers. Whilst this strategy covers the next 30 years, the first 10 year's programmes both operational and capital flow into and will be confirmed by the 2015-25 Long Term Plan.

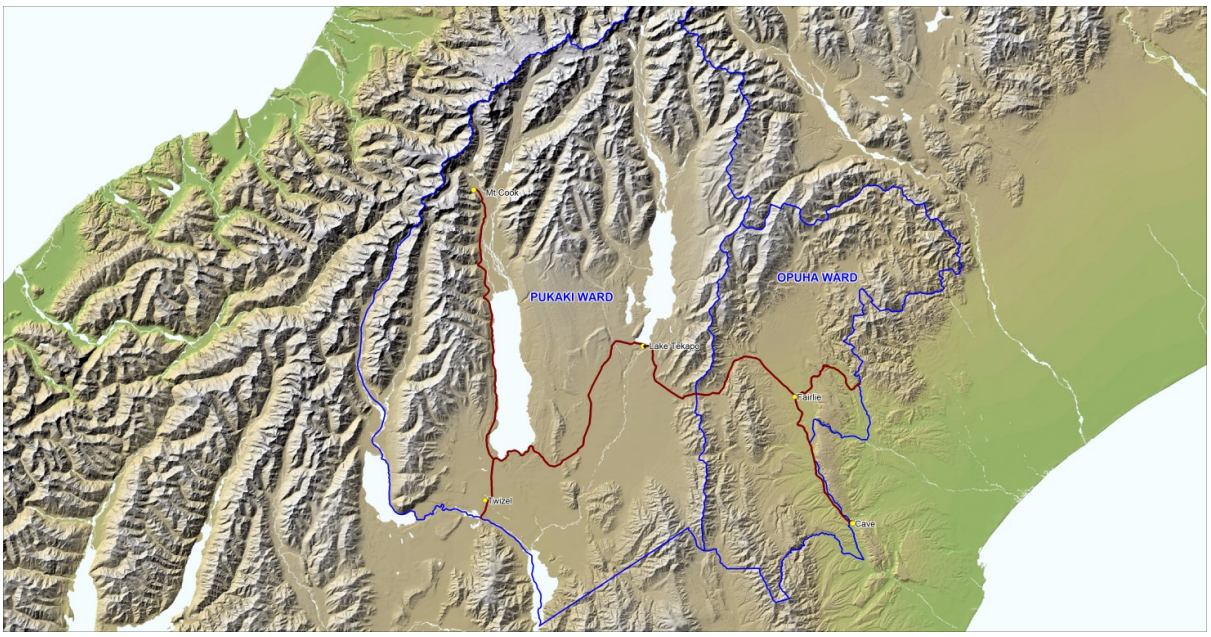
1.2 Background

The Mackenzie District is bounded in the north and east by the Timaru and Waimate Districts, in the south by the Waitaki District and to the west by the Southern Alps/ Westland District boundary. There are two wards: **Pukaki** which in effect takes in the Mackenzie Basin and **Opuha** being the remaining area to the west of a line following the upper reaches of the Hakataramea River through Burkes Pass to Mt Musgrove in the Two Thumb Range.

The land use is predominantly rural with high country farming in the Mackenzie Basin. This is changing over time as more irrigation becomes available and more intensive farming and cropping occurs in the Fairlie Basin.

The District has high visitor numbers due to the scenic and recreational opportunities which are generally derived from its outstanding natural features with people attracted to the lakes, mountains, ski fields, cycle trails and walking tracks.

Figure 1.2 – Map of Mackenzie District



1.3 Purpose of Strategic Planning

The purpose of the infrastructure strategy is to—

a) "identify significant infrastructure issues for Mackenzie District Council over the next 30 years; and
b) "identify the principal options for managing those issues and the implications of those options."

The infrastructure strategy outlines how the Mackenzie District Council intends to manage its infrastructure assets, taking into account the need to—

a) "renew or replace existing assets; and
b) "respond to growth or decline in the demand for services reliant on those assets; and
c) "allow for planned increases or decreases in levels of service provided through those assets; and
d) "maintain or improve public health and environmental outcomes or mitigate adverse effects on them; and
e) "provide for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks.

This strategy is a high level document that summarises the issues facing Mackenzie District over the next 30 years. The supporting detail is incorporated within the relevant Activity Management Plans for each of the respective activities.

1.4 Assumptions

This Strategy is prepared on the basis that there will generally be slight growth in the resident population across the region. That there will be steady growth in Tekapo and Twizel but it will not

put significant pressure on the current infrastructure. The exception to this being the need to provide an alternative sewerage effluent disposal area in Tekapo.
It is also assumed that the existing resource consents held by Council can be renewed for those takes and discharges without extra conditions being applied that will add significantly to the management costs and also not require significant upgrades. In Twizel however, the oxidation pond discharge will be consolidated to an in ground disposal system on land yet to be acquired. This will require a new consent for the changed discharge.

In the transportation area it is assumed that there will continue to be intensification in the agricultural sector over the life of this strategy. As irrigation becomes available it drives that land use intensification and as a consequence puts pressure on the existing infrastructure.
Growth in this area is from the following:

- Dairying
- Forestry
- Grain Production
- Tourism
- Land Use Intensification
- Lifestyle

It is also assumed that the co-investment rate from New Zealand Transport Agency will remain at the base rate of 51% following the latest review.

Changes to transportation practices, driven by NZTA, will have an effect on Councils' current levels of services. Due to the lack of detail at the time of writing this document it has not been possible to factor in any possible changes as a direct result of implementing One Network Road Classification(ONRC)

1.5 Stormwater

Asset Summary

Asset Type	Unit	Quantity
Pipelines	m	16,449
Manholes	each	216
Open Drains	m	5,787
Treatment Area	m^2	22,851

This Strategy is premised on the basis that there will be no significant change expected to the normal operation over most of the stormwater assets. However, Environment Canterbury's Land and Water Regional Plan requires "***that where the discharge is from an existing local authority network, demonstration of a commitment to progressively improve the quality of the discharge as soon as practicable but no later than 2025".*** This will require that some existing stormwater discharges may have to be progressively upgraded to improve discharge quality. There is a requirement to develop a "Stormwater Management Plan" that identifies and plans for progressively upgrading those discharges that are deemed to require improvement to that discharge. Development of the plan is programmed for 2017/18.

In Tekapo there will need to be a network and discharge system designed and installed to cater for stormwater coming from the Lakeside Drive area and the commercial land in front of the existing shops. This will be funded by Council's Real Estate Reserve as part of the commercial development.

1.6 Foul Sewer

Asset Summary

Asset Type	Unit	Quantity
Pipelines	m	78,297
Manholes	each	880
Treatment Plants	each	4

This Strategy is prepared on the basis that there will be no significant change expected to the normal operation over most of the foul sewer assets with some exceptions.

- Tekapo Oxidation Pond discharge – alternative effluent disposal site to be located and developed to allow for growth and changing climatic conditions.
- Twizel Oxidation Pond discharge – disposal system consolidated on rapid infiltration basins immediately to the south of the site. The existing trench will be filled in and abandoned with new in ground sparge pipes laid to dispose the effluent to ground on land yet to be acquired by Council. An application for Resource Consent to approve this will be lodged in 2015.
- Fairlie and Tekapo sewer network – the original network was laid in 1940 and 1955 respectively, using earthenware pipe that is condition rated between 3 and 5. Allowance has been made to re-inspect those networks to determine their deterioration. It is expected that the rate of deterioration is such that the network will have to be substantially replaced over the life of the plan and funding has been allowed for this.

1.7 Water Supply

Asset Summary

Asset Type	Unit	Quantity
Pipelines	m	237,814
Servicelines	M	11,737
Tobies	each	2,531
Hydrants	each	426
Valves	each	802
Plants - Urban	each	4

1.7.1 Operation

This Strategy is prepared on the basis that there will be no significant change expected to the normal operation over most of the water supply assets with some exceptions.

- Fairlie – The water supply is to be upgraded in 2016/17 to comply with the Health (Drinking Water) Amendment Act (2007). The completion of the replacement programme of the

concrete water pipes in 2020/21 will see a reduction in maintenance costs associated with pipe failures.

- Tekapo – The treatment was upgraded to comply with Health (Drinking Water) Amendment Act (2007) in 2013 and will not require further work apart from normal renewals of the plant components when they wear out or become obsolete. There are 5895m of Asbestos Cement water pipes that will need investigation as to their deterioration and then programmed for replacement depending the results of that investigation.

- Twizel – The treatment and pump control is currently being upgraded to modernise the plant and provide water that complies with Health (Drinking Water) Amendment Act (2007). The Reservoir is programmed for relining and covering in 2015/16. Relining is essential maintenance but covering is not necessary from an operational position, however it is seen as desirable from Council. The rural residential area known as the The Drive has experienced low pressure during periods of high demand. The solution is to install an in-line booster pump to lift the pressure to an acceptable level. This work is programmed for 2015/16.

1.7.2 Renewals

The biggest issue facing the three communities in the next thirty years are the Asbestos Cement (AC) water mains. There are 45km of AC pipe in the District, 14km in Fairlie, 5.9km in Tekapo and a further 25km in Twizel. AC pipe is affected by both internal water and external soil conditions. External stresses such as soil conditions, quality of installation, additional loadings, and maintenance, have a significant effect on the useful life of underground assets. The inherent variations in-situ conditions and subsequent rate of deterioration, makes it difficult to accurately formulate a renewals priority programme without a sampling regime.
The main issue in Twizel in the next 20 years is the deterioration of the Asbestos Cement water mains (24.7km). The recent sampling and testing programme has confirmed the level of deterioration and the associated risk. This strategy recommends a 20 year replacement programme be implemented, starting in 2015/16.

Using lessons learned in Twizel, other AC networks are to be analysed for deterioration. This strategy has allowed for the replacement of the AC water mains in Tekapo and Fairlie during the period of 2036-2045. This may be brought forward depending on the outcome of the proposed sampling programme.

1.8 Transportation Including Footpaths

Asset Summary

Asset Type	Unit	Quantity
Pavement - Sealed	km	205.5
Pavement Unsealed	km	517.3
Footpaths	km	62
Culverts	km	17.75
Bridges	each	93
Signs	each	5711

Streetlights	each	791

Funding will continue to be a challenge to maintain a satisfactory level of service for the users of the Mackenzie's Roading network. There is a significant amount of deferred maintenance on the sealed roading network that requires an injection of funds over the next 7 years to address this. If funds are available then this back log can be managed. If the funds are not available then there are a number of sealed surfaces that are at risk of failure. The level of co-investment by NZTA will determine if this is achievable as a co-funded activity. If NZTA do not provide the levels of funding requested to maintain the sealed road asset, Council have to consider if they are prepared to complete some of the deferred maintenance un-subsidised or leave some sealed roads to deteriorate over time until the seal has to be removed for safety.

The un-sealed roads are surfaced with a modified M/4 AP20 aggregate and constructed to achieve a 4 to 6% cross fall along straights with a maximum 10% super elevation on corners, however many have adverse camber due to the effects of traffic wear and past maintenance.

Analysis of gravel loss surveys at eighteen sites, shows that, for Haldon Road, Lilybank Road and Braemar Road, we lose 17mm off the crown annually, equating to 6,000m^3. For the balance of the unsealed network the loss is on average 7mm of the crown, equating to 15,500m^3.

To avoid consuming the asset this metal loss needs to be replaced on a regular cycle. At current contract rates the cost to replace 21,600 m^3 across the network is $650,000.00.

NZTA's One Network Road Classification system (ONRC) has not been taken into account when preparing this strategy as they have not provided any certain detail on the levels of service and performance measures proposed. Depending on the detail provided in the future Council may have to review the Transportation section of this strategy.

The strategy has a modest bridge replacement programme and this is thought to be fundable by Council and NZTA, with the exception of the Cass River Bridge. This structure is expensive to replace due to the location and span of the structure. With the public road ending 800m on the north side of the bridge it is likely to be considered uneconomic by Council and NZTA to replace. Consultation with all parties will be required prior to bridge failure and removal to assess the need and look at options to replace it and fund that replacement.

2 Introduction

2.1 Purpose

The purpose of this report is to prepare an Infrastructure Plan covering the areas of:

- Stormwater Disposal
- Foul Sewer Disposal
- Water Supply
- Roads and Footpaths

This information forms the backbone of the Asset Management Plans for these activities that then flows into the 2015-25 Long Term Plan.

2.2 Background

Section 93 of the Local Government Act 2002 requires that every Local Authority must have a Long Term Plan and it must cover a period of not less than 10 consecutive financial years. Section 101A of that same Act notes that every Local Authority must prepare and adopt a Financial Strategy for all of the consecutive years of the Long Term Plan.

Council's Asset Management Plans have generally looked out ten years but with some critical assets the review period has been extended out beyond thirty years.

The Local Government Act 2002 – Amendment (No3) section 101B requires every Local Authority as part of its Long Term Plan, prepare and adopt an Infrastructure Strategy for a period of at least 30 consecutive financial years.

The purpose of the Infrastructure Strategy is to—

"identify significant infrastructure issues for the local authority over the period covered by the strategy; and

"identify the principal options for managing those issues and the implications of those options.

3 Assumptions

3.1 General

This strategy is based on the philosophy that Mackenzie District Council will remain a viable unit of local government in its own right and that it will continue to own, manage and operate the three waters infrastructure.

Even though there may be some form of shared service arrangement with the neighbouring TLAs, Mackenzie will continue to manage and maintain the road network and the three waters networks.

3.2 Levels of Service

An analysis of the $18.15 million (2015 dollars) expenditure proposed for one hundred and sixty four projects, shows that 31% of the expenditure (31 projects) is directed at improving the level of service for the three waters in Fairlie, Burkes Pass, Tekapo and Twizel. These improved level of service projects are;

- Scada telemetry installation (13 sites)
- Improved stormwater treatment in Fairlie, Tekapo and Twizel
- Fairlie water treatment
- Twizel oxidation pond disposal consolidation
- Reline and cover the Twizel reservoir
- In-line booster pump to service The Drive, Twizel
- Manuka Terrace restricted water supply (specific consultation required)

The roading infrastructure maintains the current levels of service over most of the activity. The only certain exception to this is the replacement of seven weight restricted bridges. Once renewed they will all be able to take Class 1 traffic loading. It is uncertain whether the Cass River Bridge will be replaced, if it is not then this will be a reduced level of service.

3.3 Public Health and Environmental Outcomes

A requirement of Section 101A of the LGA 2002 is for Council to identify how it intends to maintain or improve public health and environmental outcomes. At the high level relevant to the 3 waters and transportation, these issues are related to sewerage disposal, potable water supply and access. The details of Council's intentions are included within this document, the relevant Activity Management Plans and are summarised below.

3.3.1 Sewerage Disposal

Fairlie, Burkes Pass, Tekapo and Twizel already treat their effluent to a high level and dispose of it to ground so it is unlikely for a need to increase the level of treatment unless there is un-expected growth in any one of those communities. The current trickle irrigation effluent disposal at Tekapo is sometimes under pressure to cope with the volume to be disposed. This will be addressed in 2015/16 by the construction of an additional disposal field.

In Twizel the consolidation of the disposal system into a Rapid Infiltration Basin located adjacent to the ponds will reduce the extent of the discharge and ensure it can operate below the freezing level of the soil during winter, which is likely to result in a benefit to the surrounding environment.

3.3.2 Water Supply

All urban water supplies in Mackenzie District meet the Health (Drinking Water) Amendment Act 2007 as they all have approved Water Safety Plans that:

- *identify the public health risks (if any) associated with that drinking-water supply; and*
- *"(ii) identify critical points in that drinking-water supply; and*
- *"(iii) identify mechanisms for—*
  - *"(A) preventing public health risks arising in that drinking-water supply; and*
  - *"(B) reducing and eliminating those risks if they do arise; and*
- *"(iv) include information about the estimated costs and benefits of the mechanisms referred to in subparagraph (iii); and*
- *"(v) set out a timetable for managing the public health risks that have been identified as being associated with that drinking-water supply;*

The upgrade to Twizel's water supply is already underway. This will provide potable water to the township that meets the Health (Drinking Water) Amendment Act 2007.

The water supply to Tekapo already meets the standard so no improvements are necessary.

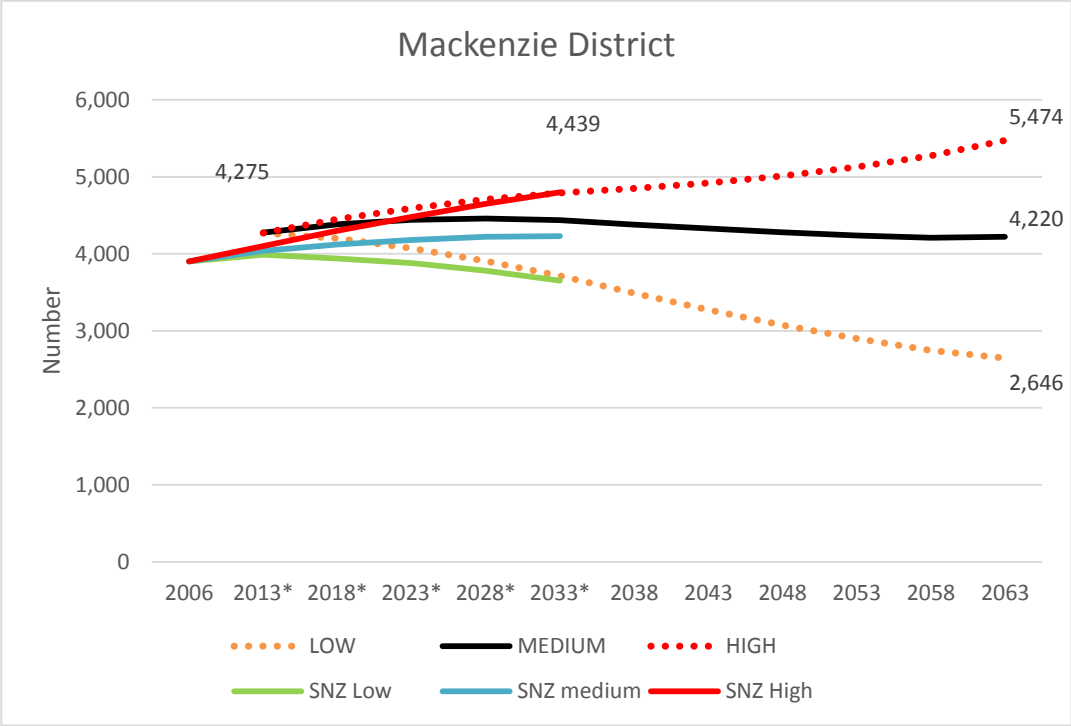
Investigations and design are underway to improve Fairlie's water supply to meet the DWS. The upgrade is budgeted at $2,400,000 and programmed for 2017/18.

3.3.3 Access

Access is an important part of the public health of a community as it allows for efficient delivery of all services associated with public health. It is not intended to reduce the current level of service on the District's roading network beyond where it currently is unless NZTA reduce funding through the One Network Roading Classification and thus fund to that lower level of service. This could impact on the communities' ability to easily and efficiently access those necessary health services.

3.4 Population

The following graph predicts relatively static population growth over the period of this strategy. As a result there will not be any significant increase or decrease in demand for Council services based on change in population.



*SNZ (Standards New Zealand)

3.5 Development

Analysis of the future urban and rural/residential subdivision over the next 4 years shows an average of 10 sections per year, along with associated infrastructure, to be vested in Tekapo and an average of 46 per year in Twizel. The value of infrastructure to be vested in that time is projected to be:

Year 1 to 3 $1,700,000
Year 4 to 6 $4,900,000
Year 7 to 10 $1,500,000

This is difficult to predict as it depends solely on market demands and developer confidence.

During 2015/17, 5km of sealed road and 4.8 km of unsealed road will be vested in Council. While developers have to construct this to Council's standard before vesting, the ongoing maintenance costs have to be allowed for.

It is assumed that this level of development will slow down to about a third of this but continue at that rate for the duration of this strategy.

3.6 Change in Land Use

Change in land use is ongoing and something that is hard to predict. The following factors influence those land use changes.

* Tourism
    * Mt John: tourism along with the International Dark Sky Reserve are putting increasing pressure on Godley Peaks Rd as people want to travel to the top of Mt John.

    - Lake Alexandrina: Having been to the top of Mt John and observed the lake the tourist likes to visit the scenic attractions. The challenge here is keeping them on the correct side of the road, along with the associated wear of the sealed and un-sealed pavements.
    - Haldon Camp: This is on the shore of Lake Benmore and puts high summer traffic on Haldon Road.
    - Ski Fields. As these open the traffic on the feeder roads can increase by 1200%
    - Alps2Ocean Cycle Trail: This new attraction is starting to put increased demands on Mt Cook Station Road and Hayman Road. It also creates conflict with other road users especially the logging operations.
- Tenure Review
    - There are a number of High Country Stations still to go through tenure review. Historically this has involved part of the station passing into the public estate and being opened up for access. There is a higher expectation from the Department of Conservation and other road users that better access be made available with no extra funding from either NZTA or DoC. Staff are working with DoC to try to minimise this effect so significant allowance has been made for this.
- Meridian Shoreline Protection
    - Lake Pukaki continues to erode the various shorelines around it and puts Hayman Road and Mt Cook Station Road at risk of that erosion. Meridian Energy has an agreement that they are responsible for that erosion and they rectify it at their cost.
- Land Use Intensification
    - Godley Peaks Station – A new water-take consent has been obtained and it is projected to significantly add to the 30,000 lambs that come off the property and the 1500 tonnes of super-phosphate applied to the property last year. 250 HCV movements on and off the property are predicted per year, all towed through the Cass River by a dozer.
    - Dairy Conversions, particularly in the Fairlie Basin.
    - Mt Cook Station 50yr forestry programme
    - Primary Produce increase as the result of increased irrigation

Due the difficulty in predicting where this demand might be over the next 30 years, it is important to recognise that it will happen and plan for it as early as the knowledge and effects become better understood.
As an example, the Average Annual Daily Traffic on Clayton Road has almost doubled in the last 12 years from 289 to 419 with 24% HCVs remaining constant. Thus the number of HCVs has also almost doubled. This change of land use and intensification is expected to continue. Also there is a 30 year forestry cutting plan for Mt Cook Station that will see extensive logging over fragile unsealed roads every year during that period.

Dairy conversions will continue in the region thus changing the traffic flows in and around the properties along with the extra tanker traffic.

3.7 Funding

All the budget projections are based on today's dollars (February 2015). There has been no allowance for inflation inthis document. The budget information contained is loaded into the NCS

accounting software where the Financial Strategy is developed and inflation allowed for using figures supplied by BERL on behalf of local government.

3.7.1 3 Waters

In the process of producing this Infrastructure Strategy, and the underlying supporting plans, Council has considered the following:

- Alignment with the Community Outcomes in the LTP
- Council priorities in terms of the overarching aim for delivering core services
- The need to manage the assets at a Core (3 Waters) level in accordance with appropriate asset management best practice
- Delivering cost effective services that are efficient, effective and appropriate
- Providing an appropriate level of resilience

This Infrastructure Strategy is supported by a previous study by Council on water supply and sewerage assets, which used 2009 pipe construction costs and industry standard base lives, to look out eighty years.

This work has allowed the Council to ascertain where the peaks in replacement expenditure of the these assets are, by community. Council has modelled this expenditure and has come to the conclusion that no town can afford this level of expenditure alone.

Council has decided its preferred option is that each of the four urban water supplies, sewerage schemes and stormwater networks are amalgamated into single urban schemes for water, stormwater and sewerage. This means that the cost of providing the 3 waters infrastructure across the townships is funded universally across the users of those services, who pay the same amount for receiving the service. This is to ensure that infrastructure networks remain affordable to all ratepayers that benefit from the services, regardless of where they reside in the district.

With the combining of the water supplies, stormwater and the sewerage schemes, the Council will be able to set priorities on the key capital expenditure for the networks as a whole, and bring more resources to problems and remedy them more efficiently. This is also expected to provide lower operating costs.

This proposal is being consulted on during the 2015/2025 LTP process.

3.7.2 Land Transport

To fund roading operational and capital expenditure, the Council receives a percentage of the cost as a subsidy from New Zealand Transport Agency (NZTA). The co-investment rate is based on recent review of the New Zealand Transport Agency Funding Assistance Rates.

The Council has been informed by NZTA that the new Co-investment Rate will be as follows

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Maintenance, Operational and Renewal Expenditure	54%	53%	52%	51%	51%	51%	51%	51%	51%	51%
Minor Improvement	54%	53%	52%	51%	51%	51%	51%	51%	51%	51%

The roading programme is dependant the amount of work NZTA is prepared to financially support. Council may partly compensate for any reduction by increasing the amount of unsubsidised work it undertakes.

3.7.3 Risk and Uncertainties

3.7.3.1 Transportation

Council's risk is the roading programme may contract further due to the reduction in subsidy rates and/or under co-investment by NZTA that will inevitably reduce the programme. This plan assumes Council will maintain or expand its spend through additional unsubsidised work.

Due to the uncertainty around NZTA's "One Network Classification" system and its impacts, no account of this has been considered in the strategy.

3.7.3.2 Three Waters

The document identifies a significant amount of renewals and new works over the life of the strategy. It assumes that the capital works programmes will be funded by existing cash reserves, funded depreciation accumulated over time and external borrowing.

These are critical assets that will have a significant impact on service delivery, including fire suppression, if not replaced before they completely fail.

3.7.3.3 Insurance and Risk

There are numerous significant active fault zones within Mackenzie District and surrounding areas. Of these, some of the most significant in terms of potential lifeline impacts, include the Ostler and the Irishman Creek Fault Zones in the Mackenzie Basin. Both fault zones have the ability to generate significant earthquakes. Not to be ignored is the Alpine Fault on the Districts northern boundary that has the ability to generate the largest earthquakes and the greatest spread of damage which could severely impact Council's lifelines.

The Council holds $3,000,000 in cash reserves to insure against natural disasters that affect its infrastructure. It is essential that Council continues to maintain the cash reserve or put in place an insurance regime to replace/complement it, if it changes its current policy.

3.7.4 Useful Lives of the Infrastructure Assets

The assumed useful lives of the assets used in preparing this strategy are as follows:-

Roading/Bridge Network

- Land under roads Enduring Life
- Formation Enduring Life
- Sub base Enduring Life
- Base Course 75 - 100 years
- Surfacing 0 - 18 years
- Kerb & Channelling 10 - 100 years
- Street Signs 13 years
- Street Lighting 20 - 40 years
- Bridges 80 years
- Box Culverts 100 years

Water Network

- Mains 20 - 80 years
- Pumps 25 years
- Service lines 80 - 100 years
- Hydrants 80 years
- Valves and Air Valves 80 years
- Meters 25 years
- Reservoirs 80 years
- Electrical Controls 20 years

Sewerage Network

- Mains 60 - 80 years
- Pumps 15 years
- Oxidation Ponds 100 years
- Manholes 80 years
- Electrical Controls 20 years

Stormwater Network

- Lines 150 years
- Manholes 150 years
- Open Drains Enduring Life

3.8 Options

3.8.1 General

The legislation requires various options for the various projects to be noted, costed and considered as part of this strategy. While this is fine in principal the majority of the projects over the 30 year

period are asset renewals. This capital expenditure is identified in Appendix A and each item is categorised against the following:

- Improved Levels of Service
- Renewals
- Expenditure Required because of Growth
- Operation & Maintenance Expenditure

As part of the design and implementation phase of any project the "whole of life" costs are considered to achieve the desired outcome at the least cost. This philosophy is central to Mackenzie District as it is one of the smallest local authorities with an equally small rating base.

Also it should be noted that this is a "high level" strategy and it is not appropriate to detail and cost out all the minor options that are considered as part of the engineering design process.

During the early period of this strategy, Council has approved the installation of Scada across all the 3 waters intakes, treatment and discharge sites. Scada is remotely monitoring the various parameters at each site, such as flow rates, pumps running and discharge volumes. This allows real time data to be available in the Fairlie office to better manage the provision of those services and predict potential problems before they become a reality.

This is an increased level of service but the investigations and options have already been considered and a preferred system agreed. This was determined by suitability, cost and the ability to share resources with our neighbouring authorities.

3.8.2 Stormwater

With the stormwater activity most replacements are "like for like" with little need to up size or down size infrastructure. The Stormwater Management Plan to be developed, as required by Environment Canterbury rules, will discuss and consider various options on the most appropriate treatment of the various discharges within the district. The document, on completion, will be considered and finally adopted by Council.

3.8.3 Foul Sewer

With the foul sewer activity, most replacements are also "like for like" with little need to up-size or down-size infrastructure.
The Twizel discharge consolidation is a project coming to a conclusion, with all the investigations and options considered previously. The only other project with some uncertainty around it is the alternative effluent disposal for the Tekapo oxidation pond. This is part of an investigation being undertaken at the moment (February 2015). This will identify options and solutions for further consideration.

3.8.4 Water Supply

This activity has the greatest level of expenditure of the 30 years with pipeline replacements being the majority of the work. In almost every case these replacements will be on a "like with like" basis with a few exceptions. These will be confirmed by a full analysis using the various hydraulic models for each of the towns prior to replacement.

Twizel water treatment upgrade and reservoir liner has already been decided with only the options on covering it still to be considered. As this strategy is a high level document is not appropriate to discuss the details of this here.

Fairlie water treatment upgrade is subject to ongoing investigations over the next 12 months. The results of this investigation will largely determine the extent of work required. Council will be given the opportunity to debate the issues and options prior to proceeding to a final design.

3.8.5 Transportation

The only significant capital project that will require a full analysis of the options is the replacement of the Cass River Bridge. Staff have commissioned an options assessment study from Opus International Consultancy. That report is still to be completed but the initial comments from Opus are:

"The favoured position for a replacement bridge is at the current bridge site given this is a narrow point in the river, the current bridge appears to have performed well at this site and this minimises approach works. Downstream from this location the very active riverbed fans out presenting ongoing issues with maintaining flows beneath any bridge crossing downstream of the current site.

The full length bridge option matches the length of the existing bridge (nominally 125m long). A conventional design using hollow core bridge beams (16 to 18 m spans) with a 4.2 m carriageway width and vehicle barriers (W-section guardrail) is expected to cost in the order of $1.4M. This provides a 100 year design life and achieves full HN-HO-72 design loading.

The attached drawings [not provided] *show a low cost bridging option (which we have previously used) comprising a proprietary double tee superstructure with 14m spans and a 3.3m carriageway between timber kerbs and side rails. This would provide a minimum 50 year design life and would cater for Class 1 (legal highway) loading including 50Max vehicles. We consider this would be a suitable option at this site. A full length bridge option with this form of construction is expected to cost in the order of $780k. This option would have low ongoing maintenance.*

A reduced length, low cost bridge option could also be considered for this site comprising three 14m spans and a sacrificial approach which would breach in a moderate flood. Due to the constriction of the river, the embankments at the abutments would be prone to scour and significant rock protection would be required. To reduce ongoing issues with the approach being eroded by the mobile low flow river channel, a low level rock rip rap guide bank (weir) may also be required. The initial construction costs for a reduced length bridge with and without a guide bank are expected to be in the order of $525k and $615k respectively. For these options there would be ongoing maintenance/reinstatement of the approach and guide bank and this significantly reduces the

savings over a full length bridge when considering the 'whole of life' cost of options. A reduced length bridge also introduces other issues including potential safety concerns regarding site inter-visibility, interference with the irrigation scheme currently being upgraded at this site, plus the resource consenting process through ECan would be considerably more complicated."

A full report, complete with drawings, will be presented to Council at the earliest opportunity, where a more robust discussion can take place with assessment of all available options so that the outcome can be included in the Long Term Plan. Any decision on the future replacement of this structure will involve the affected parties; the Department of Conservation and the land owner whose land this bridge provides access to.

4 Stormwater

4.1 Environment Canterbury's Land and Water Regional Plan

Clause 5.93

The discharge of stormwater from a community or network utility operator reticulated stormwater system onto or into land or into or onto land in circumstances where a contaminant may enter water, or into groundwater or a surface water body is a restricted discretionary activity provided the following conditions are met:

1. *For a discharge that existed at 11 August 2012, an application for a discharge permit is lodged prior to 30 June 2018, or at a later date as agreed between the reticulated stormwater system operator and the CRC; and*
2. *A stormwater **management plan** has been prepared to address the management of stormwater in the catchment and is lodged with the application; and*
3. *The discharge will not cause a limit in Schedule 8 (Region Wide Water Quality Limits) to be exceeded.*

Also Clause 4.17 recommends

Where the discharge is from an existing local authority network, demonstration of a commitment to progressively improve the quality of the discharge to meet condition (c) as soon as practicable but no later than 2025.

4.2 Resource Consents

Scheme	Consent Number	Expires
Tekapo - Sealy Street Discharge	CRC042748	18 Feb 2040
Tekapo - Hamilton Drive Discharge	CRC 146447	24 Sep 2039
Twizel Stormwater Discharge	CRC042742	18 Feb 2040
Pukaki Airport Stormwater Discharge	CRC084922	09 Sep 2043

All these resource consents will require renewal during the life of this strategy unless Environment Canterbury changes its rules to allow any of these activities to be permitted. This is unlikely and allowance has been made to re-apply for them prior to their expiry date.

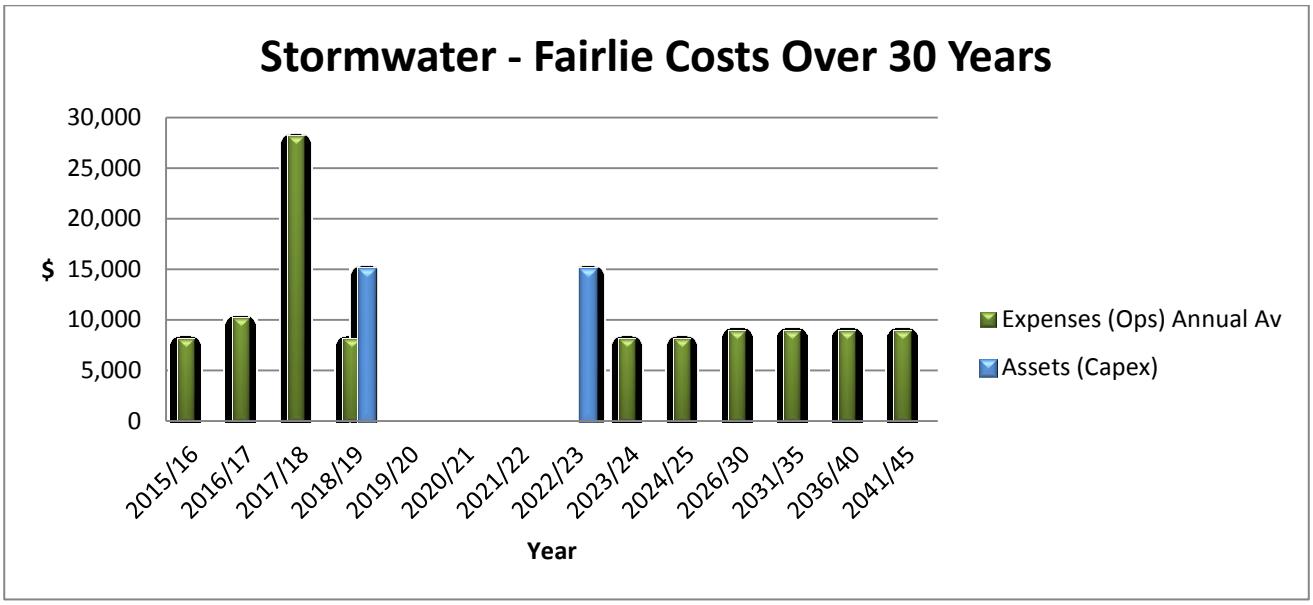
4.3 Fairlie

No significant change is expected to the normal operation of this activity, however there will be cyclic maintenance on some treatment facilities.

For compliance with Environment Canterbury's Land and Water Regional Plan, it is likely that there will be a need to install improvements on the other non-consented discharges in 2022/23. Estimated cost of $15,000.
This will necessitate an operational increase in maintenance and compliance monitoring of $5,000 annually and $10,000 every five years for heavy maintenance.

Also $20,000 has been budgeted for the production of a Stormwater Management Plan in 2017/18 for Fairlie.

It is planned to internally inspect the Regent/Sloane Street storm water pipe in year one of the LTP. Depending on the results of that inspection it may be necessary to programme replacement sometime in the next 10 years.



4.4 Tekapo

No significant change expected to the normal operation of this activity, however there will be cyclic maintenance on some treatment facilities.

Lochinver Discharge

Re-vegetate bare areas and replace contaminated soils every five years - $10,000.

Annual extra cost of $500 for increased maintenance and compliance monitoring.

Town Centre Proposed Discharge

This treatment facility is being constructed in 2014/15 and will require maintenance over time. Allowance has been made to re-vegetate bare areas and replace contaminated soils every five years, cost is likely to be $10,000 per cycle.

Annual extra cost of $2000 for increased maintenance and compliance monitoring.

Lakeside Drive Proposed Discharge

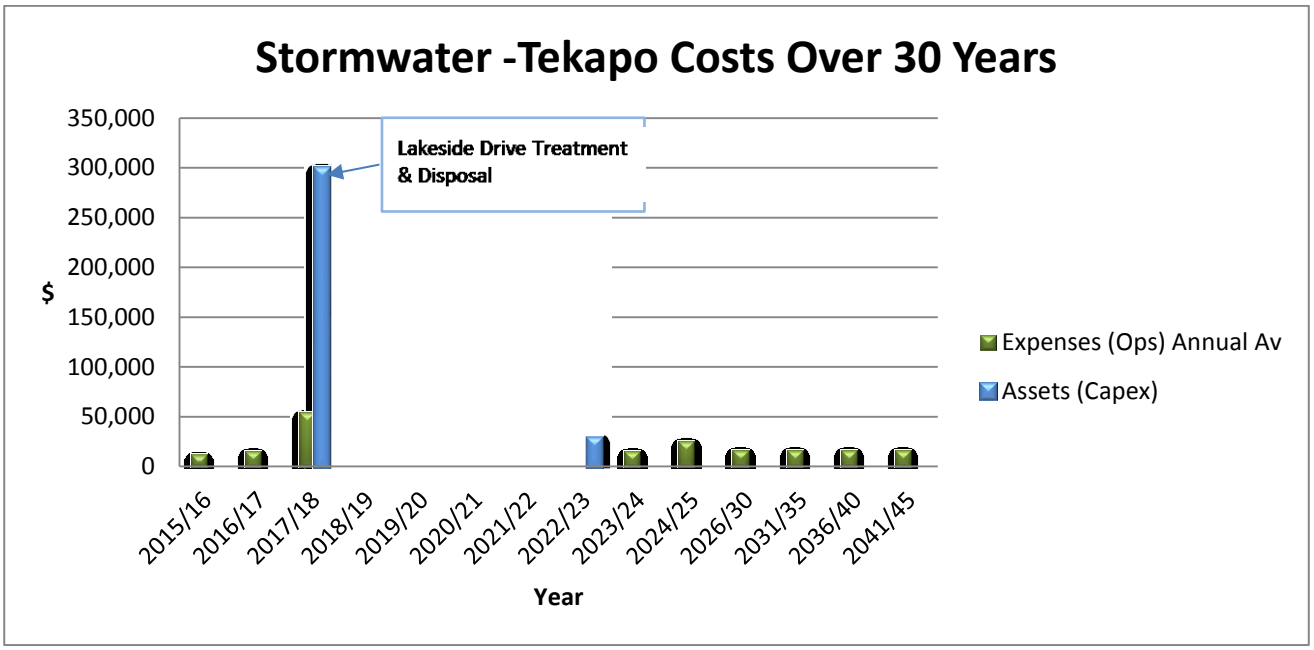
It is likely that this area will need a dedicated stormwater discharge by 2016/17.

The system is to be designed, consented and installed in 2015/17 and funded from Council's reserves.

Annual extra operating cost of $2000 has been allowed for increased maintenance and compliance monitoring from 2017/18.

Every five years, depending on the results of soil tests, any bare areas will be re-vegetated and contaminated soils replaced at a cost of $10,000 each time.

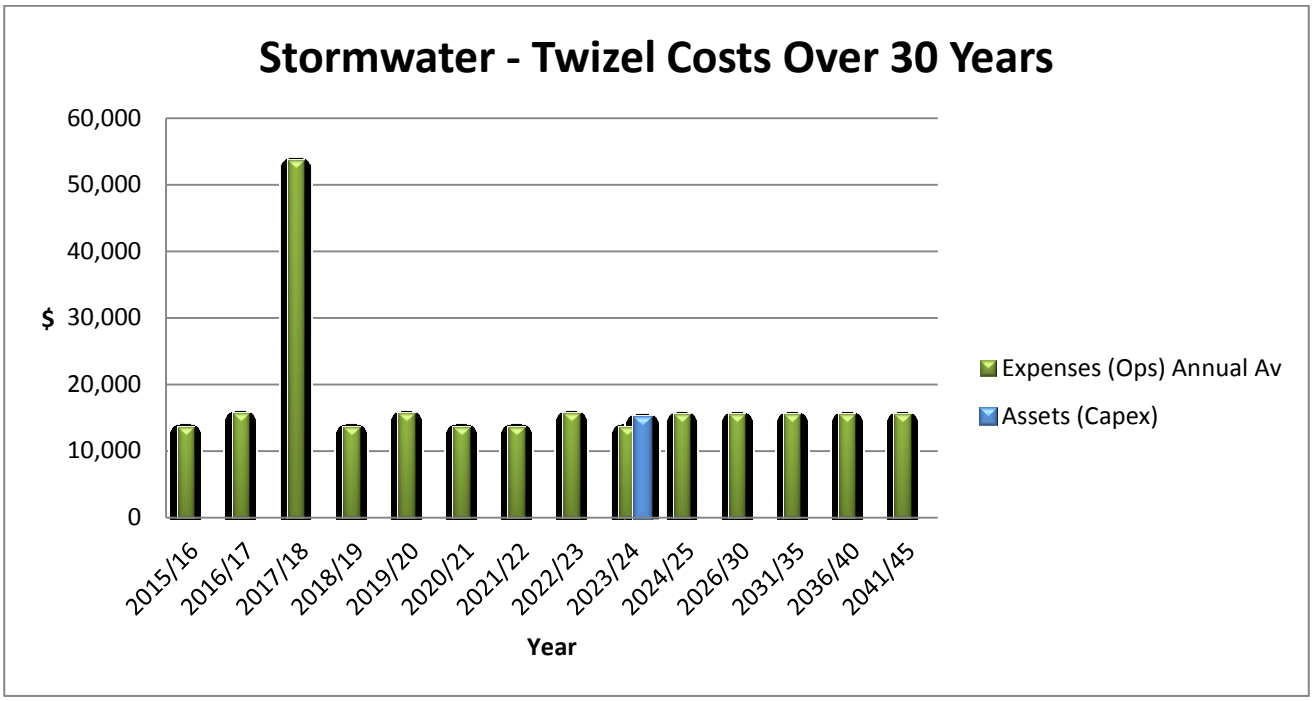
To meet the requirements of the Environment Canterbury's Land and Water Regional Plan by 2025, a Stormwater Management Plan will be prepared in 2017/18. Improvements identified in that plan on the minor non-consented discharges at a possible cost of $30,000 allocated for 2022/23.



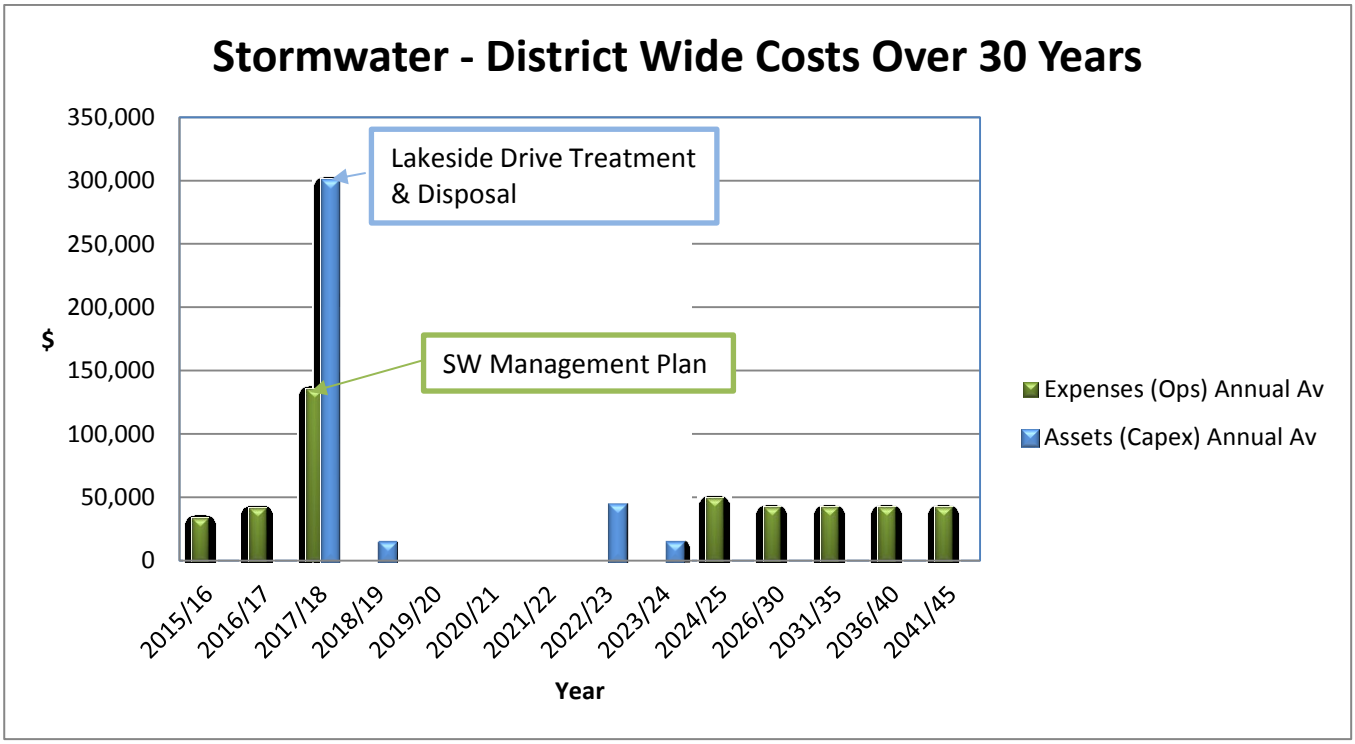
4.5 Twizel

No significant change expected to the normal operation of this activity.

To meet the requirements of the Land and Water Regional Plan by 2025, a Stormwater Management Plan will be prepared in 2017/18. Improvements identified in that plan should be implemented in 2024.
It is suggested that the only site that will require improvements is the discharge from Tekapo Drive, and the likely upgrade would be the installation of a **Hume***ceptor* on the outfall. **Hume***ceptor* is a pollution prevention device that efficiently removes hydrocarbons and sediment from stormwater.



4.6 District Wide Stormwater Costs



5 Foul Sewer

5.1 Resource Consents

Scheme	Consent Number	Expires
Fairlie Township – Air Discharge	CRC992647	17 Dec 2038
Fairlie Township – Discharge To Land	CRC992608	17 Dec 2038
Tekapo Oxidation Pond Discharge	CRC042914	18 March 2040
Tekapo Oxidation Pond Discharge	CRC042914	18 March 2040
Twizel Oxidation Pond Discharge	CRC042915	08 June 2020
Burkes Pass Wastewater Treatment Plant	CRC992607	07 June 2040
Lake Pukaki Information Centre Sewerage Disposal	CRC950264	19 Dec 2030

All these resource consents will require renewal during the life of this strategy unless Environment Canterbury changes its rules to allow any of these activities to be permitted. This is unlikely and allowance has been made to re-apply for them prior to their expiry date. The Twizel Oxidation Pond Discharge will be renewed in 2015-17 prior to the consolidation of the discharge.

5.2 Burkes Pass

No significant change is expected to the normal operation of this activity as the Oxidation Ponds and their discharge were constructed new in 2000 to current environmental treatment standards with discharge to land. It is intended to install Scada telemetry in 2018-19 at a cost of $15,000. Also the Resource consent for the discharge from the oxidation ponds expires in 2040. $50,000 has been allowed for consent renewal in 2039.

It is assumed that the growth in Burkes Pass will be relatively static and no upgrade of the plant will be required.

5.3 Fairlie

No significant change is expected to the normal operation of this activity as the Oxidation Ponds and their discharge were re-constructed in 2002 to current environmental treatment standards with discharge to land.
It is intended to install Scada telemetry in 2018-19 at a cost of $15,000. Also the resource consent for the discharge from the oxidation ponds expires in 2038. $50,000 has been allowed for consent renewal in 2036/37.

The Fairlie oxidation ponds require regular monitoring of sludge level build up and eventually will require sludge removal. $2,000 has been allowed in 2020 to repeat the sludge depth survey and $150,000 for de-sludging the Primary pond in 2025 if required.

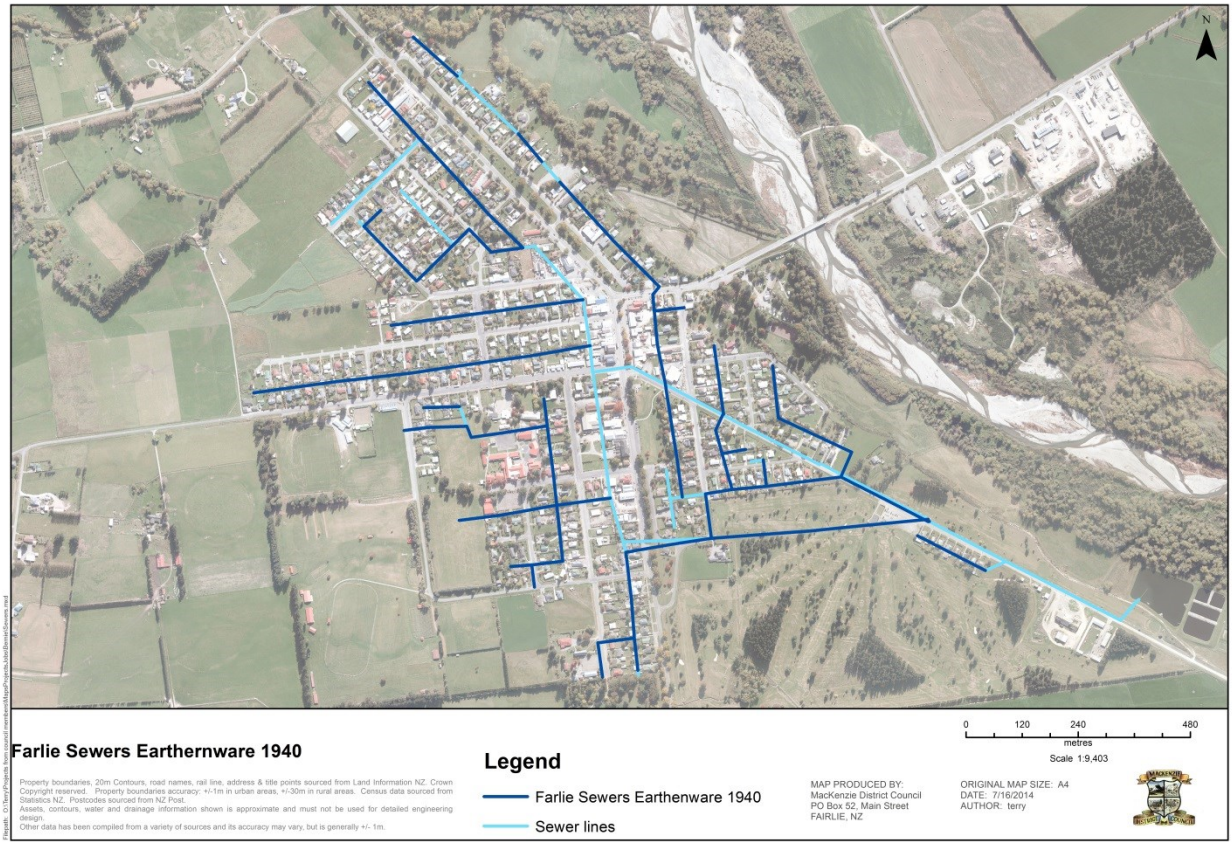
It is assumed that the growth in Fairlie will be relatively static and no upgrade of the plant will be required.

There are 7,100 metres of earthenware pipe in Fairlie. These were originally condition rated in 2000 as 4 and 5. Scale being:

1 = **Very Good Condition** - Only normal maintenance required
2 = **Minor Defects Only** - Minor maintenance required (5%)
3 = **Maintenance Required** to Return to Accepted Level of service - Significant maintenance required (10-20%)
4 = **Requires Renewal** - Significant renewal/upgrade required (20-40%)
5 = **Asset Unserviceable** - Over 50% of asset requires replacement

It is intended to re-evaluate these sewer mains over the next three years and then develop a replacement programme from that re-inspection. $99,000 has been allowed over the period 2015-18 for the re-inspection. If the CCTV inspection confirms the results of earlier inspections with further deterioration, then the whole 7,100m will have to be replaced. In anticipation of that result, we have allowed for a replacement programme starting in 2017/18 with completion by 2027. Approximately 1200m to be replaced or rehabilitated every second year at a rate of $255,000 starting in 2017/18. Deterioration can take the form of cracked pipes leading to effluent leakage into the surrounding ground or ground water intrusion which puts excessive pressure on the disposal system and less effective treatment.

Replacement options include dig and relay with new pipe or in-situ refurbishment using relining techniques or pipe bursting.



5.3.1 Plant and Equipment

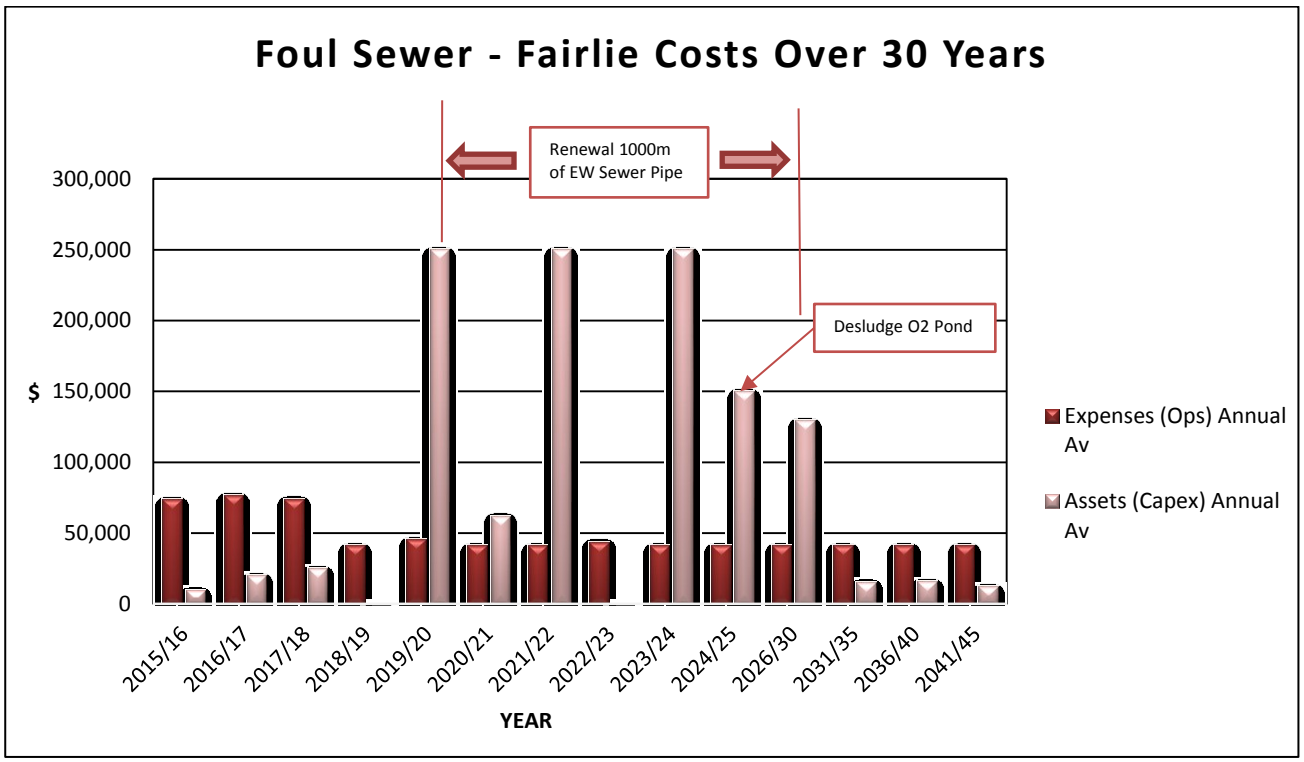
It is highly likely that the aerators that have been in service since 2001 will need replacing within the next ten years. They have had bearings and motors replaced but the other componentry is showing signs of corrosion. $62,000 has been allowed for their replacement in 2021.

The controller for the soakage basin will require replacement most likely in the 2026-2030 period, $15,000 has been allowed for the replacement.

The recently upgraded Camp Ground pump station will require replacement of the pumps in 2026 at a cost of $4,000.

The Eversley Reserve properties are serviced by E-one sewerage pump systems. All the pumps will require replacement during the period of 2031-35 at a total cost of $76,800 for the 28 pumps.

Funded depreciation will used to fund these replacements.



5.4 Tekapo

No significant change expected to the normal operation of this activity as the Oxidation Ponds and their discharge were re-constructed in 2001 to current environmental treatment standards with discharge to land. We have allowed $35,000 to install Scada telemetry in 2015-16 at the two major sewage pump stations and also at the oxidation ponds. A further $15,000 has been allowed in 2018-19 to install telemetry at the Camp Ground Pump Station. Also the Resource consent for the discharge from the oxidation ponds expires in 2040. $50,000 has been allowed for consent renewal in 2036/37.

There are 1,600 metres of earthenware pipe in Tekapo. These were originally condition rated in 2000 as 3.

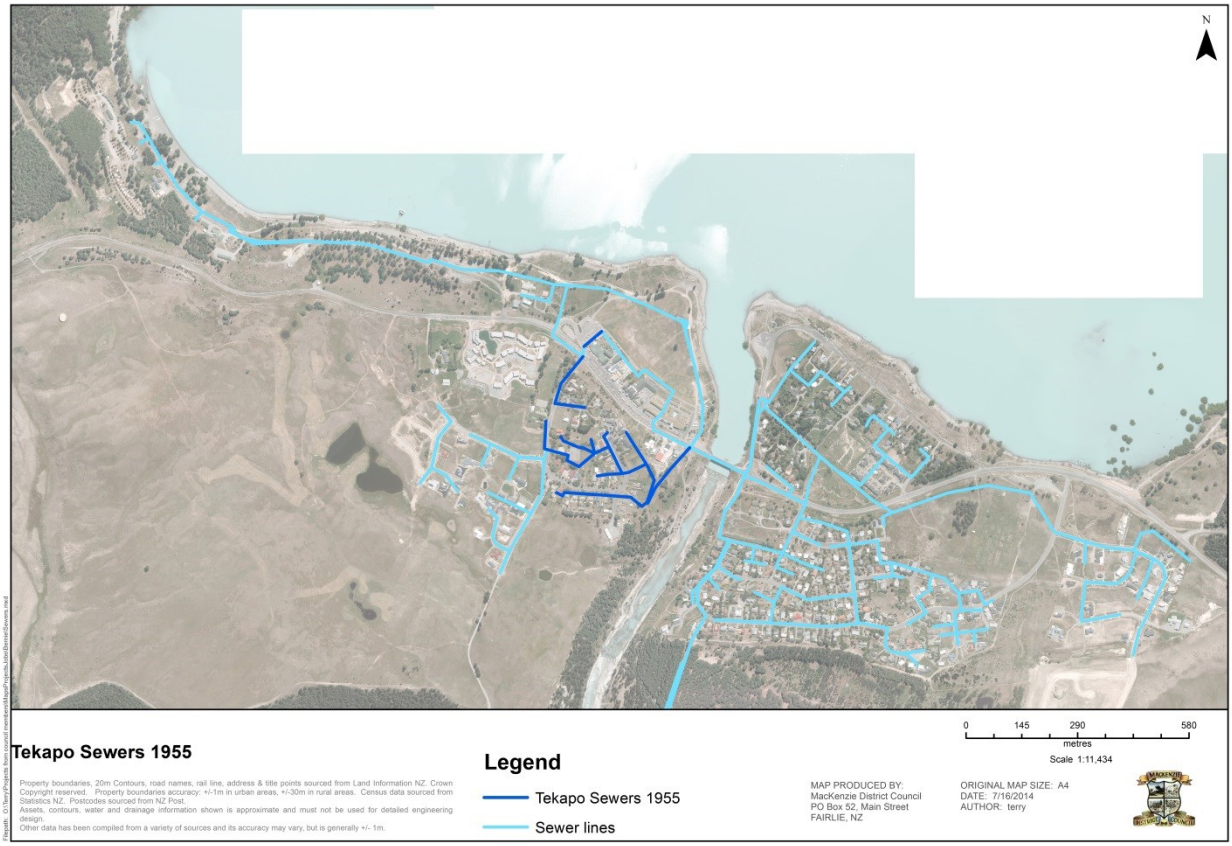
Scale being:

1 = **Very Good Condition** - Only normal maintenance required
2 = **Minor Defects Only** - Minor maintenance required (5%)
3 = **Maintenance Required** to Return to Accepted Level of service - Significant maintenance required (10-20%)
4 = **Requires Renewal** - Significant renewal/upgrade required (20-40%)
5 = **Asset Unserviceable** - Over 50% of asset requires replacement

It is intended to re-evaluate these sewer mains over the next two years and then develop a replacement programme from that re-inspection. $23,000 has been allowed over the period 2015-17 for that re-inspection. If the CCTV inspection confirms the results of earlier inspections with further deterioration, then the 1,600m of sewer main will be programmed for replacement or refurbishment.

If there is significant deterioration then replacement will need to be scheduled for 2031-35 and $408,000 has been allowed in that period. Deterioration can take the form of cracked pipes leading to effluent leakage into the surrounding ground or ground water intrusion which puts excessive pressure on the disposal system and less effective treatment.

Replacement options include dig and relay with new pipe or in-situ refurbishment using relining techniques or pipe bursting.



The most pressing issue facing Tekapo is the disposal system. At the moment the disposal is generally adequate for the demand but during winter freezing periods we are having some problems. Environment Canterbury has indicated their dissatisfaction and has issued a notice of non-compliance with our discharge consent as a consequence. Also, as demand increases in Tekapo the volume of effluent to be disposed of will also increase. We intend to review all of our disposal options in early 2015/16 with construction of a new system in later in that financial year.

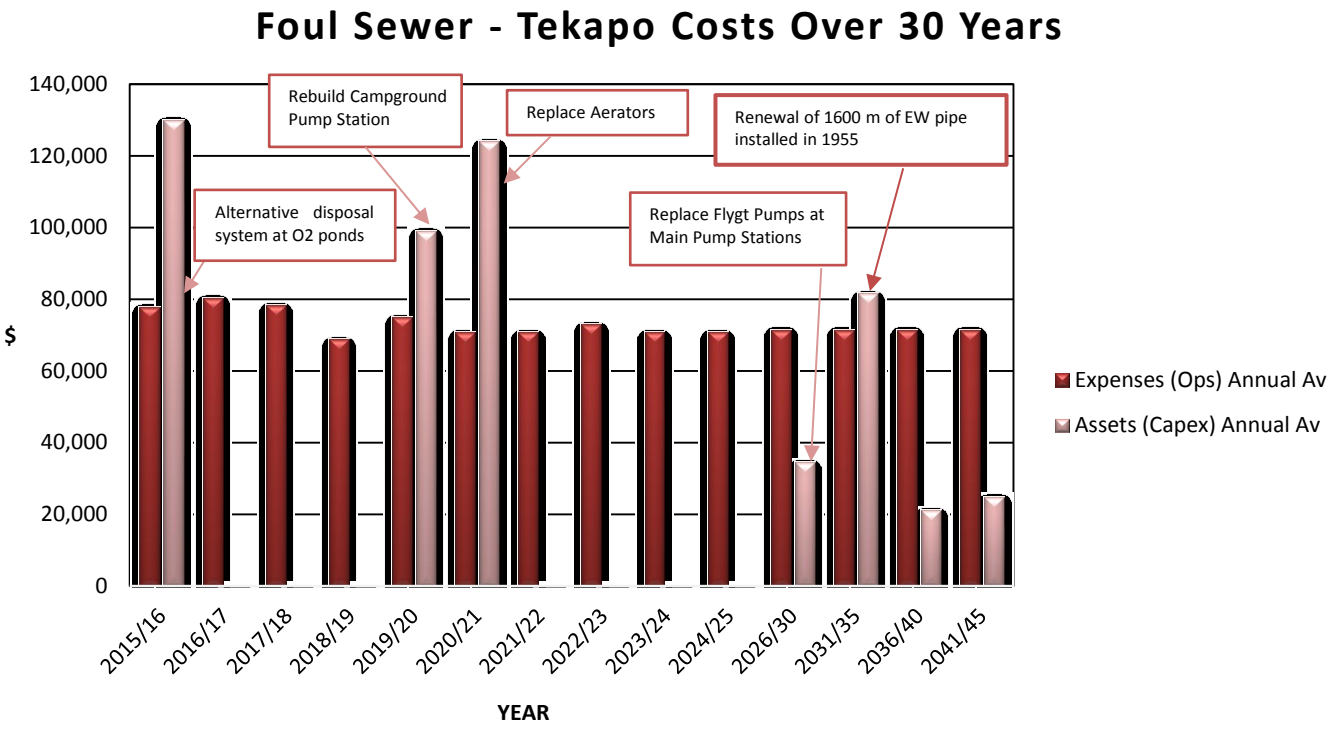
There are alternative sites on Council owned land in the area where we can dispose of the effluent, but these have not been used in the past as they require pumping to a higher elevation and discharging on a face above the Oxidation Ponds. A total cost of $100,000 has been allowed for the investigation, design and installation of an alternative disposal system.

5.4.1 Plant and Equipment

It is highly likely that the aerators that have been in service since 2001 will need to be replaced within the next ten years. They have had bearings and motors replaced but the other componentry is showing signs of corrosion. $124,000 has been allowed for their replacement in 2021.

The Flygt pumps in the two main pump stations will have reached the end of their effective lives during the period of 2026-2030 along with the control panels. Costs associated with this replacement are four pumps at $132,000 and two control panels at $10,000 per site.

The Camp Ground Pump Station in Lakeside Drive is programmed for full replacement in 2020 including telemetry at a cost of $100,000.



5.5 Twizel

No significant change expected to the normal operation of this activity as the Oxidation Ponds were constructed new in 1970 to serve a design population of 6,500 (current population is 1,137). The current disposal is to ground by way of a 1.6km long trench. Environment Canterbury did not consider this best practise when we applied to renew the consent in 2004 and as such granted a 10 year consent with a strong indication that an application to continue this discharge at the end of that period would unlikely to be granted.

The plan is to consolidate the disposal to ground by a series of sparge pipes just to the south of the ponds. As part of the agreement with the land owner to acquire necessary land. This project has been accelerated and is planned for completion by 2017.

This will require a land subdivision, land purchase, new resource consent and construction of the physical works along with the de-commissioning of the existing disposal trench. The budget for this work is $750,000.

We have allowed $45,000 to install Scada telemetry in at the various pump stations and oxidation pond over the period 2016-20.

The Twizel oxidation ponds require regular monitoring of sludge level build up and will eventually require removal of that sludge. $3,000 has been allowed in 2020 to repeat the sludge depth survey and $200,000 for de-sludging the Primary pond in 2025 if required.

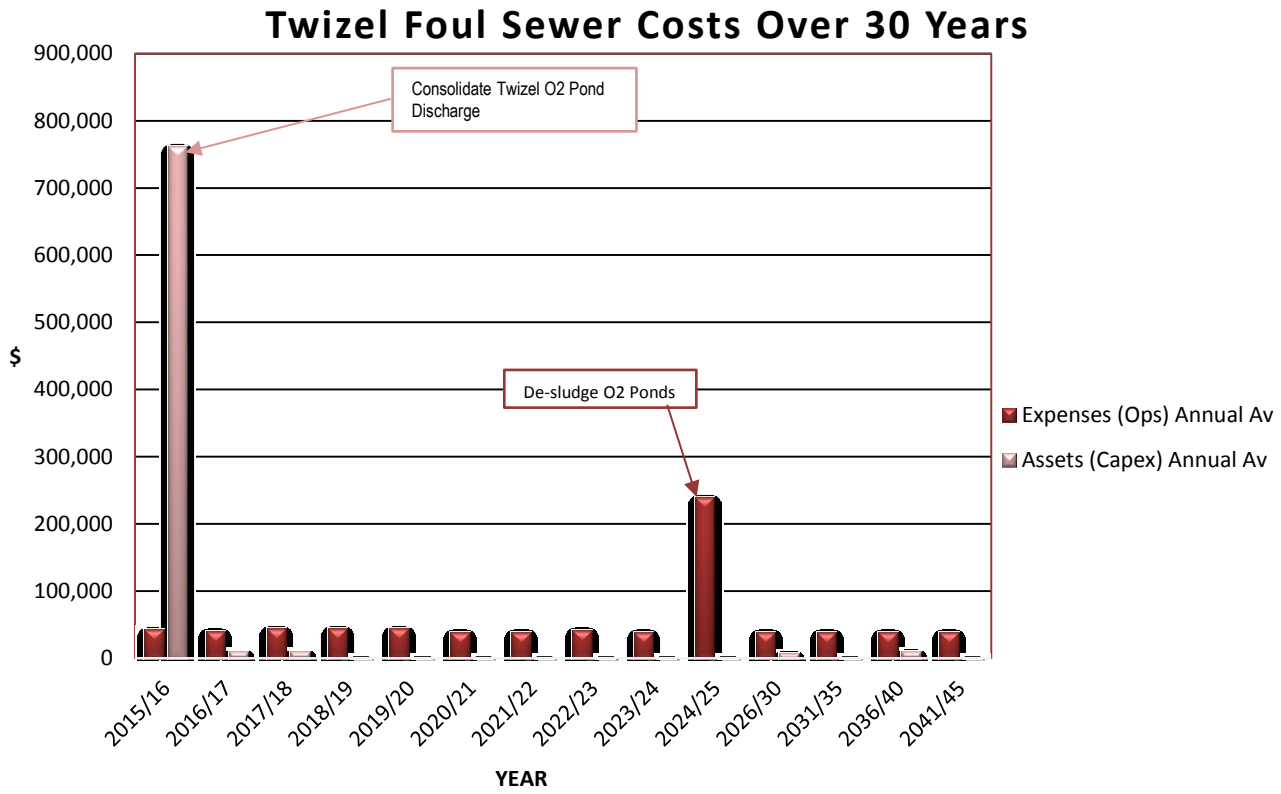
5.5.1 Plant and Equipment

Mackenzie Park pump station pumps and control panel will reach the end their economic life and will have to be replaced in the period from 2036-2040. Pukaki Airport pumps should not need replacement during the life of this strategy.

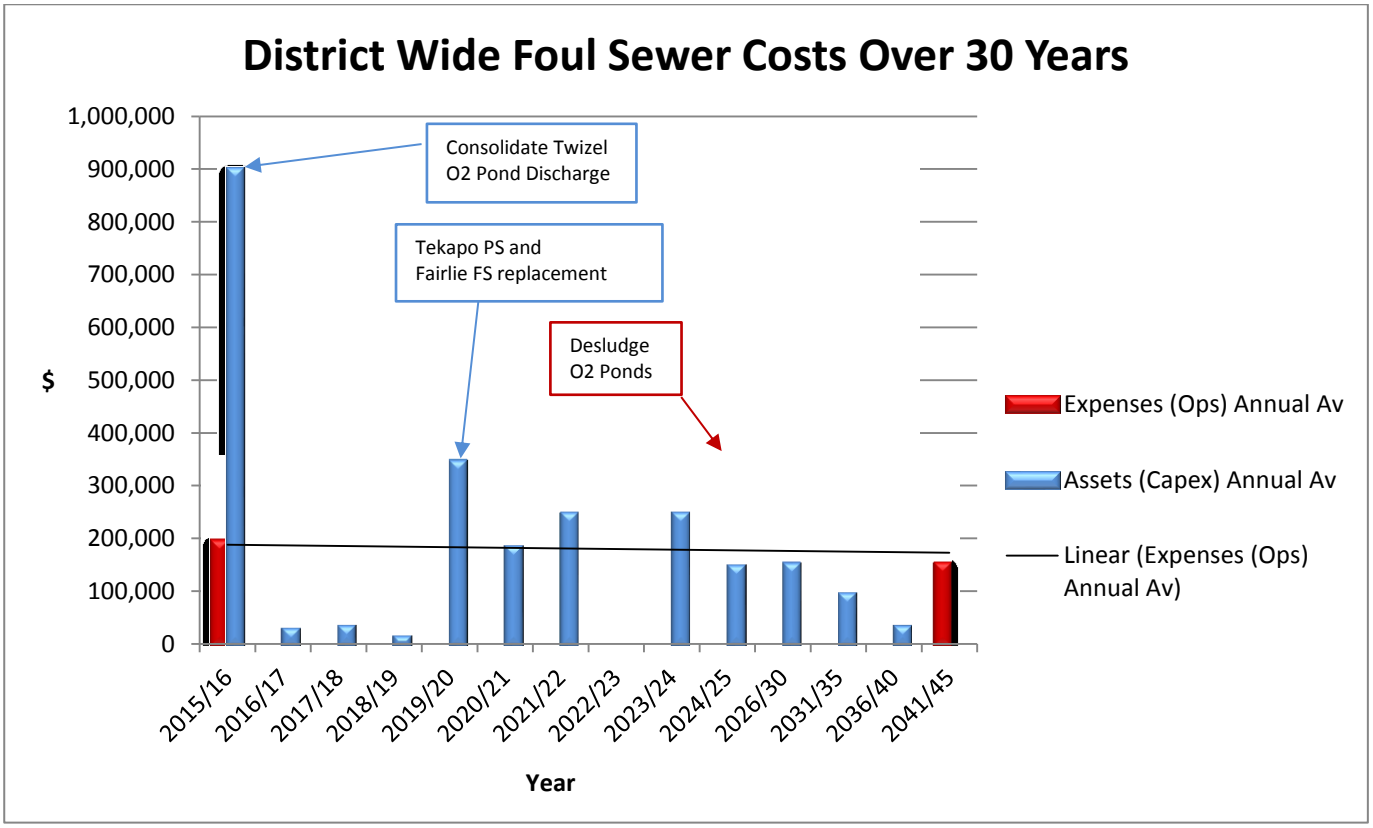
5.5.2 Impact of Growth

The current rising main from Mackenzie Park pump station is a 100mm diameter pipe connecting to the existing gravity mains in Ostler Road, This is an interim position with the final design having a separate 200mm diameter rising main discharging directly into the oxidation ponds. It is suggested that Council monitor and review the growth in discharge flows from that pump station every five years to ensure that the discharge is not causing surcharge from any openings in the gravity mains. If there is evidence of surcharge problems, then the new rising main will have to be programmed for construction.

As part of the land purchase and consolidation of the discharge project, it is intended to establish easements over the adjacent private property to allow this work to proceed in the future without any impediments. The location and area required for these easements has already been agreed to by the land owner.



5.6 District Wide Foul Sewer Costs



6 Water Supply

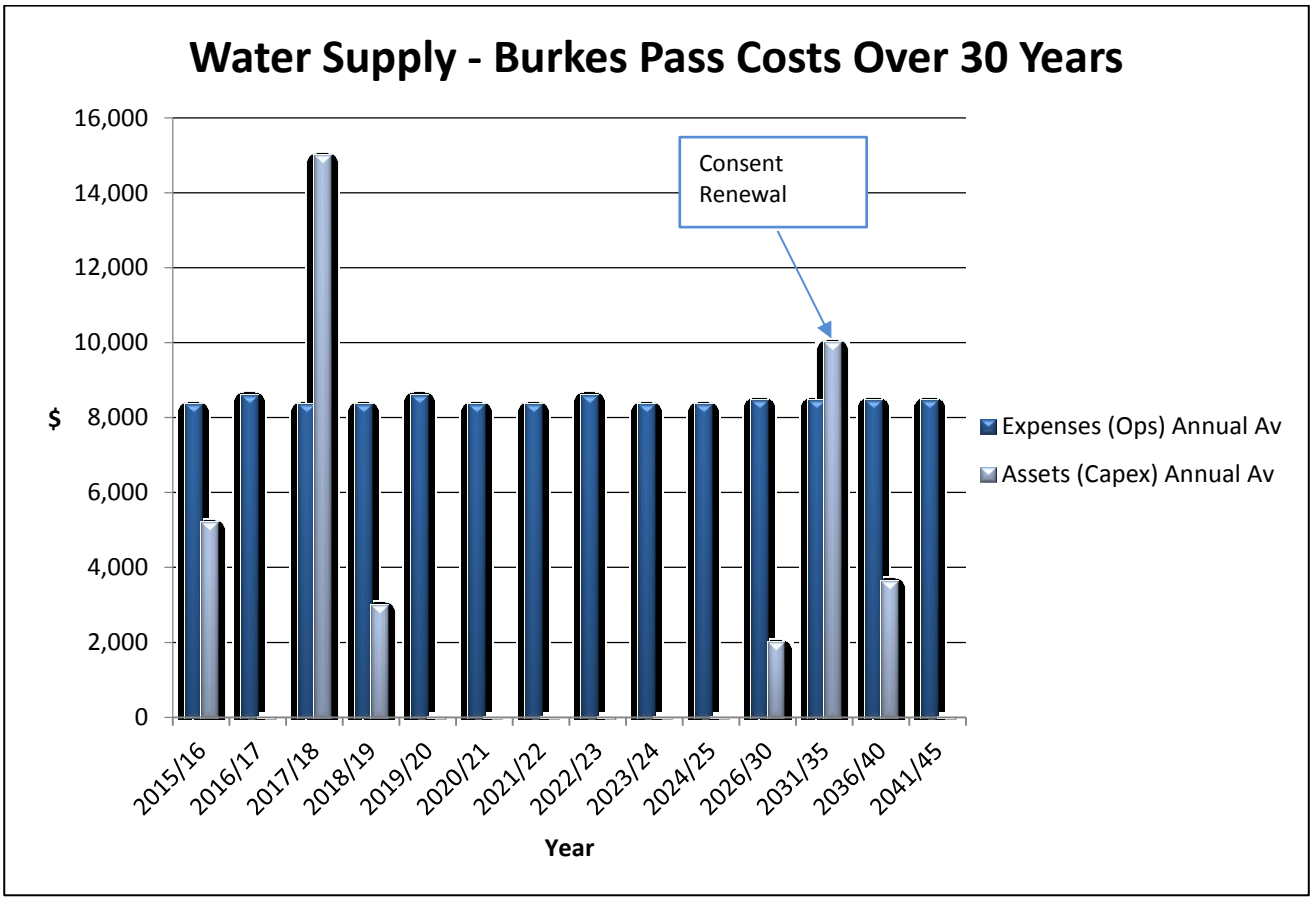
6.1 Resource Consents

Scheme	Consent Number	Expires
Burkes Pass Water Supply	CRC971594	29 October 2032
Fairlie Township	CRC040921	19 August 2044
Tekapo Water Supply	CRC971414	13 August 2033
Twizel Water Supply	CRC042741	20 August 2047

All these resource consents will require renewal during the life of this strategy unless Environment Canterbury changes its rules to allow any of these activities to be permitted. This is unlikely and allowance has been made to re-apply for them prior to their expiry date.

6.2 Burkes Pass

No significant change expected to the normal operation of this activity. We have allowed $15,000 to install Scada telemetry in 2017-18. Also the Resource consent for the water take expires in 2032. $50,000 has been allowed for consent renewal in 2031.



6.3 Fairlie

6.3.1 Treatment

The Fairlie Water Supply does not currently meet the Health (Drinking Water) Amendment Act (2007). Investigations are underway on another spring to the west of the current source to monitor the turbidity of the flow over time. The hope is that the turbidity will remain generally below 1 Ntu and as a consequence will not require extra filtration to meet the DWS. If this is not successful then the well on the Guerin property will be further evaluated to see if it remains clear when the current source is turbid.

The estimate for the upgrade of this supply to meet the DWS is $2,600,000 based on positive outcomes of the current monitoring programme of the new spring source. The upgrade is programmed for 2017/18.

6.3.2 Reticulation

No significant change is expected to the normal operation of this activity. Allowance of $40,000 has been budgeted for to install Scada telemetry in over the period 2016-19 to monitor all aspects of the water supply. It is likely that most of this will be included in the upgrade of the water supply to meet the NZ Drinking Water Standards. Also the Resource consent for the water take from Three Springs Creek expires in 2044. $50,000 has been allowed for consent renewal in 2043/44.

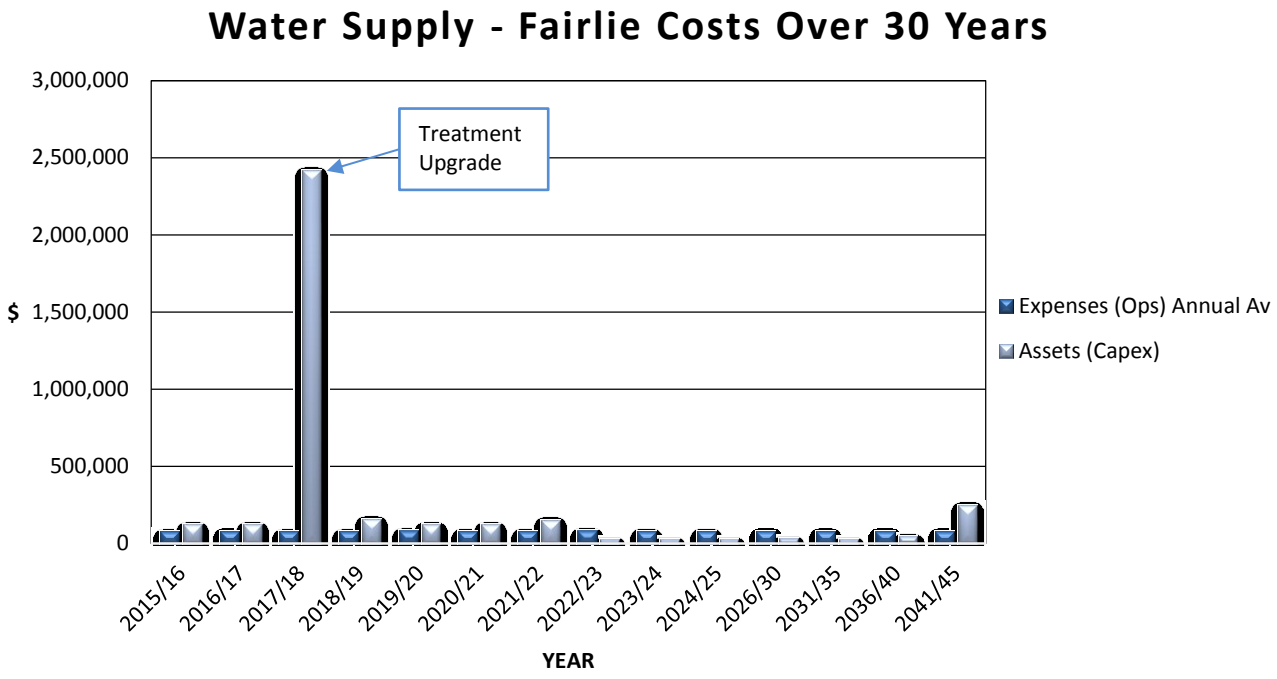
Fairlie embarked on a replacement programme of its old concrete pipe network in 1998 and have generally spent $100,000 per year on this initiative The replacement programme will be complete by 2020/21 at the current rate of $120,000 per year.

6.3.3 Plant and Equipment

The Nixons Road booster pump station has an upgrade programmed for 2018/19 at a cost of $10,000. This will install telemetry and new controller (PLC).

6.3.4 Plant and Equipment

The current storage is 140m^3 (this is only a few hours storage) and is supplemented by the gravity head on the delivery pipeline. Water demand will have to be regularly monitored to predict if or when extra storage is required. At this stage, unless a water hungry industry is established in Fairlie it is unlikely that the existing reservoir will have to be replaced.



6.4 Tekapo

No significant change expected to the normal operation of this activity as the treatment process was upgraded in 2013/14. There will be a slight increase in operational costs associated with maintaining the UV reactor.

6.4.1 Treatment

The Tekapo water Supply was upgraded in 2012/13 to comply with the Health (Drinking Water) Amendment Act (2007). No significant change is expected to the normal operation of this activity now that the treatment upgrade is complete except for normal maintenance. Scada telemetry in 2016/7 to provide real time monitoring of the treatment process and supply in the Fairlie office.

6.4.2 Reticulation

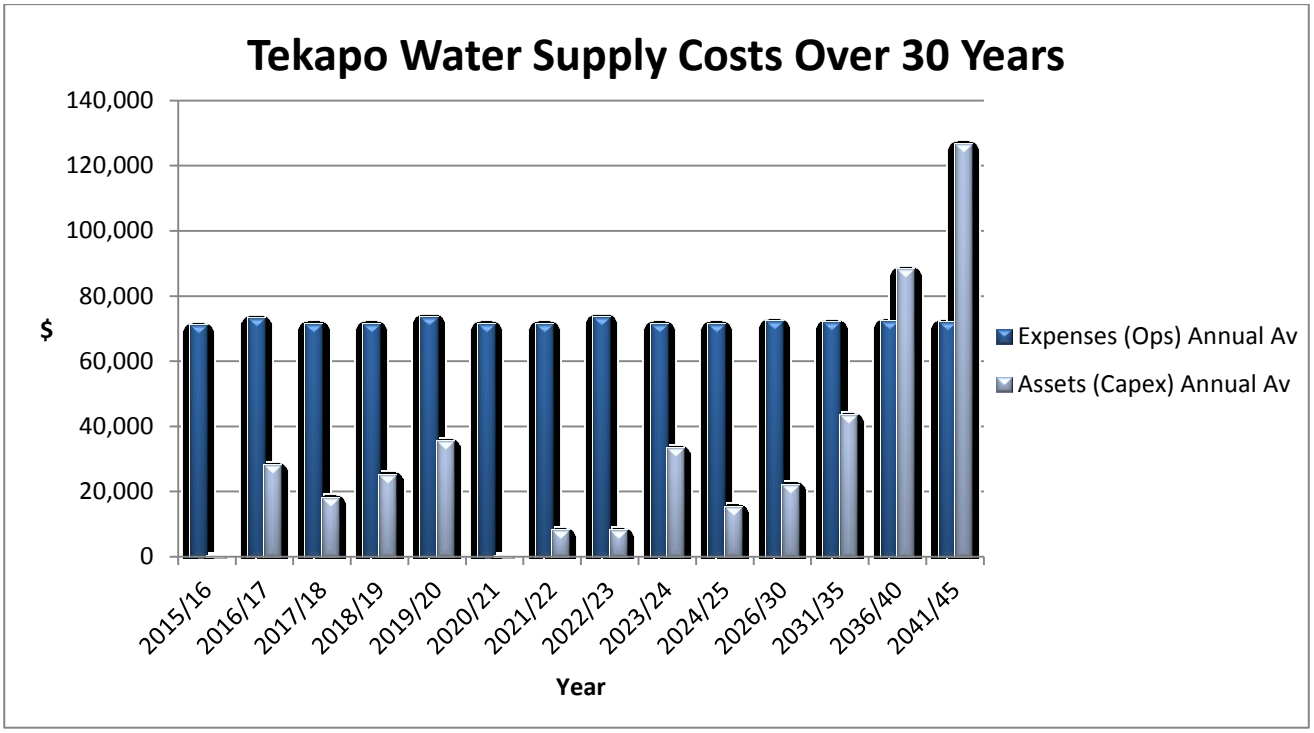
No significant change expected to the normal operation of this activity. The supply was upgraded in 2013 to comply with the Health (Drinking Water) Amendment Act (2007).
Allowance of $30,000 has been budgeted for to install Scada telemetry over the period 2016-18 to monitor the flow, FAC levels and Turbidity at the intake. It will also monitor the reservoir level and UV plant. The last site to be monitored will be the in-line booster pump in the Lochinver Subdivision. The resource consent for the Tekapo water take expires on the 13th August 2033 and $50,000 has been allowed in 2032 for the preparation and lodgement of that consent. It is anticipated that the consent will be granted with similar conditions as the current consent. Of biggest concern is the 5,895m of AC pipe that will need sampling to confirm the remaining life of the asset. AC pipe in New Zealand has proven to have a relatively short life and a sampling regime is to be undertaken, similar to Twizel, to confirm

that remaining life. $1,120,000 has been allowed for in the period from2036 to 2045 to replace these pipes.

6.4.3 Plant and Equipment

The Tekapo water supply headworks will require replacement probably in the period 2026-30. This will replace chlorination equipment, turbidity monitor, PLC and pumps at a cost of approximately $50,000.

Also the in-line booster pump and controls, recently installed in Lochinver Ave will also have to be replaced during 2031-35 at a cost of $10,000.



6.5 Twizel

Once the upgrade to the Twizel water treatment plant is completed in 2015 the most pressing issue to be faced is the deterioration of the Asbestos Cement pipe network. This will, over time, see an increase in the maintenance costs associated with accelerated pipe failures. Costs are not likely to be significant, but budgets will need to be reviewed if there is a significant increase in failures. With AC pipe replacement this trend will be reversed.

The Upgraded treatment facility has at this time an un-quantifiable cost associated with running the UV plant and new pump set. It is recommended that budgets be set at current levels until more data is available.

6.5.1 Treatment

The Twizel water Supply is being upgraded in 2014/16. The work involves a complete rebuild of the pump set that provides water at pressure to Twizel. At the same time the treatment plant is being upgraded so that water provided complies with the Health (Drinking Water) Amendment Act (2007). No significant change is expected to the normal operation of this activity once the treatment upgrade is complete. Scada telemetry will be installed in 2015 as part of the head works upgrade.

Having completed the treatment upgrade the only outstanding item to address is replacing the reservoir liner ($70,000) and covering the reservoir ($210,000). Replacement of the liner is essential and this has been allowed for in 2015/16. Covering the Reservoir is not as straight forward as the reservoir contains raw water and it is unnecessary to cover it for water quality. However recent discussions with both Council and the Twizel Community Board indicate a desire to have it covered. In anticipation of this it is proposed to programme the covering of the reservoir in 2015/16. Both the Twizel Community Board and Council will consider this as part of the 2015-25 LTP preparation.

6.5.2 Reticulation

There is 25.5km of Asbestos Cement pipe in the Twizel (2.0k is privately owned), all installed in early 1970s. AC pipe is affected by both water and soil conditions and this causes premature failure of the asset. Several samples have been analysed to predict the remaining life of these pipes. Whilst there have been few actual failures yet, the analysis shows that the AC network is at risk of failure from now to 2020 and all the AC pipe should be replaced by 2020. The cost to replace the AC pipe network is $4,050,000. A replacement programme based on a predictive failure model form the various pipe samples has been prepared.

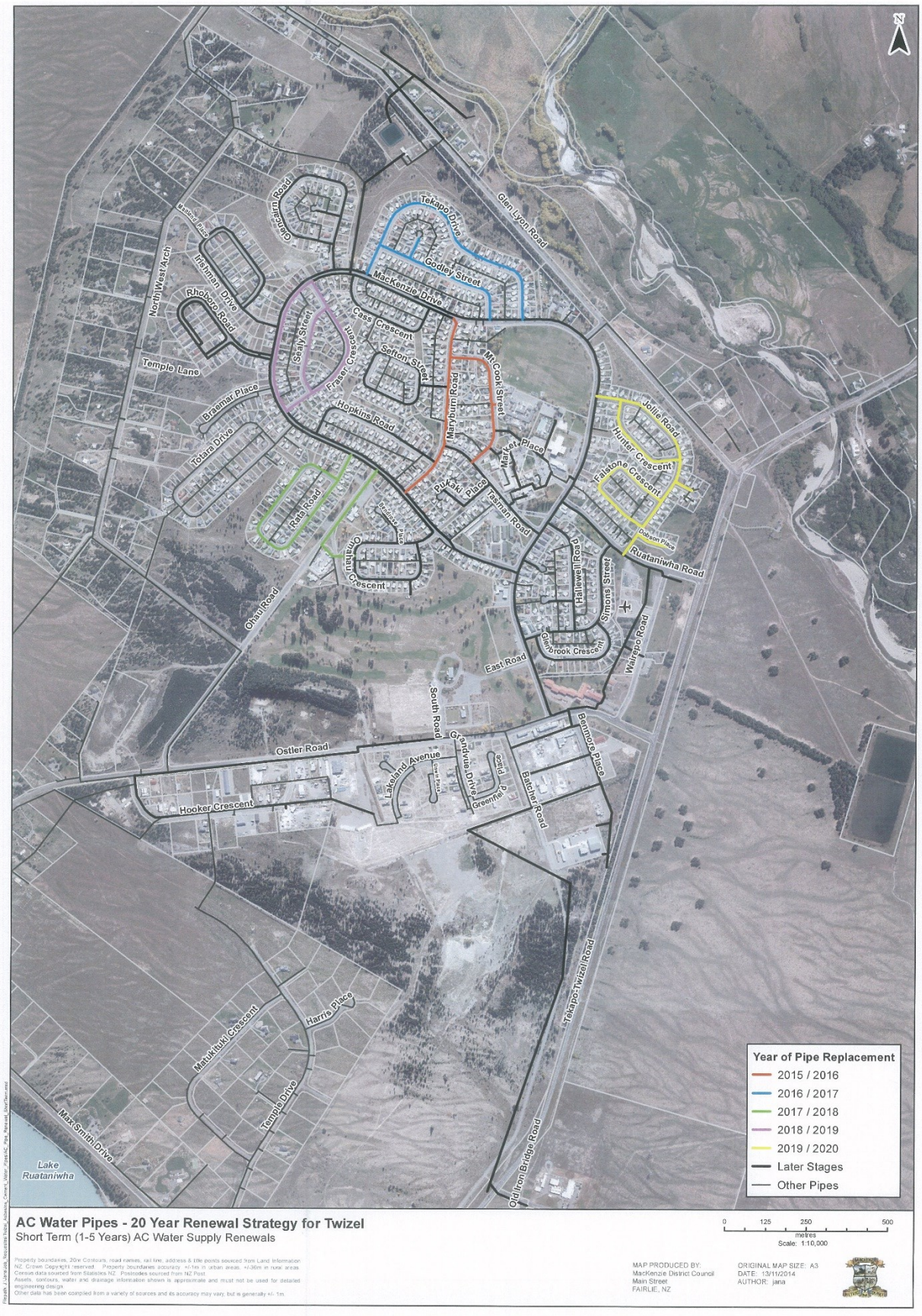
The model takes into account the following

- Existing and future demand
- Roading replacement programme, both footpath and roadway
- Ability to fund
- Availability of contractors
- Refurbishment method

Due to the scale of the replacement programme and the narrow failure timeframe it is not recommended “sweating the asset” due to the criticality of these assets both for domestic supply and fire suppression.

It is likely that pipe should be replaced prior to any observed failure to fit in the five considerations above.

Figure 6.5 - Asbestos Cement Water Pipe – Twizel (including Replacement Programme)



6.5.3 Sampling Location and Replacement Date

Township	Location	Pipe purpose	Diameter	Replacement Date
Twizel	37 Sefton St	Water	100	2022
Twizel	Nuns Veil & Mackenzie	Water	150	2043
Twizel	Wairepo Rd	Water	100	2037
Twizel	Fraser Crs	Water	100	2024
Twizel	Mt Cook St	Water	150	Now
Twizel	Jollie & Dobson	Water	100	2022
Twizel	Ohau	Water	100	2023
Twizel	Glenbrook Crs	Water	100	2029
Twizel	Omahau Crs	Water	100	2036
Twizel	226 Mackenzie Dr	Water	150	2021
Twizel	Rata Rd	Water	100	Now
Twizel	16 Glencairn Crs	Water	100	2034
Twizel	Hooker Crs	Water	100	2023
Twizel	4 Mt Cook St	Water	100	2024
Twizel	193 Mackenzie Dr	Water	150	Now
Twizel	46 Tekapo Dr	Water	100	Now
Twizel	51 Maryburn Rd	Water	150	Now
Twizel	Glen Lyon Rd	Water	300	2100
Twizel	67 Irishman Dr	Water	100	2027
Fairlie	Fairlie-Tekapo	Water	75	Now

Analysis of these test results shows that the large diameter pipe in the reticulation has very good remaining life (80 years), but the 100mm and 150 mm diameter pipe has a varying remaining life, being at risk of serious failure from now on for the next 20 years.

This strategy recommends that Council start the replacement programme in 2015/16 and continue to replace the rest of the AC pipe over the next 20 years. The average cost per year is $225,000 starting with the most at risk or critical pipelines first. It would be sensible to complete each street fully so the actual cost per year will vary.

Initial programme is:

Location	Programmed Replacement	Estimate $ (2015)
Mt Cook Street and Maryburn Road	2015/16	211,000
Tekapo Drive, Godley Street and MacAuley Place	2016/17	208,000
Rata Road and Ohau Road	2017/18	190,000
Part Mackenzie Drive, Sealy Street and Fraser Crescent	2018/19	223,000
Jollie Road, Hunter Cres, Falstone Cres, Huxley Pl and Dobson Pl	2019/20	249,000
Market Place	2020/21	149,000
Ostler Road and Hooker Crescent	2021/22	132,000

This will be reviewed over time as pipes start to fail and also to fit in with footpath resurfacing. It is recommended that the footpath be resurfaced with Asphalt on completion of the rehabilitation in each street. This will be a better long term whole of life solution than the current chip seal.

6.5.4 Plant and Equipment

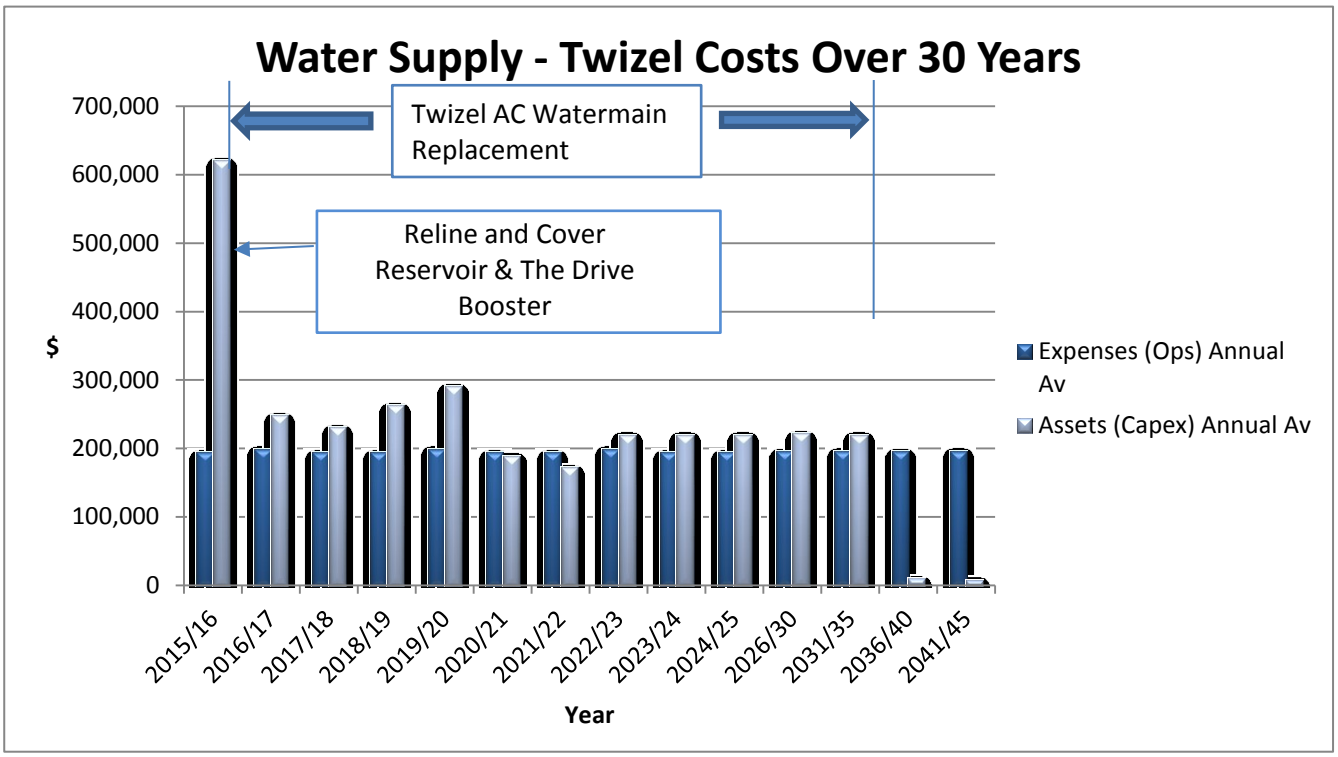
The three well pumps will require replacement at about 15 year intervals depending on pump running hours. These pumps cost $13,000 each and the oldest will be replaced during the period 2026-2030 and the remaining two in 2031-2035.

The headwork's (pumps in particular) being installed on the Twizel water supply will have reached the end of their economic life within the period of this strategy and will have to be replaced probably during the period 2026-30 at a cost of $175,000. The Magflo meter and the Turbidity meter will also need replacement in 2031-35 at a cost of $40,000.

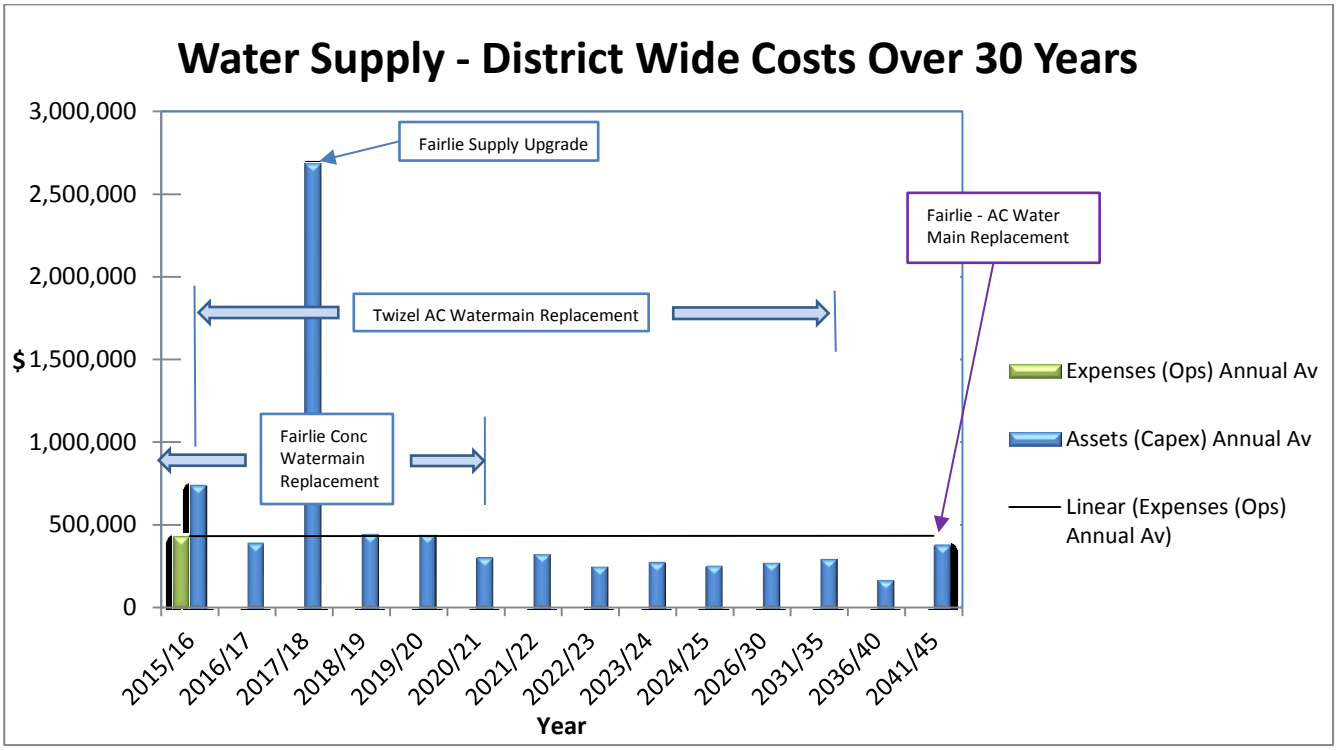
6.5.5 Growth Decision

With the steady growth of Twizel to the west, the impact of Plan change 15 allowing for low density residential areas and the Council policy of only supplying water on a restricted basis may put off the need for a large trunk water main to be laid into this area. However this will need to be monitored over time as development and demand increases in this area. Reports provided to Council by Opus International Ltd have recommended the construction of a 300mm trunk main to be laid from the headwork's to the Res 4 zoned land west of Twizel. The cost of this is estimated at $315,000. This work could be funded in part or wholly by developers by way of development contribution.

The area to the west of Twizel known as The Drive is zoned Res 4 and Rural Residential 1, these zones allow for low density sections. Council has determined that this area is to be serviced by an on-demand water supply. In times of high demand, the flow and pressure drops off markedly to the point where water flow is non-existent. An undertaking has been given to those residents in that area that an in-line booster pump will be installed in 2015/16 to address this problem.



6.6 District Wide Water Supply Costs



7 Roads and Footpaths

7.1 Resource Consents

Scheme	Consent Number	Expires
ROADING - Twizel River	CRC971431	15-Jan-32
ROADING - Lochaber Road	CRC980696	04-Feb-33
ROADING - Clayton Road	CRC980697	04-Feb-33
ROADING- Clayton Settlement Road	CRC980698	04-Feb-33
ROADING - Clayton Road	CRC980699	04-Feb-33
ROADING- Lochaber Road	CRC980700	04-Feb-33
ROADING- Lillybank Road	CRC980701	04-Feb-33
ROADING -Haldon Road	CRC980702	04-Feb-33
ROADING - Tengawai River	CRC980703	04-Feb-33
ROADING - Orari River, Lochaber Road Bridge	CRC980704	04-Feb-33
ROADING - Macauley River	CRC980705	04-Feb-33
ROADING - Snow River	CRC980706	04-Feb-33
ROADING- Glen Lyon Road	CRC001191	09-Mar-35
ROADING- Cass River Ford Maintenance	CRC054668	16-Dec-40
ROADING- Pareora River	CRC062058	18-Oct-41
ROADING –Stoneliegh Road	CRC064164	14-Dec-41
ROADING - Twizel River	CRC971431	15-Jan-32
ROADING - Lochaber Road	CRC980696	04-Feb-33
ROADING - Clayton Road	CRC980697	04-Feb-33
ROADING- Clayton Settlement Road	CRC980698	04-Feb-33
ROADING - Clayton Road	CRC980699	04-Feb-33
ROADING- Lochaber Road	CRC980700	04-Feb-33
ROADING- Lilybank Road	CRC980701	04-Feb-33
ROADING -Haldon Road	CRC980702	04-Feb-33
ROADING - Tengawai River	CRC980703	04-Feb-33
ROADING - Orari River, Lochaber Road Bridge	CRC980704	04-Feb-33
ROADING - Macauley River Ford Maintenance	CRC980705	04-Feb-33
ROADING - Snow River	CRC980706	04-Feb-33
ROADING- Glen Lyon Road	CRC001191	09-Mar-35
ROADING- Pareora River	CRC062058	18-Oct-41
ROADING -Stoneliegh Road	CRC064164	14-Dec-41

All these resource consents may require renewal during the life of this strategy unless Environment Canterbury rules to allow any of these activities to be permitted are modified to allow for these activities as permitted. The proposed Canterbury Land & Water Regional Plan Clause 5.139 states *"The use and maintenance of structures, excluding dams, on, in or under the bed of a lake are permitted, provided* certain conditions are met".

If this clause remains as notified most of the above consents could be surrendered.

7.2 Sealed Pavement Maintenance and Resurfacing

The expected life of a seal is dependent on whether it is a first coat or reseal, what type of seal (e.g. single coat or two coat, large or small grade chip), and the amount of traffic using the section of road. Based on a Councils sealed pavement length a target average annual reseal length of approximately 8% could be regarded as the average annual need. Actual resurfacing over the last 10 years has been less than this amount to fit in within approved budgets

A full review of our seal histories using an average default reseal life of 18 years and 8 years for 1st coats was completed when preparing this strategy. As part of this exercise, the existing back log of resurfacing (i.e. where the existing seal age is older than the agreed default seal lives) has been calculated. This shows there is theoretically 154,000 m^2 (approx. 26km) of back log. These seals are between 22 and 34 years old. The backlog has been partially caused because over the last ten years 16km of sealed roads have been added to the asset register either though development or LINZ handing over Hayman Road (5.2km) to Mackenzie District. The other impact is the ever increasing cost of bitumen against a fixed allocation from NZTA and no allowance for inflation.

As can be seen in the Figure 6.1, there is a large backlog of both 1st coat and reseals coupled with a significant amount or reseals required in 2015/2017. In order to clear the backlog of 154,000m^2 over the next five years MDC will need to seal approximately 115,000m^2 (approx. 20km) per annum for 2015-2022. Our 20+ year programme as depicted in Figure 6.2 (red line) shows the need for Mackenzie District to spend a minimum of $725,000 for the next 5 years reducing to $275,000 per year for the next 7 years with a lift back to $500,000 to clear the back log and maintain an average seal age of 18 years. This smoothed programme allows for various seal sections to be brought forward or extended out, based on local knowledge and is yet to be fully verified in the field.

Figure 6.1 – 20+ Year Resurfacing Forward Works Programme

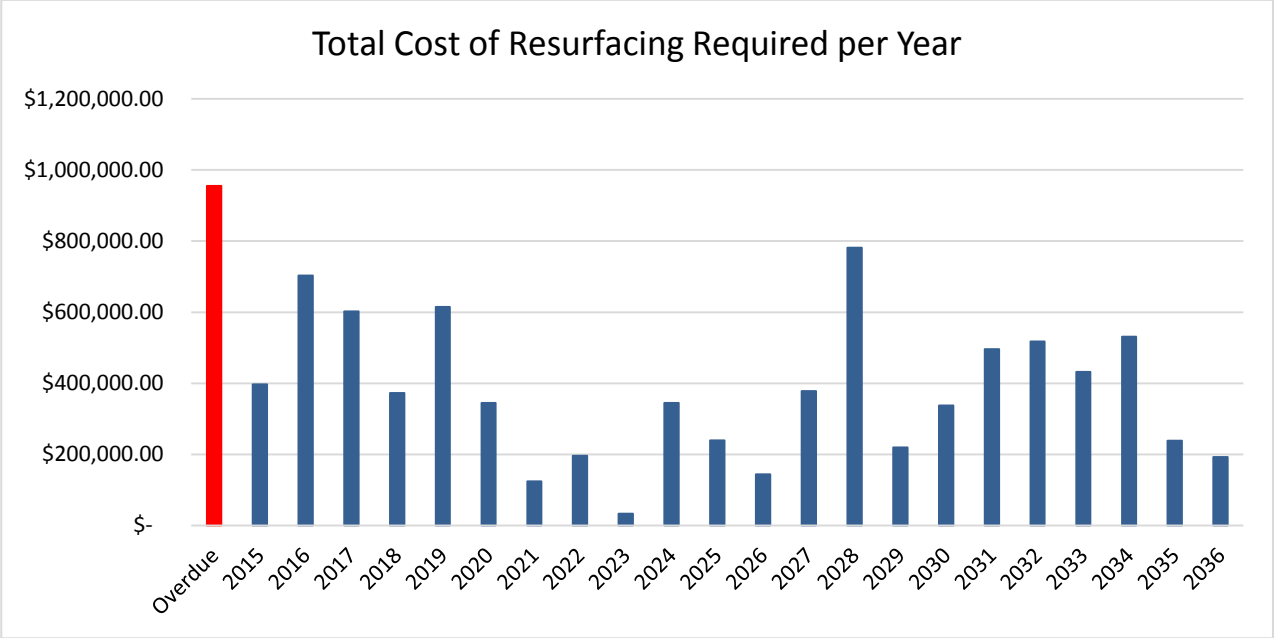
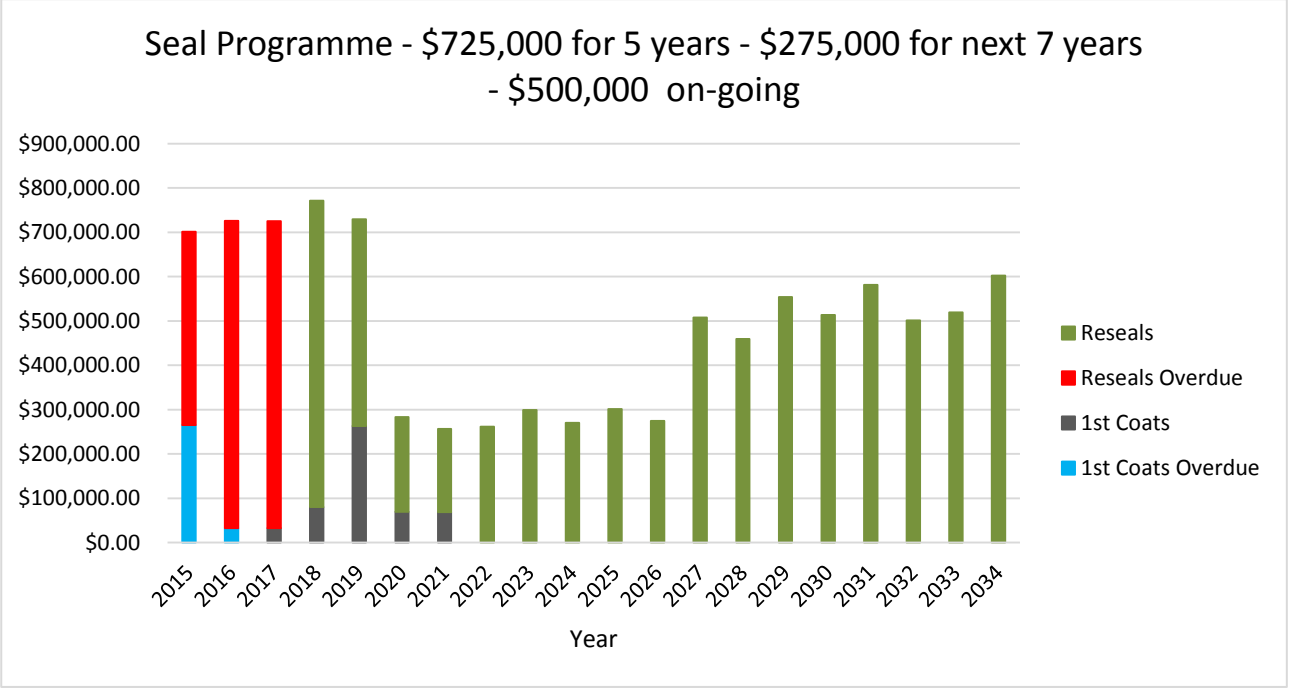


Figure 6.2 – Smoothed Resurfacing Forward Works Programme



It should be noted that this is an ideal situation that does not allow for early failure of any seal or inflation. It is also modelled on the re-sealing rates for 2013/14.

If NZTA decide not fund MDC at the above levels, initially the models used will have to be reworked using the approved funding levels to determine the sustainability of that level. If the condition of the old seals continues to deteriorate then Council has the option of funding those reseals fully from rates or recommend a reduced level of service on some roads by allowing them to revert to gravel

7.3 Unsealed Pavement Maintenance and Metalling

Our unsealed road metalling budget is split between maintenance metalling (a light application of metal to bare patches to hold the road until a wearing course can be constructed) and wearing courses (where layer of suitable material with mechanical interlock is laid and compacted to produce a relatively smooth mosaic finish). Council has historically been unable to keep up with the metal loss on our roading network applying much less than the predicated annual metal loss. Over the 2015/18 NLTP there has been a requested increased application of material to 21,000m3

Over the last 3 years staff have carried out regular gravel loss surveys at different sites on the network. This has provided good data on how our gravel roads perform over time. Lilybank Road is showing a loss of 17mm off the crown of the road in any one year. This means that whilst there is plenty of loose material to grade around, there isn't actually adequate fines left in the material to keep a good 6% crossfall, meaning more corrugations/potholes/loose material and a lesser quality driving surface along with increased maintenance costs. Analysis of the results of our gravel loss surveys has indicated that to keep the unsealed road network in " *a safe, efficient, convenient and comfortable roading network to ensure appropriate property access and freedom of travel for all people"* 2012-22 LTP Council needs to apply approximately 21,000m3 of wearing course and maintenance metal to its unsealed roads annually.

Council is currently undertaking local source material trials on sections of our network that typically had either, high heavy vehicle usage resulting in accelerated gravel loss, high dust generations and/or associated complaints or in-adequate subgrade strength. So far the trials are proving to be very successful with reduced grading schedules, no deflection due to heavy vehicle loading, little to no metal loss and very low dust generation. Staff are monitoring these sites, regularly recording set cross sections to monitor gravel loss, asset performance and maintenance expenditure.
Whilst it is too early to consider rolling this construction practice out over an extended area of our unsealed road network, preliminary results are showing that there could be significantly lower lifecycle maintenance costs. Any benefit from these trials would be rolled out during the 2018-21 NLTP.

Although some roads lose 17mm of material from the crown in any one year, consumption of the asset is not totally realized, due to the inherent strength of the subgrade, meaning that when traffic wear through the wearing course, there is still a trafficable surface, but Council is left with a surface that cannot be graded to restore the shape of the road. This ends up with a significantly reduced level of service and increased maintenance costs. Conversely a number of our roads have very weak subgrades with CBR's of less than 7 (effectively top soil). These roads are not designed to carry heavy vehicles, and during extended wet periods or during the middle of winter, when these roads are at their weakest, severe pavement failures, as pictured below, is the resultant outcome.

Braemar Road – Frost Heave July 2012

Staff work closely with the New Zealand Defence Force, all rate payers, the Road Transport Association and other known heavy vehicle road users and to ensure that Braemar Road and others like it are not accessed by heavy vehicles when are at their most fragile.

7.4 Pavement Rehabilitation

Historically, in any one year, sealed road pavement rehabilitation has been as a result of damage caused by winter freeze/thaw conditions. Godley Peaks Road and Haldon Road have been the most at risk roads in the District.

MDC have made substantial improvements to drainage in sections that are known to cause issues, this has abated the need somewhat, but there is still a general requirement to carry rehabilitation on sections of Haldon Road, Godley Peaks Road, Lilybank Road.

In the short term a 1200m section on Clayton Road and 2000m on Hamilton Road requires rehabilitation. This pavement deterioration is caused by changes in land use and a corresponding increase in HCVs. Records show that the Average Annual Daily Traffic on Clayton Road has almost doubled in the last 12 years from 289 to 419 with 24% HCVs remaining constant. Thus the number of HCVs has also almost doubled. This change of land use and intensification is expected to continue.

There is a 30 year forestry cutting plan for Mt Cook Station that will see extensive logging over fragile unsealed roads every year during that period.

Godley Peaks Station has recently gained water take consent and this will see a significant change in land use and intensification. As a consequence the number of HCVs using Godley Peaks Road will increase significantly. This will not only add increased wear on the road but potentially impact on the use of the Cass River Bridge, thus shortening its remaining useful life.

Dairy conversions will continue in the region thus changing the traffic flows in and around these properties along with the extra tanker traffic.

Council will have to allow for this extra rehabilitation requirement on both its sealed and unsealed road network as an on-going requirement.

7.5 Bridge Renewals

There are 93 bridges in the District with a combined length of 1,842m. They range from small, simple timber structures to multi-bay modern steel and concrete structures. Generally the District's bridges are in good order. The bridge stock is structurally inspected on a rolling three year cycle, with some "at risk" structures inspected annually.

MDC has a robust Bridge Replacement Strategy (2010-2050) which details bridges due for replacement or complete removal.

The replacement strategy is reviewed regularly as part of the annual structural inspection. This may have the effect of accelerating the replacement of various structures or conversely extending their remaining useful life.

7.5.1 Bridge Replacement Strategy

Bridge No	Bridge Name	Replacement Timeframe	RUL (Years)	Costing Parameters			Replacement			Notes
				Length	Width	Rate/m2	Cost	Year		
9	Fraser Rd No 2	3 - 10	3	7	3	$4,030.00	$98,700	2017	2018	Replace
26	Goodmans	3 - 10	5	17	2.1	$3,910.00	$169,500	2019	2020	Don't Replace
70	Grampians	3 - 10	0	5.6	2.3	$4,030.00	$62,100	2014	2015	Don't Replace
73	Stoney River	3 - 10	3	5	2.3	$4,030.00	$56,400	2017	2018	Don't Replace
92	Stoney River	3 - 10	0	16	4	$4,030.00	$290,200	2014	2015	Don't Replace
77	Fox Ski Field	3 - 10	0	4	2.5	$4,030.00	$48,400	2014	2015	Replace
58	Single Hill	3 - 10	5	12	2.6	$3,910.00	$143,100	2019	2020	Replace
1	Otama Road	3 - 10	8	6	2.7	5,403.00	$77,400	2022	2023	Replace
13	Coal Pit Rd No 2	10 - 15	10	12	4	$3,910.00	$208,000	2024	2025	Replace
78	Cass River	10 - 15	15	124	2.8	$3,910.00	$1,600,000	2029	2030	Replace
87	Black Birch Stream	10 - 15	15	6	3.2	$4,030.00	$89,500	2029	2030	Replace
89	Mowbray Road	20+	25	8	3.2	$4,030.00	$119,300	2039	2040	Replace
41	Clayton Settlement	20+	35	66	2.8	$3,910.00	$838,700	2049	2050	Replace

7.5.2 Cass River Bridge

The bridge over the Cass River on Godley Peaks Road was built by the land owner of Godley Peaks Station and taken over by Council sometime later. It is made up of three spans with a total length of 124 meters. Council has this weight restricted to 3000 kg Gross Vehicle Weight and 2000 kg per axle

with a posted speed of 10km/h. The current estimated cost to replace this is $1,600,000. This bridge provides access to Godley Peaks Station and the formed road ends some 800m past the end of the bridge.

Council has commissioned a full assessment of the options around replacement or closure of the Cass River Bridge as Council is reluctant to fund the "local share" of the replacement cost and it may be problematic to get funds from NZTA to also replace this structure at what is really the end of the road. The structure is weight restricted to 3000kg and this is causing some issues for the station at the end of the road and it is intended to carry out some pile testing to confirm the weight restriction. This may have the effect of lifting the weight limit or reducing it. If the limit was to go much below the 3000kg then closure would be eminent.

7.6 Street Lighting

Over the last 10 years, urban development has added 34% extra lights to the network and it is assumed that there will be an ongoing increase in these assets albeit a little slower than in the past due to a predicted slow-down in development. The existing street lights have a remaining life of between 2 years and 20 years. It is planned to replace these with LED fittings as the old become obsolete. The District Plan has specific ordinances that are designed to protect the night sky in the Makenzie Basin. It is important that any roll out of street light replacement across the network meets those objectives. At this stage with the change to LED fittings it is unknown exactly what type/colour etc. of the LED is suitable.

7.7 Footpaths Resurfacing

No significant change expected to the normal operation of this activity. However, as the Asbestos Cement watermain replacement programme is rolled out over the next twenty years in Twizel, the footpaths in those streets affected will be substantially rebuilt and it is recommended that they get reconstructed in Asphalt or Concrete at that time. This will help to further reinforce the demarcation between the roadway and the pedestrian footpath. It is recommended that a move to Asphalt surfacing be considered for Twizel footpaths instead of sealing with grade 6 chip from the Blackhead Quarry in Dunedin. This dark chip has been a good choice to indicate the footpath demarcation however it is not as good a choice when considering the whole of life costs.

With traffic regularly parking on the footpaths in Twizel and the actions of the refuse collection truck stressing the pavement surface these seals only have a life of approximately 10 years. By moving to Asphalt footpath surfacing the life will be extended out to 30 years and have an even greater demarcation from the road surface.

8 Appendix A

8.1 Capital Expenditure by Activity

ACTIVITY	PROJECT NAME	PROJECT DESCRIPTION	SERVICE LEVEL	BUDGET
Allandale				
Water	Spur Rd	Scada	I	10,000
Water	Intake	Scada	I	10,000
Water	Intake	Chlorinator	R	3,000
Water	Intake	Mag flow meter	I	5,000
Water	Intake	Scada upgrade	R	2,000
Water	Spur Rd	Scada upgrade	R	2,000
Water	Renewal	Consent	R	50,000
Water	Intake	Switch Board	R	2,000
				$84,000
Ashwick				
Water	Renewal	Consent	R	50,000
				$50,000
Burkes Pass				
Sewer	Ponds	Scada	I	15,000
Sewer	Ponds	Scada upgrade	R	2,000
Sewer	Ponds	Scada upgrade	R	2,000
Sewer	Ponds	Consent	R	50,000
Water	Intake	Replace plant	R	5,170
Water	Intake	Scada	I	15,000
Water	Intake	Solar Power	I	2,640
Water	Intake	Scada upgrade	R	2,000
Water	Renewal	Consent	R	50,000
Water	Galv line from intake	Water main renewal	R	2,424
				$146,234
Fairlie				
Sewer	Township.	CCTV	O&M	5,000
Sewer	Ponds	Scada	I	10,000
Sewer	Sewer ponds inlet	Mag Flow	I	20,000
Sewer	Township	CCTV	O&M	25,000
Sewer	Township	Sewer main replacement	R	250,000
Sewer	Replace	Aerator	R	62,000
Sewer	Township	Sewer main replacement	R	250,000
Sewer	Township	Sewer main replacement	R	250,000
Sewer	Desludge Pond	Ponds	O&M	150,000
Sewer	Township	Sewer main replacement	R	127,500
Sewer	Ponds	Scada upgrade	R	2,000
Sewer	Township	Sewer main replacement	R	127,000
Sewer	Township	Sewer main replacement	R	127,000
Sewer	Township	Sewer main replacement	I	127,000
Sewer	Township	Sewer main replacement	I	127,000
Sewer	Replace	Eversley pumps	R	15,360
Sewer	Replace	Eversley pumps	R	15,360
Sewer	Replace	Eversley pumps	R	15,360
Sewer	Replace	Eversley pumps	R	15,360
Sewer	Replace	Eversley pumps	R	15,360
Sewer	Ponds	Consent	R	50,000
Storm Water	Denmark St	Humeceptor	I	15,000
Storm Water	Regent St	Humeceptor	I	15,000
Water	Gray Street	Water main renewal	R	120,000
Water	Township	Water main renewal	R	120,000
Water	Treatment upgrade	Intake	I	2,300,000
Water	Township	Water main renewal	R	120,000
Water	Nixon Rd	Scada	I	10,000
Water	Township	Water main renewal	R	148,000
Water	Township	Water main renewal	R	120,000
Water	Township	Water main renewal	R	120,000
Water	Township	Water main renewal	R	150,000
Water	Renewal	Service connections	R	25,000
Water	Renewal	Service connections	R	25,000

Water	Renewal	Service connections	R	25,000
Water	Renewal	Service connections	R	35,000
Water	Renewal	Service connections	R	25,000
Water	Renewal	Service connections	R	25,000
Water	Intake	Scada upgrade	R	2,000
Water	Renewal	Service connections	R	25,000
Water	Nixon Rd	Scada upgrade	R	2,000
Water	Renewal	Service connections	R	25,000
Water	Renewal	Consent	R	50,000
Water	Renewal	Service connections	R	25,000
Water	Renewal	Service connections	R	25,000
Water	Renewal	Service connections	R	25,000
Water	Township	Water main renewal	R	103,022
Water	Township	Water main renewal	R	103,021
Water	Township	Water main renewal	R	238,151
Water	Township	Watermain	R	238,151
Water	Township	Water main renewal	R	238,151
Water	Intake	Consent	R	50,000
Water	Township	Water main renewal	R	238,151
Water	Township	Water main renewal	R	238,151
Water	Renewal	Service connections	R	25,000
Water	Renewal	Service connections	R	25,000
				$6,860,098
Manuka Tce				
Water	New intake	Land purchase	I	50,000
Water	New	Consent	I	18,000
Water	Intake	New Well	I	67,000
Water	Retic install	Main construction	I	1,248,000
Water	Intake	Pump renewal	R	30,000
				$1,413,000
Tekapo				
Sewer	Seally St	Pump replacement	R	66,000
Sewer	New disposal line	Ponds	I	100,000
Sewer	Domain, Sealy & ponds	Scada	I	30,000
Sewer	Pond Survey	Sewer pond	O&M	1,000
Sewer	Camp Ground	Pump station upgrade	R	99,000
Sewer	Replace	Aerator	R	124,000
Sewer	Domain	Pump replacement	R	66,000
Sewer	Domain	Scada upgrade	R	2,000
Sewer	Seally St	Scada upgrade	R	2,000
Sewer	Ponds	Scada upgrade	R	2,000
Sewer	Township	Sewer main replacement	R	81,600
Sewer	Township	Sewer main replacement	R	81,600
Sewer	Township	Sewer main replacement	R	816,000
Sewer	Township	Sewer main replacement	R	81,600
Sewer	Camp ground	Scada upgrade	R	2,000
Sewer	Township	Sewer main replacement	R	81,600
Storm Water	Lakeside Dr	New Stormwater Treatment	I	300,000
Storm Water	Aorangi	Humeceptor	I	30,000
Water	Ponds	Consent	R	50,000
Water	Township	Service connections	R	8,000
Water	Lochinver & Reservoir	Scada	I	28,000
Water	Intake	Scada	I	18,000
Water	Switch board & reservoir	Control upgrade	R	25,050
Water	Intake	Treatment renewal	R	35,250
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
Water	Intake	Process control	R	33,300
Water	UV plant	Replace magflow	R	15,150
Water	Intake	Rebuild Head works	R	90,000
Water	Lochinver & Reservoir	Scada upgrade	R	4,000

Water	Intake	Scada upgrade	R	2,000
Water	Roto Pl	Water main renewal	R	100,000
Water	Renewal	Consent	R	50,000
Water	Lochinver pumps	Pump renewal	R	33,211
Water	Township	Water main renewal	R	1,219,000
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
				$3,733,361

Twizel

Sewer	Pukaki look out	Scada	I	12,000
Sewer	Mackenzie Park	Scada	I	10,000
Sewer	Mackenzie Park	Pump replacement	R	50,000
Sewer	Pukaki airport	Scada	I	10,000
Sewer	New disposal system	Sewer pond upgrade	I	660,000
Sewer	Ponds	Scada	I	14,000
Sewer	Pond Survey	Sewer ponds	O&M	1,000
Sewer	Desludge Pond	Ponds	O&M	200,000
Sewer	Pukaki lookout	Scada upgrade	R	35,000
Sewer	Mackenzie Park	Scada upgrade	R	2,000
Sewer	Pukaki Airport	Scada upgrade	R	2,000
Sewer	Ponds	Scada upgrade	R	2,000
Sewer	Mackenzie Park	Control Panel	R	10,000
Sewer	Mackenzie Park	Pump renewal	R	12,000
Storm Water	Glen Lyon Rd	Humeceptor	I	15,000
Water	Intake	Reservoir Reline & Cover	I	290,000
Water	Mt Cook & Maryburn & Drive Booster	Water main renewal	R + I	331,000
Water	Tekapo Dr & Godley	Water main renewal	R	248,000
Water	Rata & Ohau	Water main renewal	R	230,000
Water	Mackenzie & Fraser	Water main renewal	R	263,000
Water	Jolly Rd	Water main renewal	R	290,000
Water	Hooker & Ostler	Water main renewal	R	189,000
Water	Market Pl	Water main renewal	R	172,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Intake	Scada upgrade	R	2,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Township	Water main renewal	R	220,000
Water	Renewal	Service connections	R	20,000
Water	Renewal	Service connections	R	20,000
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
Water	Renewal	Service connections	R	8,000
Water	Township	Water main renewal	R	220,000
				$5,990,000

I Improved Levels of Service
R Renewals
G Expenditure Required because of Growth

O&M Operation & Maintenance Expenditure

9 Appendix B

9.1 Local Government Act 2002 - Amendment Act (No 3)

Local Government Act 2002

Amendment (No 3)

New section 101B inserted (Infrastructure strategy) 30

After section 101A, insert:

34 "**101B Infrastructure strategy**

"(1) A local authority must, as part of its long-term plan, prepare and adopt an infrastructure strategy for a period of at least 30 consecutive financial years.

"(2) The purpose of the infrastructure strategy is to—

c) "identify significant infrastructure issues for the local authority over the period covered by the strategy; and

d) "identify the principal options for managing those issues and the implications of those options.

"(3) The infrastructure strategy must outline how the local authority intends to manage its infrastructure assets, taking into account the need to—

f) "renew or replace existing assets; and

g) "respond to growth or decline in the demand for services reliant on those assets; and

h) "allow for planned increases or decreases in levels of service provided through those assets; and

i) "maintain or improve public health and environmental outcomes or mitigate adverse effects on them; and

j) "provide for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks.

"(4) The infrastructure strategy must outline the most likely scenario for the management of the local authority's infrastructure assets over the period of the strategy and, in that context, must—

a) "show indicative estimates of the projected capital and operating expenditure associated with the management of those assets—

"(i) in each of the first 10 years covered by the strategy, and

"(ii) in each subsequent period of 5 years covered by the strategy; and

"(ab) identify—

"(i) the significant decisions about capital expenditure the local authority expects it will be required to make; and

"(ii) when the local authority expects those decisions will be required; and

"(iii) for each decision, the principal options the local authority expects to have to consider; and

"(iv) the approximate scale or extent of the costs associated with each decision; and

b) "include the following assumptions on which the scenario is based:

"(i) the assumptions of the local authority about the life cycle of significant infrastructure assets:

"(ii) the assumptions of the local authority about growth or decline in the demand for relevant services:

"(iii) the assumptions of the local authority about increases or decreases in relevant levels of service;1and

c) “(c) if assumptions referred to in **paragraph (b)** involve a high level of uncertainty,—
d) “(i) identify the nature of that uncertainty; and
e) “(ii) include an outline of the potential effects of that uncertainty.

“(5) A local authority may meet the requirements of section 101A and this section by adopting a single financial and infrastructure strategy document as part of its long-term plan.

“(6) In this section, **infrastructure assets** includes—

“(a) existing or proposed assets to be used to provide services by or on behalf of the local authority in relation to the following groups of activities:
“(i) water supply:
“(ii) sewerage and the treatment and disposal of sewage:
“(iii) stormwater drainage:
“(iv) flood protection and control works:
“(v) the provision of roads and footpaths; and

“(b) any other assets that the local authority, in its discretion, wishes to include in the strategy.”

10 Appendix C

10.1 Stormwater Budgets

Activity **Stormwater**

Community **Fairlie**

Note Year 1 through 30 in todays $

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	**33,601**	**16,200**	**20,200**	**76,200**	**31,200**	**20,200**	**16,200**	**16,200**	**20,200**	**16,200**	**16,200**	**89,000**	**89,000**	**89,000**	**89,000**
Income															
Expenses (Operational)	25,501	8,100	10,100	38,100	8,100	10,100	8,100	8,100	10,100	8,100	8,100	44,500	44,500	44,500	44,500
Consultancy Expenses			2,000	30,000		2,000			2,000			4,000	4,000	4,000	4,000
Administration Expenses	1,398	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	7,000	7,000	7,000	7,000
Operational and Maintenance	6,702	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	6,700	33,500	33,500	33,500	33,500
Assets (Capex)					15,000				15,000						
Comments		CCTV steel pipe in Regent St, Main St Timber section Sloane S.t Unreinforced pipe Princes St	Re-valuation	SW Management Plan	Humeceptor on the most at risk outlet	Re-valuation			Re-valuation + Humeceptor			Allows for revaluation every 3 years,			

Activity **Stormwater**

Community **Tekapo** **Note Year 1 through 30 in todays $**

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	**31,400**	**23,700**	**31,700**	**427,700**	**31,700**	**55,700**	**51,700**	**31,700**	**35,700**	**31,700**	**51,700**	**166,500**	**166,500**	**166,500**	**166,500**
Income															
Expenses (Operational)	19,570	11,850	15,850	63,850	15,850	27,850	25,850	15,850	17,850	15,850	25,850	83,250	83,250	83,250	83,250
Consultancy Expenses	0		2,000	50,000		2,000			2,000			4,000	4,000	4,000	4,000
Administration Expenses	430	450	450	450	450	450	450	450	450	450	450	2,250	2,250	2,250	2,250
Operational and Maintenance	11,400	11,400	13,400	13,400	15,400	25,400	25,400	15,400	15,400	15,400	25,400	77,000	77,000	77,000	77,000
Assets (Capex)				300,000					30,000						
Comments			Re-valuation plus extra maintenance on Town centre SW Discharge	Install Lakeside Drive discharge - funded by Council reserves + SW management Plan	Extra maintenance of Lakeside Drive discharge	Re-valuation Replace soils in Lochinver	Replace soils in Town centre		Re-valuation + Humeceptor		Replace soils in Lochinver	Allows for revaluation every 3 years, replace soils in various treatment systems on five yearly cycle			

Activity **Stormwater**

Community **Twizel** **Note Year 1 through 30 in todays $**

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	**53,900**	**72,000**	**76,000**	**112,028**	**72,028**	**76,000**	**72,028**	**72,028**	**76,000**	**87,028**	**73,400**	**381,000**	**381,000**	**381,000**	**381,000**
Income															
Expenses (Operational)	26,950	13,600	15,600	53,600	13,600	15,600	13,600	13,600	15,600	13,600	15,400	77,500	77,500	77,500	77,500
Consultancy Expenses	13,475		2,000	40,000		2,000			2,000			4,000	4,000	4,000	4,000
Administration Expenses	1,398	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	7,000	7,000	7,000	7,000
Operational and Maintenance	12,077	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	34,600	35,000	180,000	180,000	180,000	180,000
Assets (Capex)		0	0	0	0	0	0	0	0	15,000	0	0	0	0	0
Comments	Under Pin outlet		Re-valuation	SW Management Plan		Re-valuation			Re-valuation	Humeceptor on Tekapo Drive Outlet to improve quality	Plus annual maintenance on **Hume**ceptor, on-going	Allows for revaluation every 3 years, replace soils in various treatment systems on five yearly cycle			

10.2 Foul Sewer Budgets

Foul Sewer

Community **Burkes Pass**

Note Year 1 through 30 to be in todays $

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	10,364	6,302	6,802	6,302	21,302	7,652	7,152	7,152	7,652	7,152	7,152	38,260	38,260	88,260	38,260
Income															
Expenses (Operational)	7,213	3,151	3,401	3,151	3,151	3,826	3,576	3,576	3,826	3,576	3,576	19,130	19,130	19,130	19,130
Consultancy Expenses	0		250			250			250			1,250	1,250	1,250	1,250
Administration Expenses	576	576	576	576	576	576	576	576	576	576	576	2,880	2,880	2,880	2,880
Operational and Maintenance	2,575	2,575	2,575	2,575	2,575	3,000	3,000	3,000	3,000	3,000	3,000	15,000	15,000	15,000	15,000
Assets (Capex)					15,000							10,000		60,000	
Comments			Re-valuation		Scada at Oxidation Ponds	Re-valuation + annual Scada operation cost			Re-valuation			Scada upgrade		Consent expires 2040 + Scada renewal	

Activity **Sewer**

Community **Fairlie**

Note Year 1 through 30 to be in todays $

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	201,327	174,240	185,540	415,240	94,240	358,540	94,240	349,240	99,540	349,240	244,240	1,108,700	471,200	521,200	471,200
Income															
Expenses (Operational)	87,214	79,620	82,770	80,120	47,120	51,770	47,120	47,120	49,770	47,120	47,120	235,600	235,600	235,600	235,600
Consultancy Expenses	5,300		2,650			4,650			2,650						
Administration Expenses	1,613	1,620	1,620	1,620	1,620	1,620	1,620	1,620	1,620	1,620	1,620	8,100	8,100	8,100	8,100
Operational and Maintenance	44,721	78,000	78,500	78,500	45,500	45,500	45,500	45,500	45,500	45,500	45,500	227,500	227,500	227,500	227,500
Assets (Capex)	62,479	10,000	20,000	25,000		250,000	62,000	250,000		250,000	150,000	647,500	76,800	80,000	62,000
Comments		Includes 6400 for CCTV etc. + Scada at Oxidation Ponds	Re-valuation plus mag flow in inlet to ponds	Replace all condition 4 and 5 pipework. To be confirmed by CCTV		Allow to replace 1000m of old EW pipework every two years. Programme to be confirmed by review of CCTV inspections carried out in 2015-18. sludge depth survey.	Replace aerator	Allow to replace 1000m of old EW pipework every two years. Programme to be confirmed by review of CCTV inspections carried out in 2015-18	Re-valuation	Allow to replace 1000m of old EW pipework every two years. Programme to be confirmed by review of CCTV inspections carried out in 2015-18	Desludge Oxidation Pond	Allow to replace 1000m of old EW pipework every two years. Programme to be confirmed by review of CCTV inspections carried out in 2015-18	Replace Eversley Reserve Pumps	Consent expires in 2038	Replace aerator

Activity Sewer

Community Tekapo

Note Year 1 through 30 to be in todays $

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	246,637	208,650	160,850	156,650	137,650	249,850	141,650	141,650	145,850	141,650	141,650	714,550	1,122,550	764,550	714,550
Income															
Expenses (Operational)	184,158	77,825	80,425	78,325	68,825	74,925	70,825	70,825	72,925	70,825	70,825	357,275	357,275	357,275	357,275
Consultancy Expenses			2,100			4,100			2,100			3,150	3,150	3,150	3,150
Administration Expenses		4,325	4,325	4,325	4,325	4,325	4,325	4,325	4,325	4,325	4,325	21,625	21,625	21,625	21,625
Operational and Maintenance		73,500	74,000	74,000	64,500	66,500	66,500	66,500	66,500	66,500	66,500	332,500	332,500	332,500	332,500
Assets (Capex)	62,479	130,000				99,000	124,000					172,000	408,000	105,000	124,000
Comments		Design and install alternative disposal system on face above ponds + Scada at ponds and two main pump stations	Re-valuation			Re-valuation + sludge depth survey + Scada at Camp Ground Pump Station and redo PS			Re-valuation			Replace Flygt Pumps at both main Pump Stations	Renewal of 1600 m of EW pipe installed in 1955	Consent expires 2040	

Activity Sewer

Community Twizel

Note Year 1 through 30 to be in todays $

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	98,876	98,000	142,000	848,000	88,000	105,000	78,000	78,000	84,000	78,000	278,000	396,000	390,000	418,000	390,000
Income															
Expenses (Operational)	49,438	43,000	41,000	44,000	44,000	45,000	39,000	39,000	42,000	39,000	39,000	198,000	195,000	198,000	195,000
Consultancy Expenses	5,377	5,000	3,000	5,000	5,000	6,000			3,000			3,000		3,000	
Administration Expenses	3,911	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	20,000	20,000	20,000	20,000
Operational and Maintenance	40,150	34,000	34,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	175,000	175,000	175,000	175,000
Assets (Capex)		762,000	10,000	10,000								40,000		52,000	
Comments		Consolidate O2 pond discharge & Scada at Pukaki Lookout Toilets	Re-valuation + Scada at Mackenzie Park PS	Scada at Pukaki Airport	Oxidation Pond Upgrade	Re-valuation and sludge depth survey & Scada at ponds			Re-valuation		De-sludge oxidation ponds	Re-valuation		Re-valuation + replace Mackenzie Park Pumps and Control Panel	

10.3 Water Supply Budgets

Activity **Water Supply**

Community **Burkes Pass** **Note Year 1 through 30 to be in todays $**

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	12,926	8,350	21,900	17,200	31,700	19,700	17,200	16,700	16,700	17,200	16,700	16,700	94,500	134,500	102,700
Income	-9,756	-11,549													
Expenses (Operational)	9,757	11,549	8,350	8,600	8,350	8,350	8,600	8,350	8,350	8,600	8,350	8,350	42,250	42,250	42,250
Consultancy Expenses	265	0		250			250			250			500	500	500
Administration Expenses	48	50	50	50	50	50	50	50	50	50	50	50	250	250	250
Operational and Maintenance	7,608	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300	8,300	41,500	41,500	41,500
Assets (Capex)	5,004		5,200		15,000	3,000							10,000	50,000	18,200
Comments			Flow meter, chlorinator and filter, Gas Heater	Re-valuation	SCADA	Solar power	Re-valuation			Re-valuation			Scada upgrade	Consent renewal	Pipe renewal 50mm AC + Scada Replacement

Activity **Water Supply**

Community **Fairlie** **Note Year 1 through 30 to be in todays $**

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	188,255	275,000	281,400	2,575,000	313,000	283,400	277,000	307,000	188,400	182,000	182,000	952,800	916,400	1,023,843	2,032,155
Income	-328,533														
Expenses (Operational)	253,720	77,500	80,700	77,500	77,500	81,700	78,500	78,500	81,700	78,500	78,500	398,900	395,700	398,900	395,700
Consultancy Expenses	4,000		3,200			3,200			3,200			6,400	3,200	6,400	3,200
Administration Expenses	3,490	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	17,500	17,500	17,500	17,500
Operational and Maintenance	74,378	74,000	74,000	74,000	74,000	75,000	75,000	75,000	75,000	75,000	75,000	375,000	375,000	375,000	375,000
Assets (Capex)	181,200	120,000	120,000	2,420,000	158,000	120,000	120,000	150,000	25,000	25,000	25,000	155,000	125,000	226,043	1,240,755
Comments			Re-valuation	Upgrade to meet DWS including full Scada at all sites	Scada at Nixons Rd PS	Re-valuation			Re-valuation			Scada upgrade, intake & Nixons Rd		Pipe renewal AC 287.4m and GI 313.5m + Scada Renewal	Pipe renewal AC 5065.5m, GI 1.6m, PE 2273.2 and RC 43.3m Consent renewal

Activity **Water Supply**

Community **Tekapo**

Note Year 1 through 30 to be in todays $

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	**37,251**	**141,800**	**174,200**	**160,800**	**167,850**	**182,450**	**142,800**	**150,800**	**155,200**	**176,100**	**157,950**	**832,800**	**934,900**	**841,800**	**791,700**
Income	-241,108														
Expenses (Operational)	154,491	70,900	73,100	71,400	71,400	73,600	71,400	71,400	73,600	71,400	71,400	361,400	359,200	361,400	359,200
Consultancy Expenses	3,226		2,200			2,200			2,200			4,400	2,200	4,400	2,200
Administration Expenses	2,387	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	2,400	12,000	12,000	12,000	12,000
Operational and Maintenance	68,250	68,500	68,500	69,000	69,000	69,000	69,000	69,000	69,000	69,000	69,000	345,000	345,000	345,000	345,000
Assets (Capex)	50,005	0	28,000	18,000	25,050	35,250		8,000	8,000	33,300	15,150	110,000	216,500	441,000	633,300
Comments			Re-valuation + Scada at Reservoir and Lochinver Booster	Scada at Intake	Switch board, Reservoir controls	Data logger an two Radios, chlorine monitor, Turbidity monitor, Alarm system x2, chlorinator, carriage pump, Transceiver, RTU + re-valuation			Re-valuation	Flow meter, screen, control valve	Magflo meter	Rebuild Headworks	Pipe renewal Galv 323.09m and C Iron 438.15m + Resource Consent Renewal + renew Booster pump etc. In Lochinver	Pipe renewal AC 5895m	Intake control renewal +service connection renewals

Activity **Water Supply**

Community **Twizel**

Note Year 1 through 30 to be in todays $

Account Type	Total Operating Budget 2014/15	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
		2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total	2,099,209	889,000	646,600	618,000	651,000	688,600	577,000	560,000	618,600	608,000	608,000	3,060,600	3,061,200	2,000,600	2,001,200
Income	-577,439														
Expenses (Operational)	577,439	194,000	199,300	194,000	194,000	199,300	194,000	194,000	199,300	194,000	194,000	975,300	980,600	975,300	980,600
Consultancy Expenses	5,377		5,300			5,300			5,300			5,300	10,600	5,300	10,600
Administration Expenses	4,071	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	20,000	20,000	20,000	20,000
Operational and Maintenance	180,450	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	190,000	950,000	950,000	950,000	950,000
Assets (Capex)	1,909,311	501,000	248,000	230,000	263,000	290,000	189,000	172,000	220,000	220,000	220,000	1,110,000	1,100,000	50,000	40,000
Comments		Replace liner and cover reservoir +1st yr AC pipe replacement	Re-valuation + Pipe renewal	Pipe renewal	Pipe renewal	Re-valuation pipe renewal	Pipe renewal	Pipe renewal	Re-valuation	Pipe renewal	Pipe renewal	Pipe renewal	Complete AC pipe Replacement		

10.4 Roading

Budget

Activity **District Wide Roading**

Note Year 1 through 30 to be in todays $

Account Type	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11-15	Year 16-20	Year 21-25	Year 26-30
	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2026/30	2031/35	2036/40	2041/45
Grand Total														
Income														
Rates														
NZTA														
Expenses (Operational)														
Sealed Pavement Mtce	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	1,000,000	1,000,000	1,000,000
Unsealed Pavement Mtce	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000	370,000	1,850,000	1,850,000	1,850,000	1,850,000
Routine Drainage Mtce	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	600,000	600,000	600,000	600,000
Drainage Mtce - St Cleaning	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	150,000	150,000	150,000	150,000
Structures Maintenance Bridges	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	650,000	650,000	650,000	650,000
Structures Maintenance Cattlestops	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	75,000	75,000	75,000	75,000
Environmental Mtce	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000	140,000	700,000	700,000	700,000	700,000
Traffic Services Mtce	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	225,000	225,000	225,000	225,000
Minor Events	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	250,000	250,000	250,000	250,000
Street Lighting – Maintenance	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	300,000	300,000	300,000	300,000

Street Lighting – Electricity	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	350,000	350,000	350,000	350,000
Emergency Reinstatement	0	0	0	0	0	0	0	0	0	0	0			
Street Lights - Mtce – NZTA	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	30,000	30,000	30,000	30,000
Street Lights-Elect – NZTA	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	60,000	60,000	60,000	60,000
Drainage Mtce - St Cleaning NZTA	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	125,000	125,000	125,000	125,000
Footpaths	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	175,000	175,000	175,000	175,000
New Year Road Sweep	0	0	0	0	0	0	0	0	0	0				
Assets (Capex)														
Unsealed Road Metalling	650,000	650,000	650,000	650,000	650,000	650,000	650,000	650,000	650,000	650,000	3,250,000	3,250,000	3,250,000	3,250,000
Sealed Road Resurfacing	725,000	725,000	725,000	725,000	725,000	275,000	275,000	275,000	275,000	275,000	1,600,000	2,500,000	2,500,000	2,500,000
Drainage Renewal	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	300,000	300,000	300,000	300,000
Sealed Road Pavement Rehabilitation	0	200,000	400,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	1,000,000	1,000,000	1,000,000	1,000,000
Structures Component replacements-Bridges	20,000	20,000	120,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	100,000	100,000	100,000	100,000
Structures Component replacements-Cattlestops	8,000	8,000	8,000	0	8,000	0	8,000	0	8,000	0	0			
Traffic Services Renewals	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	400,000	400,000	400,000	400,000
Associated Improvements	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Footpaths - Surfacing	20,000	120,000	160,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	500,000	500,000	500,000	500,000
Minor Improvements	50,000	250,000	450,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	1,250,000	1,250,000	1,250,000	1,250,000
Sealing Past Houses	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	50,000	50,000	50,000	50,000