

# Mackenzie District Council



## Infrastructure Strategy - The Next 30 Years

# MACKENZIE DISTRICT COUNCIL

## 30 Year Infrastructure Plan

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## Mackenzie District Council – 30 Year Infrastructure Strategy

## UPDATE REGISTER

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# 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 information is prepare on information contained within the respective Asset Management Plans for these activities and detailed asset data performance and condition recorded in the Asset Registers. Whilst this strategy covers the next 30 years the first 10 years programmes both operational and capital flow into and will be confirmed by the 2015-25 Long Term Plan.

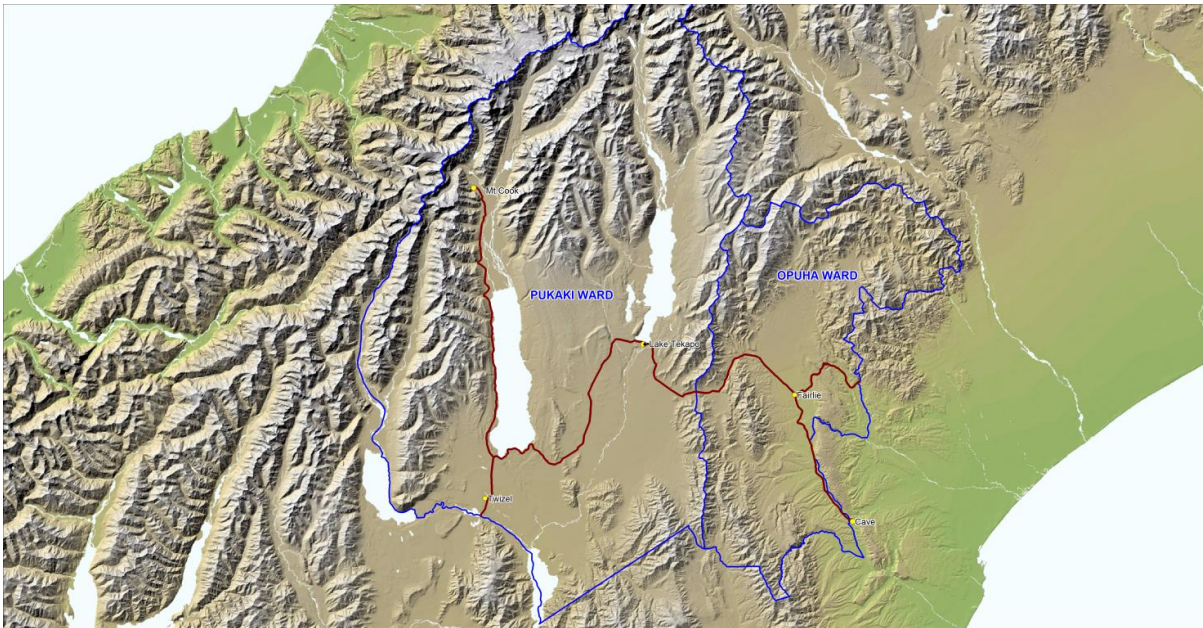
## 1.2 Background

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 predominately high country farming in the Mackenzie Basin, allow this is changing over time as more irrigation becomes available, and more intensive farming and cropping 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 a slight growth in the resident population across the region. That there will be steady growth in Tekapo and Twizel but 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 that 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 practises, 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 <sup>2</sup>	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 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 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. Relineing is essential maintenance but covering is not necessary from an operational position but 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.

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 bought 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 Roothing 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<sup>3</sup>. For the balance of the unsealed network the loss is on average 7mm of the crown, equating to 15,500m<sup>3</sup>.

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<sup>3</sup> 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.

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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 as such 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 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. This council has looked out 30 years for pipeline replacement as we now that the Asbestos Cement pipework is a problem with only a limited life.

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 that expenditure (31 projects) is directed at improving the level of service for the 3 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 exceptions 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 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 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.

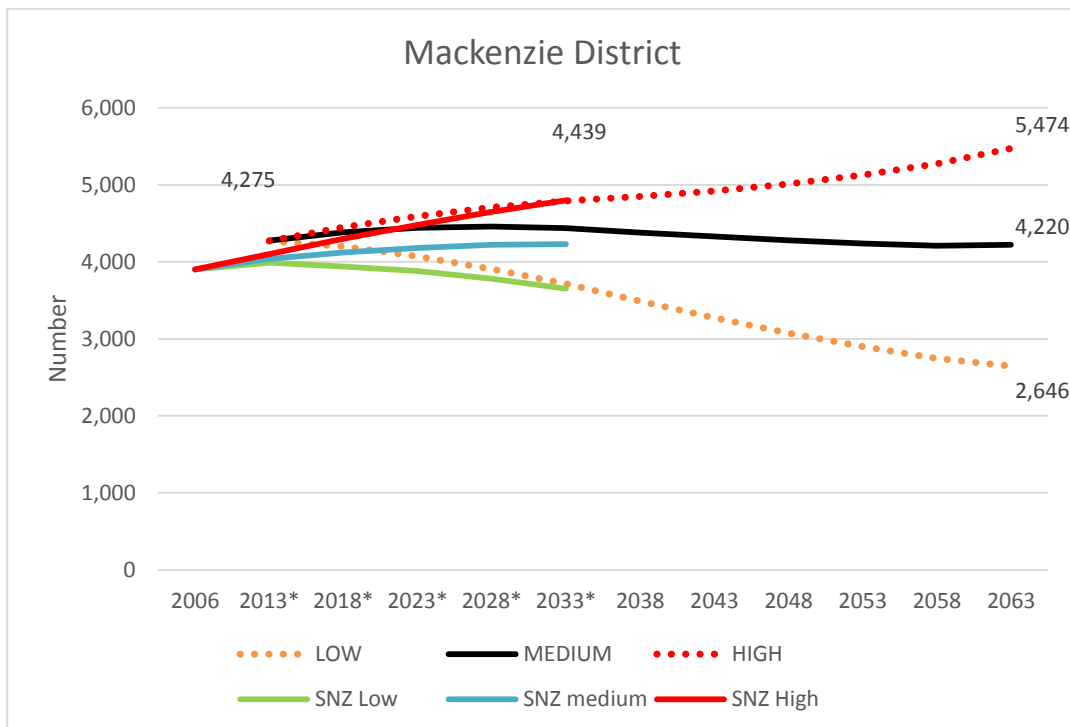
### **3.3.3 Access**

Access is an important part of the public health of a community as it allows for efficient to 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 Roding Classification and thus fund to that lower level of service. This could impact on the communities ability to easily and efficient access those necessary health services.

## **3.4 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.





### 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, long 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 developing new subdivisions to meet that market.

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.

### 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 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 Stn – 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, 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 this properties along with the extra tanker traffic.

### 3.7 Funding

All the budget projections are based on today's dollars (February 2015). The budget information contained is input 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 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.

### 3.7.2 Risk and Uncertainties

#### 3.7.2.1 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 un-certainty around NZTA's "One Network Classification" system and its impacts, no account of this has been considered in the strategy.

#### 3.7.2.2 Three Waters

The strategy 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 no replaced before they completely fail.

#### 3.7.2.3 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 theses 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 that could severely impact on Council's lifelines.

The Council holds \$3,000,000 in cash reserves to insure against natural disasters that effect its infrastructure. It is essential that Council continues to maintain that cash reserve or put in place an insurance regime to replace/complement it if that level of cash reserves are not maintained.

### 3.7.3 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. Whilst this is fine in principle 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**

The foul sewer activity also most replacements are 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. Almost in 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 main effected parties, being 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

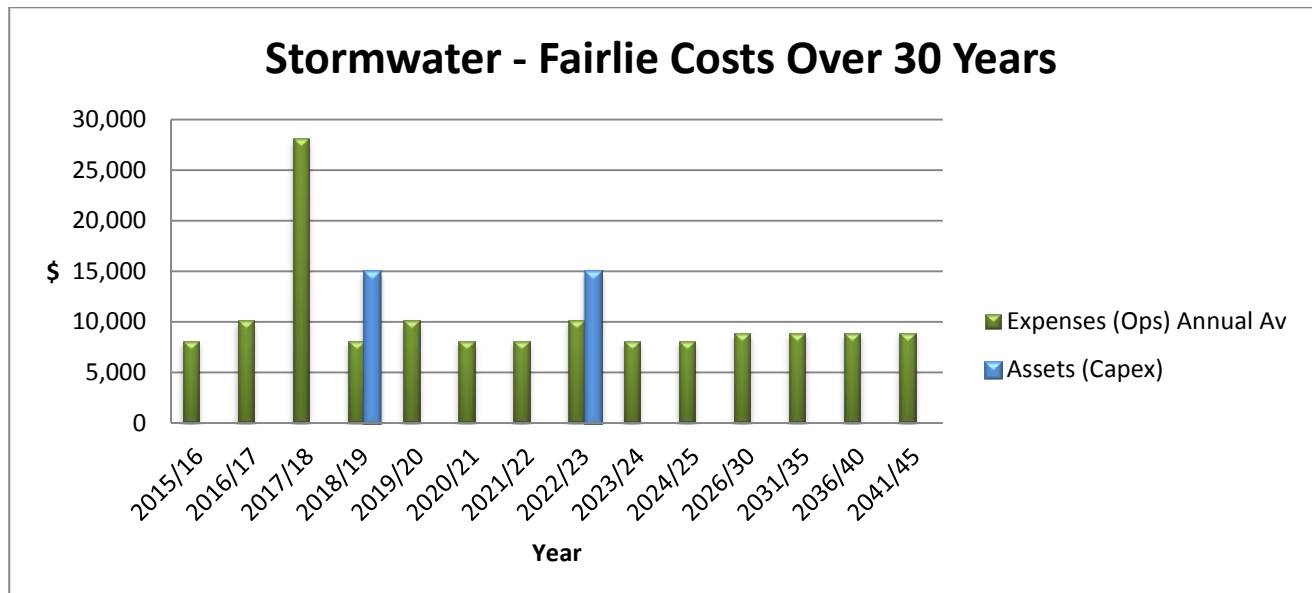
No significant change is expected to the normal operation of this activity, however there will be cyclic maintenance on some treatment facilities.

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 1 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

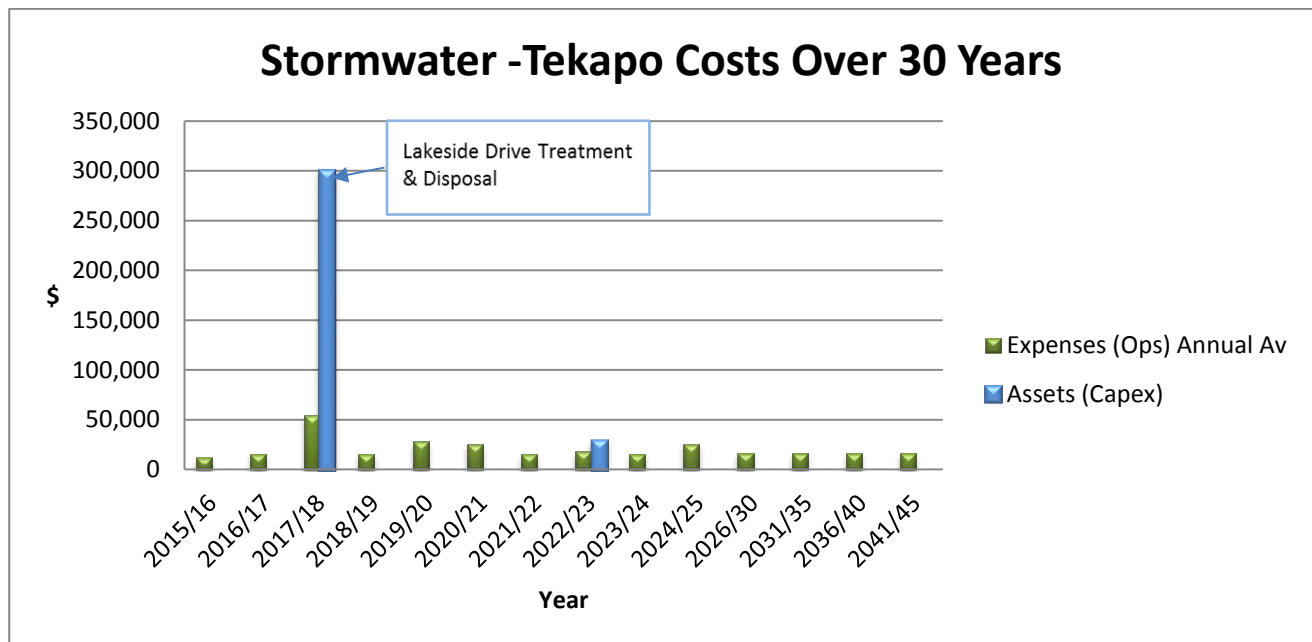
It is likely that this area will need a dedicated stormwater discharge by 2016/17.

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 every five years 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.



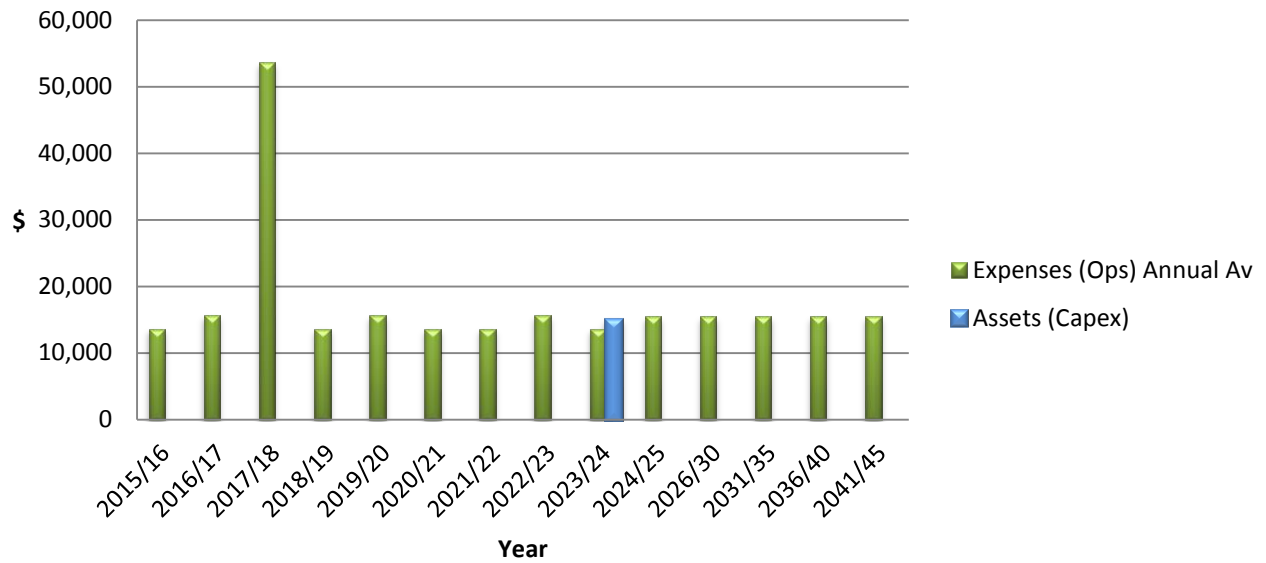
## 4.5 Twizel

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.

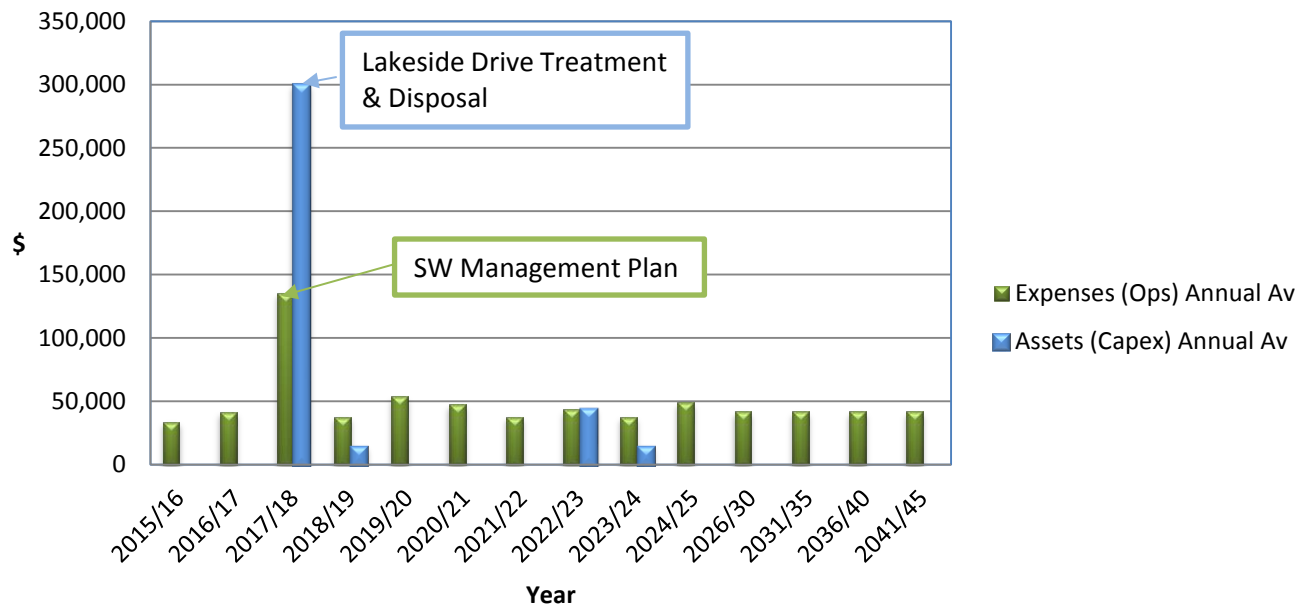
It is suggested that the only site that will require improvements is the discharge from Tekapo Drive, and the likely upgrade would be the installation of a **Humeceptor** on the outfall. **Humeceptor** is a pollution prevention device that efficiently removes hydrocarbons and sediment from stormwater.

### Stormwater - Twizel Costs Over 30 Years



#### 4.6 District Wide Stormwater Costs

### Stormwater - District Wide Costs Over 30 Years



## 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 expected to the normal operation of this activity as the Oxidation Ponds and their discharge was 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 expected to the normal operation of this activity as the Oxidation Ponds and their discharge was 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.

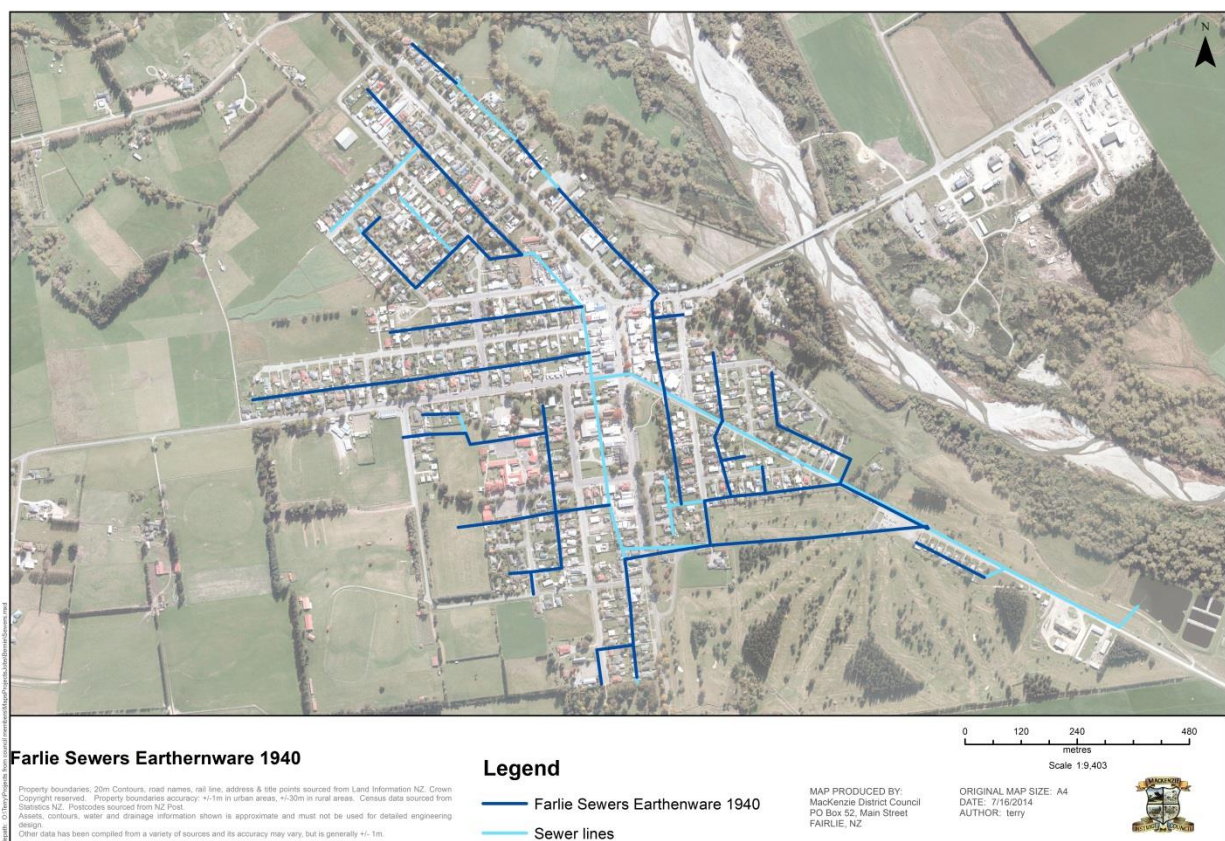
There are 7,100 metres of earthenware pipe in Fairlie. These were originally condition rated in 2000 as 4 and 5. Scale being:



- 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 that 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 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 insitu refurbishment using relining techniques or pipe bursting.



### 5.3.1 Plant and Equipment

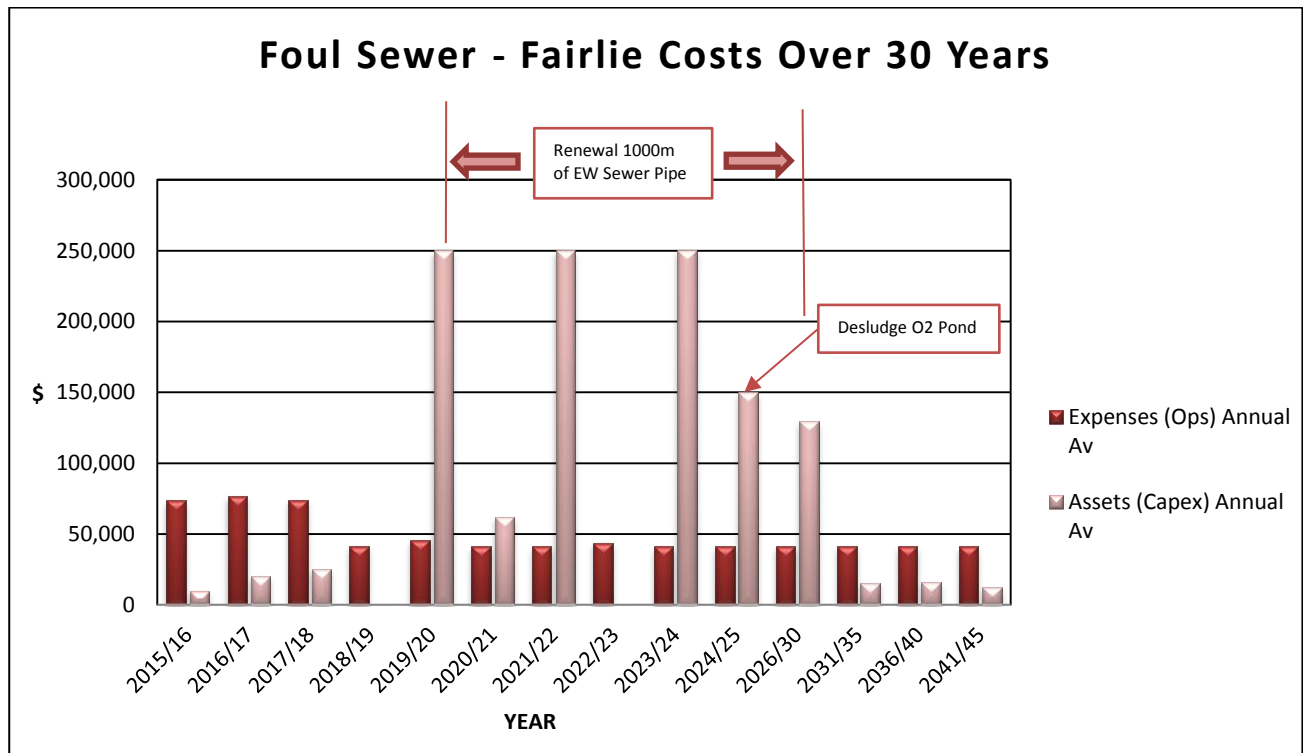
It is highly likely that the aerators that have been in service since 2001 will need replaced within the next ten years. They have had bearings and motors replaced but the other componentry is showing signs of corrosion. \$62,000 has been allowed for their replacement in 2021.

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 be 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 was 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.



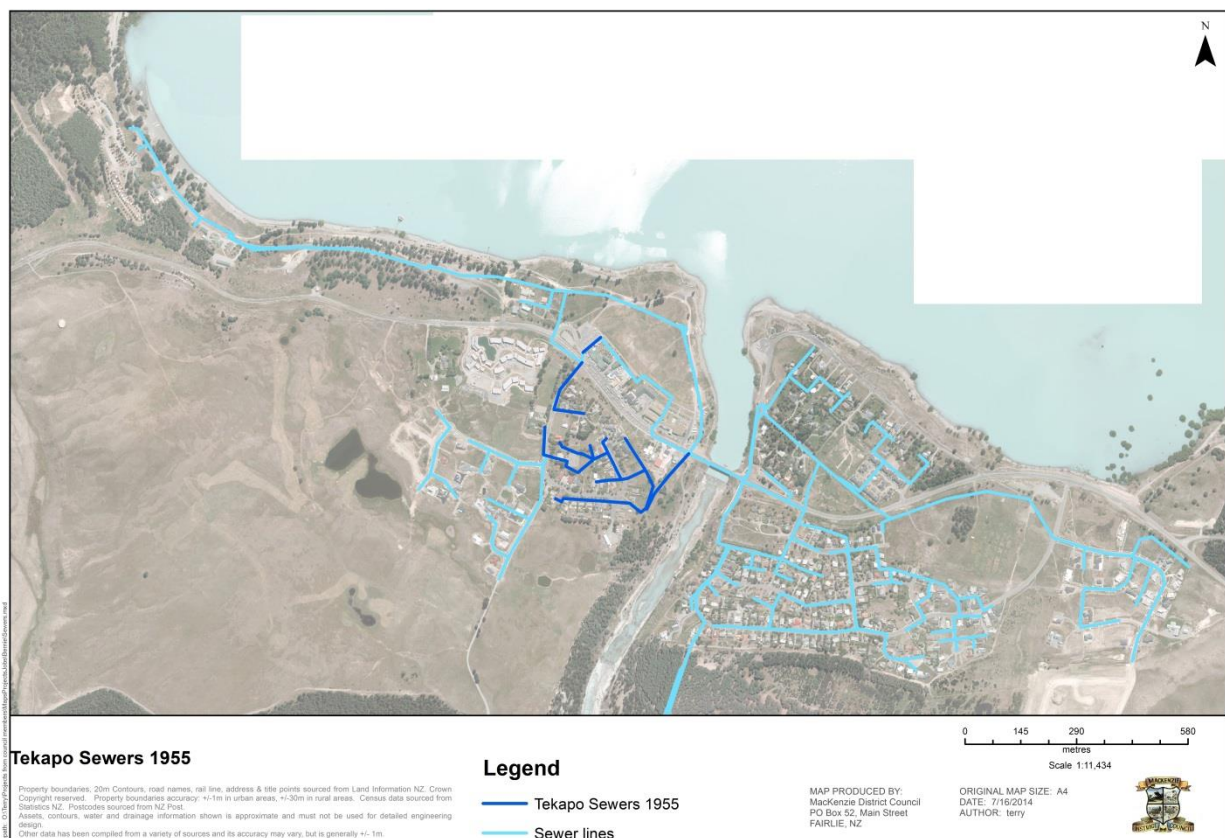
Scale being:

- 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 insitu 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 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.

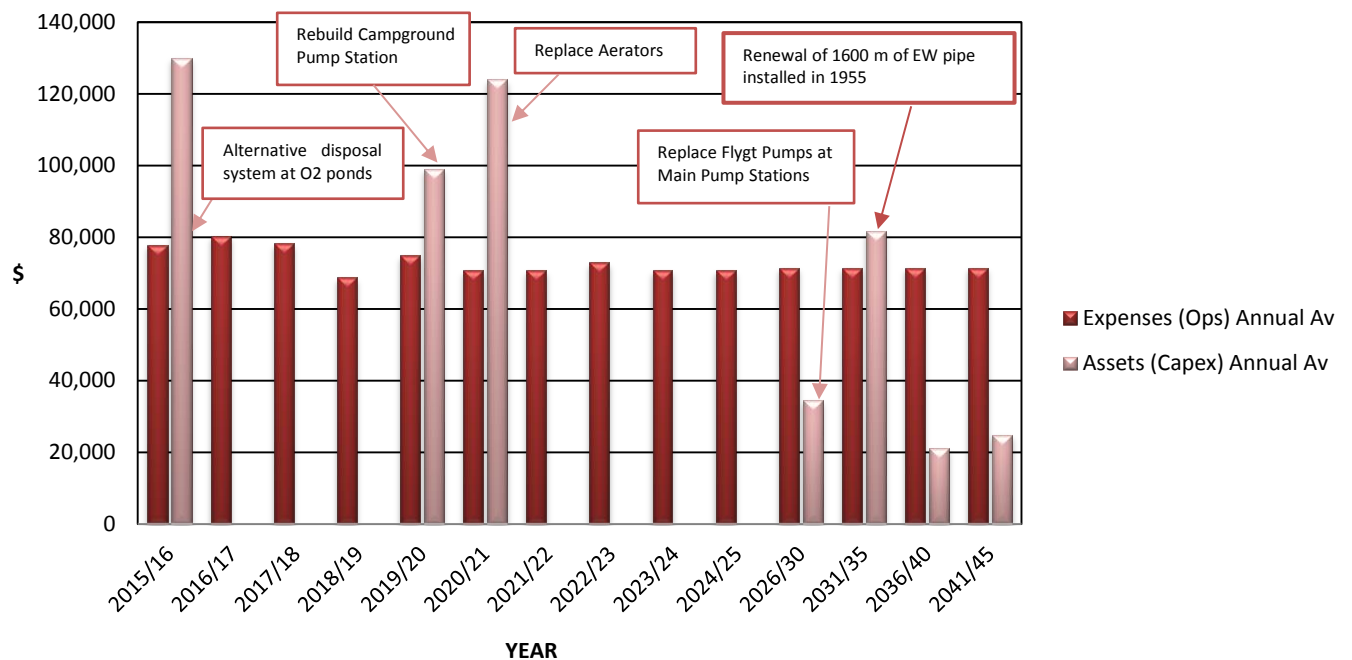
#### **5.4.1 Plant and Equipment**

It is highly likely that the aerators that have been in service since 2001 will need 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.

## Foul Sewer - Tekapo Costs Over 30 Years



### 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.

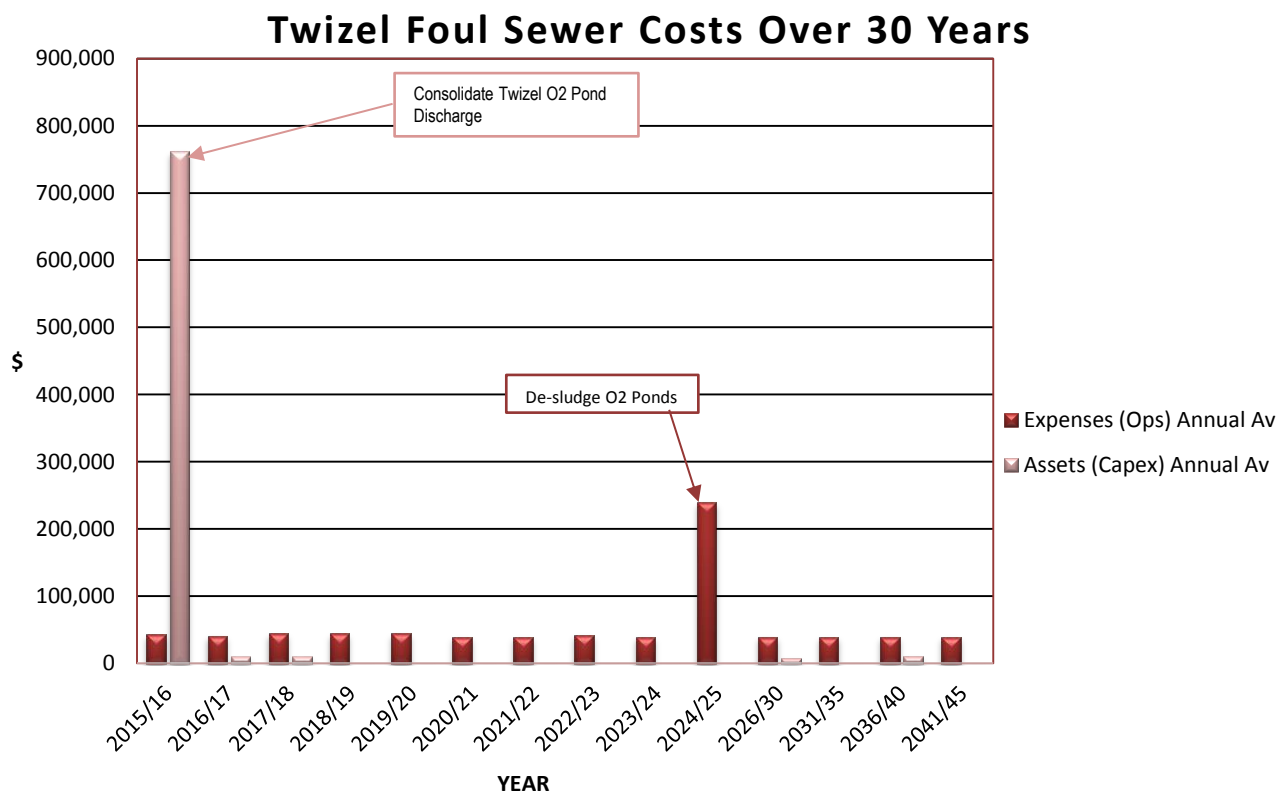
### 5.5.1 Plant and Equipment

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

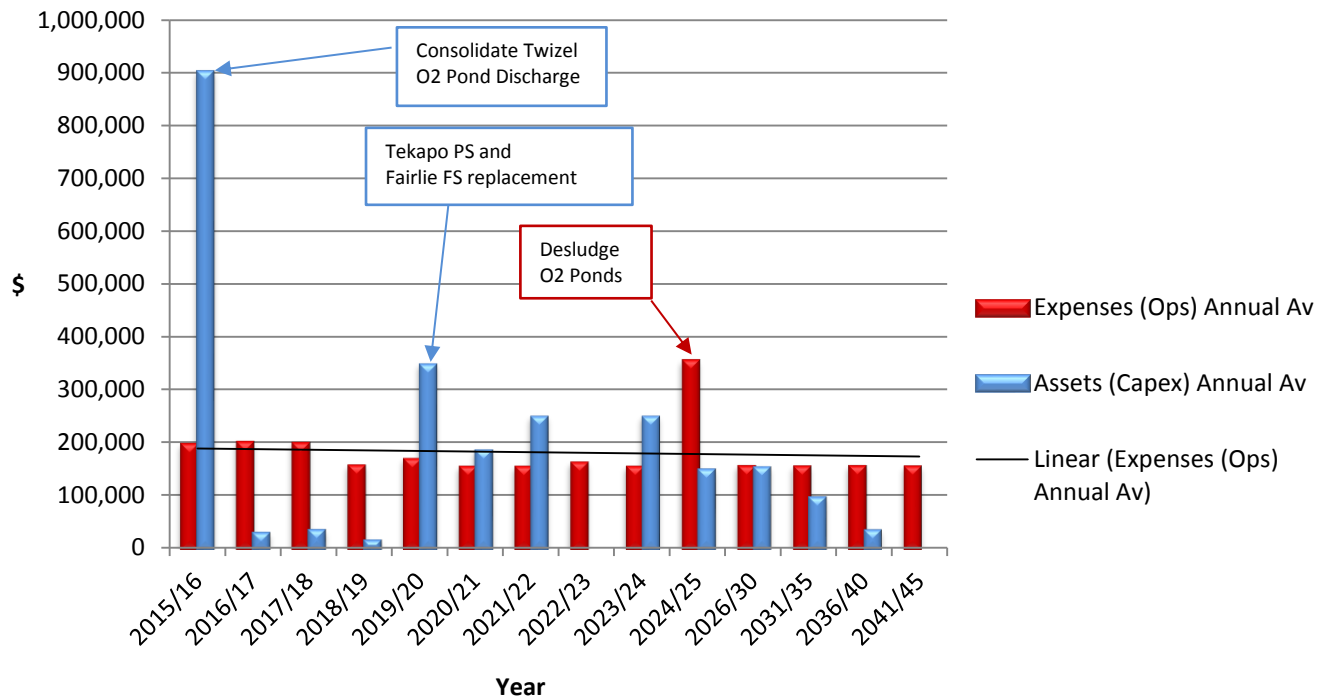
The current rising main from Mackenzie Park pump station is a 100mm diameter pipe connecting to the existing gravity mains in Ostler Road, This is an interim position with the final design having a separate 200mm diameter rising main discharging directly into the oxidation ponds. It is suggested that 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

## District Wide Foul Sewer Costs Over 30 Years



## 6 Water Supply

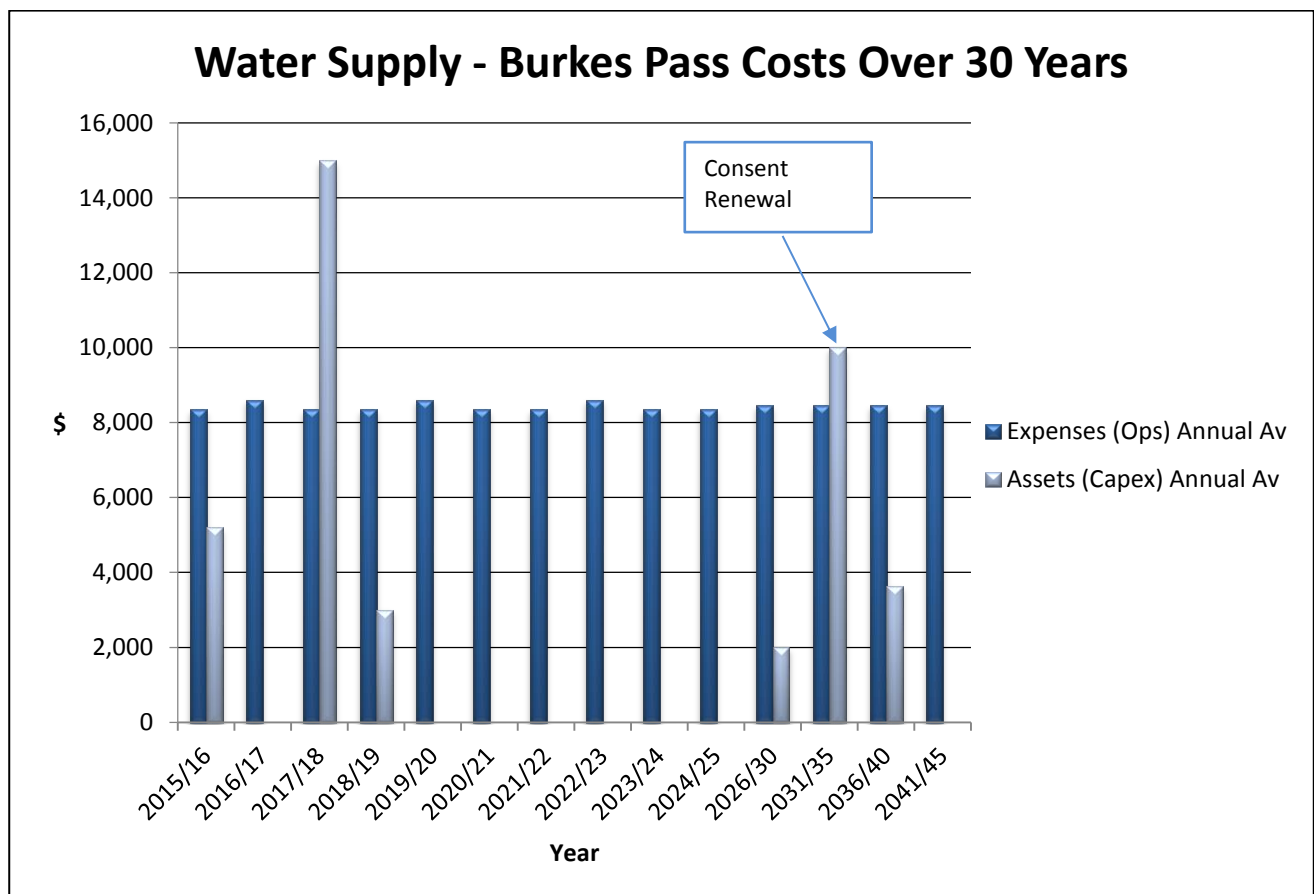
### 6.1 Resource Consents

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 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 spend \$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

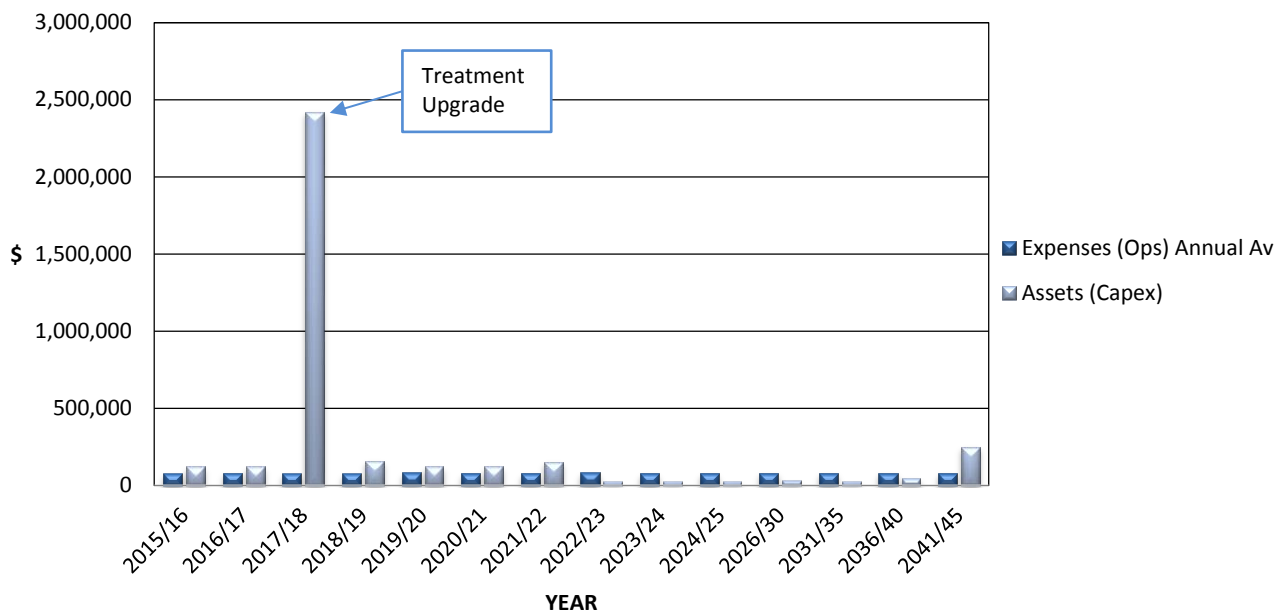
The Nixons Road booster pump station has an upgrade programmed for 2018/19 at a cost of \$10,000. This will install telemetry and new controller (PLC).

### 6.3.4 Plant and Equipment

The current storage is 140m<sup>3</sup> (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.



## Water Supply - Fairlie Costs Over 30 Years



### 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 13<sup>th</sup> August 2033 and \$50,000 has been allowed in 2032

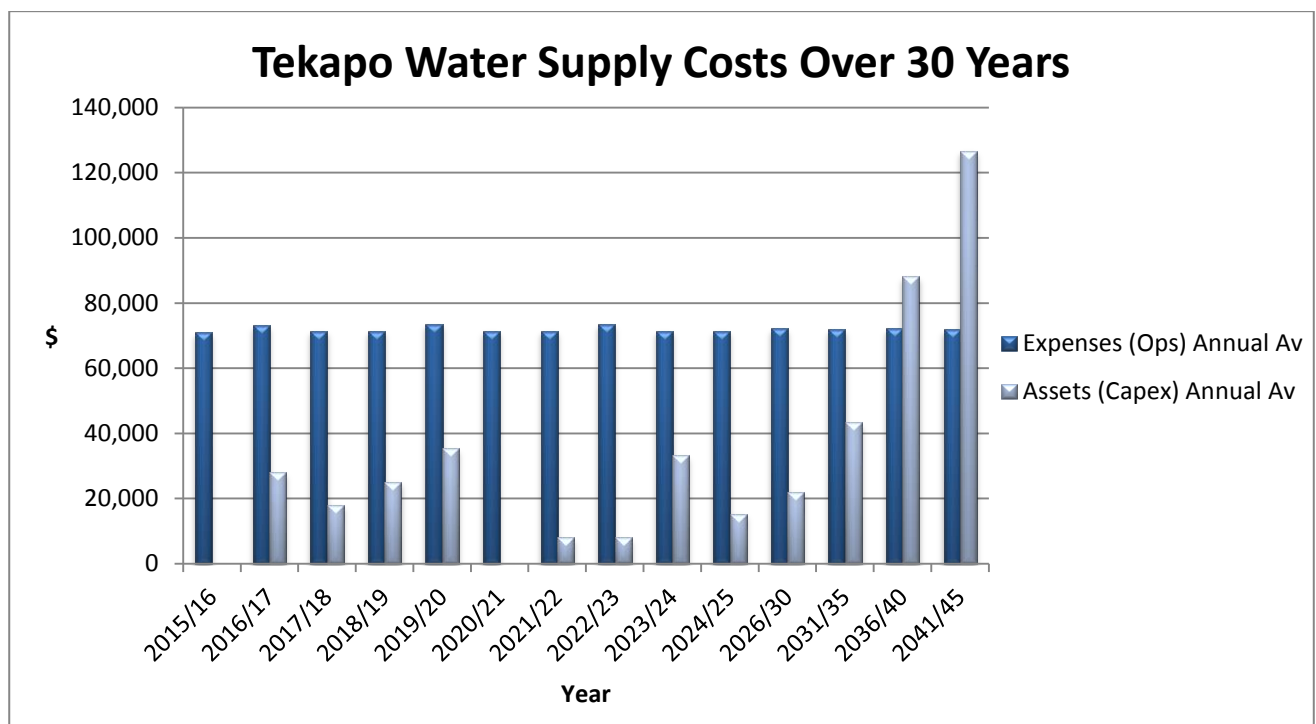
for the preparation and lodgement of that consent. It is anticipated that the consent will be granted with similar conditions as the current consent. Of biggest concern is the 5,895m of AC pipe that will need sampling to confirm the remaining life of the asset. AC pipe in New Zealand has proven to have 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 from 2036 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 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 unquantifiable 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 provide 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 (2.00k 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 from 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” as is often the case to get the most life out of it due to the criticality of these assets both for domestic supply and fire suppression.

It is likely that some pipe may be replaced prior to any observed failure to fit in the four 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 from 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.

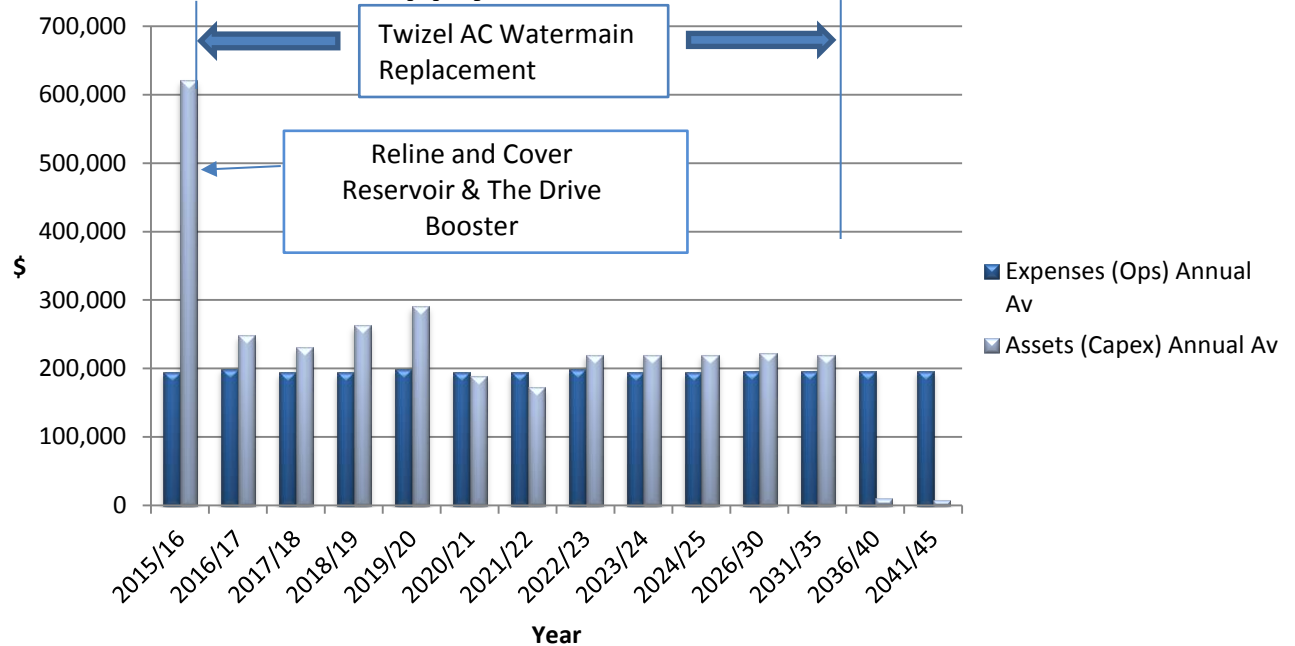
#### 6.5.5 Growth Decision

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 undertaken 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.

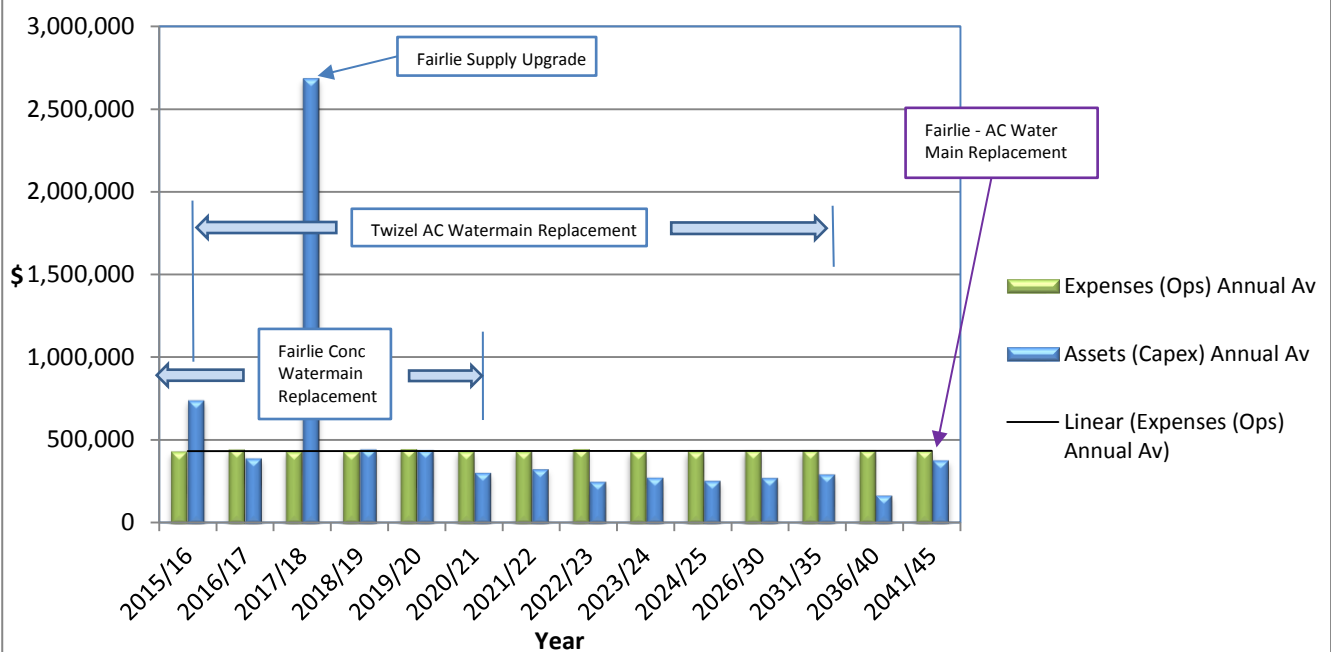


### Water Supply - Twizel Costs Over 30 Years



### 6.6 District Wide Water Supply Costs

### Water Supply - District Wide Costs Over 30 Years



## 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 –Stoneliagh 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- 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 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 -Stoneliagh 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

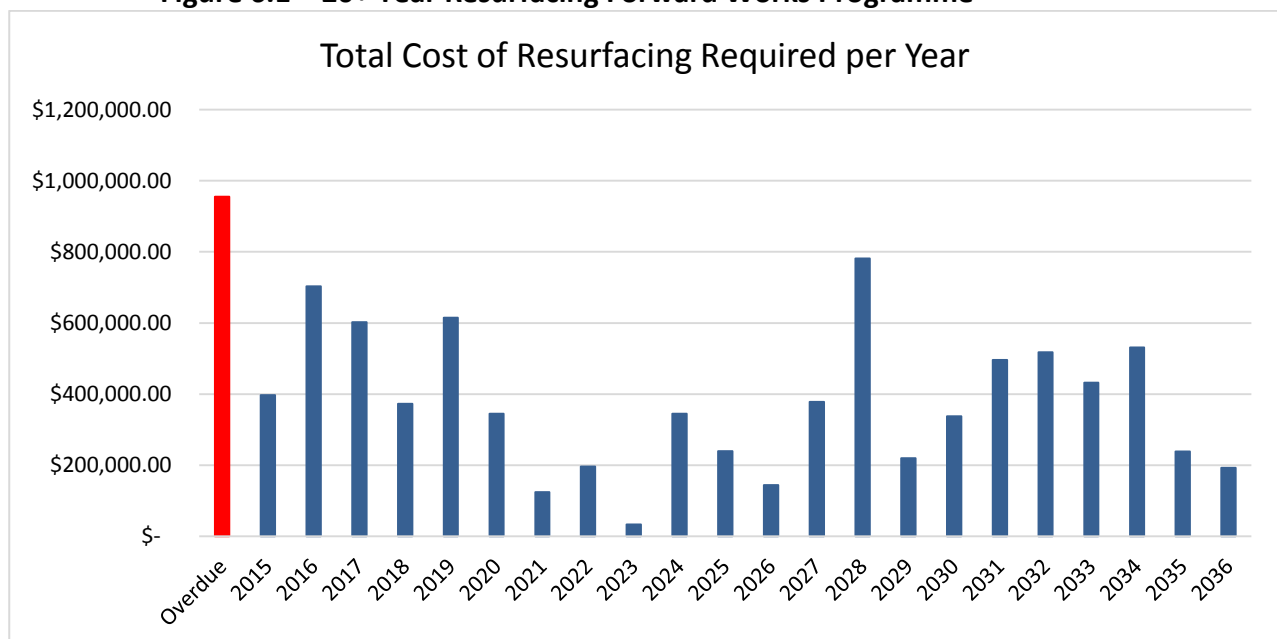


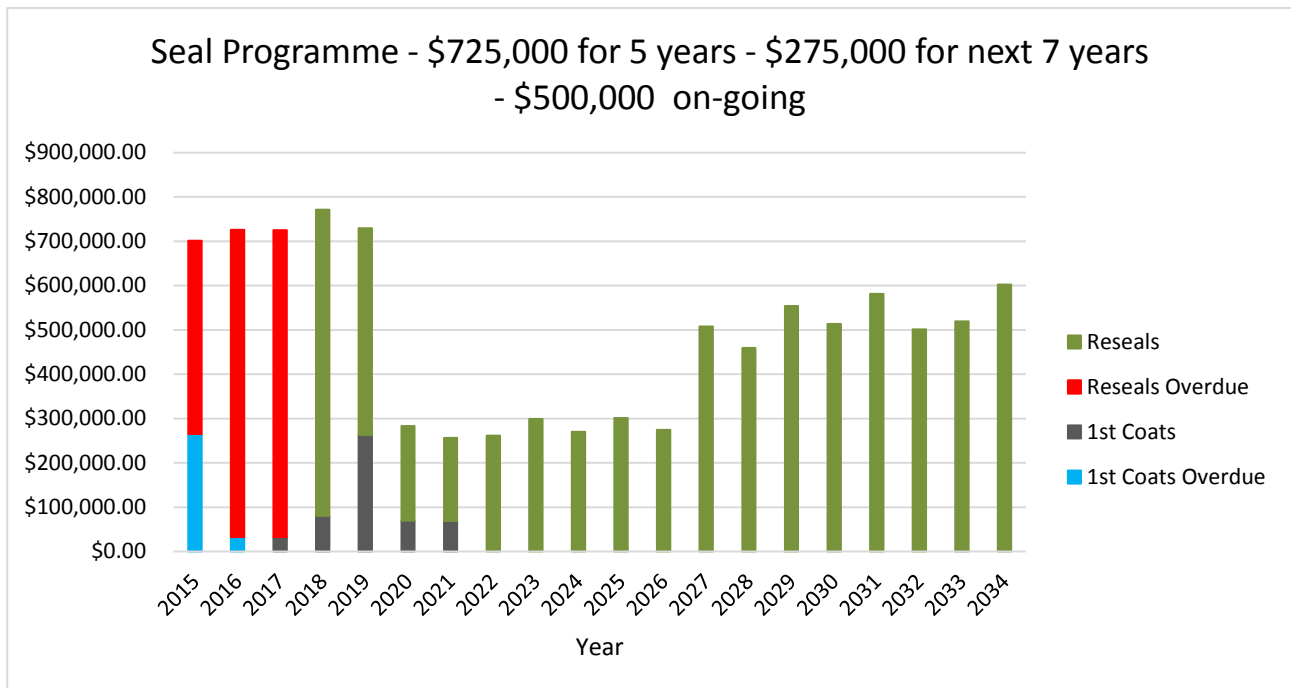
The expected life of a seal is dependent on whether it is a first coat or reseal, what type of seal (e.g. single coat or two coat, large or small grade chip), and the amount of traffic using the section of road. Based on a Councils sealed pavement length a target average annual reseal length of approximately 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 1<sup>st</sup> 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<sup>2</sup> (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 through 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 1<sup>st</sup> coat and reseals coupled with a significant amount of reseals required in 2015/2017. In order to clear the backlog of 154,000m<sup>2</sup> over the next five years MDC will need to seal approximately 115,000m<sup>2</sup> (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 21,000m<sup>3</sup>

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 21,000m<sup>3</sup> 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 generally 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 thus requiring.

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 this 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 closer 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
<b>Allandale</b>				
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
				<b>\$84,000</b>
<b>Ashwick</b>				
Water	Renewal	Consent	R	50,000
				<b>\$50,000</b>
<b>Burkes Pass</b>				
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
				<b>\$146,234</b>
<b>Fairlie</b>				
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



## 30 Year Infrastructure Strategy

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 PI	Water main renewal	R	100,000

## 30 Year Infrastructure Strategy

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
				<b>\$3,733,361</b>

### 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	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	Township	Water main renewal	R	220,000
				<b>\$5,990,000</b>

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 B**

### **10.1 Stormwater Budgets**

# 30 Year Infrastructure Strategy

Activity Community	Stormwater 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,			

# 30 Year Infrastructure Strategy

Activity Community	Stormwater 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			



### 30 Year Infrastructure Strategy

Activity	Stormwater	Note Year 1 through 30 in todays \$													
Community	Twizel														
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 Humeceptor, on-going	Allows for revaluation every 3 years, replace soils in various treatment systems on five yearly cycle			

## 10.2 Foul Sewer Budgets

# 30 Year Infrastructure Strategy

## 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	

# 30 Year Infrastructure Strategy

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

# 30 Year Infrastructure Strategy

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	

# 30 Year Infrastructure Strategy

Activity	Sewer	Note Year 1 through 30 to be in todays \$													
Community	Twizel														
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**

# 30 Year Infrastructure Strategy

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



# 30 Year Infrastructure Strategy

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

# 30 Year Infrastructure Strategy

Activity	Water Supply														
Community	Tekapo														
Account Type	Total Operating Budget 2014/15	Note Year 1 through 30 to be in today's \$													
		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	119,000	73,300
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 462m	Intake control renewal +service connection renewals

# 30 Year Infrastructure Strategy

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 Roding

## Budget

## 30 Year Infrastructure Strategy

### 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
<b>Grand Total</b>														
<b>Income</b>														
Rates														
NZTA														
<b>Expenses (Operational)</b>														
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

### 30 Year Infrastructure Strategy

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				
<b>Assets (Capex)</b>														
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	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
Structures Component replacements- Bridges	20,000	120,000	20,000	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	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	500,000	500,000	500,000	500,000
Minor Improvements	250,000	250,000	250,000	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