



TO THE MAYOR AND COUNCILLORS OF THE MACKENZIE DISTRICT COUNCIL

Membership of the Asset and Services Committee:

Cr James Leslie (Chairman)
Claire Barlow (Mayor)
Cr Noel Jackson
Cr Evan Williams
Cr Russell Armstrong
Cr Murray Cox
Cr Graham Smith

*Notice is given of the Meeting of the Asset and Services
Committee to be held on Thursday, July 24, 2014, following the
completion of the Finance Committee meeting.*

VENUE: Council Chambers, Fairlie.

BUSINESS: As per agenda attached

WAYNE BARNETT
CHIEF EXECUTIVE OFFICER



ASSET AND SERVICES COMMITTEE

Agenda for Thursday, July 24, 2014

APOLOGIES – An apology has been received from Cr Murray Cox.

DECLARATIONS OF INTEREST

MINUTES:

Confirm and adopt as a correct record the minutes of the Asset and Services Committee meeting held on Thursday, June 12, 2014, including those matters taken in public excluded.

SUB COMMITTEE MINUTES:

Receive the minutes of the meeting of the Allandale Water Supply Committee held on July 3, 2014.

REPORTS:

1. Asset Manager's Monthly Report – July, 2014 (attached).
2. Road Safety Coordinator Annual Report (attached).
3. Unbudgeted Expenditure Allandale Water Supply (attached).

PUBLIC EXCLUDED:

Resolve that the public, be excluded from the following part of the proceedings of this meeting namely:

1. Previous minutes of the Asset and Services Committee meeting on June 12, 2014.
2. Contract 1214 Township Maintenance (attached).

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
Previous minutes June 12, 2014.	Commercial sensitivity	48(1)(a)(i)
Contract 1214 Township Maintenance	Enable commercial negotiations	48(1)(a)(i)

This resolution is made in reliance on Section 48(1)(a)(i) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by Section 6 or Section 7 of that Act, which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public are as follows: *Previous minutes of the Asset and Services Committee June 12 under section 7(2)(b)(ii), and Contract 1214 Township Maintenance under section 7(2)(i).*

RESOLUTION TO RESUME OPEN MEETING

MACKENZIE DISTRICT COUNCIL

MINUTES OF A MEETING OF THE ASSET AND SERVICES COMMITTEE HELD IN THE COUNCIL CHAMBERS, FAIRLIE, ON THURSDAY, JUNE 12, 2014, AT 2.50PM

PRESENT:

James Leslie (Chairman)
Claire Barlow (Mayor)
Cr Graham Smith
Cr Murray Cox

IN ATTENDANCE:

Wayne Barnett (Chief Executive Officer)
Bernie Haar (Asset Manager)
Suzy Ratahi (Roading Manager)
Geoff Horler (Water Manager)
Arlene Goss (Committee Clerk)

APOLOGIES:

An apology was received from Cr Evan Williams and Cr Noel Jackson.

DECLARATIONS OF INTEREST:

There were no declarations of interest.

MINUTES:

Resolved that the minutes of the meeting of the Asset and Services Committee held on April 29, 2014, be confirmed as an accurate record.

Murray Cox/Graham Smith

SUB COMMITTEE MINUTES:

Resolved that the minutes of the following rural water supply meetings be received:

- The meeting of the Ashwick/Opuha Water Race Committee on May 6, 2014.
- The meeting of the Kimbell Water Supply Committee on May 8, 2014.
- The meeting of the School Road Water Race Committee on May 8, 2014.
- The meeting of the Allandale Water Supply Committee on May 8, 2014.

Graham Smith/Murray Cox

REPORTS:

ASSET MANAGERS MONTHLY REPORT – JUNE 2014:

The Asset Manager discussed his report on page 27 of the agenda. The following matters were included in the discussion:

Roading: Roading manager Suzy Ratahi said the recent rain has caused some big pot holes, but the damage is not too bad. Biggest problem to note is farmers

continuing to put their cows out. She will put an article in the Accessible regarding this. It's good to have cows grazing roadsides over summer when they don't cause damage to culverts and drains, but not in winter.

The bridge replacement programme has been delayed due to the Land and Water Regional Plan being repealed. Can't wait any longer or council won't get the construction done in this NZTA funding period. The money needs to be spent.

Bernie Haar said the NZ Army have bought some heavy vehicles for use for training. Axle loadings are nine tonne on the front and ten tonne on the back axle. There is concern regarding the potential damage to Braemar Road that they could cause. We need to understand if structures like bridges can take the load, so we are investigating this.

The chairman congratulated Suzy on decreasing the cost of unsealed road grading. She said she has reduced the frequency of grading on some roads that were graded too frequently. Councillors asked questions regarding work carried out, or planned for, individual roads.

Essential Services: Water Manager Geoff Horler spoke. Wastewater is on budget at this stage. The Fairlie supply is having blow outs. There are still some fragile lines that haven't been replaced. Once you fix one line the others blow because the pressure goes on them.

In Tekapo there is an issue with the bakery water supply going through the motel meter - this will be sorted next week. This issue have been going on a number of years so a separate meter will be installed for each business.

In Twizel samples have been taken of asbestos concrete pipes to gauge the condition of the pipes. One line is in very poor condition. Another sample will be taken to assess the extent of the problem. Cr Smith asked if pipes have blown out in Twizel. No but we shouldn't wait for them to blow out. Chlorine is not affecting their life span. Bernie Haar outlined the need for future planning on pipe replacement.

Geoff Horler described a new radio communication system to keep track of the water systems. Council is collaborating with Timaru District Council on this.

Solid Waste: Bernie Haar has received an annual report from the Paper for Trees programme. He has not yet heard from ESL regarding construction work in Twizel. Waste cartage volume is dropping as it always does at this time of year.

The chairman thanked Bernie Haar and his team for their reports.

Resolved that the report be received.

Graham Smith/Murray Cox

ALBURY DOMAIN RESERVE:

Community facilities manager Garth Nixon said this item is to gain approval for what has been happening for some time. An arrangement was made in 1989 that the Albury School Board grow trees on this reserve land, and they are now requesting permission to replant. He suggests that council gives permission to replant and set it up with a lease. The school is using this income for the community so this is a good outcome.

Resolved:

1. That the report be received.

Graham Smith/Russell Armstrong

2. That Council approve of the ongoing use of the Albury domain land by the Albury School Board for forestry.

Claire Barlow/Graham Smith

3. That a lease be established with the Albury School Board for the forestry and that a lease be established for the balance of the land.

Claire Barlow/Graham Smith

PUBLIC EXCLUDED:

Resolved that the public, be excluded from the following part of the proceedings of this meeting namely:

1. South Canterbury Rooding Collaboration (attached).
2. Twizel Water Upgrade Fee Approval (attached).

General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
South Canterbury Rooding Collaboration	Commercial sensitivity	48(1)(a)(i)
Twizel Water Upgrade Fee Approval	Commercial sensitivity	48(1)(a)(i)

This resolution is made in reliance on Section 48(1)(a)(i) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by Section 6 or Section 7 of that Act, which would be prejudiced by the holding of the whole or the relevant part of the proceedings of the meeting in public are as follows: *South Canterbury Rooding Collaboration and Twizel Water Upgrade Fee Approval under section 7(2)(b)(ii).*

Graham Smith/Claire Barlow

The Asset and Services Committee continued in open meeting.

**THERE BEING NO FURTHER BUSINESS THE
CHAIRMAN DECLARED THE MEETING CLOSED AT 3.45PM**

CHAIRMAN: _____

DATE: _____

MACKENZIE DISTRICT COUNCIL

MINUTES OF A MEETING OF THE ALLANDALE WATER SUPPLY RATEPAYERS COMMITTEE HELD IN THE COUNCIL CHAMBERS, FAIRLIE, ON THURSDAY, JULY 3, 2014, AT 5.00PM

PRESENT:

Neil Campbell (Chairman)
Tony Harbraken
Stephen Adams
Andrew Johnson
Stephen Whittiker (Minutes Secretary)

IN ATTENDANCE:

Geoff Horler (Utilities Manager)

APOLOGIES:

There were no apologies.

WELCOME:

Neil Campbell welcomed everyone to the meeting.

GENERAL BUSINESS:

Neil Campbell discussed the need for a more comprehensive recording system to govern the scheme. It was suggested we have a form available to be filled out if repairs are done on the scheme, tanks shifted or any alterations done so the information can be used for future reference.

Neil Campbell suggested the need for better communication between consumers when a problem occurs on the scheme (as was the case recently when the treatment plant broke down and we were not allowed to consume the water unless it was boiled). A telephone grapevine, emailing or texting would be a better solution.

The chairman then informed us of a section of pipe approximately 130m in length on his property which is blowing out and has cost the scheme \$10,000 in repairs so far. The problem is being caused by the incorrect density of pipe used when the scheme was upgraded.

The council has received two quotes to replace the 130m of pipe. The first quote is from Whitestone Contracting for \$12,000, the second quote is from Menzie Plumbing for \$16,000. Both quotes include pipe, fittings and installation.

A motions was put and carried.

Resolved that the Allandale Water Supply replaces the 130m of pipe and accepts the quote from Whitestone Contracting for \$12,000.

Tony Harbraken/Stephen Adams

Some discussion was held on the issue of B Units and the need to have a legal document drawn up regarding their issue so we have a record of who holds them, and they are aware of their liabilities under their issue. Neil Campbell referred to the fact that every unit we sell lowers the cost of a unit of water to the whole scheme. We currently have 45 units in B Units.

There are some questions that need to be looked at in the future regarding these B Units. They are:

- How many years are they to be issued for?
- When the issue time is up do we upgrade them to A Units and include a capital contribution of \$3000 per unit, as stated in the current agreement?
- Do we have enough capacity in the scheme when pressure is on to include them as A Units?
- If the scheme is under pressure do we have the right to take back these units at their cost?

THERE BEING NO FURTHER BUSINESS THE CHAIRMAN DECLARED THE MEETING CLOSED AT 6.10PM

CHAIRMAN: _____

DATE: _____

MACKENZIE DISTRICT COUNCIL

REPORT TO: ASSETS AND SERVICES COMMITTEE

FROM: ASSET MANAGER

SUBJECT: ASSET MANAGER'S MONTHLY REPORT

MEETING DATE: 24th July 2014

REF: WAS 1/1

ENDORSED BY: CHIEF EXECUTIVE OFFICER

REASON FOR REPORT

To update the Assets and Services Committee on the progress on various projects and also the normal operation of the department for the past month.

RECOMMENDATION:

1. That the report be received.

BERNIE HAAR
ASSET MANAGER

WAYNE BARNETT
CHIEF EXECUTIVE OFFICER

ASSET MANAGEMENT

PROJECT PROGRESS

Projects - Water Supply Programme

Fairlie

A design has being prepared for the long term turbidity monitoring. Staff has discussed access with the land owner and have a design ready for construction shortly. We will put the pipework in place as soon as the ground conditions are satisfactory.

Twizel- Proposed upgrade to meet DWS

The table below sets out the work progress and decisions required.

Item	Outcome
1) Replacement Twizel Wellfield Pump This is a Goulds, Type 11- CNLC-1	Completed
2) Twizel Water Alkalinity and pH Adjustment The Asbestos Cement water pipe network is deteriorating from the inside with large scale replacement required from about 2020. As part of the water supply improvements it was appropriate to consider whether pH adjustment would extend the life of the AC pipe	Completed
3) Twizel Reservoir Liner Replacement The current liner is showing areas of deterioration. With the reservoir it was necessary to consider the life of the existing liner and what technically would be required to replace it, Is leakage through the embankment from the damaged areas of liner visible? If so, could a temporary repair be made? What is anticipated remaining life of the liner? If liner replacement is to proceed, when would it be programmed?	The report has been completed for the liner replacement and the possible covering of the reservoir. It is attached to this report for information only as the work required will need to be considered as part of the 2015-25 LTP and also by the Twizel Community Board.

<p>4) Twizel water - Bench scale testing of 1um cartridges for turbidity removal</p> <p>As mentioned in the Water Supply Options report, Cartridge filtration is the most economic form of filtration for achieving log credits and has the advantage of not requiring the use of coagulants (with the resulting problem of waste disposal). However, cartridge filtration requires clean source water.</p> <p>Testing of 1um cartridges will be needed to gain information on the life of the cartridges and also whether they will remove sufficient small sized turbidity. A test set-up will be installed in the pump room with the sample taken downstream of the 25 um mesh filter.</p>	<p>Samples for Filtec, and particle sizing, have been taken and sent away for testing.</p> <p>On-line testing to start as soon as possible. Photos of inside building supplied by Geoff. Opus to design and detail set-up. This information to go to Geoff to arrange installation.</p> <p>Opus to prepare testing procedure and record sheets for operating Contractor (Whitestone Contracting Ltd).</p>
<p>5) Twizel water — Possible alteration of Screens (Log credit reduction)</p> <p>The three screens per well have been positioned to correspond with areas giving the highest flow rates. The screens are located at depths 5.2-7.0m, 9.5-11.3m, and 13.7-15.5m. Pump intake was positioned immediately above the lowest screen so that water would flow over the motor casing to effect cooling. Video of the No. 1 well shows maximum blockage of the screens at the lowest screen. Moderate blockage of top screen, least blockage at centre screen. It is not known if screening below 10m would allow sufficient flow to be extracted from the wells. Camera inspection of No. 2 Well to be arranged.</p>	<p>The vacant well was videoed recently but due to the amount of rust and sludge on the well casing the screen will be cleaned by brushing or jetting and then re-videoed.</p> <p>Well casing has been water blasted. Waiting to now to do another CCTV run.</p>
<p>6) Twizel Water PHRMP</p> <p>Will be delayed until better idea of forward programme is known. Approved PHRMP must be in place by 1 July 2014. Therefore must be submitted to DWA no later than mid-May 2014.</p>	<p>The Water Safety Plan for the Twizel water supply has been approved by the Ministry of Health.</p>

<p>7) Twizel - Policy on Fire fighting, Domestic supplies, and (reserves) Irrigation</p> <p><u>Fire fighting</u> Confirm that FW2 (PAS 4509:2008) classification required for Twizel with on-site storage in restricted supply areas (30 m3 tanks with 20 m3 for firefighting). FW3 to be allowed for Twizel CBD area.</p> <p><u>Domestic Supplies</u> Water supply "on-demand" and "restricted supply" areas as shown in MDC Activity Plan (2011) Figure 3.5.6a. Restricted supply-1 unit per property per day (1,820 litres).</p> <p><u>(Reserves) Irrigation</u> Will decision on irrigation supplies be made before modelling undertaken, or will modelling be used to aid decision?</p>	<p>Confirmed.</p> <p>We have supplied Opus with the copy of the plan detailing Council policy showing those areas of "on-demand" and "restricted supply".</p> <p>Flow monitoring has been carried out on the irrigation lines to determine the volumes of water used for irrigation so that this can be allowed for in the design.</p>
<p>8) Twizel Information Reticulation Modelling What has changed since 2009? New connections Updated water records Any changes to the operating of the secondary (booster) pumps Reserve irrigation volumes?</p>	<p>List of new connections and increased demand confirmed. Review of Zones in the District Plan completed to determine the future area to be serviced completed. All this information is being feed into the Hydraulic Model to confirm the future demand and therefore sizing of the pump sets etc. Data Loggers positioned around town in various locations collecting mains pressure data.</p>
<p>9) Twizel Booster Pumps</p>	<p>The existing plant room will have to be measured up and then assessed to see how the new pump set can best fit in the building whilst keeping parts of it operational during the fit out.</p> <p>Completed Design and sourcing of replacement pumps is well under way.</p>
<p>10) Telemetry Review the current Scada systems available on the market to see what can best meet our needs.</p>	<p>Completed. Reviewed both SMS, internet and radio link systems. Radio is clearly the best and of the three packages available, it has been decided to use the "Lester Abbey" system as it best meets our needs and is also used by our neighbours. This provides the opportunity for sharing of technical support, training and collaboration.</p>



Reservoir Liner Replacement

1 Existing Liner

The current 6,800m³ capacity reservoir is currently lined with a Butynol material and has been in operation since the late 1960's/ early 1970's.

The current liner is damaged in several points around the upper level. The material supplier has stated that the liner material is at the end of its life. It therefore needs to be replaced in the near future, when funds allow.

However, based on what can be seen, it is hard to define an exact remaining life of the existing liner. There are no signs of leakage in the vicinity of the damaged area or other parts of the reservoir which suggests that the lower level of the reservoir liner is intact. Therefore provided the water level in the reservoir remains below the level of the damaged part of the liner, no immediate action would be required.

1.1 Risks around replacing the Liner

Due to the existing setup of the water supply at Twizel, the community is at high risk of no water supply in the event of a power outage during the replacement works of the liner. The replacement methodology will have to be carefully assessed as pipework modifications may be necessary and alterations to controls and electronics will also be required.

The risk can be minimised by ensuring that the programme of works takes place when the water demand is at its lowest.

2 Options for new Liner

We received quotes from four lining companies that we have worked with throughout the country; I.S. Dam Lining, Ardex, Aspect Environmental Lining Limited (AEL) and Viking Containment. Each of them has reviewed information about the site and provided recommendations based on their experience.

2.1 Material Options

2.1.1 HDPE

Three out of the four pond lining suppliers we spoke to independently recommended the use of HDPE Geomembrane. This material can withstand extreme UV exposures and varying weather conditions such as high heat levels and below freezing. Therefore HDPE is suitable for the conditions found at Twizel.

Both Viking Containment and AEL have recommended their 1.5mm HDPE Liners with a Bidmin A29 Geotextile liner protective layer underneath to provide a clean surface for the HDPE to bed on.

Twizel Reservoir Liner Replacement

Whilst 1.5mm is not the thinnest and cheapest option that the material comes in, it has a 1.5 times better puncture and tear resistance than the cheaper 1mm. It has been found through experience that the 1.5mm can be installed on reservoirs and ponds on a similar scale to Twizel with minimal risk of tearing or punctures occurring during the construction, whilst remaining economical and providing the longevity required.

I.S. Dam Lining have recommended the use of the 2.0mm HDPE which is used for commercial containment projects and provides an even higher resistance against tearing or puncturing.

For the batter slopes it has been recommended that a protective geotextile is first laid, as the HDPE on its own is considered to have poor resistance to settlement, as the flexibility in the material which allows for easy installation across the pond, means it cannot also be tough enough to resist any settlement. Whilst this is a relining job rather than new construction, meaning there should be little to no settlement, there is a chance of movement/settlement occurring during/after seismic activity and therefore the additional cost of the material installed could provide an element of protection.

The life span of HDPE liners can vary between 20 and 30 years in exposed application such as liners of open ponds.

2.1.2 Butynol

Ardex propose to replace the existing liner with 1.5mm Ardex Butynol.

The product is manufactured for use in the roofing industry however it has also been used as a water storage product, as per the current reservoir.

One advantage Butynol has over HDPE is that no specialist equipment is required to carry out repairs on the Butynol membrane; most repairs can be carried out using Tip Top Products which are available from Transport Wholesale.

2.2 Installation

The basic methodology applied to install the liner is:

- a. Dewatering of the reservoir.
- b. All necessary earth works, including repair of batters, surface drains, and installation of perimeter trenches for the liner anchors.
- c. Existing liner removed
- d. Depth sensor frame to be removed.
- e. Pipework to be extended by 0.5m for HDPE penetration detail (inlet to be confirmed on inspection).
- f. All surfaces to be covered by the membrane must be approved by the liner company Supervisor prior to the installation of the lining.
- g. The surface must be maintained in an acceptable condition, firm and dry, until covered by the geosynthetic membrane.
- h. Fill sandbags for ballast.
- i. Assemble spreader-beam set.
- j. Deploy venting and/or A29 Bidim where required.
- k. Calibrate and test fusion welder.
- l. Load and deploy liner.

Twizel Reservoir Liner Replacement

- m. Fusion-weld liner overlaps and test using standard air pressure test.
- n. Complete any extrusion weld repairs and test using spark-testing system.
- o. Install safety ladders, scour protection and vent flaps (where required).
- p. Start filling up reservoir.
- q. Removal of ballast sandbags once 0.3m depth of water has been refilled.
- r. Complete and sign-off Quality Assurance

2.2.1 Anchorages

To anchor in the liner a 0.5m wide by 0.6m deep trench, set 0.5-1m from the top of the crest, is dug and the liner geomembrane is laid into the trench, which is then backfilled with the material of the crest. Before the geomembrane can be placed in the trench it is important to ensure that on the corner of the trench there are no sharp edges which could tear the liner and prevent a secure anchorage at this point.

2.2.2 Pipe penetrations

To ensure that the liner can be fully sealed around the inlet and outlet the pipes within the reservoir should be approximately 0.5m out from the slope. It would be ideal if the pipework could be fitted with full face flanges which would ensure a positive seal for the liner at this point.

To seal the liner around the pipe, a lining collar is placed around the pipe which has a long 'skirt' which is overlapped and welded to the surrounding geomembrane. At the end of the pipe the collar is held in place by steel rubber bands above the collar and a rubber gasket between the pipe and collar, a sealant is also added at the very tip of the collar to ensure it is water tight. This sealant would be the weakest link for the long term water tightness and would need to be maintained accordingly.

2.2.3 Safety Ladders

Due to the size of the reservoir a minimum of four ladders has been recommended and allowed for by each of the liner suppliers.

2.2.4 Timescales

A minimum 21 day notice period is required to allow the companies to mobilise stock and equipment. During the autumn and winter months the minimum day notice is higher due to this being a busy time for the lining companies.

The lining companies require an element of preparation work to be undertaken before they install the liner, which is listed below under client responsibilities and this can be done during the mobilisation period provided that no significant damage to the existing batters is discovered upon removing the old liner. The site has to be checked and approved by the lining companies Engineer before installation begins.

For the installation of the liner, including time spent on the pipes and anchors the companies recommend 3 to 4 days.

To reduce the time of the reservoir being empty the installation work around the crest for anchorage could be done with water in the reservoir.

Twizel Reservoir Liner Replacement

2.2.5 Client Responsibilities

There is an element of site preparation work that the lining companies expect to be undertaken by the client before they install their liner. Including:

- Dewatering of the reservoir before and during installation of the lining materials.
- All necessary earth works, including repair of batters, surface drains, and installation of perimeter trenches for the liner anchors (approximately 0.5m x 0.5m).
- Existing liner removed from slope batters, pulled onto base to expose the batter slopes. Any surplus sludge on the liner to be removed.
- Depth sensor frame to be removed.

Pipework to be extended by 0.5m for HDPE penetration detail (inlet to be confirmed on inspection).

- Site Acceptance. All surfaces to be covered by the membrane must be approved by the site Supervisor prior to the installation of the lining. Acceptance by Viking of the surface for commencing installations shall not constitute acceptance of subsurface conditions, where the latter could adversely affect the functioning of the liner. The sub-surface conditions will continue to be the responsibility of the purchaser and include, but are not limited to, ground water, and faults and sink holes.

- The surface must be maintained in an acceptable condition, firm and dry (in terms of no sitting water/ponding) until covered by the geosynthetic membrane.

- Lifting equipment (15 tonne excavator recommended) with qualified operator to deploy material rolls for installation duration.

- Removal of ballast sandbags once 0.3m depth of water has been refilled.

2.2.6 Liner Cost

The table below contains the cost for prior preparation and for the companies to provide and install the liners.

Liner Supplier	Material	Supplier Installed Cost	Preparation Cost	Total Cost
Viking Containment	1.5mm HDPE	\$48,620.00	\$18,500	\$67,120.00
I.S. Dam Lining	2.0mm HDPE	\$92,105.00	\$18,500	\$110,605.00
AEL	1.5mm HDPE	\$63,089.20	\$18,500	\$81,589.20
Ardex	1.5mm Butynol	\$61,628.00	\$18,500	\$80,128.00

Maintenance costs are minimal. The requirements for maintenance are a visual inspection on a regular time table say every three years just to ensure the liner is not damaged in anyway.

2.3 Information about the suppliers

2.3.1 Viking

Viking Containment were previously known as Skellerup Containment in New Zealand and have extensive experience in the supply and construction of lining systems for water storage reservoirs. A couple of examples of similar work include Mt Grand Reservoir, Manawahai Water Storage Dam and West Taireri Reservoirs. A more extensive list of the relevant experience can be provided

The warranties they offer are:

20 year material warranty on the HDPE.

5 year Workmanship Warranty for the installation.

2.3.2 AEL

Aspect Environmental Lining Limited (AEL) supplies and installs geosynthetic lining and associated products throughout New Zealand. AEL collectively has over 50 years' experience in liner construction throughout New Zealand, the Pacific Islands, Australia and Asia.

The warranty offered is bound by the manufacturer's warranties, 5 years.

2.3.3 I.S. Dam Lining

I.S. Dam Lining Ltd also have a wealth of experience installing waste water projects, HDPE containment dams, and irrigation and frost protection schemes throughout New Zealand. They are heavily involved in the commercial sector where risk management and timing is paramount.

The warranty offered is 5 years from the date of completion.

2.3.4 Ardex

Dunlop industrial were the first manufacturers in NZ and they used their own company Shelter Engineering to manufacture and install reservoir liners, pillow tanks, Inflatable boat tubes, and various other products. Ardex have owned the company since 2000 and is mainly involved in the manufacture of Tile Adhesives, grouts, finishing compounds and levelling products.

Ardex / Dunlop have been involved in the manufacture and installation of Farm Storage Ponds, Concrete tank liners, Pillow tank installations, effluent pond liners and town supply water reservoirs. We have also done covered reservoirs for fire fighting at Trentham Military Camp, water storage at Waimate, Sutherlands Reservoir at Cave and many others.

3 Options to cover the reservoir

There are several options for covering the reservoir, the three options that would not require penetration of the liner base are:

- Do nothing

Twizel Reservoir Liner Replacement

- Hexa-Cover
- Floating Cover

3.1 Do nothing

The current open reservoir is storing treated water. It is proposed under the new system the water stored in the reservoir is untreated, therefore the change in the use of the reservoir has significantly reduced the risk. As the water will first pass through the treatment plant before supply there is no water quality requirement for this to be covered.

The disadvantage of not covering the pond is that UV light and plants can easily cause damage to the liner, reducing its life span.

3.2 Hexa-Cover

The Hexa-Cover is made up of a series of hexagonal tiles with symmetric ribs on both sides. The ribs makes the floating elements distribute themselves naturally and uniformly on the liquid surface without overlapping. Also they have been designed so that the elements will be level with the surface.

The tiles are delivered in large bags, with the tiles poured onto the water surface where they distribute themselves automatically, and form a closed cover (the tiles interlock by wind pressure).

Due to their design there is no repair work required and no additional operations costs when compared to an uncovered pond.

Whilst the material would not allow operators to walk on them, access to the water is possible anywhere simply by pushing aside the tiles. If any equipment is installed and subsequently removed, the tiles will reorganise, and close the openings. This could pose a H&S issue, therefore strict operating procedures would be required.

3.3 FLEXISHIELD Floating Cover

Unlike the Hexa-Cover this would be a complete cover over the reservoir. This is achieved by installing reinforced Polypropylene panels in a non-tensioned state to the exact profiles of the reservoir basin. The cover is fabricated and installed with specially designed floats and weights in the correct geometry, which cause the horizontal 'planes' or 'plates' of the cover to be under tension in two directions. This tension eliminates slack in the cover, providing necessary stability for safe walking across the surface to clear drainage. At the bottom of the sumps, an automatic submersible pump is placed to discharge rainwater from the cover to wastewater outside the reservoir, keeping all polluted water clear from the water in the reservoir.

Walkways, sampling ports and hatches would be incorporated into the cover to allow regular inspection, and sampling and testing of the water. The aluminium inspection hatches also enable divers to do repair work to the reservoir without having to necessarily empty the basin.

There are two options to tie the FLEXISHIELD floating cover to the perimeter of the reservoir:

Twizel Reservoir Liner Replacement

Option 1. Earthen Anchor Trench for perimeter securement

Option 2. Concrete Ring Beam with stainless steel mechanical anchor system for perimeter securement.

Option 1 does not provide a full dust seal but is only two thirds of the cost of Option 2 and a quicker installation time.

Option 1 takes approximately 2-3 days to install and Option 4 takes 3-4 days, both options require the reservoir to be empty at the time of installation.

3.4 Cost

Cover Type	Approximate Installation Cost
Do Nothing	\$0
Hexa-Cover	\$210,000
FLEXISHIELD Floating Cover with Earthen Anchor Trench	\$179,400
FLEXISHIELD Floating Cover with Concrete Ring Beam	\$288,500

ROADING

Roading

Environmental Maintenance

At the time of writing this report there had been one snowfall event requiring clearance in the new 2014/15 financial year, this was centred around Tekapo and surrounds with the largest depth of around 150mm falling on Braemar Road.

So far the rotten rock trial is working well on Mount Nething Road, with very low dust generation and a hard wearing surface that still has improved braking capacity in the wet.



One Network Road Classification

The first effort at classifying Mackenzie Districts Roads has been completed. With most sitting in the “Local Access Low Volume” classification, but a critical look at the entire network pushed a number of roads into higher classifications due to the function they play in our network.

At this stage we are unsure how the ONRC will reflect on our funding levels. There is a requirement to implement this classification system into our Activity Management Plan for the 2015/18 period, the timeframes delivered by NZTA have provided little opportunity for this to occur. We must have first cut of our funding application into the Regional Land Transport Programme by the 1st of September 2014. NZTA have indicated there will be both Regional and National moderation of the work we have done classifying our roads, but this is not due to occur until December 2014.

National Land Transport Programme – Mackenzie District Council’s Bid to NZTA for Funding

As mentioned above, the first cut of our application is required to be entered into “Transport Investment Online” (NZTA’s funding database) but the 1st of September for inclusion into the Regional Land Transport Programme. Whilst this date is fast approaching it must be remembered that the approved funding levels are unlikely to be realised prior to consultation of our Long Term Plan with our ratepayers. This has been pointed out to NZTA at officer level.

Bridge Replacements

Staff has engaged OPUS International Consultant to obtain the consents, on behalf of Council, as required under the NRRP. OPUS has informed staff that they will be in a position to lodge the consent with Environment Canterbury around the 1st of August 2014. With any luck this means we will be able to go out to the market place with the tender document in the month of September.

Minor Improvements – 2012/15

Depending on the tenders received for the bridge replacements it is likely that there will be between \$250,000 and \$300,000 budget available in this final year of the National Land Transport Plan for Minor Improvement projects on our NZTA approved list. The intention is to negotiate with local contractors that have previously produced quality work and been successful at the tender box in obtaining our similar minor improvement projects.

The following projects are current priorities, and are approved by NZTA.

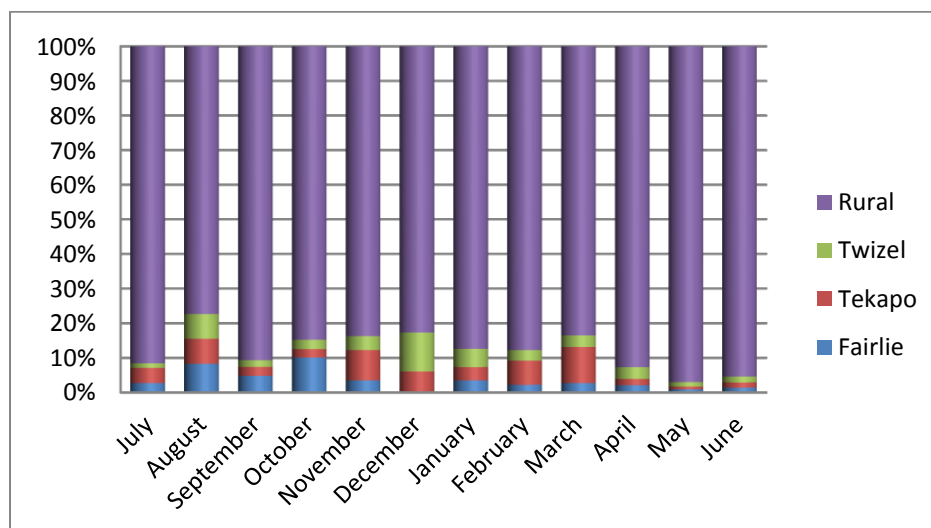
Priority	Project Location and Detail
1	Irishman Drive Maitland Place Intersection Improvements
2	Hamilton Road Traction Seal (Clayton Road Intersection)
2	Talbot Street Fairlie Seal Widen
2	Hooker Crescent Industrial Area Kerb and Channel Stage 1
3	Middle Valley Road Curve Realignment
4	Stoneleigh Road Curve Realignment
5	O’Neil’s Road Traction Seal (State Highway 8)
6	Mount Michael Valley Road Curve Realignment
7	Lilybank Road Curve Realignment

Minor Improvements – 2015/18 Interim List

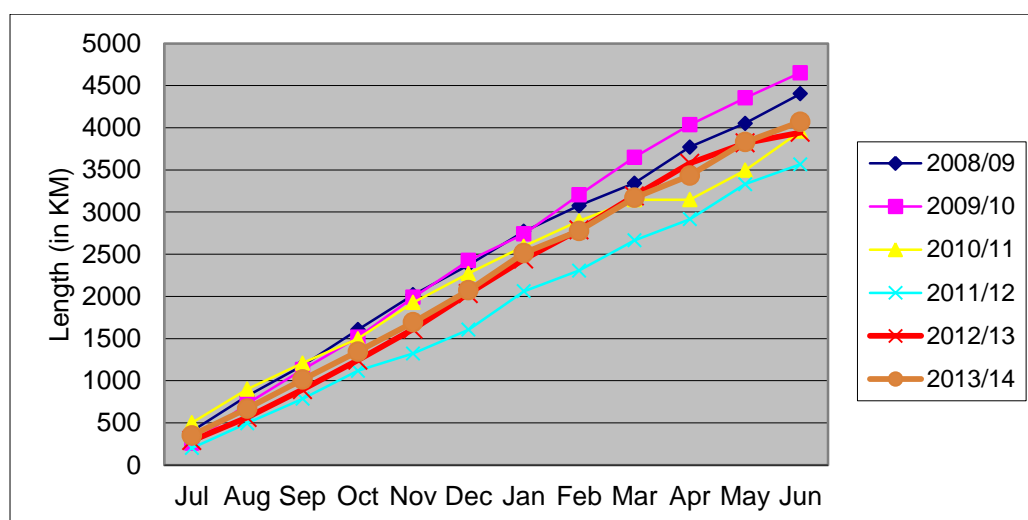
Below is a list developed by staff taking in to consideration the need for an appropriate business case. Usually NZTA fund 5% of total roading programme as Minor Improvement works. In this current NLTP, We were funded at a higher level due to the number of bridge replacements required in our programme.

Location	Project
Cannington Road	Intersection T
Haldon Road	5x Curve realignments
Fraser Rd No 2	Bridge Replacement
Fox Ski Field	Bridge Replacement
Single Hill	Bridge Replacement
Otama Road	Bridge Replacement
Coal Pit Rd No 2	Bridge Replacement
Hayman Road/Mt Cook Station Road	Cyclist Safety
Lakeside Drive	Pedestrian safety through camping ground area
Beauchamp Place	Seal Extension
Tekapo	Lighting Upgrades
Fairlie	Lighting Upgrades
Twizel	Lighting Upgrades
Albury	Lighting Upgrades
Burkes Pass	Lighting Upgrades
Camp Valley Road	1.7km Seal Extension
Mount Michael Valley Road	Traction seal back from SH79
Middle Valley Road	Traction seal back from Gudex Road
Eversley Reserve	Township Sealing
Conners Road	Traction seal back from SH8
Trottes Road	Traction seal back from SH8
Opihi Gorge Road	Traction seal back from SH8
Stoneleigh Road	Traction seal back from SH8
Jack Lovelock Track	Footbridge x2 for active road users
Jack Lovelock Track	Washover ford x 1
North Street	Refurbish/Replace Footbridge

Amalgamated Roding Budgets Graph Showing Percentage Share



Unsealed Road Grading (Cumulative)



ESSENTIAL SERVICES

FAIRLIE

Water:

Operation and Maintenance expenditure YTD is \$59,643 is over budget by \$14,643 for the year. This has been to the number of repairs that have to be carried out over the year. We need to keep up with our replacement programme. Electrical cost YTD is \$2,408 is under budget by \$196 for the year. Consent monitoring is on Budget at \$754.

In the next month the magflow meter will be installed near the Fairlie treatment shed.

Wastewater:

Operations and maintenance expenditure YTD is \$29,358 which is over budget by \$1,650 for the year. This can be attributed to some sewer main blockages and the pump station in the camp ground that had some work done on a pump. Electrical cost YTD is \$2,890 is under

budget for the year by \$854. Consent monitoring YTD is \$1,315 is under budget for the year by \$4,485.

Stormwater:

Operations and maintenance expenditure YTD is \$6,793 is over budget for the year by \$193.

TEKAPO

Water:

Operation and maintenance expenditure YTD is \$77,196 is under budget for the year by \$24,462. Electricity cost for the YTD is \$5,857 is under budget by \$647 for the year. Consent monitoring cost for YTD is \$890 is over budget by \$134 for the year.

The issue with the bakery has now been sort with their meter now coming of the main before the motel meter instead of after as it was.

Wastewater:

Operations and maintenance expenditure YTD is \$40,142 is under budget for the year by \$9854. Electrical cost YTD \$13,728 is under budget by \$7,212 for the year. Consent monitoring YTD is \$800 is under budget by \$4,499.

E-CAN have brought up some concerns in their latest monitoring report with the disposal effluent where we have been getting to close to our boundary and even gone through also some concern as to ponding and that the soil can't take anymore effluent. To prevent further issues it would be wise to look at alternative location for the disposal of effluent.

Stormwater:

Operations and maintenance expenditure YTD is \$6,434 is over budget for the year by \$2,282. Consent monitoring YTD \$140 is under budget for the year by \$1,564.

A survey of Beauchamp Place has been carried out so as to deal with the flooding issue there when it rains heavy. The return of the results of this survey should be with within a week.

TWIZEL

Water:

Operation and maintenance expenditure YTD is \$96,268 is under budget for the year by \$270. Electrical cost YTD is \$72,608 is under budget for the year by \$688. Consent monitoring YTD is \$2,175 is under budget for the year by \$2,325.

All the pipe samples have been collected and sent to Opus for analysis as to the remaining useful life left in them.

The trial of the filter in Twizel pump shed should be installed and under way very soon Whitestone have been charged with setting it all up.

Wastewater:

Operations and maintenance expenditure YTD is \$29,265 is over budget for the year by \$2,265. This has been due to a number of block sewer lines in the last year. Electrical cost YTD \$1,747 is under budget for the year by \$1,373.

Stormwater:

Operations and maintenance expenditure YTD is \$6,208 is under budget by \$41 for the year. Consent monitoring YTD \$140 is under budget for the year by \$760.

Burkes Pass

Water:

Operation and maintenance expenditure YTD is \$5,496 is under budget for the year by \$4. Consent monitoring YTD is \$277 is over budget for the year by \$37.

Wastewater:

Operations and maintenance expenditure YTD is \$1590 is over budget for the year by \$90.
Consent monitoring YTD is \$1590 is under budget for the year by \$431.

SOLID WASTE

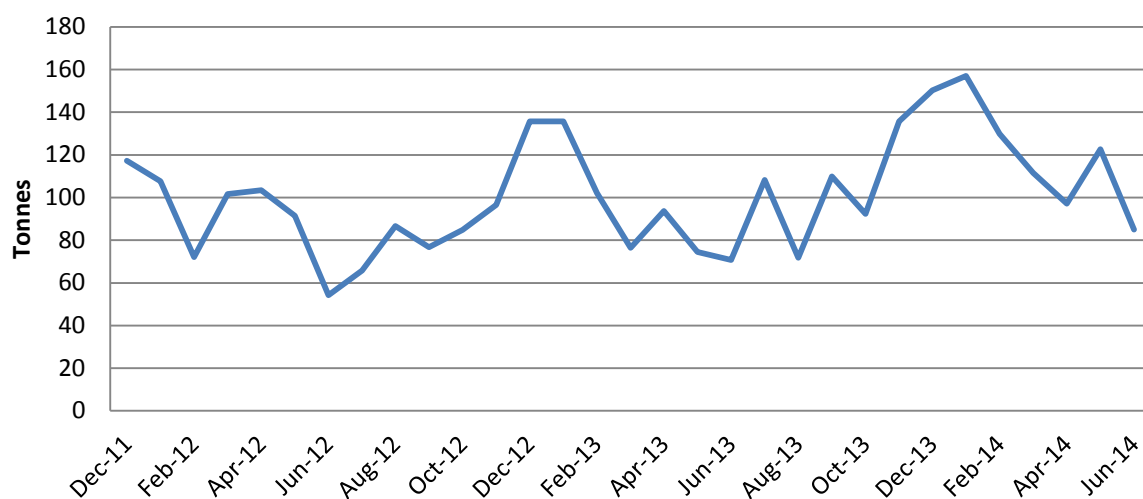
The solid waste contract with Envirowaste Services Ltd continues to run well. We get very few complaints about the service and what we do get are the odd missed bin collection.

ESL have a new contractor coming through the Resource Recovery Parks chipping the green waste and construction demolition material. Andrews Transport were in all three parks with “The Beast” and had a major clean up. In Fairlie the old chipped green waste was put through the plant and has generated some good compost type material that after screening should have a good resale value.

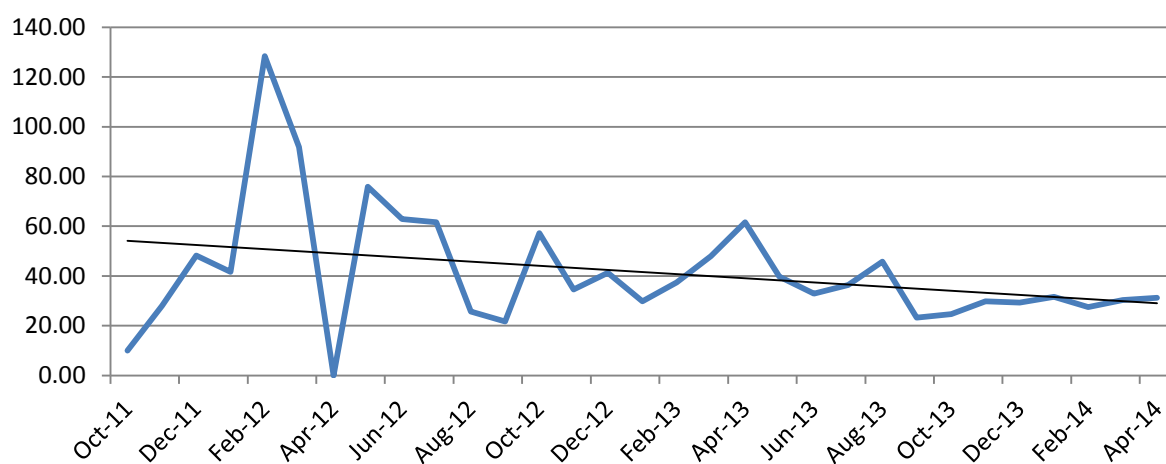
The only problem we continue to have is Flax material and steel being dumped with the green waste. This creates issues for the equipment and will need to be addressed for the future. I suggest that we include this in our education programme.



Waste carted to landfill



Percentage of recycling sent to landfill as residual waste



MACKENZIE DISTRICT COUNCIL

REPORT TO: ASSETS AND SERVICES COMMITTEE

FROM: ASSET MANAGER

SUBJECT: ROAD SAFETY COORDINATOR ANNUAL REPORT

MEETING DATE: 24th July 2014

REF: WAS 1/1

ENDORSED BY: CHIEF EXECUTIVE OFFICER

REASON FOR REPORT

To provide the Assets and Services Committee with an overview on delivery of road safety, crash trends, social costs in the Mackenzie District for the 2013/14 financial year. This report has been prepared by Daniel Naudé, Road Safety Coordinator for South Canterbury.

RECOMMENDATION:

1. That the report be received.

BERNIE HAAR
ASSET MANAGER

WAYNE BARNETT
CHIEF EXECUTIVE OFFICER

Prepared by - Daniel Naudé
Road Safety Coordinator

Road Safety Coordination (File R3/4)

Purpose of Report

To provide an overview on delivery of road safety, crash trends, social costs in the Mackenzie District for the 2013/14 financial year.

Background

There were 5 deaths, 39 serious injuries, and 135 minor injury crashes over the past five financial years at a social cost of over \$59 million (see attachment).

The focus is on reducing serious injury and fatal crashes. Mackenzie District has seen a slight upward trend over the past 23 years for serious injuries and a slight downward trend for fatal injuries.. The South Canterbury Region Road Safety Strategy has the vision of *zero serious injury and fatal crashes*. This is a long term vision that can only be achieved by a safe systems approach.

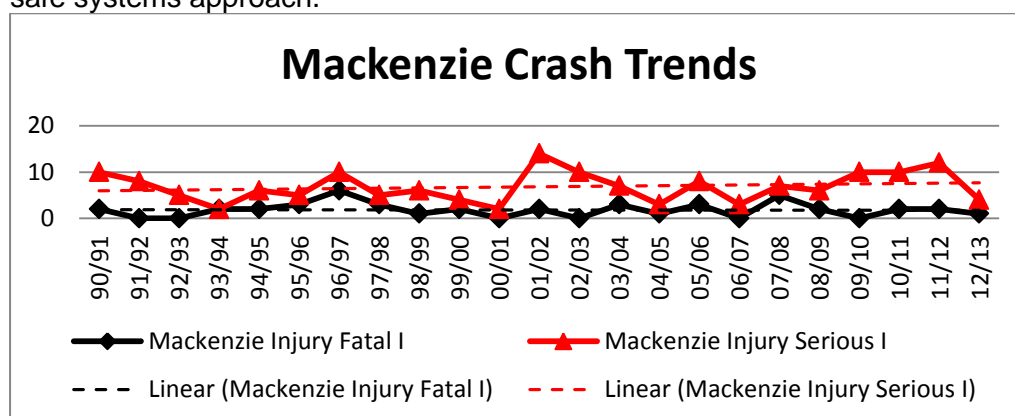


Figure 1: Casualty trends

Row Labels	Fatal	Minor	Non-injury	Serious	Grand Total
15 - Road factors	2	5	8	2	17
BRAEMAR ROAD		2			2
GODLEY PEAKS ROAD		1			1
HAKATARAMEA PASS ROAD				1	1
HALDON ROAD	1	1			2
HAYMAN ROAD			3		3
LILYBANK ROAD			1	1	2
MIDDLE VALLEY ROAD		1			1
TASMAN VALLEY ROAD	1		4		5
Grand Total	2	5	8	2	17

Table 1: Local roads where roads were a factor in crashes

Local Councils play a very important role when it comes to road safety actions. Research in Norway has shown that local personally directed campaigns are far more effective (39%) than mass media alone (0.9%) or mass media and enforcement combined (12.7%).

Road safety programmes run in Mackenzie District 2013/14

1. Young drivers including Learner or restricted drivers
2. Speed
3. Alcohol and drugs
4. Heavy motor vehicles
5. Motorcycles
6. Loss of control and fatigue
7. Intersections

1. Young drivers/Learner or Restricted drivers

The RSC leased a driving simulator which was transported inside a custom made trailer. The simulator was well supported in Fairlie but not in Twizel. This service had been advertised on radio and community newspapers and at the high school.

Rotary clubs from Timaru, Waimate and Mackenzie with SCRS and other partners ran a "RYDA" (Rotary Young Driver Awareness) programme during May at Levels Raceway. All year-12 students from South Canterbury were invited. This is a programme that was developed in Australia and adopted for NZ standards. The programme covered the following:

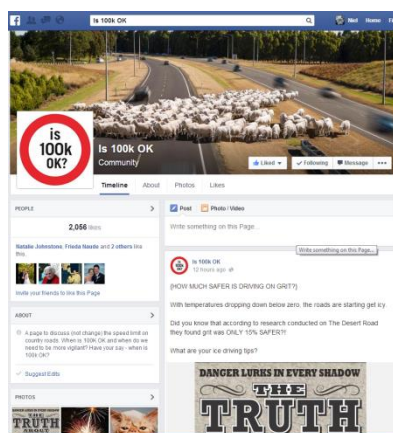
- Crash survivor
- My wheels
- Plan B
- Road Choices
- Hazards, distractions and risks
- Stopping distances



2. Speed

The police and RSC distributed brochures throughout Mackenzie District about the risk of driving too fast. Radio and newspaper advertising were also done during this time. The RSC also joined in a rural Canterbury campaign on Facebook called "Is 100k OK?". People were asked to make comments on their driving experiences on rural roads that are not highways or main arterials.

This site attracted many viewers and a small group made comments which showed immaturity and a lack of understanding the risk.



<https://www.facebook.com/is100kOK>

The speed feedback sign is currently deployed at Burkes Pass. Speed feedback signs are only temporary measures to get drivers to slow down when they enter villages from a 100km/h speed limit. The sign has proved to be effective while it operates, but as soon as

the sign is removed, drivers just revert to their usual behaviour. The long term solution is to engineer the environment to reflect slower speeds.

3. Alcohol and drugs

This campaign was a follow up on a very successful rural drink driving campaign called "Take a safe ride home" with the horse and dog theme. Five pubs in the district participated and were given free bar mats, coasters, posters and signs to put out in their parking areas. This programme was also promoted through radio and newspaper advertising. The message is about making the decision to arrange for a sober driver before you go out drinking.

The participating pubs are:

- Albury Tavern
- Fairlie hotel
- Gladstone Grand hotel
- Lake Tekapo Tavern
- The Top Hut Bar & Bistro Twizel



4. Heavy motor vehicles

The RSC joined in with ACC's Injury Prevention Consultant to promote the Fleet Saver and Fleet Safety programme. The RSC was also in contact with the NZ Road Transport Association about programmes and assistance for their members.

5. Motorcycles

The RSC supported the Mad March Hare event, where 2,000 units of bottled water were given out with information packs on subsidised motor cycle training opportunities. Similar promotions were done over summer but unfortunately the uptake in South Canterbury was very low.



6. Loss of control and fatigue

Crash statistic shows that 80% of all local crashes involve single vehicles. This project was undertaken with other similar projects in the South Canterbury district during July, November, January, March and April.

Free bottles of water labelled with driver fatigue stickers were given out at Makikihi Hotel when the South Canterbury Charity Bike Ride was run in February. Radio advertising was used to support this message.



Ice scrapers, cloths and bookmarks were made available to the community at the Council office, information centres and the police station in early June. The message is about distracted drivers causing crashes.

7. Mature driver classes

David Holmes from Waimate is the facilitator for these classes we offer to all residents in South Canterbury. The classes are also run in Fairlie and Twizel. The RSC combined this as

part of the intersection campaign, because there is a rising trend for older drivers to crash and be at fault. These classes are theory based and give participants a quick run-down on latest road rule changes and methods to overcome physical challenges as drivers get older. People get free morning tea and refreshments and get the opportunity to ask questions and to raise concerns about issues they have experienced on roads.

Meetings attended

Canterbury and West Coast Coordinators meetings
 Child Mortality Review Group
 Civil defence and Emergency Management
 Community meetings
 Police planning
 Regional Road Safety Working Group
 South Canterbury Neighbourhood Support
 South Canterbury Road Safety Liaison Group

Funding

This role and programmes are financially assisted by NZTA (62%) and the other 38% comes from rates. Of the 38% local share, Timaru District Council contributes 60%, Waimate District Council 22% and Mackenzie District Council 18%.

Council should note that the recent FAR review has reduced the financial assistance for road safety coordination to council base rate. The implication of this is that the financial assistance will reduce from 62% to 56% in 2015/16 and continue to reduce by 1% annually thereafter until it reaches 52%. This will require additional local share funding if the current activities are to be maintained.

Combined Crash List Detail report - Run on: 24 Jun 2014

Injury and non-injury crashes

Page 1 of 2

Crash List: Mackenzie crashes 2008 to 2013 FY

Overall Crash Statistics

Crash Severity	Number	%	Social cost (\$m)
Fatal	5	2	21.05
Serious	28	10	24.71
Minor Injury	87	30	7.99
Non-Injury	168	58	5.74
TOTAL	288	100	59.49

Crash Numbers

Year	Fatal	Serious	Minor	Non-Inj
2009	0	8	22	36
2010	1	5	22	36
2011	1	8	22	37
2012	2	5	15	38
2013	1	2	6	21
TOTAL	5	28	87	168
Percent	2	10	30	58

Note: Last 5 years of crashes shown

Overall Casualty Statistics

Injury Severity	Number	% all casualties
Death	5	3
Serious Injury	39	22
Minor Injury	135	75
TOTAL	179	100

Casualty Numbers

Year	Fatal	Serious	Minor
2009	0	9	38
2010	1	8	35
2011	1	12	31
2012	2	6	22
2013	1	4	9
TOTAL	5	39	135
Percent	3	22	75

Note: Last 5 years of casualties shown

Crash Type and Cause Statistics

Crash Type	All crashes	% All crashes
Overtaking Crashes	7	2
Straight Road Lost Control/Head On	94	33
Bend - Lost Control/Head On	143	50
Rear End/Obstruction	24	8
Crossing/Turning	14	5
Pedestrian Crashes	1	0
Miscellaneous Crashes	5	2
TOTAL	288	100

Crash factors (*)

Crash factors (*)	All crashes	% All crashes
Alcohol	21	7
Too fast	48	17
Failed Giveaway/Stop	15	5
Failed Keep Left	4	1
Overtaking	4	1
Incorrect Lane/posn	28	10
Poor handling	173	60
Poor Observation	55	19
Poor judgement	71	25
Fatigue	42	15
Disabled/old/ill	2	1
Vehicle factors	20	7
Road factors	75	26
Weather	18	6
Other	27	9
TOTAL	603	209

Crashes with a:

Driver factor	463	161
Environmental factor	93	32

(*) factors are counted once against a crash - ie two fatigued drivers count as one fatigue crash factor.

Note: Driver/vehicle factors are not available for non-injury crashes for Northland, Auckland, Waikato and Bay of Plenty before 2007. This will influence numbers and percentages.

Note: % represents the % of crashes in which the cause factor appears

Number of parties in crash	All crashes	% All crashes
Single party	229	80
Multiple party	59	20
TOTAL	288	100

Driver and Vehicle Statistics

Note: Driver information is not computerised for non-injury crashes

Drivers at fault or part fault in injury crashes

Age	Male	%	Female	%	Total	%
15-19	4	5	4	13	8	7
20-24	12	14	9	28	21	18
25-29	5	6	5	16	10	9
30-39	12	14	7	22	19	16
40-49	16	19	2	6	18	16
50-59	18	21	3	9	21	18
60-69	11	13	2	6	13	11
70+	6	7	0	0	6	5
TOTAL	84	100	32	100	116	100

Drivers at fault or part fault in injury crashes

Licence	Male	Female	Total	%
Full	56	19	75	63
Leamer	3	2	5	4
Restricted	4	2	6	5
Never licensed	0	1	1	1
Disqualified	0	0	0	0
Overseas	19	9	28	24
Expired	2	0	2	2
Other/Unknown	2	0	2	2
TOTAL	86	33	119	100

Vehicles Involved in Injury crashes

	No. of vehicles	% Injury crashes
SUV	33	28
Bus	1	1
Car/Stn Wagon	68	53
Motor Cycle	10	8
Other	2	2
Moped	1	1
Truck	6	5
Van Or Utility	23	18
TOTAL	144	116

Note: % represents the % of injury crashes in which the vehicle appears

MACKENZIE DISTRICT COUNCIL

REPORT TO: ASSET AND SERVICES COMMITTEE

SUBJECT: UNBUDGETED EXPENDITURE ALLANDALE

MEETING DATE: 24th JULY 2014

REF:

FROM: UTILITIES MANAGER

ENDORSED BY: CHIEF EXECUTIVE OFFICER

Not Public Excluded

PURPOSE OF REPORT:

To approve the expenditure of unbudgeted funds of \$12,000 for the renewal of a water main in the Allandale water scheme that has had several failures in recent months.

STAFF RECOMMENDATIONS:

1. That the report be received.
2. Council approves the unbudgeted expenditure for the work to be carried out.

GEOFF HORLER
UTILITIES MANAGER

WAYNE BARNETT
CHIEF EXECUTIVE OFFICER

ATTACHMENTS:

BACKGROUND:

In 2007 the Allandale water scheme had a major upgrade with the main trunk line and many of the reticulation lines being upgraded. The initial project on the Trunk main was completed by Roger Mahn Contracting and SICON Contracting carried out the upgrade on the reticulation. This work was done at a very reasonable cost to the scheme. Through in the last few months it has been found that some of the quality of the work completed and the pipe purchased for the reticulation upgrade was not up to the standard required. Especially in a section leading up to the Spur Rd pump shed.

There have been several repairs on this 134 metre long section costing a total of \$9,000 with most of the failures occurring the last six months. At a meeting of the Allandale water committee held on 3 July 2014 it was proposed and passed by committee that a quote of \$10,513.50 plus GST by Whitestone Contracting be accepted to replace the 134 metres of PE 110mm water main where the problem is located. This will need to be carried out before the beginning of summer.

POLICY STATUS:

CONSIDERATIONS:

Financial Considerations:

The Allandale scheme has a budget deficit of \$396,670. It is proposed that the cost to fund this work will be added to the current deficit.

CONCLUSION:

I would recommend that the section of pipe, subject to recent failures, be replaced. This makes good economic sense, even though this increases Allandale's debt, as the pipeline is clearly showing signs of pressure stress and it is highly likely to have further failures