Utilities and Roading Committee

Tuesday 19 March 2019

4.00pm

Waimakariri District Council Chambers
215 High Street
Rangiora

Members:
Cr Paul Williams (Chairperson)
Cr Robbie Brine
Deputy Mayor Kevin Felstead
Cr John Meyer
Cr Sandra Stewart
Mayor David Ayers (ex officio)

Agenda
The Chairperson and Members

WAIMAKARIRI DISTRICT COUNCIL

A Meeting of the UTILITIES AND ROADING COMMITTEE will be held in the COUNCIL CHAMBERS, 215 HIGH STREET, RANGIORA on TUESDAY 19 MARCH 2019 to commence at 4.00pm.

Adrienne Smith
Governance Coordinator

Recommendations in reports are not to be construed as Council policy until adopted by the Council

BUSINESS

1 APOLOGIES

2 CONFLICTS OF INTEREST

Conflicts of interest (if any) to be reported for minuting.

3 CONFIRMATION OF MINUTES

3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 11 December 2018

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) Confirms, as a true and correct record, the minutes of a meeting of the Utilities and Roading Committee held on Tuesday 11 December 2018.

4 MATTERS ARISING

5 DEPUTATION
6 REPORTS

6.1 Review of Vehicle Crossing Bylaw 2007 – Gina Maxwell, (Policy Technician) and Joanne McBride (Roading and Transport Manager)

RECOMMENDATION

THAT the Utilities and Roading Committee;

(a) Receives this report No 190225021686

(b) Approves the proposed bylaw for notification

(c) Approves the attached “Statement of Proposal”, Trim 190218018225 as meeting the special consultative procedure, in relation to review of bylaws, under the LGA 2002;

(d) Refers this report to the Oxford - Ohoka, Woodend - Sefton, Rangiora - Ashley and Kaiapoi - Tuahiwi Community Boards for their information;

(e) Notes that the Council’s Hearings Committee will hear submissions on the proposal and recommend decisions to the Council.

(f) Recommends that Councillors ……………, …………… and ………………… from the Hearings Committee be appointed for hearings and deliberations for the Vehicle Crossing Bylaw.

6.2 Walking and Cycling Programme 2018/19 – Dan Lewis (Construction Management Engineer, Project Delivery Unit) and Joanne McBride (Roading and Transport Manager)

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) Receives report No. 181218149963;

(b) Approves construction of the:
   - Kippenberger Ave cycle lanes
   - Lineside Road shared path
   - Ohoka Road cycle lanes.

(c) Notes the estimated cost is $160,000 and funded from the Walking and Cycling Programme Budget

(d) Notes the Ohoka Rd & Kippenberger Ave projects will be undertaken in the current financial year. Lineside Road is dependent on timing of stormwater design.

(e) Notes staff will be undertaking further investigation and network planning to develop a programme for years 2019/20 and 2020/21 which will be reported back to the Utilities and Roading Committee.
6.3 Stockwater Race Bylaw Review 2019 – Owen Davies (Drainage Asset Manager) and Libica Hurley (Technical Administrator)

RECOMMENDATION

THAT the Utilities and Roading Committee recommends:

THAT the Council:

(f) Receives report no. 190219018655

(g) Notes that a review of the Stockwater Race Bylaw 2007 has been undertaken and it has been confirmed that there is a need for a Stockwater Race Bylaw

(h) Notes that minor changes to the Stockwater Race Bylaw 2007 and associated policies, as identified by tracked changes in attachments i, iii, iv & v, have been made for clarity purposes and to update references

(i) Adopts the Waimakariri District Council Stockwater Race Bylaw 2019

(j) Adopts the revised Stockwater Race Closure Policy, Stockwater Race Pond Policy and Planting of Trees and Shrubs alongside Stockwater Races Policy

(k) Circulates this report to the Council’s Community Boards for their information

6.4 Water Conservation Strategy Implementation Summary – 2017/18 – Colin Roxburgh (Water Asset Manager)

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) Receives report No. 190130010451.

(b) Notes the progress on the implementation of the Water Conservation, including the active leak detection and analysis work, Community Awareness Programme, participation in the BRANZ water use study and investigations in water metering as documented in this report.

(c) Approves the inclusion of the Infrastructure Leakage Index (ILI) in the next version of the Activity Management Plans as the primary relative measure of leakage on all schemes rather than the target value of 240 L/connection/day that was previously reported on.

(d) Notes that where an A or B band is calculated using the ILI, no active leak detection work will be undertaken, and when a C or D is achieved an economic assessment will be undertaken to determine the merit in further leak identification and reduction work.

(e) Notes that Council is meeting its mandatory performance measure target of achieving leakage of less than 22% of total water used, achieving an actual assessed leakage value of 21% across the district’s public water supply schemes, noting that the Department of Internal Affairs requires that Council report on this measure.
Notes that the current method of determining leakage using night flows is expected to overestimate leakage on restricted schemes however this is the most accurate method available currently.

Circulates this report to the Community Boards for their information.

6.5  Engineering Code of Practice – Update of Water Supply Drawings – Colin Roxburgh (Water Asset Manager) and Gary Stevenson (Development Manager)

RECOMMENDATION

THAT the Utilities and Roading Committee:

(h) Receives report No. 190227023196.

(i) Adopts the following new ECOP drawings for backflow prevention:

- Plan 600 Sheet 409A Issue B, High Hazard Backflow Preventer
- Plan 600 Sheet 409B Issue B, Medium Hazard Backflow Preventer

(j) Adopts the following revised ECOP drawings for water supply lateral connections and thrust blocks, to replace earlier revisions of these drawings:

- Plan 600 Sheet 346 Issue B, Thrust Blocks
- Plan 600 Sheet 414A Issue D, Urban Water Supply Lateral Connection
- Plan 600 Sheet 414B Issue D, Rural and Rural Residential Water Supply Lateral Connection

(k) Notes that these drawings have been produced in order to formalise current practices and requirements, rather than introducing new requirements.

(l) Notes that the Engineering Code of Practice is currently due for a full review, but individual updates are being undertaken on a case by case basis.

6.6  Engineer Code of Practice – HIRDS Version 4 – Kalley Simpson (3 Waters Manager) and Gary Stevenson (Development Manager)

RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) Receives report No. 190205013519.

(b) Adopts HIRDS Version 4 as the rainfall data to be used for modelling and design purposes in the Engineering Code of Practice.

(c) Adopts the RCP8.5 scenario for climate change to apply to the HIRDS Version 4 rainfall data for inclusion in the Engineering Code of Practice.
Notes that the Engineering Code of Practice is currently due for a full review, but specific updates are being undertaken on a case by case basis.

7 MATTERS REFERRED FROM COMMUNITY BOARDS

8 PORTFOLIO UPDATES

8.1 Roading – Councillor John Meyer
8.2 Drainage and Stockwater – Councillor Sandra Stewart
8.3 Utilities (Water Supplies and Sewer) – Cr Paul Williams
8.4 Solid Waste– Cr Robbie Brine

9 QUESTIONS

10 URGENT GENERAL BUSINESS

11 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

Section 48, Local Government Official Information and Meetings Act 1987

RECOMMENDATION

THAT the public be excluded from the following parts of the proceedings of this meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution, are as follows:

<table>
<thead>
<tr>
<th>Item No</th>
<th>Minutes/Report of:</th>
<th>General subject of each matter to be considered</th>
<th>Reason for passing this resolution in relation to each matter</th>
<th>Ground(s) under section 48(1) for the passing of this resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>Report of Fraser Scales (Snr Project Engineer), Kalley Simpson (3 Waters Mgr), Duncan Roxborough (Implementation Project Mgr – District Regen.), Joanne McBride (Roading and Transport Manager)</td>
<td>Kaiapoi East Enabling Works and Beswick SMA Project Update</td>
<td>Good reason to withhold exists under Section 7</td>
<td>Section 48(1)(a)</td>
</tr>
</tbody>
</table>

This resolution is made in reliance on section 48(1)(a) 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 relevant part of the proceedings of the meeting in public are as follows:
<table>
<thead>
<tr>
<th>Item No</th>
<th>Reason for protection of interests</th>
<th>Ref NZS 9202:2003 Appendix A</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>Protection of privacy of natural persons&lt;br&gt;To carry out commercial activities without prejudice</td>
<td>A2(a)&lt;br&gt;A2(b)ii</td>
</tr>
</tbody>
</table>
PRESENT

Councillor S Stewart (Chairperson), Mayor D Ayers, Deputy Mayor K Felstead, Councillors R Brine, J Meyer and P Williams.

IN ATTENDANCE

Councillors W Doody, D Gordon, K Barnett
Messrs J Palmer, (Chief Executive), G Cleary (Manager Utilities and Roading), K Simpson (3 Waters Manager), O Davies (Drainage Asset Manager), C Roxburgh (Water Asset Manager), Ms J McBride (Roading and Transport Manager), Messrs D Roxborough (Implementation Project Manager – District Regeneration), Kieran Straw (Civil Project Team Leader), L Hurley (Technical Administrator), and A Smith (Governance Coordinator)

1 APOLOGIES

There were no apologies.

2 CONFLICTS OF INTEREST

There were no conflicts of interest recorded.

3 CONFIRMATION OF MINUTES

3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 16 October 2018

Moved Councillor Stewart seconded Councillor Williams

THAT the Utilities and Roading Committee:

(a) Confirms, as a true and correct record, the minutes of a meeting of the Utilities and Roading Committee held on Tuesday 16 October 2018.

CARRIED

4 MATTERS ARISING

There were no matters arising.

5 DEPUTATION
6 REPORTS

6.1 Ocean Outfall 2017 to 2018 Compliance Review – Gavin Hutchison (Wastewater Asset Manager)

Messrs K Simpson and G Hutchison presented this report which provided an update on the operation of the Ocean Outfall for the 2017-2018 reporting year. K Simpson took the opportunity to introduce to the committee Gavin Hutchison who recently commenced employment with the Council in the role of Wastewater Asset Manager. The Chair welcomed Gavin to the Council.

G Hutchison spoke to the report noting the consent compliance of the Ocean Outfall. There was some incorrect gathering of samples and some required testing that had been missed during the year. Increased monitoring is required in future to meet the consent compliance requirements. G Cleary acknowledged these missed samplings were of concern and there have been steps put in place to ensure this doesn’t happen again.

Councillor Williams asked of results from the sea foam sampling is available. K Simpson noted that this will be reported to the February meeting of the committee.

Staff confirmed that there is no concerns with the levels of contaminants recorded.

Moved Councillor Stewart seconded Councillor Meyer

THAT the Utilities and Roading Committee:

(a) Receives report No. 181122137317.

(b) Notes that the Ocean Outfall adhered to consent conditions for the year 2017-2018 apart from a minor non-compliance issued for sampling errors.

(c) Notes that the following measures have been or are being undertaken to ensure all samples are collected and tested as required by the resource consent.

i. The Water Unit have new systems and process mapping in place as part of updating the Standard Operating Procedures to ensure schedule tests are undertaken regardless of staff absences.

ii. The Wastewater Asset Manager shall provide monthly reports to the 3 Waters Manager and Manager Utilities and Roading to show that testing has been undertaken and track compliance with consent conditions.

iii. Testing and monitoring requirements for the Ocean Outfall consent will be included in schedules within the new technology 1 AMIS system implementation that is to be completed in 2019.

(d) Circulates this report to Council for their information.

CARRIED
6.2 **Southbrook Pond C Stormwater Management Area – Vegetation die-off investigations, sediment sources, and catchment management – Sophie Allen (Water Environment Advisor) and Owen Davies (Drainage Asset Manager)**

Messrs K Simpson and O Davies presented this report regarding the stormwater management area Southbrook Pond C, including the vegetation die-off in the deeper areas of Pond C. The vegetation planted in the shallower depths has been successful. There is a trial replanting recommended in a report from WPS OPUS, in 10% of the die-off area. This will be of different varieties of native water plants, to make sure that the same thing doesn’t happen again. The report also recommends allowing the continued spread of the self-established Raupō. The main issue with Pond C is the fine silt/sediment that is washing in but not passing right through. Following discussions on the sources of the visible sediment, three main possible sources were identified. These are:

- From the Southbrook industrial catchment properties
- From drains e.g. (Flaxton Road drain); and
- From soil material used as a liner for Pond C, which was sourced as excavated material from within Pond C, rather than a commercially-supplied clay liner material.

O Davies added that the stormwater ponds are not “off the shelf” devices

Mayor Ayers asked about Raupō, and K Simpson said the key area being looked at is the effect on water levels. K Simpson commented that Raupō in any stormwater management system requires ongoing maintenance.

Moved Councillor Williams seconded Councillor Brine

**THAT** the Utilities and Roading Committee:

(a) **Receives** report this report (180717079505) and the appendix vegetation die-off investigation report from WSP Opus (1809041000528).

(b) **Notes** that WDC staff will continue further investigations into the vegetation die-off and sources of key contaminants, and sediment discharge and catchment engagement for the Southbrook Pond C stormwater retention basin.

(c) **Notes** that a trial replanting of native water plants is planned in an area representing approximately 10% of the vegetation die-off area. The approximate cost of plant purchase and replanting is $2900 (excl. GST). This cost can be accommodated under the current Pond C maintenance budget.

(d) **Notes** that the native bulrush, Raupō, will be allowed to continue self-establishment in Pond C, as a suitable wetland treatment species, although it can be a weedy species in some situations.

(e) **Notes** the non-compliance actions identified in the Compliance Monitoring Report CRC092413 for Southbrook Pond C dated 10th May 2017. WDC staff are working towards a Comprehensive Network Discharge Consent with Environment Canterbury that will supersede the current resource consent CRC092413.

(f) **Notes** the WDC staff are working with Keep Rangiora Beautiful to improve amenity values of the Pond C surroundings.
Circulates this report to Council and the Rangiora-Ashley Community Board.

CARRIED

6.3 Waimakariri Stockwater Race – Closure Policy and Strategy – Owen Davies (Drainage Asset Manager) and Sophie Allen (Water Environment Advisor)

O Davies presented this report to discuss the Stockwater Race – Closure Policy and the review of this alongside the WDC Stockwater Race Bylaw 2007.

Councillor Stewart noted that the feedback is required by 1 February 2019, but the Water Zone Committee doesn’t meet again until after this date. O Davies suggested there could be some flexibility in the date for receiving feedback. It was also noted that this item will be on the agenda for the next meetings of the Oxford-Ohoka Community Board and Rangiora-Ashley Community Board and the Water Race Advisory Board.

Moved Councillor Meyer seconded Councillor Brine

THAT the Utilities and Roading Committee:

(a) Receives report No. 181024124336.
(b) Notes the operative Stockwater Race - Closure Policy (2012), is being reviewed in conjunction with the Stockwater Race Bylaw review, and is expected to be presented for adoption by Council in April 2019.
(c) Notes the revision of the Stockwater Race Closure Policy will include consultation of the Waimakariri Water Zone Committee and Environment Canterbury for stockwater race closures.
(d) Notes the use of existing information regarding aquifer recharge, ecology, and fire-fighting to be considered in race closure applications on a case-by-case basis.
(e) Notes that additional investigations, such as Ecological Impact Assessments, will generally not be undertaken as a requirement for closure application, as the cost for these assessments would likely be a prohibitive cost for the race closure applicant to support.
(f) Notes the intention to retain a policy for closures alone, when the Stockwater Race - Closure Policy (2012) is reviewed. This is because other changes, such as piping and re-alignment of the races, would undergo a Special Consultative Procedure under the Local Government Act (2002) if significant.
(g) Notes the continual investigation by WDC staff for improved management of the utility.
(h) Notes that feedback on the Stockwater Race - Closure Policy is to be provided to Council staff by 1 February 2019.
(i) Circulates this report to the Waimakariri Water Zone Committee, Water Race Advisory Group, Oxford - Ohoka Community Board, and Rangiora - Ashley Community Board.

CARRIED

Councillor Doody would like to see these stock water races preserved and feels they are an important part of the history of the district.
Mayor Ayers noted that the races, being pre 1900, are archaeological sites and the intake is a Heritage 2 site.

Councillor Stewart also noted that the Water Zone committee discussions have discussed that the water races are seen as a piece of infrastructure, but the water races are also seen as a source of fire fighting water, if that should be needed. In this case, it could be that a change of use consent would need to be applied. How a community deals with these extra beneficial uses of stock water races highlights the question should this be rated.

7 MATTERS REFERRED FROM COMMUNITY BOARDS

7.1 Proposed Closure of Stockwater Race R8-1 - Owen Davies (Drainage Asset Manager), Libica Hurley (Technical Administrator)

(refer to report no. 180919108570 to the Oxford-Ohoka Community Board meeting of 3 October which was left to lie on the table at the previous U&R Committee meeting of 16 October. Also refer to Memo no. 181129140271 providing additional information on feedback from the Waimakariri Water Zone Committee and The Water Race Advisory Group)

L Hurley spoke to this report, which recommends the closure of the council owned stockwater race R8-1

Written approval of all those who had used this race previously has been received, and there will be no change to the rates for this. Comments from one of the affected property owners said the main issue was the lack of maintenance on the race and that the flow of this race was erratic and unreliable and other sources of stockwater have been utilised.

Moved Councillor Brine seconded Councillor Stewart

THAT the Utilities and Roading Committee:

(j) Receives report no. 180919108570 and memo no. 181129140271.

(k) Approves the closure of Stockwater Race R8-1.

(l) Notes that, following the closure of R8-1, Council staff will discuss maintenance arrangements and possible filling in of sections of the race with the affected property owners.

(m) Notes that, following approval to close R8-1, the Council may be required to apply for an Archaeological Authority as per requirements of Heritage New Zealand Pouhere Toanga Act 2014, in order to authorise earthworks associated with possible filling in of sections.

CARRIED

7.2 Proposed Closure of Stockwater Race R3Q-5 - Owen Davies (Drainage Asset Manager), Libica Hurley (Technical Administrator)

(refer to report no. 180926111437 to the Rangiora-Ashley Community Board meeting of 13 November. Also refer to Memo no. 181128139708 providing additional information on feedback from the Waimakariri Water Zone Committee and The Water Race Advisory Group)

L Hurley spoke to this report recommending the closure of council owned stockwater race R3-5. L Hurley advised that this race runs on the south side of Dalziels Road and then goes in behind some private property. The portion
of the race recommended for closure is currently dry and this recommendation formalises something that has already happened.

Moved Councillor Stewart seconded Councillor Brine

**THAT** the Utilities and Roading Committee:

(a) **Receives** report no. 180926111437 and memo no. 181128139708

(b) **Approves** the closure of Stockwater Race R3Q-5.

(c) **Notes** that, following the closure of R3Q-5, Council staff will discuss maintenance arrangements and possible filling in of sections of the race with the affected property owners.

(d) **Notes** that, following approval to close R3Q-5, the Council may be required to apply for an Archaeological Authority as per requirements of *Heritage New Zealand Pouhere Toanga Act 2014*, in order to authorise earthworks associated with possible filling in of sections.

CARRIED

Councillor Williams expressed concern with these closures and noted that once they are closed, they can never be reactivated. There may be some times in the future when these races could be used and this would not be possible. In periods of high rainfall, these stock water races do carry water.

Mayor Ayers noted the original purpose of stockwater races is to provide water for stock. It is noted that drainage issues will be addressed before these stockwater races are closed. It was also noted that there are landowners paying rates for these and they are not being used at all.

Councillor Gordon said this matter has been through the due process and considered by the Community Board.

Though supporting the preservation of historical sites in the district, Councillor Barnett noted that these stockwater races are no longer serving their original purpose. The district is changing and the Council has to move with the times.

In response to Councillor Williams concerns, O Davies noted that it has been suggested that staff could gather some information on the cumulative effect on the network of closing of stockwater races.

### 7.3 Gladstone Road Cycleway Update – Kieran Straw (Civil Project Team Leader) and Joanne McBride – (Roading and Transport Manager)

*(refer to report no. 181012119448 to the Woodend-Sefton Community Board meeting of 12 November)*

Kieran Straw presented this report, noting that when this matter had been considered by the Community Board, there was strong support for the path to progress and to be constructed within the $300,000 budget.

Moved Councillor Meyer seconded Councillor Brine

**THAT** the Utilities and Roading Committee:

(a) **Receives** report No. 181012119448

(b) **Supports** the proposal for a 2.3m wide shared path, located on the southern side of Gladstone Road;
(c) **Notes** that the preferred surfacing is a paver-laid asphalt surface on the shared path, however should budget not allow, then the path may remain unsealed with a crusher-dust surface. Section Three of the path through Gladstone Park will be sealed with Asphalt due to the requirements of the Community Greenspace team.

(d) **Notes** that NZTA have made no further announcements regarding the future Woodend Bypass, and that it is unlikely to be constructed for at least ten years.

(e) **Notes** the contract has an estimated tender closing date of 13 February 2019, with construction likely to commence in March 2019.

CARRIED

Councillor Meyer believes this is a positive move and will be good for the community.

Mayor Ayers noted that in some cases, crusher dust paths are good value and having sealing can require resealing in future years.

Councillor Barnett said there has been a long wait for this path and if having it within the budget in crusher dust, is in support of this.

8 **PORTFOLIO UPDATES**

8.1 **Roading – Councillor John Meyer**

Councillor Meyer said contractors are making progress on the western area of Rangiora.

Councillor Meyer noted the potholes that have formed in Feldwick Drive and there is some work involved in repairing these.

Members commented on the issues with traffic management of the road works on the Rangiora-Woodend Road and Mr Cleary will follow this up.

8.2 **Drainage and Stockwater – Councillor Sandra Stewart**

Councillor Stewart noted the interest of the Water Zone Committee on the Closure Policy for Stockwater Races.

8.3 **Utilities (Water Supplies and Sewer) – Cr Paul Williams**

Councillor Williams noted the boiled water notice for Oxford No. 1 has been lifted. The Minister of Local Government had visited on Friday and there had been some discussions on water treatments and water systems.

8.4 **Solid Waste– Cr Robbie Brine**

Councillor Brine noted the resignation of Council staff member Elodie Letendre, Solid Waste Officer.

9 **QUESTIONS**

There were no questions.
10 **URGENT GENERAL BUSINESS**

There was no urgent general business.

11 **MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED**

Section 48, Local Government Official Information and Meetings Act 1987

Moved Councillor Stewart seconded Mayor Ayers

**THAT** the public be excluded from the following parts of the proceedings of this meeting.

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution, are as follows:

<table>
<thead>
<tr>
<th>Item No</th>
<th>Minutes/Report of:</th>
<th>General subject of each matter to be considered</th>
<th>Reason for passing this resolution in relation to each matter</th>
<th>Ground(s) under section 48(1) for the passing of this resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>Minutes of the public excluded portion of a meeting of the Utilities and Roading Committee of 16 October 2018</td>
<td>Confirmation of Minutes</td>
<td>Good reason to withhold exists under Section 7</td>
<td>Section 48(1)(a)</td>
</tr>
</tbody>
</table>

This resolution is made in reliance on section 48(1)(a) 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 relevant part of the proceedings of the meeting in public are as follows:

<table>
<thead>
<tr>
<th>Item No</th>
<th>Reason for protection of interests</th>
<th>Ref NZS 9202:2003 Appendix A</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1</td>
<td>Protection of privacy of natural persons To carry out commercial activities without prejudice</td>
<td>A2(a) A2(b)ii</td>
</tr>
</tbody>
</table>

**CLOSED MEETING**

Resolution to resume in Open Meeting

Moved Councillor Stewart seconded Mayor Ayers

**THAT** the open meeting resumes and the business discussed with the public excluded remains public excluded.

**CARRIED**
OPEN MEETING

There being no further business, the meeting closed at 5.00pm.

CONFIRMED

____________________
Chairperson

____________________
Date
1. SUMMARY

1.1 The purpose of this report is to obtain the Committee's approval to consult the public for the review of the Vehicle Crossing Bylaw 1997, using the attached “Statement of Proposal”.

1.2 This review process incorporates revoking the 2007 bylaw at the time the proposed changes take effect under the Vehicle Crossing Bylaw 2019. In effect this 2019 version becomes the new bylaw and the 2007 version is revoked.

1.3 Throughout this report, the process will be referred to as the review of the bylaw.

1.4 The bylaw is being reviewed at this time because the existing bylaw is out of date, requires a number of minor changes which need to be made, and is also required to be reviewed under The Local Government Act 2002 section 159.

1.5 The process for review is that set out in the Local Government Act 2002, section 86.

Timings:

- 1 April 2019 to 1 May 2019 – Submission Period
- 14 May 2019 – Hearings
- 4 June 2019 – Sent to Council for adoption

Attachments:

i. The proposed draft of the bylaw (Trim 190218018229).
ii. The Statement of Proposal (Trim 190218018225).
iii. Existing bylaw (Trim 070704020912).
iv. Communications Plan (Trim 190225021375).
2. **RECOMMENDATION**

THAT the Roading and Utilities Committee:

a) **Receives** this report No 190225021686

b) **Approves** the proposed bylaw for notification

c) **Approves** the attached "Statement of Proposal", Trim 190218018225 as meeting the special consultative procedure, in relation to review of bylaws, under the LGA 2002;

d) **Refers** this report to the Oxford - Ohoka, Woodend - Sefton, Rangiora - Ashley and Kaiapoi - Tuahiwi Community Boards for their information;

e) **Notes** that the Council's Hearings Committee will hear submissions on the proposal and recommend decisions to the Council.

f) **Recommends** that Councillors X, XX and XXX from the Hearings Committee be appointed for hearings and deliberations for the Vehicle Crossing Bylaw.

3. **BACKGROUND**

3.1 The Waimakariri District Council's Vehicle Crossing Bylaw has been in effect since 1997. This bylaw has not been formally reviewed since 2007 and therefore needs to be reviewed to comply with the legislative requirements and bring it into line with current operating practices.

3.2 The Local Government Act 2002 section 159 states "A local authority must review a bylaw made by it under this Act, the Maritime Transport Act 1994, or the Local Government Act 1974 no later than 10 years after it was last reviewed as required by section 158 or this section."

3.3 Vehicle crossings are an important part of the roading network as they provide legal access from the public road to private properties. As such they need to be constructed to the required standards so they are safe, don't unduly affect the existing infrastructure and are cost effective to maintain. A clear and concise bylaw will greatly help in ensuring these outcomes are achieved.

3.4 The main areas of proposed change, prior to public consultation, between the current bylaw and the draft bylaw are summarised below:
<table>
<thead>
<tr>
<th>Section</th>
<th>Vehicle Crossing Bylaw 2007</th>
<th>Vehicle Crossing Bylaw 2019</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.2</strong></td>
<td>Objectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The objective of the Bylaw is to ensure that vehicle crossings (entranceways) provide safe and convenient access to property:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) allowing for other traffic and pedestrians.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) allowing for good drainage without damaging the roading asset.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) are constructed and maintained in a timely and safe manner to the Council's specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Objectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The objective of the Bylaw is to ensure that vehicle crossings (entranceways) provide safe and convenient access to property:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) allowing for other traffic and pedestrians.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) allowing for good drainage without damaging the roading asset.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) are constructed and maintained in a timely and safe manner to the Council's specifications</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(d) Protect future property owners</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1.3</strong></td>
<td>Footpath means so much of any road as is laid out or constructed by authority of the Council primarily for pedestrians, and includes the edging but excludes the kerbing and channeling</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Footpath means so much of any road as is laid out or constructed by authority of the Council primarily for pedestrians, and includes the edging but excludes the kerb and channel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Correction of wording.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.7</strong></td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any removal or relocation of street trees must be done in accordance with the Street and Reserve Trees Policy 2017.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In discussion with the PIU it was noted that there was no reference to the Street and Reserve Trees Policy 2017 advising the public how to proceed with removing or relocating a tree to place a Vehicle Crossing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.8</strong></td>
<td>The Council will accept responsibility for the ongoing maintenance of that portion of the vehicle crossing that crosses a footpath, after the maintenance period as detailed in the vehicle crossing permit has expired.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Council will accept responsibility for the ongoing maintenance of that portion of the vehicle crossing that crosses a footpath, after the 12 month maintenance period as detailed in the vehicle crossing permit has expired.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Roading Department wish to clarify the maintenance period within the Vehicle Crossing Bylaw.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2.9</strong></td>
<td>The landowner will be responsible for the maintenance of all other portions of the vehicle crossing. However where the Council are replacing the kerb and channel for asset renewal, it will be replaced at no cost to the landowner whose land is accessed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The landowner will be responsible for the maintenance of all other portions of the vehicle crossing. However where the Council are replacing the kerb and channel for asset renewal purposes or upgrading footpaths, Council may, at its discretion replace the vehicle crossing at no cost to the landowner whose land is accessed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>To clarify to landowners that upgrades of footpaths bear no cost to the landowner.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3.6</strong></td>
<td>Any person who causes damage to the road reserve (including footpaths and berms) by not using the designated vehicle crossing commits an offence against this bylaw.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any person who causes damage to the road reserve (including footpaths, street furniture, street trees and gardens, berms and drainage) by not using the designated vehicle crossing commits an offence against this bylaw.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expanding the Council owned assets that are included.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. **ISSUES AND OPTIONS**

4.1. *Under section 158 of the Local Government Act 2002* (the Act), the Council is required to review its bylaws at 5 and then 10 yearly intervals. This bylaw has not been formally reviewed since 2007 and therefore needs to be reviewed to comply with the legislative requirements and bring it into line with current operating practices. The Section 155 assessment was completed in consultation with the District Planning Unit, Planning Implementation Unit, Roading Unit, Project Delivery Unit and Greenspace.

4.2. **Option (a) Revoke the Vehicle Crossing Bylaw 2007**

Council has the option of revoking the Bylaw if it is considered the bylaw is not achieving the results outlined above and is considered an unreasonable restriction on individual rights and freedom. This option will not address identified issues, resulting in financial loss to the council, and potentially jeopardising the safety of the roading network.

4.3. **Option (b) Retain the Current Vehicle Crossing Bylaw 2007**

Council has the option of retaining the current bylaw. This is not preferred as the current bylaw does not include all assets and is missing detail of the required maintenance period.

4.4. **Option (c) Adopt the draft Vehicle Crossing Bylaw 2019**

Adopting the draft Vehicle Crossing Bylaw for public consultation is the preferred option as the Bylaw provides a means to ensure that vehicle crossings can be controlled in an effective manner. The proposed minor amendments to the Bylaw will make it more robust and align with best practice.

4.5. The Management Team have reviewed this report and support the recommendations.

5. **COMMUNITY VIEWS**

5.1. **Groups and Organisations**

All local Building Companies will be advised of the review and invited to submit to this consultation.

5.2. **Wider Community**

The wider community will be able to express their views through the submission process, from 1 April to 1 May 2019. The Communication Plan is attached.

6. **IMPLICATIONS AND RISKS**

6.1. **Financial Implications**

The cost of reviewing the *Vehicle Crossing Bylaw 2007*, is programmed and met from existing budgets and staff resources
6.2. **Community Implications**

The bylaw provides clarity around responsibilities for the safe operation and maintenance of access to properties. The consultation for this review ensures submitters who wish to express their views are able to do so.

6.3. **Risk Management**

The risk of not updating this bylaw means that it would be operating under previous legislation in the form of *the Local Government Act 1974*. It would also mean that the document would not be updated to reflect current practices.

If the bylaw is not amended within the statutory time (5th June 2019), it will lapse and the whole process of establishing a new bylaw would have to be repeated.

The reviewed bylaw will decrease the risk of non-compliant behaviour because it is clearer and more applicable to today’s practices.

6.4. **Health and Safety**

The bylaw will ensure safe and appropriate controls are in place for access to properties and that safe operation of access is maintained.

7. **CONTEXT**

7.1. **Policy**

This matter is not a matter of significance in terms of the Council’s Significance and Engagement Policy.

7.2. **Legislation** (*Local Government Act 2002 Section 145 & Section 159*)

*Section 145 of the Local Government Act 2002* empowers the Council to make a bylaw for its district to manage, regulate against, or protect from, damage, misuse, or loss, or for preventing the use of, the land, structures, or infrastructure associated with (vi) reserves, recreation grounds, or other land under the control of the territorial authority.

*Section 159 of the Local Government Act 2002* states that this bylaw must be reviewed every 10 years.

7.3. **Community Outcomes**

*There is a safe environment for all*

- Harm to people from natural and man-made hazards is minimised.

7.4. **Delegations**

The Committee has the jurisdiction to administer bylaws within the committee’s fields of activity and to recommend to the Council any amendments. The full council must adopt the final bylaw following consultation.
This Vehicle Crossing Bylaw 2019 was adopted at a Council meeting held on TBA.

Chief Executive

Governance Manager

June 2019
Waimakariri District Vehicle Crossing Bylaw 2019

1 General

1.1 Introduction

1.1.1 This Bylaw may be cited as the Waimakariri District Vehicle Crossing Bylaw 2019.

1.1.2 This Bylaw supersedes the Waimakariri District Vehicle Crossing Bylaw 2007 and comes into force on 4th June 2019.

1.1.3 This Bylaw is made by the Waimakariri District Council in exercise of the powers and authority vested in the Council by section 145 of the Local Government Act 2002.

1.1.4 Before making this Bylaw, Council was satisfied that those matters listed in section 147A(3) of the Local Government Act 2002 apply.

1.2 Objectives

The objective of the Bylaw is to ensure that vehicle crossings (entranceways) provide safe and convenient access to property:

(a) allowing for other traffic and pedestrians.
(b) allowing for good drainage without damaging the roading asset.
(c) are constructed and maintained in a timely and safe manner to the Council’s specifications
(d) Protect future property owners

1.3 Definitions

For the purposes of this Bylaw the following definitions shall apply:

Berm has the meaning a grassed, soil or metal area between the road carriageway and the property boundary, and includes road verges in rural areas.

Bylaw means this bylaw as altered, varied or amended from time to time.

Council means the Waimakariri District Council.

Footpath means so much of any road as is laid out or constructed by authority of the Council primarily for pedestrians, and includes the edging but excludes the kerb and channel

Significant Building means any building; or any other structure with a floor area to, or greater than, 10 m² (ten square metres) that requires a building consent under the Building Act 2004; or that requires the use of more than 3 m³ (three cubic metres) of concrete.

Vehicle Crossing means the area within public road or other public land from a road carriageway to a property boundary intended for use by vehicles accessing the property.

Vehicle Crossing Permit means the written approval issued by the council detailing the standards and conditions that are required to install the Vehicle Crossing.
Words implying the singular include the plural and vice versa.

2 Vehicle Crossings

2.1 All properties for which it is anticipated that vehicle access will occur directly from the roadway will require a vehicle crossing.

2.2 Where an application is made to construct a significant building, then an application for a vehicle crossing permit must be made before the vehicles begin to access the property, unless a complying vehicle crossing already exists.

2.3 Where an application for a vehicle crossing permit must be made, it shall be made using the standard Council application form and shall include all necessary details as requested.

2.4 The Council may from time to time set either deposits or inspection fees to be paid. These must be paid at time of application for a vehicle crossing permit.

2.5 Except for emergency services vehicle access, vehicles must not access the property until the vehicle crossing permit has been approved by the Council, and then only in a manner approved by the vehicle crossing permit.

2.6 The vehicle crossing must be installed to the standards and conditions as detailed in the vehicle crossing permit, and all costs shall be borne by the landowner whose land is accessed via the vehicle crossing.

2.7 Any removal or relocation of street tree’s must be done in accordance with the Street and Reserve Trees Policy 2017.

2.8 The Council will accept responsibility for the ongoing maintenance of that portion of the vehicle crossing that crosses a footpath, after the 12 month maintenance period as detailed in the vehicle crossing permit has expired.

2.9 The landowner will be responsible for the maintenance of all other portions of the vehicle crossing. However where the Council are replacing the kerb and channel for asset renewal purposes or upgrading footpaths, Council may, at its discretion replace the vehicle crossing at no cost to the landowner whose land is accessed.

2.10 Notwithstanding clause 2.1, existing properties that do not have a vehicle crossing do not require one to be installed unless Council determines there is a traffic or pedestrian safety issue, or there is impediment to good drainage, or damage to the roadway is likely.
2.11 Existing vehicle crossings do not require an application for a vehicle crossing permit to be made unless the scale and nature of the use of the crossing is likely to change, or unless landowners are advised by the Council that it determines there is a traffic or pedestrian safety issue, impediment to good drainage, or damage to the roadway is likely. Upon receiving this advice, the vehicle crossing is deemed to be non-complying and is required to be upgraded to current standards by the landowner whose property is accessed by such vehicle crossing.

3 Offences

3.1 Subject to the provisions of 2.10 and 2.11, any person who knowingly operates a vehicle that accesses a property for which a vehicle crossing permit has not been issued, or doesn't use the vehicle crossing for access or accesses the property not in accordance with the vehicle crossing permit, commits an offence against this bylaw, except when access is required by emergency service vehicles.

3.2 Subject to the provisions of 2.10 and 2.11, any landowner or occupier who allows access (other than for emergency service vehicles) on to their property in situations where a vehicle crossing permit has not been issued, or the access is not occurring over a vehicle crossing, or the vehicle crossing is not in accordance with the vehicle crossing permit, commits an offence against this bylaw.

3.3 Any person who applies for a vehicle crossing permit and then starts work and doesn't complete the works in the time noted on the vehicle crossing permit, or doesn't complete the works within 30 days of the Code Compliance Certificate for the building, or doesn't carry out the works in accordance with the standards and conditions on the vehicle crossing permit, or doesn't pay the appropriate fees, commits an offence against this bylaw.

3.4 Any person who begins work on a vehicle crossing without first receiving a vehicle crossing permit from the Council commits an offence against this bylaw.

3.5 Any person who fails to comply with a notice given under Section 335 of the Local Government 2002 commits an offence against this bylaw.

3.6 Any person who causes damage to the road reserve (including footpaths, street furniture, street trees and gardens, berms and drainage) by not using the designated vehicle crossing commits an offence against this bylaw.

3.7 Any landowner who does not maintain the vehicle crossing to their property to a proper standard commits an offence against this bylaw. A proper standard is defined as a crossing that provides safe and comfortable access to properties, does not impede any stormwater channels or stormwater flow, and is not a hazard to traffic or pedestrians.
4 Penalties/Remedies

4.1 Any person who commits an offence against this bylaw shall be liable for fines as provided in Section 242 of the Local Government Act 2002.

4.2 The Council may remove or alter any vehicle crossing that has not been constructed in accordance with the standards and conditions of the vehicle crossing permit, and recover the costs of removal or alteration from the person who committed the breach, as provided in Section 163 of the Local Government Act 2002.

4.3 Any person who breaches clause 3.6 above shall be liable to pay the costs of remedying any damage caused in the course of committing the offence, as provided in Section 176 of the Local Government Act 2002.

5 Bylaw to be Repealed

5.1 All bylaws concerning vehicle crossings in force made by the Council or its predecessors are hereby repealed, provided that this repeal shall not affect the past operation of any such repealed bylaws, or the validity or invalidity of anything done or suffered, or any right required, or duty or liability incurred under those bylaws.

6 Revocation

The following Bylaw is hereby revoked: Vehicle Crossing Bylaw 2007 (June 2007)

7 Review of Bylaw

This Bylaw shall be reviewed by 4th June 2029.

This Bylaw can be reviewed at any other time before that date at the discretion of the Council.
Vehicle Crossing Bylaw 2019

Statement of Proposal
## Contents

1  Introduction 1

2  Reasons for the proposal 1
   2.1  Option (a) Revoke the Vehicle Crossing Bylaw 2007 1
   2.2  Option (b) Retain the Current Vehicle Crossing Bylaw 2007 1
   2.3  Option (c) Adopt the draft Vehicle Crossing Bylaw 2019 2

3  Summary of proposed changes 2
   Objectives 2

4  Legislative requirements that Council must consider 3
   4.1  Is a bylaw the appropriate means to deal with the problem? 4
   4.2  Is the bylaw in the appropriate form? 4
   4.3  Is the bylaw consistent with the New Zealand Bill of Rights Act 1990? 4
1 Introduction

The Waimakariri District Council’s Vehicle Crossing Bylaw has been in effect since 1997.

The purpose of the bylaw is to ensure that vehicle crossings (entranceways) provide safe and convenient access to property:

(a) Allowing for other traffic and pedestrians.
(b) Allowing for good drainage without damaging the roading asset.
(c) Are constructed and maintained in a timely and safe manner to the Council’s specifications
(d) Protect future property owners

The options available to Council are:

(a) Revoke the Vehicle Crossing Bylaw 2007 (no longer need a permit for Vehicle crossings);
(b) Retain the Current Bylaw (does not include all Council assets)
(c) Adopt the draft Vehicle Crossing Bylaw with changes. The changes proposed are outlined below.

Council must follow the special consultative procedure to review or revoke an existing bylaw. This Statement of Proposal has been prepared in accordance with the Local Government Act 2002 (LGA).

A report on the relevant determinations made by Council under section 155 of the LGA is included in this Statement of Proposal, along with a draft of the proposed Bylaw.

2 Reasons for the proposal

Under section 158 of the Local Government Act 2002 (the Act), the Council is required to review its bylaws at 5 and then 10 yearly intervals. This bylaw has not been formally reviewed since 2007 and therefore needs to be reviewed to comply with the legislative requirements and bring it into line with current operating practices.

2.1 Option (a) Revoke the Vehicle Crossing Bylaw 2007

Council has the option of revoking the Bylaw if it is considered the bylaw is not achieving the results outlined above and is considered an unreasonable restriction on individual rights and freedom. This option will not address identified issues, resulting in financial loss to the council, and potentially jeopardising the safety of the roading network.

2.2 Option (b) Retain the Current Vehicle Crossing Bylaw 2007

Council has the option of retaining the current bylaw. This is not preferred as the current bylaw does not include all assets and is missing detail of the maintenance period.
2.3 Option (c) Adopt the draft Vehicle Crossing Bylaw 2019

Adopting the draft Vehicle Crossing Bylaw for public consultation is the preferred option as the threat of a prosecution has been effective in most instances, even though the Council has limited enforcement powers. A few minor amendments to the Bylaw will make it more robust.

3 Summary of proposed changes

The main areas of proposed change, prior to public consultation, between the current bylaw and the draft bylaw are summarised below:

- Amend date references to reflect that this is a new bylaw;
- Correct minor formatting and consistency errors.

<table>
<thead>
<tr>
<th>Section</th>
<th>Vehicle Crossing Bylaw 2007</th>
<th>Vehicle Crossing Bylaw 2019</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>Objectives</td>
<td>Objectives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The objective of the Bylaw is to ensure that vehicle crossings (entranceways) provide safe and convenient access to property:</td>
<td>The objective of the Bylaw is to ensure that vehicle crossings (entranceways) provide safe and convenient access to property:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) allowing for other traffic and pedestrians.</td>
<td>(a) allowing for other traffic and pedestrians.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) allowing for good drainage without damaging the roading asset.</td>
<td>(b) allowing for good drainage without damaging the roading asset.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) are constructed and maintained in a timely and safe manner to the Council's specifications</td>
<td>(c) are constructed and maintained in a timely and safe manner to the Council's specifications</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(d) Protect future property owners</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td><strong>Footpath</strong> means so much of any road as is laid out or constructed by authority of the Council primarily for pedestrians, and includes the edging but excludes the kerbing and chanelling</td>
<td><strong>Footpath</strong> means so much of any road as is laid out or constructed by authority of the Council primarily for pedestrians, and includes the edging but excludes the kerb and channel</td>
<td>Correction of wording.</td>
</tr>
<tr>
<td>2.7</td>
<td>None</td>
<td>Any removal or relocation of street trees must be done in accordance with the Street and Reserve Trees Policy 2017.</td>
<td>In discussion with the PIU it was noted that there was no reference to the Street and Reserve Trees Policy 2017 advising the public</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>2.8</strong></td>
<td>The Council will accept responsibility for the ongoing maintenance of that portion of the vehicle crossing that crosses a footpath, after the maintenance period as detailed in the vehicle crossing permit has expired.</td>
<td>how to proceed with removing or relocating a tree to place a Vehicle Crossing.</td>
<td></td>
</tr>
<tr>
<td><strong>2.9</strong></td>
<td>The landowner will be responsible for the maintenance of all other portions of the vehicle crossing. However where the Council are replacing the kerb and channel for asset renewal, it will be replaced at no cost to the landowner whose land is accessed.</td>
<td>The Roading Department wish to clarify the maintenance period within the Vehicle Crossing Bylaw.</td>
<td></td>
</tr>
<tr>
<td><strong>3.6</strong></td>
<td>Any person who causes damage to the road reserve (including footpaths and berms) by not using the designated vehicle crossing commits an offence against this bylaw.</td>
<td>Expanding the Council owned assets that are included.</td>
<td></td>
</tr>
</tbody>
</table>

As the proposed Bylaw is intended to replace the existing Bylaw it is proposed the existing Bylaw be revoked at the same time as the proposed Bylaw comes into force.

### 4 Legislative requirements that Council must consider

The LGA\(^1\) empowers Council to make bylaws for its district for one or more of the following purposes:

- (a) Protect the public from nuisance
- (b) Protect, promote and maintain public health and safety
- (c) Minimise the potential for offensive behaviour in public places.

However, before it makes such a bylaw, Council must be satisfied that:

- A bylaw is the most appropriate way of addressing a perceived problem or issue; and

---

\(^1\) Section 145 of the Local Government Act 2002
4.1 Is a bylaw the appropriate means to deal with the problem?

The Waimakariri District has had a Vehicle Crossing Bylaw in effect since 1997. The purpose of the bylaw is to regulate and control the installation of vehicle crossings to ensure the vehicle crossings provide safe and convenient access to property, allowing for other traffic and pedestrians and good drainage without damaging the roading asset.

Vehicle crossings are an important part of the roading network as they provide legal access from the public road to private properties. As such they need to be constructed to the required standards so they are safe, don’t negatively impact on existing infrastructure and are cost effective to maintain.

It is considered that the bylaw provides the most appropriate mechanism to effectively deal with Vehicle Crossings, after consultation with the Roading, Subdivision and Planning Department representatives it has been decided the best approach is for the Council to update the Vehicle Crossing Bylaw (2007).

4.2 Is the bylaw in the appropriate form?

Section 155(2)(a) of the LGA requires an assessment as to whether the bylaw is the most appropriate form of bylaw. The Council can make general bylaws for public health and safety, and specific bylaws for alcohol control in public places. The draft bylaw is consistent with Council document standards and has been written in plain English. In this case the Vehicle Crossing 2007 is being reviewed, so the form of bylaw is appropriate.

4.3 Is the bylaw consistent with the New Zealand Bill of Rights Act 1990?

Section (155(2)(b) requires that any bylaw is not inconsistent with the New Zealand Bill of Rights Act 1990. This Act states:

s5 “subject to section 4 of this Bill of Rights, the rights and freedoms contained in this Bill of Rights may be subject only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society.”

- The Local Government Act 2002 provides for Councils to introduce bylaws for the purpose of managing, regulating against, or protecting from, damage, misuse, or loss, or for preventing the use of, the land, structures, or infrastructure associated with (vi) reserves, recreation grounds, or other land under the control of the territorial authority.
- The review of this Bylaw is being processed in an autonomous manner as the Council is publicly notifying its intentions, the taking and hearing of submissions and the final consideration being made by an elected Council.
5  What happens next?

The Council is inviting public submissions on the Draft Vehicle Crossing Bylaw from 1 April until 1 May 2019.

Anonymous submissions will be considered at the Council’s discretion.

Submissions may be entered online through the Council’s website waimakariri.govt.nz/your_council/lets-talk.

by using the submission form or any other written form and posted to:

Vehicle Crossing Bylaw Submission  
Waimakariri District Council  
Private Bag 1005  
Rangiora 7440

or, by delivering to:

(a)  Rangiora Service Centre, 215 High Street, Rangiora  
(b)  Ruataniwha Kaiapoi Civic Centre, cnr Raven Quay/Williams Street, Kaiapoi  
(c)  Oxford Service Centre and Library, 34 Main Street, Oxford

A copy of the full statements of proposal and supporting documents are available for public inspection during ordinary office hours at the Waimakariri District Council Service Centres and Libraries. They may also be viewed on, and downloaded from, the Council’s website, waimakariri.govt.nz/your_council/lets-talk.

If you would like to talk to someone about the draft Vehicle Crossing Bylaw, or the consultation process, please contact: Gina Maxwell, Policy Technician, 03 266 9247.

Anyone making a submission has the opportunity to be heard by the Council’s Hearing Panel at public hearings to be held during May 2019 and should make that request in their submission.
VEHICLE CROSSING BYLAW 2007

OBJECTIVE

To ensure that vehicle crossings (entranceways) provide safe and convenient access to property, allowing for other traffic and pedestrians, allowing for good drainage without damaging the roading asset, and are constructed and maintained in a timely and safe manner to the Council's specifications.

Adopted at a Council meeting held on 5 June 2007

Mayor

Administration Manager

June 2007
WAIMAKARIRI DISTRICT VEHICLE CROSSING BYLAW 2007

In pursuance of the powers vested in it by the Local Government Act 2002, the Waimakariri District Council makes this Bylaw.

1 TITLE AND COMMENCEMENT

1.1 This Bylaw may be cited as the Waimakariri District Vehicle Crossing Bylaw 2007.

1.2 This Bylaw shall come into force on 6th June 2007.

2 DEFINITIONS

2.1 **Vehicle Crossing** means the area within public road or other public land from a road carriageway to a property boundary intended for use by vehicles accessing the property.

2.2 **Vehicle crossing permit** means the written approval issued by the council detailing the standards and conditions that are required to install the vehicle Crossing.

2.3 **Significant Building** means any building; or any other structure with a floor area to, or greater than, 10 m² (ten square metres) that requires a building consent under the Building Act 2004; or that requires the use of more than 3 m³ (three cubic metres) of concrete.

2.4 **Footpath** means so much of any road as is laid out or constructed by authority of the Council primarily for pedestrians, and includes the edging but excludes the kerbing and chanelling.

2.5 **Berm** means a grassed, soil or metal area between the road carriageway and the property boundary, and includes road verges in rural areas.

2.6 **The Council** means the Waimakariri District Council.

2.7 **Bylaw** means this bylaw as altered, varied or amended from time to time.

2.8 Words implying the singular include the plural and vice versa.

3 VEHICLE CROSSINGS

3.1 All properties for which it is anticipated that vehicle access will occur directly from the roadway will require a vehicle crossing.

3.2 Where an application is made to construct a significant building, then an application for a vehicle crossing permit must be made before the vehicles begin to access the property, unless a complying vehicle crossing already exists.

3.3 Where an application for a vehicle crossing permit must be made, it shall be made using the standard Council application form and shall include all necessary details as requested.
3.4 The Council may from time to time set either deposits or inspection fees to be paid. These must be paid at time of application for a vehicle crossing permit.

3.5 Except for emergency services vehicle access, vehicles must not access the property until the vehicle crossing permit has been approved by the Council, and then only in a manner approved by the vehicle crossing permit.

3.6 The vehicle crossing must be installed to the standards and conditions as detailed in the vehicle crossing permit, and all costs shall be borne by the landowner whose land is accessed via the vehicle crossing.

3.7 The Council will accept responsibility for the ongoing maintenance of that portion of the vehicle crossing that crosses a footpath, after the maintenance period as detailed in the vehicle crossing permit has expired.

3.8 The landowner will be responsible for the maintenance of all other portions of the vehicle crossing. However where the Council are replacing the kerb and channel for asset renewal purposes, it will be replaced at no cost to the landowner whose land is accessed.

3.9 Notwithstanding clause 3.1, existing properties that do not have a vehicle crossing do not require one to be installed unless Council determines there is a traffic or pedestrian safety issue, or there is impediment to good drainage, or damage to the roadway is likely.

3.10 Existing vehicle crossings do not require an application for a vehicle crossing permit to be made unless the scale and nature of the use of the crossing is likely to change, or unless landowners are advised by the Council that it determines there is a traffic or pedestrian safety issue, impediment to good drainage, or damage to the roadway is likely. Upon receiving this advice, the vehicle crossing is deemed to be non-complying and is required to be upgraded to current standards by the landowner whose property is accessed by such vehicle crossing.

4 OFFENCES

4.1 Subject to the provisions of 3.9 and 3.10, any person who knowingly operates a vehicle that accesses a property for which a vehicle crossing permit has not been issued, or doesn't use the vehicle crossing for access or accesses the property not in accordance with the vehicle crossing permit, commits an offence against this bylaw, except when access is required by emergency service vehicles.

4.2 Subject to the provisions of 3.9 and 3.10, any landowner or occupier who allows access (other than for emergency service vehicles) on to their property in situations where a vehicle crossing permit has not been issued, or the access is not occurring over a vehicle crossing, or the vehicle crossing is not in accordance with the vehicle crossing permit, commits an offence against this bylaw.

4.3 Any person who applies for a vehicle crossing permit and then starts work and doesn't complete the works in the time noted on the vehicle crossing permit, or doesn't complete the works within 30 days of the Code Compliance Certificate for the building, or doesn’t carry out the works in accordance with the standards and conditions on the vehicle crossing permit, or doesn’t pay the appropriate fees, commits an offence against this bylaw.
4.4 Any person who begins work on a vehicle crossing without first receiving a vehicle crossing permit from the Council commits an offence against this bylaw.

4.5 Any person who fails to comply with a notice given under Section 335 of the Local Government 2002 commits an offence against this bylaw.

4.6 Any person who causes damage to the road reserve (including footpaths and berms) by not using the designated vehicle crossing commits an offence against this bylaw.

4.7 Any landowner who does not maintain the vehicle crossing to their property to a proper standard commits an offence against this bylaw. A proper standard is defined as a crossing that provides safe and comfortable access to properties, does not impede any stormwater channels or stormwater flow, and is not a hazard to traffic or pedestrians.

5 PENALTIES/REMEDIES

5.1 Any person who commits an offence against this bylaw shall be liable for fines as provided in Section 242 of the Local Government Act 2002.

5.2 The Council may remove or alter any vehicle crossing that has not been constructed in accordance with the standards and conditions of the vehicle crossing permit, and recover the costs of removal or alteration from the person who committed the breach, as provided in Section 163 of the Local Government Act 2002.

5.3 Any person who breaches clause 4.6 above shall be liable to pay the costs of remedying any damage caused in the course of committing the offence, as provided in Section 176 of the Local Government Act 2002.

6 BYLAW TO BE REPEALED

6.1 All bylaws concerning vehicle crossings in force made by the Council or its predecessors are hereby repealed, provided that this repeal shall not affect the past operation of any such repealed bylaws, or the validity or invalidity of anything done or suffered, or any right required, or duty or liability incurred under those bylaws.

The resolution to review this Bylaw was passed by the Waimakariri District Council’s Utilities & Roading Committee held on the 20 February 2007, which was confirmed at a subsequent meeting of the Council held on the 6th day of June 2007.
Communications & Engagement Action Plan – Vehicle Crossing Bylaw Review

Background

Vehicle Crossings are an important part of the road network as they provide legal access from the public road to private properties. As such they need to be controlled to ensure that they are constructed to the required standards so that they are safe, don’t unduly affect the existing infrastructure and are cost effective to maintain.

The bylaw requires review as it is important that this is the mechanism used to ensure the use and maintenance of vehicle crossings meets Council’s requirements.

Communication Objectives

- Raise awareness of the bylaw review consultation.
- Ensure it is easy to provide feedback, and that a variety of methods is available to suit the different needs within the community.
- Ensure the documentation relating to the bylaw consultation are easy to find and accessible.
- Make sure relevant stakeholder groups have information on the bylaw consultation and have the opportunity to provide feedback.

Methods

Communication tools will be adapted to address the requirements the consultation. This will include direct mail, print advertising, website and social media.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft Comms Action Plan Agreed</td>
<td>Typing – Design Consultation Flyer</td>
<td>Consultation Opens 1 April</td>
<td>Facebook post</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Book Typing Team</td>
<td>Book Newspaper Ads</td>
<td>Let’s Talk webpage live</td>
<td>Meeting with Developers</td>
<td></td>
<td></td>
<td></td>
<td>Consultation Closes 1 May</td>
</tr>
<tr>
<td>Gina</td>
<td>Karen</td>
<td>Karen</td>
<td>Gina</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write flyer and advert content</td>
<td>Book Meeting with Developers</td>
<td>Consultation Launch News Story</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Archive webpage</td>
</tr>
<tr>
<td>Karen/Gina</td>
<td>Gina</td>
<td>Karen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write website content</td>
<td>Typing – Design Adverts</td>
<td>Facebook post</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karen/Gina</td>
<td>Karen</td>
<td>Karen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Typing - Consultation Flyers Printed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Karen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Website content</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advert in Northern Outlook</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Karen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. SUMMARY

1.1 This report seeks approval to proceed with construction of the following cycleway projects:
   - Kippenberger Ave cycle lanes
   - Linesside Road shared path
   - Ohoka Road cycle lanes.

1.2 Immediately adjacent property owners will be consulted before finalising designs and construction.

1.3 Kaiapoi High School have been consulted about the Ohoka Road project.

1.4 A more comprehensive programme of works for years 2019/20 and 2020/21 will be brought to Council following further investigation including network planning.

Attachments:
   i. Project Priorities (Trim no. 181031127990)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) Receives report No. 181218149963;
(b) Approves construction of the:
   - Kippenberger Ave cycle lanes
   - Linesside Road shared path
   - Ohoka Road cycle lanes.

(c) Notes the estimated cost is $160,000 and funded from the Walking and Cycling Programme Budget

(d) Notes the Ohoka Rd & Kippenberger Ave projects will be undertaken in the current financial year. Linesside Road is dependent on timing of stormwater design.
3. **BACKGROUND**

3.1. The Waimakariri District Council have committed to improving the mobility and transport options for our communities through increased cycling and walking opportunities. Providing safe and accessible facilities that meet the needs of the community is included in the strategies that underpin this commitment.

3.2. Cycling as a mode of transport is growing in the district and bicycles are now capable of travelling greater distances for less rider effort, increasing their attractiveness to wider sectors of the community. E-bikes are becoming mainstream and can greatly reduce commuting times. Providing for active travel modes can also bring other benefits to the existing network such as improved parking demand and reduced congestion at peak times.

3.3. The Government Policy Statement (GPS) 2018/19-2027/28 prioritises supporting mode shift in urban areas from private vehicles to more efficient, sustainable modes like walking, cycling and public transport. In line with the GPS objective ‘enabling transport choice and access’, GPS 2018 supports investment towards improving the safety of cyclists and pedestrians.

3.4. The construction of the cycle connection between Kaiapoi and Belfast will provide an accessible link for cyclists between the Waimakariri District and Christchurch City and vice versa. Improved access into recreational areas from the District’s town centres may provide additional opportunity to benefit from cycling tourism on routes such as the Hurunui Heartland Ride, which will pass through our district.

3.5. This year, cycle skills education will be introduced into Waimakariri schools. Council has secured Transport Agency and ACC funding for this initiative which is aimed at providing children with the confidence and skills they need to ride a bike to enable healthier lifestyles and increased active travel. Increasing active travel to and from school is a priority of our Walking and Cycling Strategy.

3.6. The following Council strategies have guided the development of the proposed programme.

3.6.1. **Waimakakiri District Council Roading Activity Management Plan (Trim 180521055689)**

- The purpose of the 2018 Activity Management Plan is to detail how the council will manage the Roading and transport network assets over their life cycle to ensure their long-term performance for the district. The AMP includes a Walking and Cycling programme to:
  
  a) Develop an integrated cycle network plan and,
  
  b) Improve walking and cycling connections to Rangiora and Kaiapoi townships and to school communities.

3.6.2. **Waimakariri District Council Walking and Cycling Strategy (Trim 160907092274)**

- This strategy aims to encourage people to walk and bike both for recreation, and transport. It also provides a way to identify and prioritise new or improved walking and cycling opportunities throughout the District. The strategy
provides a clear vision, identified priorities and direction going forward for the Council and the community. It also helps to ensure that Council can make the most of any opportunities for funding of walking and cycling projects.

3.6.3. **Long Term Plan 2018-2028 (Trim 180522056008)**

- The Council’s 10 year Long Term Plan (LTP) is refreshed every three years and responds to and considers changing community priorities and issues facing the District. The LTP includes walking and cycling as a key infrastructure project planned for 2018/19 to 2020/21. Included within the LTP budgets is $500,000 per year for the current three year funding period for the delivery of walking and cycling projects within the district and primarily in urban areas.

4. **ISSUES AND OPTIONS**

4.1. The Roading Activity Management Plan (AMP) identifies major projects (fig 28: Strategic Context Map) which form the strategic response to network problems. Included within these major projects are a number of routes identified where cycling facilities are required. These are concentrated within the urban areas and will complete the connections between Woodend/Pegasus, Rangiora, Kaiapoi and Christchurch.

4.2. To ensure a systematic approach to developing cycling facilities, planning of a complete network has commenced. This has concentrated on the links through the urban centres. Routes have been selected by identifying trip origins and destinations and the possible links between them and to other existing and future routes. Further refinement of this network is required including engagement with communities to ensure the proposed routes are appropriate and will deliver the expected outcomes.

4.3. From this overall network plan, routes were divided into individual projects. These projects were given a grading based on: route hierarchy, safety & comfort, connectivity and overlap with other Council programmed works. This enabled the projects to be prioritised in terms of the network. The results are shown in appendix i) - Project Priorities. The highest ranked projects correspond with the routes shown in the Strategic Context Map of the AMP. These are the routes connecting the existing cycleways into the town centres of Kaiapoi, Rangiora and Woodend.

4.4. Workshops with the Community Boards were held late in 2018 to introduce this project. Generally the Boards supported this initiative. Concerns were raised about the disruption to existing road users if road space is reallocated to cycle facilities. This feedback influenced the decision to select the proposed projects. The selection was based on the high priority within the overall network, yet low impact on existing road users and the relative low cost and ease of implementation.

4.5. A workshop was held with the Utilities and Roading Committee on 19 February 2019 to outline the process to date and introduce the content now covered in this report. The Committee agreed with continuing with the Kippenberger Ave and Lineside Road projects but questioned the need for the Ohoka Road cycle lanes. Providing cycle lanes on Ohoka Road links directly to improving safety to and from schools, which is a key outcome of the Walking and Cycling Strategy. Kaiapoi High School have been consulted on this project and support the inclusion of the Ohoka Road cycle lanes. A cycle count confirms use of Ohoka Road by both students and other cyclists.
4.6. Kippenberger Avenue has a posted speed limit of 50 km/h and carries nearly 6000 vehicles per day. This road connects the Rangiora - Woodend Cycleway to central Rangiora, Rangiora High School, and urban areas to the west. There is an existing cycle lane marked along the southern side of the road between Watkins Drive and Devlin Avenue. There are no other formal cycle facilities between East Belt and Devlin Avenue.

4.7. The width of the road carriageway varies from 9.1m to 17m. There is formalised on-street parking west of Watkins Drive. Occasional overflow parking from Lamb & Hayward utilises Kippenberger Avenue during funerals however, Watkins Drive, Peter Place, MacPhail Avenue and Tripoli Street now provide alternative on-street parking.

4.8. The proposal is to mark cycle lanes along both sides of Kippenberger Ave between East Belt and the Rangiora-Woodend Cycleway. Traffic lane widths will be reduced from 3.4 to 3.2 metres to provide additional width for cyclists. This will also have a calming effect on vehicle speeds. Seal widening up to 800mm wide is required east of Devlin Ave and an 85m section to the west of Devlin Ave. Some widening may also be required opposite Watkins Drive and MacPhail Ave to provide additional width at the intersections. The street trees will be pruned to improve visibility and clearance for road users.

4.9. No-stopping lines will be marked along the full length of cycle lane as is standard practise in this district. This will impact casual parking on the north side of the road as vehicles will be forced to park further from the road edge. No other parking impacts are anticipated. The estimated cost for this project is $75,000.

4.10. Ohoka Road is classed as a secondary route within the cycling network. It forms an important east west connection to the future primary cycling route running from the Passchendaele Memorial Path south through Kaiapoi toward the Waimakariri River Bridge. Ohoka Road has a posted speed limit of 50km/h and carries approximately 7000 vehicles per day. Ohoka Rd connects Williams Street to the northern motorway, Silverstream, Kaiapoi High School, Rangiora via the new arterial road, and rural areas to the west of Kaiapoi.

4.11. There are no existing cycle lanes marked on Ohoka Road. On-street parking is available along the length with short sections of no-stopping marked at pinch points such as bus stops and in the vicinity of the school. The existing road width is 14 metres wide. A narrow
flush median has been marked along some sections. A major entrance to the school is directly opposite Otaki Street.

4.12. A survey undertaken on Friday 22 February 2019 between the hours of 7am and 9am counted 15 cyclists using Ohoka Road between Otaki St and Akaroa St. Eleven of these were Kaiapoi High School students. This equates to an estimate of 30 to 40 cyclists per day using this section of road.

Lineside Road

4.14. Lineside Road is the main entrance to Rangiora. It carries approximately 15,000 vehicles per day. The Passchendaele Path terminates where commercial development begins on the northern side (Morrison Cars development). Cycle lanes connect path users through Southbrook towards central Rangiora.

4.15. The high volume of traffic, especially heavy vehicles and many commercial entrances creates challenges for people on bikes. The level of service provided by the facility connecting Kaiapoi to Rangiora is not coherent with the connection through to central Rangiora. Further investigation and planning of the entire route connecting through to central Rangiora will be undertaken.

4.16. The existing berm features street trees close to the kerb and an open swale near the boundary. The frontage of Morrison Cars was once a gravel carpark. Greenspace staff have a project underway to tidy up this area including amenity planting.
4.17. The proposal is to construct a 2.5m wide shared path along the frontage of Morrison Cars and Carters Building Supplies. This will extend the separated cycleway from the Passchendaele Memorial Path to Railway Road. Piping and filling of the open swale provides sufficient space to construct the path behind the existing street trees. Positioning of the path has been allowed for in the planting design by Greenspace. This path will have no impact on on-street parking. The estimated cost for this project is $35,000.

4.18. The Management Team have reviewed this report and support the recommendations.

5. COMMUNITY VIEWS

5.1. Groups and Organisations

5.1.1. Adjacent Property Owners

- Immediately adjacent properties along each project will be consulted on the proposed works. Staff will visit directly affected residents and be available to meet with other individuals to discuss any concerns.

5.1.2. Community Boards

- Staff held workshops with each Community Board in November and December 2018 to discuss route priority, levels of service and the implications of re-allocating road space to accommodate cycleways.

- Detailed plans will be taken to the Community Boards for their information following property owner meetings and prior to construction.

5.1.3. Utilities and Roading Committee

- A workshop was held with the Utilities and Roading Committee on 19 February 2019 to further discuss this project.
5.1.4. **Kaiapoi High School**

- Kaiapoi High School was consulted about the Ohoka Road project. They support the addition of cycle lanes and no-stopping marking where required.

5.1.5. **Wider Community**

- Previous surveys conducted in relation to the Walking & Cycling Strategy indicate strong support for additional cycle routes. The two Urban Cycleways completed early and mid-2018 have been well utilised by the wider community. A manual count of users on the Passchendaele Path on 10 March 2018 between 8:00am and 12:00pm counted 164 users. While the number of users on this day may be elevated due to the recent opening, there is still a high number of cyclists using this path. The Rangiora-Woodend path is equally popular.

### 6. IMPLICATIONS AND RISKS

6.1. **Financial Implications**

6.1.1. Once designs are complete, pricing will be sought from an appropriate contractor in accordance with the Council’s procurement policy. Options are to engage SICON under their existing contract to include the works within their programme or seek offers from other contractors.

6.1.2. Prices shown are indicative only and based on estimates. There is existing budget available to fund these projects and the continuation of investigation and planning work.

6.1.3. Funding for major cycleways has been allocated during the Long Term Plan process. The current budgets have $500,000 per year for the years 2018/19, 2019/20 & 2020/21.

6.1.4. NZTA funding matching the LTP budgets has been approved within the Low Cost / Low Risk category.

6.1.5. An underspend in year 2018/19 is due to the investigating and planning required before delivering subsequent projects. It is envisaged the remaining funding will be spent in the following two years.

6.2. **Community Implications**

6.2.1. Walking and cycling has been identified and funded through the LTP process signalling to the community a continuation of cycleway development. Year two and three of the programme include projects identified in the AMP.

6.3. **Risk Management**

6.3.1. Approval of this report carries low risk to the Council. Sufficient funding is available to cover this first phase of the programme.

6.3.2. Further consultation with the Council will be undertaken before engaging with the public / affected parties for projects beyond this year. Thus keeping the Council abreast of potential concerns raised by members of the community.

6.4. **Health and Safety**

6.4.1. No additional hazards or risks are created by approving this report.

6.4.2. Normal construction risks are applicable with these works however, these will be covered in contract documentation.
6.4.3. The projects included will enhance safety for members of the community.

7. **CONTEXT**

7.1. **Policy**

7.1.1. This matter is not a matter of significance in terms of the Council’s Significance and Engagement Policy.

7.2. **Legislation**

7.2.1. The Land Transport Management Act is the relevant legislation in this matter.

7.3. **Community Outcomes**

7.3.1. There is a safe environment for all

- Harm to people from natural and man-made hazards is minimised.
- Our district has the capacity and resilience to quickly recover from natural disasters and adapt to the effects of climate change.
- Crime, injury and harm from road crashes, gambling, and alcohol abuse are minimised.

7.3.2. Transport is accessible, convenient, reliable and sustainable

- The standard of our District’s roads is keeping pace with increasing traffic numbers.
- Communities in our District are well linked with each other and Christchurch is readily accessible by a range of transport modes.
- Public transport serves our District effectively.

7.4. **Delegations**

7.4.1. The Utilities and Roading Committee have the following jurisdiction enabling them to approve the works within this report:

- Generally (except where otherwise provided by delegation to another committee or council officers) the implementation of tasks identified in the Long Term Plan or Annual Plan for the committee’s activities, as adopted by the Council from time to time, where financial provision has been made.
- Authority to approve work programmes for works that the Council has budgeted a general level of expenditure for.
<table>
<thead>
<tr>
<th>Category</th>
<th>Project Description</th>
<th>Route Harmony</th>
<th>Safety &amp; Comfort</th>
<th>Connectivity</th>
<th>Programmed Works</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycling</td>
<td>Woodford Glen Connection</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Boys Rd to Tuahiwi</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Tram Road</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Fernside to Lehmans Rd</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Oxford Road</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Cow Track</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Beach Rd to Brockelbank Dr</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Johns Road and Northbrook Road</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Central East West Connection Rangiora</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>End of Passchendaele path to Kaiapoi CBD</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Kaiapoi North Southbrook Rd</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>W2R cycleway to SH 1/ CBD</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
<tr>
<td>Cycling</td>
<td>Kaiapoi to NZTA link</td>
<td>Tertiary route</td>
<td>Medium priority</td>
<td>High priority</td>
<td>No known works programmed.</td>
<td>Projects nominated for inclusion in the cycleway strategy.</td>
</tr>
</tbody>
</table>

**Cost Data**

- **$**: Less than $200,000
- **$$**: Between $200,000 and $500,000
- **$$$: Greater than $500,000

Projects are listed with their respective grades and cost estimates. The grade indicates the level of safety and comfort, while the cost reflects the financial investment required for each project.

- **Safety & Comfort**: Grades range from 1 (low priority) to 3 (high priority).
- **Connectivity**: Grades range from 1 (low priority) to 3 (high priority).
- **Programmed Works**: Indicates whether works have been programmed for specific years.

The table provides a comprehensive overview of the projects, their grades, and cost estimates, facilitating a clear understanding of the project's importance and financial implications.

---

*Note: The data provided is a summary representation of the projects listed in the original document.*
WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO: BYL-35-01 / 190219018655
REPORT TO: Utilities and Roading Committee
DATE OF MEETING: 19 March 2019
FROM: Libica Hurley (Technical Administrator)
       Owen Davies (Drainage Asset Manager)
SUBJECT: Stockwater Race Bylaw Review 2019
SIGNED BY: (for Reports to Council, Committees or Boards)

1 SUMMARY

1.1 This report requests that the Utilities and Roading Committee recommend the proposed minor changes to the Stockwater Race Bylaw 2007 and associated policies, to the Council for adoption.

1.2 The current Stockwater Race Bylaw 2007 was established under the Local Government Act (LGA) 2002 and is consistent with Section 146(i). LGA Section 159 states that bylaws made under the Act must undergo a review within 10 years of the date the bylaw was last reviewed under Section 158. In accordance with Section 160A any bylaw not reviewed within this time frame will be revoked 2 years after the date on which the review was due. Therefore this bylaw will be revoked on 05 June 2019 if not reviewed prior to this date.

1.3 The proposed changes to the Stockwater Race Bylaw and associated policies, have been assessed as minor by Waimakariri District Council Staff under LGA Section 156(2)(a). Public consultation is not required by way of a Special Consultative Procedure (SCP).

Attachments:
   i. Proposed Stockwater Race Bylaw 2019 including tracked changes (190227023463)
   ii. WIL Feedback Table (190227023581)
   iii. Stockwater Race – Closure Policy, including proposed changes (190118004909)
   iv. Stockwater Race - Pond Policy, including proposed changes (190118004907)
   v. Planting of Trees and Shrubs alongside Stockwater Races Policy, including proposed changes (190118004911)

2 RECOMMENDATION

THAT the Utilities and Roading Committee recommends:

THAT the Council:

   (a) Receives report no. 190219018655

   (b) Notes that a review of the Stockwater Race Bylaw 2007 has been undertaken and it has been confirmed that there is a need for a Stockwater Race Bylaw
(c) **Notes** that minor changes to the Stockwater Race Bylaw 2007 and associated policies, as identified by tracked changes in attachments i, iii, iv & v, have been made for clarity purposes and to update references

(d) **Adopts** the Waimakariri District Council Stockwater Race Bylaw 2019

(e) **Adopts** the revised Stockwater Race Closure Policy, Stockwater Race Pond Policy and Planting of Trees and Shrubs alongside Stockwater Races Policy

(f) **Circulates** this report to the Council’s Community Boards for their information

3 **BACKGROUND**

3.1 The existing Stockwater Race Bylaw 2007, was established under Local Government Act (LGA) 2002 and is consistent with Section 146(i). As at 05 June 2017 a review of the bylaw was due under Section 159. However as this review has not occurred until now, Section 160A provides an addition 2 years leeway in stating that a bylaw will not be revoked for an additional 2 years after the 10 year due date. As at 05 June 2019 the current bylaw will be revoked if a review is not undertaken and adopted prior to this date.

3.2 The high level functions and responsibilities as set out in the current bylaw, remain suitable for operation of the scheme. However it has been determined, through this review that minor changes are required in order to clarify items, update the associated maintenance map and to add explanatory guidance where required.

3.3 The policies referenced by the Stockwater Race Bylaw have also been reviewed in conjunction with the required bylaw review. The minor changes proposed to the policies do not alter the roles or responsibilities of Council or ratepayers. It is however proposed that educational material be made available to race users to provide guidance, particularly around planting and race maintenance.

4 **ISSUES AND OPTIONS**

Proposed changes to the current Stockwater Race Bylaw 2007

4.1 **Date Changes**

The content of the 2007 bylaw includes dates which require to be updated. Section 14 has also been updated to reflect the day on which the proposed bylaw revision is to come into effect.

4.2 **Reference Updates**

Section 3.2 of the Stockwater Race Bylaw 2007 makes reference to the Natural Resources Regional Plan. This plan has since been replaced by the Regional Land and Water Plan, and the proposed bylaw revision has been updated to reflect this.

4.3 **Minor Clarifications**

4.3.1 **Stock Access**

Section 3.4.4 has been revised to clarify what constitutes ‘lingering’. Activities that cause or contribute to nuisance, such as bank damage are identified in this Section. Section 3.4.4 is proposed as follows, additional wording added is underlined.
Any animals to linger in a water race or cause or contribute to nuisance, such as bank damage. Drinking stations outside the race are the preferred method to avoid damage to the water race.

It is noted that neither the Land and Water Regional Plan or the Draft Zone Implementation Programme Addendum (ZIPA) require all water races to be fenced. Although fencing of water races may be required to exclude intensively farmed stock under Recommendation: 1.16 in the ZIPA.

4.3.2 Spraying

Section 3.4.22 provides further clarification to those people wishing to use herbicides for maintaining stockwater races. This section is consistent with other proposed changes, by way of providing further guidance as to activities which can adversely affect a water race, causing nuisance. Proposed new Section 3.4.22 is as follows.

No one is to permit, allow or do any of the following:
Any herbicide to be used on a water race in such a way as to destabilise the bank structure.

4.3.3 Cleaning Removal

As part of Section 5.4 it is proposed that an explanatory note (see below), be added to further clarify what is intended under Section 5.4.1.

Explanatory note: The above excludes works to increase the capacity of the water race to convey additional irrigation flows. The deposition of material from such works onto private land requires approval of the landowner.

4.3.4 Blockage of Secondary Flow

This is a minor clarification intended to provide clarity associated with the removal of debris from a stockwater race. Section 5.3.2 is proposed as follows and should be read in conjunction with Section 5.3.

5.3 Removal of Debris

After cleaning a water race or clearing or removing any debris from a water race or from the banks or sides of a race the owner or occupier of the land is to without delay, at their own cost and expense, remove any and all clearings and cleanings and other obstructions from both sides of the race in such a manner and to such a distance from the race as may be necessary to:

5.3.2 Prevent blockage of any secondary overland flow path; and

4.4 Map

It is proposed that the map of the stock water race system is referenced by the bylaw, but is made accessible on the Waimakariri District Council website instead of as an attachment to the bylaw itself. Map No. 1140 will be updated whenever a change occurs in terms of maintenance responsibility, diversion or closure. Maintaining a regularly updated scheme plan online will avoid the need to review the bylaw every time map changes are required, as changes will be made independently.
4.5 Consistent Terminology

Throughout the 2007 bylaw there are numerous words used to describe permission, these include; approve, consent, authority and permission. It is proposed that these variations, all be replaced with the word permission, to provide greater consistency.

Proposed changes to associated policies

4.6 The three policies associated to the Stockwater Race Bylaw include; Stockwater Race – Closure Policy, Stockwater Race Pond Policy and Planting of Trees and Shrubs alongside Stockwater Races Policy.

4.7 The proposed minor changes to these policies are shown in the attached documents by tracked changes. All of the proposed changes are considered to be less than minor and mainly update dates and legislation references. Also a new period of 20 working days is proposed for application for planting and ponds using form QS-U580 (attached for your reference), changed from 10 working days.

4.8 It is proposed that the Planting of Trees and Shrubs alongside Stockwater Races Policy be supported by a guidance document for property owners. The guidance would include information around the types of vegetation that should be planted along the races. The need for this guidance has come about as a result of feedback from Waimakariri Irrigation Limited and the Waimakariri Water Zone Committee.

4.9 The Management Team has reviewed this report and supports the recommendations.

5 COMMUNITY VIEWS

Groups and Organisations

5.1 WIL Feedback

Waimakariri Irrigation Limited (WIL) have provided feedback and suggested changes they would like included in the Stockwater Race Bylaw, as part of this review. These have been reviewed by Waimakariri District Council staff and the following minor changes are proposed.

5.1.1 Roadside Cleaning

The current practice is for cleaning of roadside stockwater races to be undertaken by the adjacent property owner. The exception to this are races shown as green on Map No. 1140, which are maintain by the Council.

The cleaning of roadside races is a key issue as with increasing traffic management and health & safety requirements, it may be necessary for Council to take over the maintenance of certain stockwater races in the future. It is intended that this will be addressed as a separate process during the 2019 calendar year. If a significant change is required then it is expected that consultation across stockwater ratepayers would be needed as well as approval by Council as part of the Annual Plan process, given the potential increase in maintenance costs and hence rates.

5.1.2 Stock Access
Section 3.4.4 has been revised to clarify rules relating to stock access.

5.1.3 **Drinking Stations**
Waimakariri District Council staff intend to work with WIL to produce guidance material for stockwater users relating to drinking stations.

5.1.4 **Spraying**
Minor clarification is proposed to Section 3.4.22 related to spraying.

5.1.5 **Maintenance Compliance**
Waimakariri District Council Staff intended to work with WIL to produce educational material which will provide advice to stockwater race users relating to race maintenance, including preferred methods.

5.1.6 **Planting Guidance**
Waimakariri District Council staff intend to work with WIL to develop guidance material around planting stockwater races.

5.2 **Waimakariri Water Race Advisory Group**
At the Waimakariri Water Race Advisory Group meeting held 13 November 2018, the proposed minor changes were presented with the intention of seeking feedback. The group did not raise any concerns about the proposed changes. Associated policies were mailed to the Group in early 2019 with a feedback deadline of February 28th.

5.3 **Waimakariri Water Zone Committee Feedback**
At the Waimakariri Water Zone Committee (WWZC) meeting held 19 November 2018, the proposed minor changes were presented in order to seek feedback. A matter of interest to the Zone committee members was stock access to waterways and the use of the word “linger”. This word is still included in the bylaw, however the environmental effect of lingering as an activity is the key focus, as opposed to what the activity itself entails.

A new clause has been added in relation to under spraying, to ensure no adverse effects are caused as a result. It was also noted that the bylaw is for management of a utility asset, however at the point of discharge Council needs to make sure that it is not causing any adverse effects to the receiving environment. A Committee member explained that the WWZC views the stockwater races as part of the broader waterway system that provide an opportunity to improve biodiversity and amenity of the area. It was agreed that guidance material would be developed around planting of stockwater races.

5.4 **Rūnanga Feedback**
The proposed changes to the bylaw and associated policies were presented at the Rūnanga meeting held 21 February 2019. It was explained that there are no significant changes proposed, but the key change is to put emphasis on the possible adverse environmental effect of stock within water races in terms of bank damage and other adverse effects. This approach is opposed to enforcing fencing to exclude stock, and is aligned with the current Land and Water Regional Plan as well as the ZIPA.
As per the current bylaw, the maintenance of stockwater races within the road reserve, falls with the property owner. It was acknowledged that further review of this aspect of the bylaw should be undertaken, and that this matter hasn’t been addressed within the proposed changes under this review.

6 IMPLICATIONS AND RISKS

6.1 Financial Implications

Waimakariri Irrigation Limited agreement should remain unaltered by these changes. Therefore it is deemed that there are no financial implications triggered by the minor changes proposed by this bylaw review.

6.2 Community Implications

The rights and responsibilities of the Stockwater Race scheme ratepayer and users should also remain unaltered by these minor changes. Therefore it is deemed that there are no Community implications triggered by this bylaw review.

6.3 Risk Management

Conducting this review mitigates the risk of this bylaw being revoked on 05 June 2019. By adopting the recommended minor changes, the bylaw will remain operative for another 10 years until the next review is due, unless revoked before by Council decision.

6.4 Health and Safety

The proposed minor changes to the bylaw do not affect existing health and safety considerations.

7 CONTEXT

7.1 Policy

This is not a matter of significance in terms of the Council’s Significance and Engagement Policy.

In particular, section 4.2 of the Policy requires an assessment of significance in terms of the Council’s Significance Policy. An assessment against the Significance Policy shows the following;

i. the level of service for the supply and delivery of stockwater will not be affected by the proposed minor changes to this bylaw,

ii. the role and responsibility of ratepayers and stockwater race users will be unaffected by the proposed minor changes to the bylaw,

iii. the closure will not significantly affect costs to Council or ratepayers as operating and maintenance costs will not change. There is no proposed change in rating income as a result of the proposed changes to the bylaw,

iv. all proposed changes have been deemed by Council Staff as less than minor.

For these reasons, the Stockwater Race Bylaw 2007 review is not considered significant and therefore consultation with residents using the Special Consultative Procedure is not required.

7.2 Legislation
The current Stockwater Race Bylaw 2007 was established under the Local Government Act (LGA) 2002. It is consistent with Section 146(i), for the purpose of managing, regulating against or protecting from, damage, misuse, or loss associated with water races.

Local Government Act, Section 159 states that bylaws made under the Act must undergo a review within 10 years of the date the bylaw was last reviewed, as required by Section 158. Under Section 160A any bylaw not reviewed within this time frame will be revoked 2 years after the date on which the review was due. Therefore this bylaw will be revoked on 05 June 2019 if not reviewed prior to this date.

The proposed changes to the Stock Water Race Bylaw have been assessed as minor by Waimakariri District Council Staff under LGA Section 156(2)(a). Public consultation is not required by way of a Special Consultative Procedure (SCP).

### 7.3 Community Outcomes

- There is a safe environment for all
- There is a healthy and sustainable environment for all
- The distinctive character of our takiwā - towns, villages and rural areas is maintained

### 7.4 Delegations

The Council has authority to make a decision on this bylaw review.

Libica Hurley  
Technical Administrator

Owen Davies  
Drainage Asset Manager
STOCK WATER RACE
BYLAW

20192007

Adopted at a Council meeting held on
5 June 2007

______________________________
Mayor

______________________________
Administration Manager

May 2007
WAIMAKARIRI DISTRICT COUNCIL STOCK WATER RACE BYLAW 201982007

1 INTRODUCTION

This bylaw is made by the Waimakariri District Council in exercise of its powers and authority vested in the Council by Section 146 (b) (i) of the Local Government Act 2002. The bylaw is enforceable throughout the Waimakariri District Water Race area which is described on map no. 1140.

2 INTERPRETATION

2.1 The Council means the Waimakariri District Council or any authorised staff member.

2.2 Bylaw means this bylaw as altered, varied or amended from time to time.

2.3 Owner or occupier means the owner or occupier of land in the supply area as recorded as such in the valuation roll of the district.

2.4 ‘Holding’ means any property of any area or value separately valued in the valuation roll of the district.

2.5 The supply area means the area over which stock and/or irrigation water is supplied and specifically includes and means the Browns Rock Subdivision as defined by Special Order made by the Waimakariri Ashley Water Supply Board on 20 September 1894, and as set forth and named as such in the Special Resolution published in the New Zealand Gazette 1894 at pages 1653 and 1654, and includes any alterations to the area which may be made from time to time by the Council in exercise of its powers under the Local Government Act 2002.

2.6 Water race has the meaning prescribed in the Local Government Act 2002, Part 1, Section 5 (1), and means the land occupied by a water channel (other than a main river) –

(a) constructed -
(i) by or under the authority of a local authority
(ii) in, upon, or through land for supply of water; and

(b) to be used -
(i) solely or principally for farming purposes; or
(ii) in the case of an existing water race, for any other purpose for which water from that water race may be used, and

(c) includes -
(i) a branch of a water race taken or made through land for the purpose of supplying water as referred to in paragraph (b); and
(ii) an alteration, extension, or widening of a water race or branch water race, whether done by local authority or by any person with the approval of the local authority; and
(iii) a flood or other bank, or a dam, sluice, flume, bridge, gauge, meter, reservoir, or other waterworks relating to, or forming part of, a water race; and
(iv) buildings and machinery, pipes, and other materials on the land and within the limits of a water race or relating to, or used in connection with, a water race.
2.7 Grid References refer to points shown on map Sheet L35 “WAIMAKARIRI” Edition 1 of NZMS 260, 1:50,000; Edition 1 and Sheet M35 “CHRISTCHURCH” Edition 1, of the same map series. The method used for locating these points is that shown in the marginal notes on each sheet.

2.8 Water Races are of the following type: (See Map 1140, appendix 1 on Council’s website)

(a) Combined stockwater and irrigation races as shown coloured red on Map No 1140 at 255km more or less; and used for both irrigation and stock water.
(b) Council stockwater races as shown coloured green on Map No 1140 at 580km more or less; are mainly roadside races and end of races.
(c) Irrigation races as shown coloured yellow on Map No 1140 at 17km more or less, are new races built for irrigation supply only.
(d) Farm stockwater races as shown coloured dark blue on Map No 1140 at 538km more or less, and used for on farm stock water purposes.

2.9 The reference Map No 1140 refers to the latest Water Race map issued by the Council on its Geographic Information System website.

2.10 The Browns Rock Water Race System means that system of water races having its origin at Browns Rock on the Waimakariri River, grid reference 360 584, and from any other sources of supply from which the Council and/or its agent may take water, and includes any tail race, branch, artificial or natural channel within the water race area, or any enlargements or alterations made to the system from time to time. It also includes all of those channels which are wholly or partially supplied with water from the said water race other than those channels into which water is spilled by the Council and/or its agent as no longer required by the water race system.

2.11 Words in the singular include plural and vice versa.

2.12 Words importing masculine gender include feminine.

2.13 The words shall and will are imperative.

2.14 The word may is optional.

2.15 Maintenance means cleaning and maintaining the water race system in accordance with Water Race Activity Management Plan.

2.16 Commercial irrigation means where a water supply agreement has been entered into and irrigation water (by means of spraying or flooding the land with water) is supplied for agreed fees. This does not include aquaculture.

2.17 Domestic irrigation means the watering of a residential garden by pumping from the race.

2.18 Waimakariri Irrigation Ltd is a co-operative company set up to run and administer a commercial irrigation supply business with a licence to occupy a defined area of the water race for this purpose.
2.19 Agent means Waimakariri Irrigation Limited or any other person or body appointed or authorised by the Council and employed as a contractor to maintain and administer the balance of the water race system either inside and/or outside of the defined irrigation area and empowered by a separate agreement.

2.20 Access to water races for rating purposes – defined as where a race is situated on a property or along the boundary including immediately on the other side of a boundary fence.

2.21 Irrigation is the replacement or supplementation of rainfall with water from another source in order to grow trees, grasses, crops or plants.

3 CONDITIONS OF USE

3.1 Purpose

The primary purpose of the water race system is to supply water for stock consumption, and/or commercial irrigation within the system area. Subject to written approval by the Council, it may also be used for domestic irrigation as defined in Clause 2.17.

3.2 Other Considerations

3.2.1 The activities covered by this Bylaw, including the taking, use, damming and diversion of water, may be subject to regional rules contained in Environment Canterbury’s Waimakariri River Regional Plan and its Natural Resources Regional Land and Water Plan. Compliance with this Bylaw does not necessarily imply compliance with regional rules and a resource consent may be required.

3.2.2 Activities including discharge into water races and land use close to water races that may contaminate water quality are also subject to rules in Environment Canterbury’s Natural Resources Regional Land and Water Plan under which a resource consent may be required.

3.3 Permitted Uses

Subject to the payment of the annual charges that may be determined from time to time by the Council, and without any further reference to the Council:

3.3.1 Water may be used for stock water purposes.

3.3.2 Water may be used for domestic irrigation provided that only one connection per dwelling may draw through an exposed pipe of no more than 20mm internal diameter, for no more than two hours per day and provided written approval from the Council is received.

3.3.3 Water may be used for commercial irrigation from races (existing or future) that have been specifically designated as irrigation races or combined stockwater and irrigation races (as respectively defined in clauses 2.8(a) and 2.8 (c)) in accordance with a water supply agreement with the Council or its agent as applicable.

3.4 Prohibited Uses
No one is to permit, allow or do any of the following:

3.4.1 Bathing or washing in a water race.

3.4.2 Any domestic fowl, be they water-fowl or otherwise, to stray into or upon the water race.

3.4.3 Contamination of the water race by chemicals, nutrients, or by any backflow from irrigation equipment.

3.4.4 Any animals to linger in a water race or cause or contribute to nuisance, such as bank damage, but a drinking stations may be provided located outside the race are the preferred method to avoid damage to the water race.

3.4.5 Any activity carried out on land or in any building or yard to contaminate or to make less pure the water in the water race.

3.4.6 Obstruct the flow of water in the water race by any means whatsoever.

3.4.7 Ride, drive or lead any animals or propel, draw or convey any vehicle or chattels into, across, or through a water race except at the bridges, culverts or crossing places provided by the Council and/or its agent or constructed with the Council’s and/or its agents consent.

3.4.8 Any cuttings, clippings, twigs, branches or any other part of any tree or plant or any part of any fence to fall into or remain in a water race.

3.4.9 Draw off water from a water race or divert any water belonging to a water race without previous consent in writing of the Council.

3.4.10 Either willfully or through neglect allow any pipe or other apparatus on their property to be out of repair so that water supplied from a water race is wasted.

3.4.11 Alter or interfere with any regulating gate or other apparatus or do anything else whereby the supply of water from a water race is improperly increased or decreased.

3.4.12 Permit a person who does not pay water race rates to take water from the race.

3.4.13 Widen or deepen any water race or alter the course of any water race without the written consent of the Council.

3.4.14 Permit or allow any Statutory Nuisance as defined under Section 29 of the Health Act 1956.

3.4.15 Obstruct any crossing point over a water race.

3.4.16 Remove, displace, alter, damage or interfere with any bank, dam, sluice, flume, bridge, gauge, meter, reservoir, pipe, or other work or thing used in supplying or distributing water from any water race.
3.4.17 Open the ground so as to uncover any culverts belonging to any water race or to lengthen or decrease the length of any such culvert without the written authority of the Council.

3.4.18 Make any structure over, in, or under a water race unless without written permission of the Council.

3.4.19 Sow, plant, or permit to grow any tree, hedge, shrub or other plant of any kind, within a distance of ten metres from either side of a water race, except that:

(a) Crops and pasture are permitted; and

(b) Shrubs or plants to form any part of a live fence and maintained less than 1.5 metres in height may be sown or planted by an owner or occupier of land on one side of the race only, and then only at a distance of more than 1 metre from the edge of the race.

(c) Otherwise approved by the Council.

3.4.20 Erect any building or structures of any kind or any size within ten metres of either side of any water race without the written authorization of the Council.

3.4.21 Any animal effluent or agricultural fertiliser to be discharged within 10 metres of a stockwater race.

3.4.22 Any chemical/herbicide or action, to be used on a water race in such a way as to destabilise the bank structure.

4 COUNCIL RESPONSIBILITIES

Notwithstanding anything to the contrary that may appear in this bylaw the Council or its agent will:

4.1 Ensure that the races are maintained at all times.

4.2 Ensure maintenance provisions of any agreement between the Council and its agent are met.

5 CLEANING

5.1 Farm Stockwater Race Cleaning

Every owner or occupier of land through which a farm stockwater race runs (coloured blue) as identified in Clause 2.8 (d), shall:

5.1.1 Keep the water race, banks, and sides of the race in good order and condition and free from all silt, weeds, vegetation of all kinds, and from all other rubbish and obstructions of all kinds at their own cost.

5.1.2 Keep and maintain the sides, banks, and other earthworks of the water race in such a condition as to prevent or mitigate any overflow, leakage, or waste of water.

5.2 Other Race Cleaning
The provisions of Clause 5.1 do not apply where that race is a combined stockwater and irrigation race, or an irrigation race, or a stockwater race as identified in Clause 2.8(a), 2.8(b) or 2.8(c). These races will be cleaned by the Council and/or its agent.

5.3 Removal of Debris

After cleaning a water race or clearing or removing any debris from a water race or from the banks or sides of a race the owner or occupier of the land is to without delay, at their own cost and expense, remove any and all clearings and cleanings and other obstructions from both sides of the race in such a manner and to such a distance from the race as may be necessary to

5.3.1 Prevent the materials from re-entering the race;
5.3.2 Prevent blockage or alteration of any secondary overland flow path; and
5.3.3 To allow access to the race by any plant and machinery necessary to clean the race.

5.4 Maintaining Cleaning and/or Improving the Races

5.4.1 When the Council and/or its agent clears, cleans, renovates or improves any part of a stock water race, a combined stock water and irrigation race or an irrigation race, as identified in Clause 2.8(a), 2.8(b) or 2.8(c) or any land adjoining any part of these races, it may deposit all or part of the materials removed by or in the course of the work onto any part of the land contiguous or adjacent to the race, except where that land is a formed public road.

Explanatory note: The above excludes works to increase the capacity of the water race to convey additional irrigation flows. The deposition of material from such works onto private land requires approval of the landowner.

5.4.2 All such material deposited by the Council and/or its agent is to be placed in accordance with Clauses 5.3.1, 5.3.2 and 5.3.3 of this bylaw.

5.4.3 When the Council and/or its agent require such material to be removed, this will be arranged by the Council and/or its agent as a charge against maintenance of the water race system.

5.5 Failure To Repair or Clean the Race

5.5.1 If the owner or occupier fails, neglects or refuses to comply with any provision of this bylaw after having been required to do so in writing by the Council, the Council and/or its agent may enter onto the land, make good such failure, neglect or refusal and charge the owner or occupier with cost and expense of the work, provided however that the provisions of Sections 182 of the Local Government Act 2002 shall not be abrogated by the provisions of this bylaw.

5.5.2 Any debt incurred by the Council complying with Clause 5.5.1 of the bylaw is a debt recoverable in a court of competent jurisdiction.
5.5.3 Any remedy given by such a court shall in no way affect the liability of the owner or occupier to any penalty provided for the breach of this bylaw.

6 DIVERTING OF WATER

6.1 The Council may grant permission to any person through whose land a water race runs to divert as much water from the race as is necessary to keep a pond or other reservoir on their land to be filled or constantly filled with water, provided that:

6.1.1 No such diverting shall be undertaken until the Council has granted a permit to do so in writing. Such a permit may be revoked at the pleasure of the Council after giving three months notice of its intention to do so, except where a Resource Consent has been issued pursuant to the provisions of Resource Management Act 1991.

6.1.2 The pond or reservoir shall be completely watertight and lined with impervious materials.

6.1.3 The intake and outlet of any pond must be able to be shut off to ensure compliance with water restrictions or resource consent conditions.

6.1.4 An adequate outfall is provided from the pond or reservoir to allow the overflow to return to the water race, at the same water level as the race.

6.1.5 No such pond or reservoir exceeds the area volume or depth that may be specified by the Council when granting such permission.

6.1.6 No pond or reservoir shall cause any downstream reduction in water flow in the race the water is diverted from.

6.1.7 No pond or reservoir shall be created by installing a dam to raise the water level of the race.

7 EXISTING USES

7.1 If, at the date the original bylaw came into force (1999) there are existing:

7.1.1 Trees, hedges, other plants or shrubs of any kind either growing or dead, in the form or nature of stumps or otherwise, in or on land and situated contrary to the provisions of Clause 3.4.19 of this bylaw and irrespective of how, when or by what means they came to be there;

or

7.1.2 Structures, buildings or yards of any kind or ponds impounding water which are situated contrary to provisions of Clause 3.4.20 and Clause 6 of this bylaw;

and

7.1.3 If in the reasonable opinion of the Council any of the obstructions referred to in clause 7.1.1 or clause 7.1.2 are interfering with the flow of the water in any water race; then
7.1.4 The Council shall notify the owner or occupier in writing of its intent to require the removal of such tree, hedge, other plants, shrub, structure, ponds, building and/or yard;

and

7.1.5 The owner or occupier shall be given an opportunity to be heard by the Council before any final decision is made under this clause.

7.1.6 The Council shall make a final decision at a formal meeting, taking in to account any information provided by the owner or occupier.

7.1.7 Should the Council decide that any obstructions referred to need removing, it shall notify the owner or occupier of the requirement for the owner or occupier to remove them, including any consideration for compensation.

7.1.8 In any instances where there is failure to comply, Clause 5.5.1 will apply.

8 EXTRA OR ABNORMAL SUPPLIES

The Council may, at its discretion, grant an extra supply of water from the water race for special purposes, including fire fighting, or for purposes not otherwise authorised by this bylaw, at a cost to be established by the Council at the time of its application. Such cost may be varied from time to time in accordance with the provisions of these bylaws.

9 POWERS OF COUNCIL

9.1 The Council may under powers given to it under the *Local Government Rating Act* and the *Local Government Act* and their Amendments establish, vary, alter, reduce, increase or remove charges and rates for the provision of the water race system.

9.2 The Council may alter the basis or manner or scale on which any or all such charges or rates are to be assessed as it sees fit in accordance with the powers delegated.

9.3 The Council may impose restrictions on the draw off of water from time to time.

9.4 The Council may perform its obligations, and exercise its rights, under these bylaws or otherwise in relation to the water race system through its nominated agents, employees or contractors, or the Agent, as the Council determines from time to time.

10 BREACHES OF THIS BYLAW

Where any person:

10.1 Defaults in payment of any rate imposed on their land in respect of the supply of water; or,

10.2 Fails to do or perform any act, or thing, that he or she is required to do by these bylaws; or,

10.3 Permits, allows, or does, any of the acts that are prohibited in Clause 3.4, or
10.4 Breaches any of terms and conditions of clauses 5 and 6 of this bylaw; or,

10.5 Fails to carry out anything that they have agreed to as part of their water supply agreement with the Waimakariri District Council or its agent; or,

10.6 Commits any other breaches of the terms and conditions of this bylaw

then they are in breach of this bylaw.

11 PENALTIES

11.1 Every person who commits a breach of any part of this bylaw is liable to a fine not exceeding $20,000 as provided for by Section 242 of the \textit{Local Government Act 2002}.

11.2 In addition to any penalty imposed by any court for a breach of this bylaw the Council may sue for and recover from any person, the amount of damage done or caused to a water race or any works constructed by or under the control or jurisdiction of the Council in relation to the water race, or in respect of any water unlawfully taken or diverted or wasted or lost due to any non observance or performance of any of this bylaw.

12 SAVINGS

12.1 Nothing in this bylaw shall be construed to be an undertaking or guarantee by, or oblige the Council and/or its agent to provide water in any water race either at all, or to any quantity or to any specified quality.

12.2 Nothing in this bylaw shall be construed to render the Council and/or its agent responsible or liable to any person or corporate body for the total or partial failure of any water supply from whatever cause such failure may arise.

13 BYLAWS TO BE REPEALED

All bylaws concerning the water race system in force made by the Council or its predecessors are hereby repealed. This repeal shall not affect the past operation of any such repealed bylaws or the validity or invalidity of anything done or suffered, or any right required, or duty or liability incurred under those bylaws.

14 COMMENCEMENT

14.1 This bylaw shall come into force on the \textit{6th day of June 2007} being the day so fixed at a meeting of the Waimakariri District Council at which the resolution reviewing this bylaw was confirmed.

14.2 The resolution to approve the proposed bylaw for notification was passed by the Waimakariri District Council’s Utilities & Roading Committee held on 19 December 2006, which was confirmed at a subsequent meeting of the Waimakariri District Council on 5th day of June 2019807.
## Attachment ii)

**WIL Feedback on Stock Water Bylaw**

<table>
<thead>
<tr>
<th>Area</th>
<th>WIL Feedback</th>
<th>WDC Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadside Race Cleaning</td>
<td>Water races adjacent to road sides need clarification on who is responsible for maintenance, these races are becoming increasingly difficult for landowners to maintain due to traffic management and health and safety in the workplace requirements. Also, consideration needs to be given to these road verges being manicured by the property owner’s limiting access, difficulty carting wet race cleanings on the road and available dumping sites.</td>
<td>Section 5.1 is unclear as to whether this includes the maintenance of races in road frontages. Although section 2.8 and the Map 1140 suggest that unless they are shown as green they are maintained by the farmers/landowners. We agree the TM and H&amp;S matters need to be considered, but suggest that this can be best achieved by changing races from dark blue to green on plan 1140 (i.e.: change to Council maintained). This can be done as a separate process to the bylaw. For clarity we could modify 5.1 as follows, this may be considered to be a significant change: Every owner or occupier of land through which a farm stockwater race (coloured blue) runs, or flows through the road frontage of, as identified in Clause 2.8 (d), shall:</td>
</tr>
<tr>
<td>Stock Access</td>
<td>Fencing is increasing due to the requirement to keep large animal’s out of the waterway’s, it may require a separate fencing policy to ensure practical access can be maintained at all times for maintenance.</td>
<td>The bylaw does not specifically refer to fences from a maintenance access perspective, except indirectly in Section 3.4.19 (live fences). Depending on the definitions of structures in Section 3.4.20, it could be considered that this clause also covered fences - although we don't want to create unnecessary permission requirements. If fences are less than 1.5m high (most common for stock), then I don't expect we would have an issue from a maintenance access perspective. I expect the main issues are in rural residential areas where 1.8m high fences are used, which could prevent access. I suggest that we monitor this and use Clause 3.4.20 if we need to.</td>
</tr>
<tr>
<td>Discharge</td>
<td>Prohibit roading contractors or other’s from cutting drainage channels into water races.</td>
<td>The altering of race banks is covered under Clause 3.4.16. The discharge into a water race does not appear to be excluded under the bylaw. Interestingly 3.2.2 suggests that</td>
</tr>
<tr>
<td>Mapping</td>
<td>Page 2 item 2.8 update map.</td>
<td>Agree.</td>
</tr>
<tr>
<td>Drinking Stations</td>
<td>Page 4 item 3.4.4 create a separate drinking station policy to incorporate David and Paul’s comments below.</td>
<td>This is best dealt with by developing best practice guidance for drinking stations as set out below.</td>
</tr>
<tr>
<td>Race Cleaning</td>
<td>Page 6 item 5.4.3 removing race cleanings needs better wording to clarify this statement.</td>
<td>Explanatory note added under 5.4.1.</td>
</tr>
<tr>
<td>Spraying</td>
<td>Spraying water races for maintenance, is this a prohibited activity under the bylaw?</td>
<td>New clause 3.4.22 added.</td>
</tr>
<tr>
<td>Maintenance Compliance</td>
<td>WIL requires improved systems or greater powers to ensure races are being maintained by landowners, land owners are informed of their responsibility, update stockwater fact sheet, regular mail outs or a prior warning notice similar to Mainpower notifying users for the need to clean and maintain water races.</td>
<td>This is best dealt with by developing educational material as per the Mainpower example. Additionally the process for escalating non-compliance to WDC staff to take action needs to be formalised.</td>
</tr>
<tr>
<td>Drinking Stations</td>
<td>The drinkers are going to be an ongoing issue. The bylaw does not provide any guidance on positioning, construction, size (relative to stock type, numbers etc.) This is the opportunity to make some rules based on the impact certain stocking characteristics have on the races structural integrity and carrying capacity, and water quality. The clause 3.4.3 – 3.4.7 cover this aspect generally but is short on specifics. Some guidance on this could help clean up some issues that we are seeing with Deer, large mobs of Cattle and general poor positioning, construction causing sedimentation/contamination of the water. The sedimentation/contamination is a big issue that is being raised ta the zone committee level. WIL can cover off their shareholders but have no mechanism for non-shareholders.</td>
<td>This is best dealt with by developing best practice guidance and education for both Wil shareholders and non-shareholders.</td>
</tr>
<tr>
<td>Drinking Stations</td>
<td>This is the opportunity to be able to enable WIL or WDC or any other relevant party to have some rules on which races can and can’t have drinkers established on them. If there was a clause or some classification of races based on their size /purpose or flow characteristics that permission or similar has to be granted would help avoid situations where WIL and WDC have no teeth to alter or fix situations if issues arise. Thinking of the Tallott situation here.</td>
<td>Again this is best dealt with by developing best practice guidance for drinking stations. 3.4.4 has been changed to say &quot;No one is to … allow … any animal to … cause or contribute to a nuisance, such as bank damage&quot;. Therefore we have a mechanism to take action if something is causing damage.</td>
</tr>
</tbody>
</table>
| Race classification | Suggestions for categorisation of the races could be based on points below.  
- connectivity to a natural waterway,  
- size,  
- flow characteristics (fluctuations etc)  
- primary function (conveyance or distribution),  
This is secondary information we could look at adding into the AMS/GIS in the future once we have the information to better manage and control the system.  
The classification based on maintenance responsibility is adequate for the purposes of the bylaw. |
|---|---|
| Regulations | Given that there is national legislation on its way that is going to basically prohibit all cattle/deer from access to waterways (with provisos for slope that will not apply here) does there need to be some clause in there that if there should be any future directive/rule from any other party that it can be adhered to.  
The LWPR stock exclusion rules relates to water bodies (lake, river or wetland) - which excludes artificial watercourses (including water supply races and farm drainage canals) - therefore do not apply to water races.  
The Draft ZIPA recommends that rules are included in the Waimakariri sub-regional chapter (Section 8) to exclude intensively farmed stock from water bodies, including artificial watercourses (i.e.: water races). Therefore there will not be a blanket coverall exclusion of all stock from artificial watercourse and water races under the sub-regional chapter.  
The Water Zone committee will be consulted and given an opportunity to input to the bylaw. |
| Water quality | The Zone committee processes are requiring water quality to be maintained and improved. How this process and the values put onto the stockwater race system could/ will have a bearing on the uses and access to these races. I assume they are being engaged in his process or even if they can be ???  
A report will be taken to the 12 November 2018 WWZC meeting to obtain their feedback.  
The Draft ZIPA shows the WWZC are interested in modifications to the water race system from a perspective of implications on aquifer and lowland stream recharge and the associated benefits of diluting nitrate levels.  
From a discharge perspective, compliance with the water quality requirements of RCs and LWPR will need to be achieved at the point of discharge. |
| Should the bylaw reference the dairy clean streams accord or any similar requirement that is in place | The stockwater race bylaw relates to the use of the water race system, rather than management of land use activities as set out in the Sustainable Dairying: Water Accord.  
This would be beyond the scope of the bylaw and would require references to other initivies as the stockwater scheme supplies more than just dairy farms. |
STOCKWATER RACE - CLOSURE POLICY

1 Introduction

1.1 Stockwater races in the Waimakariri District have supplied water for stock since the system was first introduced in 1896. Since then water has been supplied to livestock on a continuing basis throughout the District. There have been few closures of races over that time however with changes in land use, particularly due to rezoning and encroaching urbanisation there has been the need to close several water races. This policy sets out the procedures to be followed when further applications for closures of water races are received.

2 Policy Context

2.1 This policy has been designed to follow the steps as set out in legislation in the Local Government Act 2002 (LGA) on decision making in the context of water race closure.

2.2 Generally the Council will not allow race closures where they may affect the viability of the water race network.

3 Policy Objective

3.1 The objective of this policy is to ensure that all closures are carried out in a systematic fashion and to ensure that effective consultation is carried out.

4 Policy Statement

4.1 The steps to closing a water race are initiated once a reason for a closure has been established and investigated. This may be due to an external request or as a result of an internal Council staff review. Once a water race has been identified for closure, a decision process is then to be undertaken as set out in the LGA, specifically Part 6 which deals with decision making.

4.2 The first step is to determine if the closure is a matter of significance as set out in the Council’s Significance Policy (refer to Financial Management section of the Long Term Plan) and based on the following questions:

a. Would the level of service for the supply and delivery of stockwater be significantly affected if the race were closed?

b. Is the race being considered for closure a strategic asset?

c. Would closure significantly affect Council’s ability to supply water?

d. Would closure significantly affect the cost to Council and ratepayer to undertake this activity?

4.3 If the answer is yes to any of the above questions then the special consultative procedure as set out in Section 83 of the LGA should be initiated. This should include reporting to the Utilities and...
STOCKWATER RACE - CLOSURE POLICY

Roading Committee, Water Race Advisory Group and relevant Community Board or Advisory Board on the proposed consultation process and subsequent decision.

4.4 If the answer to the questions under Clause 4.2 are no then the decision making process as set out in Sections 77 and 78 of the LGA should be followed.

4.5 Whether the process is a Special Consultative Procedure or not, the consultation undertaken may include:

i. Letters to residents and other affected parties e.g.: developers

ii. Consultation with the Heritage New Zealand regarding structures such as culverts, weirs and Culverts Historic Places Trust and Runanga

iii. Consultation with Environment Canterbury, Te Ngāi Tūāhuriri Rūnanga, and the Waimakariri Water Zone Committee.

iv. Public notices in papers and/or on the WDC website

v. Proposal open for consultation for at least one calendar month

vi. Report to affected Community Board or Ward Advisory Board and Water Race Advisory Group

vii. Public meeting

viii. Closing date for proposal submissions

ix. Send acknowledgement letter to submitters

x. Complete report based on the submissions and deliberations

xi. Report to Management Team

xii. Report to Council Committee (U&R) then Council

xiii. Letter to residents with Council decision where appropriate

5 Links to other policies and community outcomes

5.1 This policy links with the Stockwater Race Bylaw 201907, Stockwater Race Pond Policy and Planting of Trees and Shrubs Alongside Water Races Policy. In addition it is linked to the following Community Outcomes:

- The demand for water is kept to a sustainable level
- Harm to the environment from the spread of contaminants into ground and surface water is minimised.

6 Adopted by and date

6.1 This policy was adopted by the Council on the 24 April/September 20192

7 Review

7.1 The review of this policy will be aligned with the Stockwater Race Bylaw 201907 review programme by June 202917.
STOCKWATER RACE - POND POLICY

1 Introduction
1.1 The Stockwater Race Pond policy specifies the rules and conditions for the private land-owner use of stockwater race water for an off-race pond or development of an ornamental pond. It should be read in conjunction with the Stockwater Race Bylaw 2007, in particular Section 6 “Diverting of Water”.

2 Policy Context
2.1 This policy has been formulated in the context of the efficient management of stockwater resources to ensure a plentiful supply of water for stock is available at all times of demand.

2.2 Compliance with this policy and the Stockwater Race Bylaw 2007 does not necessarily imply compliance with the regional rules of the Waimakariri River Regional Plan and the Canterbury Land and Water Regional Plan Natural Resources Regional Plan, and resource consent may be required.

3 Policy Objective
3.1 The objective of this policy is to provide a standard approach for approving and recording applications for the private establishment and operation of ponds associated with stockwater races.

3.2 A landowner applying for a permit to take stockwater from a race other than for immediate stock use must comply with the provisions under Section 4 of this policy.

4 Policy Statement
4.1 The applicant and subsequent owners are responsible for ensuring that all applicable Acts, Regional and District Plans and Bylaws are followed when constructing and operating the pond.

4.2 All applications to construct ponds connected to stockwater races must be made in writing on the appropriate form: QS-U580 Stockwater Application Form to the Waimakariri District Council.
STOCKWATER RACE - POND POLICY

Council’s Drainage Asset Manager. This can be downloaded from the Council’s web site or obtained from any of the Council’s Service Centres in Oxford, Rangiora or Kaiapoi.

4.3 A written response will be made by the Council to the application within 240 working days setting out the conditions to be met if the application is granted.

4.4 A copy of the application and Council reply will be put on the applicant’s property file for future reference. The Race Manager will also be advised of the application and decision reached.

4.5 In general only one pond connected to a stockwater race will be permitted per property.

4.6 The nearest inside edge of a pond shall be constructed no closer than 5 metres from the nearest stockwater race.

4.7 Ponds should be no greater than 50 m² in area. In certain circumstances the Council may approve ponds no greater than 100 m² in area, where the flow in a water race is sufficient.

4.8 Pond depth shall not exceed 400 mm and shall preferably be fitted with an overflow weir at a depth of 380 mm, so as to control the depth of water that it will not exceed 400 mm at any time. The overflow weir shall return flow back to the water race. The 400 mm limit is a requirement of the Building (Pools) Amendment Act 2016 and the Fencing of Swimming Pools Act 1987.

4.9 Ponds shall be lined with either a PVC membrane overlying a 50 mm compacted sand layer or with a clay lining. With either option it will be required to show that the pond is impermeable to leakage and if necessary a test will be requested to be carried out to check permeability.

4.10 A plan of the proposed pond (dimensions, locality etc.) shall be supplied to the Council’s Drainage Asset Manager for approval prior to work being undertaken. Please note that a pond within the grounds of a dwelling may be required to be fenced under the Building (Pools) Amendment Act 2016 and the Fencing of Swimming Pools Act 1987.

4.11 The work is to be carried out under the supervision of the Race Manager, who must be notified at least ten working days in advance by the applicant, once a permit to construct a pond has been given in writing by the Council.

4.12 Inlet and outlet pipes to connect with the race system shall be with a lockable slide gate or fitted valves of at least 100 mm diameter.

4.13 Water for the pond may be supplied from the race provided there is sufficient to do so. If water is in short supply or a notice of insufficient water supply has been given, then the supply of water to the pond must cease until you are notified otherwise. This will be achieved by turning...
STOCKWATER RACE - POND POLICY

off the valve until water supply can safely return. On no account can water be taken so as to
cause a reduction in flow downstream of the pond.

4.14 No dam shall be installed in a race in order to raise water level so as to allow water to be
diverted.

4.15 Pond owners will be required to ensure that the quality of the water discharging from the pond
shall be no less than that entering the pond from the race. The pond shall not be a source of
polluted water diverted back to the stock water race system.

4.16 The Council reserves the right to withdraw permission for the taking of water if it is found that
any of the clauses in Section 4 have not been complied with.

4.17 The pond owner shall be responsible for all inspection and compliance costs.

5 Links to other policies and community outcomes

5.1 This policy links to a companion policy on the Planting of Trees and Shrubs Alongside
Stockwater Races and the following Community Outcome:

There is sufficient clean water to meet the needs of communities and ecosystems

- The demand for water is kept to a sustainable level
- Harm to the environment from the spread of contaminants into ground and surface
  water is minimised

6 Adopted by and date

6.1 This Policy was adopted by the Council on the 2 April 2019 and 4 September 2012.

7 Review

7.1 The review of this Policy will be aligned with the Water Race Bylaw 201907 review programme
by June 2024.
PLANTING OF TREES AND SHRUBS ALONGSIDE STOCKWATER RACES

1 Introduction

1.1 The Planting of Trees and Shrubs alongside Stock Water Races policy specifies the rules and conditions for a private land-owner wanting to plant adjacent to stock water races. It should be read in conjunction with the Stockwater Race Bylaw 201907, in particular Clause 3.4, Prohibited Uses sub-clause 3.4.19 (c) and Section 5 Cleaning.

2 Policy Context

2.1 This policy has been formulated in the context of ensuring ease of cleaning, and that races are kept free from vegetation and debris that could impede a races function in delivering water to stock.

2.2 Compliance with this policy and the Stockwater Race Bylaw 201907 does not necessarily imply compliance with the regional rules of the Canterbury Land and Water Regional Plan, Waimakariri River Regional Plan and the Natural Resources Regional Plan and resource consent may be required.

3 Policy Objective

3.1 The objective of this policy is to provide a standard approach for approving and recording applications for permission to plant trees or shrubs alongside water races.

3.2 A landowner applying for a permit to plant alongside a water race must comply with the provisions under Section 4 of this policy.

4 Policy Statement

4.1 Trees and shrubs may be planted within 10 metres of a water race only after written permission has been received from the Council’s Drainage Asset Manager. Permission to plant trees and shrubs applies only to those outlined in the application and not for any subsequent planting not mentioned except for the replacement of dead plants.

4.2 The applicant and subsequent owners are responsible for ensuring that all applicable Acts, Regional and District Plans and Bylaws are followed when planting trees and shrubs (for example if planting near power wires).

4.3 All applications to plant trees or shrubs alongside stock water races must be made in writing on the appropriate form QS-U580 Stockwater Application Form to the Waimakariri District Council’s Drainage Asset Manager. This can be downloaded from the Council’s web site or obtained from any of the Council’s Service Centres in Oxford, Rangiora, or Kaiapoi.

   a. A written response will be made by the Council to the application within 210 working days setting out the conditions to be met if the application is granted.

   b. A copy of the application and Council reply will be put on the applicant’s property file for future reference. The Race Manager will also be advised of the application and decision reached.

   c. The particular species of trees or shrubs shall be stated on the application. Species such as pinus radiata, poplar, gum trees and willow will not be permitted. The Council reserves the
PLANTING OF TREES AND SHRUBS ALONGSIDE STOCKWATER RACES

right to prohibit other species if they are determined to be an issue if planted alongside water races.

d. Subsequent to obtaining approval from Waimakariri District Council to plant within 10 metres of a water race, trees and shrubs shall be planted and maintained at a height that is less than or equal to the distance from the outer edge of the race to the inner edge of a mature trunk. See Figure 1.

e. Subsequent to obtaining approval from Waimakariri District Council to plant within 10 metres of a water race, shrubs can be planted on the side of the race from which it is maintained, provided that race maintenance is not hindered. Plants must be maintained to less than 1.5 metres high and cannot extend more than 2 metres from the outer edge of the race.

f. Trees can only be planted on the opposite side of the race from which is maintained.

g. The lateral (side) growth is to be maintained in the shape of a trimmed hedge so as not to encroach on the water race. The purpose of this requirement is to allow for race maintenance.

h. All tree trimmings in the vicinity of the race are to be moved sufficient distance away to avoid wind-blown material entering the race. Any loose tree material in the race is to be removed. This is to be done immediately following trimming.

i. Any dead or loose material entering the race from the trees as a result of adverse weather such as north-west gales is also to be removed.

j. Waimakariri Irrigation Limited shall be advised before any planting or tree maintenance work is carried out so as to avoid any conflict with water race operations.

k. Please note that the Waimakariri District Council reserves the right to request the removal of the trees or shrubs if they are found at any time to be a problem with the operation of the water race system.

l. The Council reserves the right to withdraw permission for the planting of trees and shrubs if it is found that any of the clauses in Section 4 of this policy have not been complied with.

5 Links to other policies and community outcomes

5.1 This policy links to a companion Stockwater Race Bylaw 2019 and the Community Outcome that there is sufficient water to meet the needs of communities and ecosystems.

6 Adopted by and date

6.1 This policy was adopted by the Council on the 24 April September 2019.

7 Review

7.1 The review of this policy will be aligned with the Water Race Bylaw 200197 review programme by June 2019.
PLANTING OF TREES AND SHRUBS ALONGSIDE STOCKWATER RACES

Figure 1: Tree setback distance from race

Tree height (H) must be maintained to the distance (d) it is set back from the water race.
1. SUMMARY

1.1. The purpose of this report is to provide an update to the Utilities and Roading Committee on the implementation of the Council's Water Conservation Strategy, including leak analysis and reduction work, the school education programme, and participation in the BRANZ Water Metering and Water Use Project. It also requests approval for a new method of measuring and assessing leakage of the Council's water supply schemes.

Leak Analysis and Reduction

1.2. In August 2017 a report was produced giving leakage figures for all schemes throughout the district for the 2016/17 period (refer report 170803082745).

1.3. At this time Council only had one formal measure in terms of leakage targets, being a maximum target of 240 litres per connection per day.

1.4. While this is a useful high level indicator of leakage on a scheme, this figure was deemed to not be the most appropriate relative measure of leakage on schemes that vary significantly in terms of the amount of pipework per connection, and the pressure that they operate at. This is a particular issue when comparing higher density on-demand schemes with lower density restricted schemes.

1.5. It is now proposed that a new key measure be adopted, being the Infrastructure Leakage Index (ILI). This assigns a leakage band to each scheme based on a combination of the number of connections, length of pipework and operating pressure. This measure was developed by the World Bank Institute, and is recommended as the primary measure of leakage in the Water New Zealand Water Loss Guidelines manual (2010).

1.6. Analysis has been carried out across all schemes in the district to determine which band each scheme falls within. This gives an indication of the relative levels of leakage and condition of the infrastructure across the district, and also helps prioritise resources for further leak reduction work.

1.7. In summary, the following results were calculated:

1.7.1. 7 schemes achieved an ‘A’ ILI rating (Rangiora, Woodend, Pegasus, Cust, Oxford Rural No.1, West Eyreton, Summerhill).

1.7.2. 5 schemes achieved a ‘B’ ILI rating (Kaiapoi, Ohoka, Garrymere, Oxford Rural No.2).
1.7.3. 2 schemes achieved a ‘C’ ILI rating (Oxford Urban, Poyntzs Road).

1.7.4. 2 schemes achieved a ‘D’ ILI rating (Mandeville and Fernside).

1.7.5. As a weighted average the scheme achieved a ‘B’ ILI rating, with a total assessed leakage figure of 21% of total water consumed.

1.8. The minimum night flow method for determining leakage levels is considered a suitable method on on-demand schemes, however on fully restricted schemes it may over-estimate leakage. The reason is that the calculation assumes that the minimum flow at any given time almost entirely represents leakage, while on a restricted scheme there may be genuine use at all times as restrictors fill tanks through the night and day. For this reason the Mandeville, Fernside and Poyntzs Road results may not represent actual leakage levels, however at this point this is the best method of analysis that can be carried out at a high level.

Water Metering Assessment

1.9. Water use data is currently being collected at approximately 114 sites with water meters throughout the district. These sites were selected as potential high users in order to assess usage at these properties against ‘average’ properties to inform staff whether there is a need to investigate any potential need to review the way in which Council rates for water use.

1.10. This data has been analysed to determine patterns in water use, and correlations between water use and size of section, commercial activity type, water connection type and other factors.

BRANZ Water Metering and Water Use Project

1.11. The Waimakariri District Council is participating in a BRANZ residential water use study. This has involved nominating randomly selected residents to take part in a water use survey, and funding the installation of ‘smart’ water meters at these properties to assess their water use. BRANZ will then collate the data nationally and report back with their findings.

Community Awareness Programme

1.12. Activities undertaken as part of the Community Awareness Programme in the 2017/18 financial year included the school education programme to raise awareness of water conservation issues. In the 2017/18 financial year, 130 hours’ worth of classroom sessions were held in schools and pre-schools throughout the district with an estimated 2,900 students receiving education through this programme.

Attachments

i Summary of 2017/18 Leakage Results (190214017313)

ii. Water Metering Results Assessment (180704074511)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) Receives report No. 190130010451.

(b) Notes the progress on the implementation of the Water Conservation, including the active leak detection and analysis work, Community Awareness Programme, participation in the BRANZ water use study and investigations in water metering as documented in this report.
Approves the inclusion of the Infrastructure Leakage Index (ILI) in the next version of the Activity Management Plans as the primary relative measure of leakage on all schemes rather than the target value of 240 L/connection/day that was previously reported on.

Notes that where an A or B band is calculated using the ILI, no active leak detection work will be undertaken, and when a C or D is achieved an economic assessment will be undertaken to determine the merit in further leak identification and reduction work.

Notes that Council is meeting its mandatory performance measure target of achieving leakage of less than 22% of total water used, achieving an actual assessed leakage value of 21% across the district’s public water supply schemes, noting that the Department of Internal Affairs requires that Council report on this measure.

Notes that the current method of determining leakage using night flows is expected to overestimate leakage on restricted schemes however this is the most accurate method available currently.

Circulates this report to the Community Boards for their information.

3. ISSUES AND OPTIONS

3.1. This report presents the Utilities and Roading Committee with an update on the implementation of Council’s Water Conservation Strategy. This includes the following topics:

- Presentation of latest assessed leakage figures across the district.
- A proposal for a new key measure for assessing relative leakage between schemes, and an economic assessment of the cost of leakage.
- An update on the community education programme on water conservation through the school education programme.
- Information on the BRANZ Residential Water Use study which Council is participating in.
- Presentation of analysis of extraordinary water users within the district.

Leak Analysis and Reduction Results

3.2. In August 2017 a report was produced giving leakage figures for all schemes throughout the district for the 2016/17 period (refer report 170803082745).

3.3. At this time Council only had one formal measure in terms of leakage targets, being a maximum target of 240 litres per connection per day.

3.4. While this is a useful high level indicator of leakage on a scheme, this figure was deemed to not be the most appropriate relative measure of leakage on schemes that vary significantly in terms of the amount of pipework per connection, and the pressure that they operate at. This is a particular issue when comparing higher density on-demand schemes with lower density restricted schemes.

3.5. It is now proposed that a new key measure be adopted, being the Infrastructure Leakage Index (ILI). This measure was developed by the World Bank Institute, and is recommended as the primary measure of leakage in the Water New Zealand Water Loss Guidelines manual (2010). The World Bank Institute is a branch of the World Bank which provides learning programmes, policy advice and technical assistance to policy makers, and government and non-government agencies.
3.6. The ILI method assigns a leakage band to each scheme based on a wider range of factors than simply the number of connections. In particular, it takes into account the length of pipework and operating pressure, as well as the number of connections. It is proposed that this new measure be carried through to the respective Activity Management Plans as part of their next update.

3.7. The ILI is determined to be the ratio of actual leakage relative to a calculated ‘Unavoidable Annual Real Losses’ (UARL). Essentially accepting that there is a level of leakage that cannot be realistically avoided for a given amount of pipework, connections and pressure and therefore calculating how much actual leakage is occurring relative to this unavoidable amount.

3.8. The bands of leakage proposed to be used are given in Table 2 below:

<table>
<thead>
<tr>
<th>Band</th>
<th>ILI Range</th>
<th>Guideline Description of Real Loss Management Categories for Developed Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt; 2.0</td>
<td>Further loss reduction may be uneconomic unless there are shortages; careful analysis needed to identify cost-effective leakage management</td>
</tr>
<tr>
<td>B</td>
<td>2.0 – 4.0</td>
<td>Possibilities for further improvement; consider pressure management, better active leakage control, better maintenance</td>
</tr>
<tr>
<td>C</td>
<td>4.0 – 8.0</td>
<td>Poor leakage management, tolerable only if plentiful cheap resources; even then, analyse level and nature of leakage, intensify reduction efforts</td>
</tr>
<tr>
<td>D</td>
<td>&lt;8.0</td>
<td>Very inefficient use of resources, indicative of poor maintenance and system condition in general, leakage reduction programs imperative and high priority</td>
</tr>
</tbody>
</table>

3.9. The way in which the bands are proposed to be used, once a banding has been assigned to each scheme is:

- If a scheme is measured as an A or a B, this is considered that the scheme’s pipework is generally in good condition and that no further work is required to actively identify and repair leaks.

- If a scheme is measured as a C or a D, an economic assessment will be carried out to determine the cost of the leakage which will help inform the level of investment that should be made into actively identifying and repairing leaks. The assessed annual cost of the leakage will be considered to determine an appropriate investment in active leak detection and repair.

3.10. While the cost of leakage in terms of pumping costs and chemical costs of water that is lost to leakage is a relevant consideration, it is not the only driver to address leakage. There is a growing concern and focus nationally with the value of clean water and the need to use the resource wisely and sustainably. This is a consideration when resource consents are applied for and renewed. Leakage levels are also a relevant consideration in the safety of a scheme, in that the lower the leakage levels the lower the risk of contaminants entering pipework through the defects causing the leaks. This is a relevant consideration when considering the potential merits of chlorinating a water supply scheme.

3.11. The above drivers will also be considered when allocating future investment into addressing leakage, as well as the economic argument in doing so.

3.12. As well as assessing leakage on each scheme against the ILI as the key performance indicator, leakage has also been measured against the following other factors:
As a percentage of total water consumed. This is required to be assessed and reported by the Department of Internal Affairs as a mandatory performance measure. This measure is easy to understand, but does not give a full understanding of the leakage. It is also flawed in that it could be improved not by addressing leakage, but alternatively by consuming more water (i.e. the more water that is consumed through excessive garden irrigation for example, the lower the relative percentage of leakage).

In terms of litres per connection per day. This is the measure that was previously used, with a maximum target value of 240 L/connection/day. This has the benefit of being relatively easy to understand, and is a useful target on schemes of a certain density (the Water New Zealand Water Loss Guideline recommends this figure where there are more than 20 connections per km of main). It does not however take into account the length of pipework, or the pressure that the pipework operates at.

In terms of litres per km per day. This is again relatively easy to understand, but does not take into account all factors that affect leakage. It is useful in giving an understanding why some schemes may be higher in terms of the above two measures, but not necessarily this one. For example a scheme with a large amount of pipework and that operates at a high pressure may score relatively poorly in terms of total percentage of water lost to leakage, and litres of leakage per connection per day, but this measure may help demonstrate that this is due to a large amount of pipework rather than the pipework being in poor condition.

3.13. As well as considering improved units to measure and report leakage against, consideration has also been given to how to determine the actual volume of water lost to leakage.

3.14. The optimum way to measure leakage is to undertake a water balance, where the volume of water that leaves the treatment plant is known, and each property is metered meaning that the volume of water consumed is known. Leakage can then be calculated as the difference between the two volumes. This is not able to be done in the Waimakariri District however, as only a small proportion of the properties within the district are metered, and even less routinely read.

3.15. The other common method of measuring leakage is using night flow analysis. This is based on the theory that the minimum flow at the lowest demand period of the night is almost entirely leakage, as the demand at this point would be close to negligible. This is relatively easy to determine where there are flowmeters in place at all locations where water enters the distribution system. It is particularly relevant on on-demand schemes such as the larger urban schemes.

3.16. Night flow analysis has the risk of over-estimating leakage on restricted or semi-restricted schemes. The reason is that the theory of using minimum night flows to assume leakage rates is that there will be little to no genuine use at this time. The issue is that on restricted schemes there is much more likely to be usage throughout night and day due to the way that the tanks fill at a constant rate day and night in order for residents to receive their full allocation. The result of this is that where night flow analysis is used on restricted schemes, leakage can be overestimated.

3.17. Through a lack of preferable alternatives, night flow analysis has been used as the key method of estimating leakage on both restricted and on-demand schemes. On restricted schemes, it is considered that if a scheme can achieve a good leakage score, then it provides valuable information that the leakage is within an acceptable band, despite being over-estimated. If a restricted scheme achieves a poor leakage score, then this can trigger
further investigations to try to determine whether this is due to over-estimate of leakage due to restrictors running at night or genuine high rates of leakage.

3.18. Leakage has been estimated on each scheme using minimum night flow analysis (refer to Attachment i for detailed results). The primary measure of leakage is the ILI, however results are also presented in terms of leakage per property, per kilometre of water mains, and as a percentage of total water used.

Table 2: Summary of Leakage Analysis Results over 2017/18 Financial Year

<table>
<thead>
<tr>
<th>On-Demand</th>
<th>Operating Pressure (m)</th>
<th>L/conn./day</th>
<th>Assessed Leakage</th>
<th>Percent</th>
<th>ILI</th>
<th>Band</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rangiora</td>
<td>46</td>
<td>86</td>
<td>3.0</td>
<td>9%</td>
<td>1.4</td>
<td>A</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>44</td>
<td>134</td>
<td>4.4</td>
<td>17%</td>
<td>2.3</td>
<td>B</td>
</tr>
<tr>
<td>Woodend</td>
<td>45</td>
<td>118</td>
<td>3.1</td>
<td>17%</td>
<td>1.8</td>
<td>A</td>
</tr>
<tr>
<td>Pegasus</td>
<td>49</td>
<td>5</td>
<td>0.1</td>
<td>1%</td>
<td>0.1</td>
<td>A</td>
</tr>
<tr>
<td>Cust</td>
<td>43</td>
<td>174</td>
<td>2.3</td>
<td>15%</td>
<td>1.9</td>
<td>A</td>
</tr>
<tr>
<td>Waikuku Beach</td>
<td>39</td>
<td>138</td>
<td>4.5</td>
<td>18%</td>
<td>2.6</td>
<td>B</td>
</tr>
<tr>
<td>Oxford Urban</td>
<td>52</td>
<td>608</td>
<td>14.2</td>
<td>45%</td>
<td>7.4</td>
<td>C</td>
</tr>
<tr>
<td><strong>Semi Restricted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ohoka</td>
<td>54</td>
<td>299</td>
<td>4.3</td>
<td>21%</td>
<td>2.7</td>
<td>B</td>
</tr>
<tr>
<td>Poyntzs Road</td>
<td>50</td>
<td>555</td>
<td>7.7</td>
<td>39%</td>
<td>5.3</td>
<td>C</td>
</tr>
<tr>
<td>Garrymere</td>
<td>51</td>
<td>343</td>
<td>3.0</td>
<td>10%</td>
<td>2.4</td>
<td>B</td>
</tr>
<tr>
<td><strong>Restricted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxford Rural No.1</td>
<td>88</td>
<td>1379</td>
<td>3.2</td>
<td>35%</td>
<td>1.9</td>
<td>A</td>
</tr>
<tr>
<td>Oxford Rural No.2</td>
<td>107</td>
<td>1261</td>
<td>5.3</td>
<td>59%</td>
<td>2.3</td>
<td>B</td>
</tr>
<tr>
<td>West Eyreton</td>
<td>30</td>
<td>220</td>
<td>1.2</td>
<td>14%</td>
<td>1.8</td>
<td>A</td>
</tr>
<tr>
<td>Summerhill</td>
<td>110</td>
<td>779</td>
<td>2.9</td>
<td>36%</td>
<td>1.2</td>
<td>A</td>
</tr>
<tr>
<td>Mandeville</td>
<td>36</td>
<td>805</td>
<td>9.3</td>
<td>61%</td>
<td>9.5</td>
<td>D</td>
</tr>
<tr>
<td>Fernside</td>
<td>36</td>
<td>1243</td>
<td>18.2</td>
<td>74%</td>
<td>17.0</td>
<td>D</td>
</tr>
<tr>
<td><strong>All Schemes Average</strong></td>
<td></td>
<td>210</td>
<td>4.3</td>
<td>21%</td>
<td>3.1</td>
<td>B</td>
</tr>
</tbody>
</table>
3.19. The following conclusions can be drawn from the results:

- All the on-demand schemes are performing well, with the exception of Oxford Urban. Active leak detection was undertaken on this scheme at the end of the 2017/18 year, with leaks repaired in the 2018/19 year. Further assessment will be required to assess the impact that this leak detection and repair had, although it is acknowledged that the leaks found were relatively modest in size.

- Of the restricted and semi-restricted schemes, Mandeville-Fernside will be the key focus over the coming winter months. It could either be that there are more properties making the most of their full allocation even in the winter months on these schemes (meaning significant genuine use at night), or that there are significant leakage issues. It is proposed that some zone meters be installed to determine whether the night flow is consistent throughout the schemes, or whether the higher flow is attributable to particular areas. This analysis will help inform the next steps of investigation.

- Across the district, the results show that the pipework is in good condition and generally performing well with a weighted average B ILI rating achieved.

- As part of the Water New Zealand National Performance Review, various participants report on their annual water loss in terms of current annual real losses by connection. The district wide figure of 211 litres per connection per day is the second lowest when compared with six medium sized participants (Invercargill, Malborough, Queenstown-Lakes, Selwyn, Tasman, Timaru), as reported in the 2016/17 review. This is shown on Figure 2.
Economic Assessment of Leakage

3.20. An economic analysis was conducted to determine the value of the leakage occurring on all schemes. This was generally calculated as follows:

- The amount of the variable costs determined (electricity and chemical costs for treatment).
- The total volume consumed determined, then the variable costs of supplying water divided by this amount, to give a unit cost ($/m3 of the variable cost of supplying water).
- The volume of water lost to leakage was taken from the night flow analysis results and multiplied by the variable cost of water to give an annual cost of leakage.

3.21. The following results were calculated:
3.22. The following notes can be made about the above:

- While the estimated total annual cost of leakage is significant at over $200,000 per year, for a lot of schemes the majority of this leakage is considered unavoidable.

- As noted previously, in particular on the restricted schemes, the level of leakage may be over-estimated using current methods of analysis. This would in turn over-estimate the cost of leakage on these schemes.

- In terms of unavoidable leakage, the most significant schemes are Mandeville and Oxford Urban with calculated avoidable leakage costs of $58,800 and $33,200 respectively. It is therefore recommended that further work focus on these schemes for the next financial year’s leak detection work.

### Community Awareness Programme

3.23. Activities undertaken as part of the Community Awareness Programme in the 2017/18 financial year included the school education programme to raise awareness of water conservation issues. In the 2017/18 financial year, 130 hours’ worth of classroom sessions were held in schools and pre-schools throughout the district with an estimated 2,900 students receiving education through this programme.

3.24. Advertisements were put in local papers in December 2017 following a period of very little rain in November followed by high temperatures in December causing very high demand on some schemes. These advertisements are generally done in response to particular events of high demand and temperature patterns, rather than on a routine basis.

### BRANZ Water Metering and Water Use Project

3.25. The Waimakariri District Council is participating in a BRANZ residential water use study. This has involved nominating randomly selected residents to take part in a water use survey, and funding the installation of ‘smart’ water meters at these properties to assess their water use.

3.26. The following table summarises the amount of properties included from the Waimakariri District for the different parts of the project and the total numbers nationally.
<table>
<thead>
<tr>
<th>Scheme</th>
<th>Number of properties where meters are installed and being read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cust</td>
<td>8</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>24</td>
</tr>
<tr>
<td>Oxford</td>
<td>30</td>
</tr>
<tr>
<td>Rangiora</td>
<td>41</td>
</tr>
<tr>
<td>Waikuku Beach</td>
<td>6</td>
</tr>
<tr>
<td>Woodend</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>114</strong></td>
</tr>
</tbody>
</table>

3.27. BRANZ will then collate this information with other data collected nationwide and use it to present up to date information on average household water use, what the water is used for, and potential differences in use based on a number of factors. Ultimately this data will help staff better understand water use in the Waimakariri District relative to other regions, and also how water is used and where savings could be made. In particular it will help staff understand if water use is comprised mainly of garden irrigation, showers, baths, cooking, washing machines etc. This will then help Council to target any water conversation messaging at areas which contribute the most to water use.

3.28. The data collection is due to be completed in May 2019, with the final report due to be published in September 2019.

**Water Metering Analysis**

3.29. Water use data is currently being collected at 114 sites with water meters throughout the district. These sites were selected as potential high users in order to assess usage at these properties against ‘average’ properties to inform staff whether there is a need to investigate any potential need to review the way in which Council rates for water use.

3.30. The sites selected as potential high users of water were generally sites where it was known that a larger than standard connection was in place, or sites in industrial or commercial areas. A range of sites were selected across the district to give in order to identify any potential differences in water use patterns by area or scheme type (as well as assessing by zoning, connection size, and land parcel size). The properties that are metered and read by scheme are summarised on Table 3.

**Table 5: Summary of properties where meters are being read by scheme**

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Number of properties where meters are installed and being read</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cust</td>
<td>8</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>24</td>
</tr>
<tr>
<td>Oxford</td>
<td>30</td>
</tr>
<tr>
<td>Rangiora</td>
<td>41</td>
</tr>
<tr>
<td>Waikuku Beach</td>
<td>6</td>
</tr>
<tr>
<td>Woodend</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>114</strong></td>
</tr>
</tbody>
</table>

3.31. The Project Delivery Unit has completed a study looking into the data collected from these meters (refer Attachment ii 180704074511). The purpose of the memo was to analyse the water use data collected to better understand any correlations between water use and factors such as the activity type, the land area, the amount of rating units and the connection size.

3.32. The intention was to allow Council to be better informed in considering whether there is a need to make any changes to its rating policy for drinking water. The Council’s current rating statement for drinking water is:

*Water rates are charged on each rating unit, separately used or inhabited parts of a rating unit, or by unit of water on rating units that have a connection to a Council water supply. The amount of the rate and method of charging depends on which scheme the property is located in.*
connected to. Water rates fund the cost of operating the individual schemes for the supply and treatment of drinking water.

3.33. Essentially, properties on on-demand schemes generally pay a fixed rate regardless of the volume of water consumed. By far the most common number of rating units assigned to a given property is a single rating unit. Some properties are assigned a larger number of rating units at the time they are consented, following a process of determining the ‘separately used or inhabited parts’ of that property.

3.34. Presently, the only real limitation or disincentive to excessive water use on on-demand schemes is the connection size, which physically restricts the amount of water that can enter each property to some extent. If properties wish to have larger connections installed to allow a greater amount of water, they are required to pay an increased development contribution relative to the connection size.

3.35. On a restricted scheme, a rating unit is more commonly referred to as a unit of water, with one unit equating to 1000L/day. The water is not measured as it enters each property, but a flow restrictor is installed limiting the flow rate at which each property is supplied with water. Properties on restricted schemes require a tank to build up their allocation of water over a period, and a pump to then deliver that water to their dwelling and other facilities on the property at pressure.

3.36. In order to help the Council consider whether there is a need to make any changes to the way in which water is rated, the following key conclusions were able to be drawn from the analysis undertaken. The key conclusions are presented in order of the factors analysed. These are:

- **Activity type.** Activity types measured included accommodation, residential, commercial, hospitality, retail, industrial, schools, hospitals and pools. There was no distinct correlation between water use and activity type. For example, there was a large range in water use per school, and per swimming pool and per restaurant. It was noted that Woodend School had unusually high water use compared to other schools, and staff have been working directly with the school regarding this.

- **Time of year.** The seasonal variation in demand was analysed for the different activity types, versus standard residential use. In general water supply systems are put under the most pressure during the summer period, largely due to garden irrigation during hot weather. It was seen that for the properties analysed this trend was not as distinct, potentially because some of the commercial activities do not have demand that varies with the weather in the way that residential use does.

- **Land area.** Water consumption was analysed versus the size of the property connected. There was no strong correlation between land area and water usage. Some very large properties had relatively low water use, and some relatively small properties had relatively high water use.

- **Rating units.** The amount of water used was compared to the rating units paid by each property. There was no distinct correlation in this field from the properties analysed. The largest water use property (Dudley Park swimming pool) has one rating unit, while there are other properties paying for a larger number of rating units but with relatively low use.

- **Connection size.** The amount of water consumed was compared to the size of the water connection. There was a reasonably good correlation between the connection size, and the volume of water consumed. Properties generally consumed more water the larger their connection. This is understandable given
that properties who wish to have larger connections are generally required to pay significant development contributions at the time of applying for their connection. Therefore, there is an incentive to only get a larger connection if there is a genuine need to consume more water due to the activity type on that site.

3.37. The Council’s Water Supply Bylaw allows for the identification of ‘extraordinary water users’. It also provides for Council to fit water meters to any extraordinary water user, and charge on a volumetric basis in accordance with any charges in the Council’s fees and charges schedule. This was originally written into the 2012 version of the Water Supply Bylaw, and carried through to the 2018 version to provide for the charging for water use by volume, should Council wish to adopt this method of rating.

3.38. There was a report brought to the Utilities and Roading Committee in December 2011 on this topic (111103051701[v2]) which presented to the committee potential costs of implementing water metering throughout the district.

3.39. The work previously carried out on water metering was completed some time ago, and the costs are now likely to be outdated. This work is therefore programmed to be updated in 2020 as part of the Council’s Activity Management Plan improvement programme work. This will in turn inform the 3 Waters rating review, which is due to take place in 2022/23.

4. COMMUNITY VIEWS

4.1. The community has not been consulted regarding this work.

4.2. The community has been engaged with through the Community Awareness Programme. Generally this is in the form of the school education programme, as well as targeted messaging during periods of higher demand.

4.3. Woodend School has been contacted directly regarding their water use, as a result of the water metering data obtained. Their use has reduced significantly over recent months due to some changes in some of their systems (urinals no longer left running, drinking fountains replaced).

5. FINANCIAL IMPLICATIONS AND RISKS

5.1. The total budget allocated to water conservation and leak reduction work is summarised in Table 4 below. It can be seen that the actual expenditure in the last completed financial year was approximately half the current budget.

5.2. Oxford Urban had the most significant expenditure in 2017/18 relative to its budget. This was due to extensive leak detection work carried out across the scheme, using acoustic equipment to detect leaks. The exercise was comprehensive in terms of the area covered, although the size of leaks detected were relatively modest (record number 190213016083).
Table 6: Water Conservation and Leak Reduction Budget for 2017/18

<table>
<thead>
<tr>
<th>Scheme</th>
<th>2018/19 Budget</th>
<th>2017/18 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rangiora</td>
<td>$30,000</td>
<td>$5,439</td>
</tr>
<tr>
<td>Woodend-Pegasus</td>
<td>$15,230</td>
<td>$7,255</td>
</tr>
<tr>
<td>Waikuku</td>
<td>$2,520</td>
<td>$538</td>
</tr>
<tr>
<td>Mandeville</td>
<td>$4,590</td>
<td>$3,234</td>
</tr>
<tr>
<td>Ohoka</td>
<td>$940</td>
<td>$541</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>$22,000</td>
<td>$12,677</td>
</tr>
<tr>
<td>Oxford Rural No.1</td>
<td>$1,710</td>
<td>$-</td>
</tr>
<tr>
<td>Oxford Rural No.2</td>
<td>$1,550</td>
<td>$-</td>
</tr>
<tr>
<td>Oxford Urban</td>
<td>$4,950</td>
<td>$9,007</td>
</tr>
<tr>
<td>Summerhill</td>
<td>$1,280</td>
<td>$-</td>
</tr>
<tr>
<td>Cust</td>
<td>$730</td>
<td>$-</td>
</tr>
<tr>
<td>Poyntzs Road</td>
<td>$420</td>
<td>$-</td>
</tr>
<tr>
<td>West Eyreton</td>
<td>$400</td>
<td>$600</td>
</tr>
<tr>
<td>Garrymere</td>
<td>$220</td>
<td>$-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$86,540</strong></td>
<td><strong>$39,291</strong></td>
</tr>
</tbody>
</table>

6. CONTEXT

6.1. Policy

This matter is not a matter of significance in terms of the Council’s Significance Policy.

6.2. Legislation

The Health (Drinking Water) Amendment Act is relevant in this matter.

6.3. Community Outcomes

This report relates to the following community outcomes:

- Core utility services are provided in a timely, sustainable, and affordable manner.
- There will be sufficient clean water to meet the needs of our communities and ecosystems.
## Attachment i – Full Analysis on Range of Measures as Part of Leak Detection and Analysis Work (190214017313)

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Connections (Nc)</th>
<th>Length of Mains (km)</th>
<th>Connections per km of main*</th>
<th>Pressure (m)</th>
<th>Minimum Night Flow</th>
<th>Average Flow</th>
<th>Maximum Flow</th>
<th>Total Allocation (m³/km/day)</th>
<th>Calculation of Leakage Against Various Performance Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Demand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rangiora</td>
<td>7,402</td>
<td>216</td>
<td>34</td>
<td>46</td>
<td>11.5</td>
<td>79.7</td>
<td>387.5</td>
<td>86</td>
<td>3.0 9% 638,304</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>5,298</td>
<td>160</td>
<td>33</td>
<td>44</td>
<td>11.13</td>
<td>48.9</td>
<td>274.89</td>
<td>134</td>
<td>4.4 17% 707,328</td>
</tr>
<tr>
<td>Woodend</td>
<td>1,357</td>
<td>51</td>
<td>27</td>
<td>45</td>
<td>2.6</td>
<td>11.1</td>
<td>66.4</td>
<td>118</td>
<td>3.1 17% 159,504</td>
</tr>
<tr>
<td>Pegasus</td>
<td>1,615</td>
<td>74</td>
<td>22</td>
<td>49</td>
<td>1</td>
<td>16.3</td>
<td>82.33</td>
<td>174</td>
<td>2.3 15% 24,384</td>
</tr>
<tr>
<td>Cust</td>
<td>140</td>
<td>11</td>
<td>13</td>
<td>43</td>
<td>0.36</td>
<td>1.8</td>
<td>10.81</td>
<td>174</td>
<td>2.3 15% 24,384</td>
</tr>
<tr>
<td>Waikuku Beach</td>
<td>465</td>
<td>14</td>
<td>33</td>
<td>39</td>
<td>1</td>
<td>4.1</td>
<td>10.14</td>
<td>138</td>
<td>4.5 18% 64,080</td>
</tr>
<tr>
<td>Oxford Urban</td>
<td>909</td>
<td>39</td>
<td>23</td>
<td>52</td>
<td>6.9</td>
<td>14.2</td>
<td>49.9</td>
<td>608</td>
<td>14.2 45% 552,528</td>
</tr>
<tr>
<td>Semi Restricted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ohoka</td>
<td>97</td>
<td>7</td>
<td>14</td>
<td>54</td>
<td>0.39</td>
<td>1.6</td>
<td>9.5</td>
<td>299</td>
<td>4.3164 21% 29,040</td>
</tr>
<tr>
<td>Poyntz Road</td>
<td>86</td>
<td>6</td>
<td>14</td>
<td>50</td>
<td>0.6</td>
<td>1.4</td>
<td>3.5</td>
<td>555</td>
<td>7.7285 39% 47,712</td>
</tr>
<tr>
<td>Garrymere</td>
<td>42</td>
<td>5</td>
<td>9</td>
<td>51</td>
<td>0.19</td>
<td>1.6</td>
<td>4.7</td>
<td>343</td>
<td>3.0028 10% 14,400</td>
</tr>
<tr>
<td>Restricted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxford Rural No.1</td>
<td>333</td>
<td>141</td>
<td>2</td>
<td>88</td>
<td>5.5</td>
<td>15.1</td>
<td>28.72</td>
<td>1379</td>
<td>3.2 35% 459,216</td>
</tr>
<tr>
<td>Oxford Rural No.2</td>
<td>330</td>
<td>79</td>
<td>4</td>
<td>107</td>
<td>5</td>
<td>8.1</td>
<td>13.1</td>
<td>1261</td>
<td>5.3 59% 416,160</td>
</tr>
<tr>
<td>West Eyreton</td>
<td>71</td>
<td>13</td>
<td>5</td>
<td>30</td>
<td>0.22</td>
<td>1.3</td>
<td>2.7</td>
<td>220</td>
<td>1.2 14% 15,600</td>
</tr>
<tr>
<td>Summerhill</td>
<td>141</td>
<td>30</td>
<td>5</td>
<td>110</td>
<td>1.35</td>
<td>3.5</td>
<td>8.4</td>
<td>779</td>
<td>3.7 36% 109,872</td>
</tr>
<tr>
<td>Mandeville</td>
<td>861</td>
<td>74</td>
<td>12</td>
<td>36</td>
<td>8.5</td>
<td>13.1</td>
<td>20.98</td>
<td>805</td>
<td>9.3 61% 693,072</td>
</tr>
<tr>
<td>Fernside</td>
<td>187</td>
<td>6</td>
<td>15</td>
<td>36</td>
<td>1.3</td>
<td>1.7</td>
<td>2.08</td>
<td>1243</td>
<td>16.2 74% 108,144</td>
</tr>
<tr>
<td>Total</td>
<td>19,234</td>
<td>925</td>
<td>21</td>
<td>40</td>
<td>57.54</td>
<td>223.6</td>
<td>975.6</td>
<td>210</td>
<td>4.4 21% 4,048,224</td>
</tr>
</tbody>
</table>

*If >20, L/conn/day, if <20 consider m³/km/day

Average Flow 2017/18 Scheme Wide Analysis
*Note restricted schemes leakage likely to be overestimated using night flow method

*Note restricted schemes leakage likely to be overestimated using night flow method
*Note restricted scheme leakage likely to be overestimated using night flow method.
*Note cost of leakage likely to be overestimated on restricted schemes when night flow analysis method used*
*Note cost of leakage likely to be overestimated on restricted schemes when night flow analysis method used
1. SUMMARY

The purpose of this assessment is to investigate and report on the water consumption of extraordinary water users on urban schemes in the Waimakariri District. The intention of this memo is to investigate water consumption data for a variety of different property types, as well as highlighting fair and reasonable options of charging for water supplied to extraordinary water users.

Based on the Council’s water meter data, it was estimated that extraordinary water users consume approximately ten times more water than the district wide average. A variety of water consumption relationships were analysed to determine possible charging options to effectively reflect the consumption of extraordinary water users. A clear correlation was found between water use and connection size.

It is recommended that the Water Asset Manager:

- Undertakes further investigation into the unusually high water consumption at Woodend School.
- Undertakes additional leak investigations on the Plough Hotel site.
- Considers charging a fixed annual charge based on connection size for each property as a more fair and reasonable way of charging for water consumption.

2. BACKGROUND

Waimakariri District Council’s urban water supplies are currently funded through a fixed annual charge for each scheme. Although a small number of properties do have more than one rating unit, this charge is mostly applied to all consumers regardless of the property value, property use or the quantity of water consumed.

Table 1 below shows the average water use over the urban schemes in the district, as well as the district wide average.
Table 1. Average water use for each Scheme

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Average Water Use (m3/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rangiora</td>
<td>1.04</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>0.90</td>
</tr>
<tr>
<td>Woodend Pegasus</td>
<td>0.95</td>
</tr>
<tr>
<td>Oxford Urban</td>
<td>1.36</td>
</tr>
<tr>
<td>Cust</td>
<td>1.25</td>
</tr>
<tr>
<td>Waikuku Beach</td>
<td>0.76</td>
</tr>
<tr>
<td><strong>District Wide Average</strong></td>
<td><strong>1.04</strong></td>
</tr>
</tbody>
</table>

Extraordinary water users frequently consume large volumes of water. However, the range in water consumption between different property types is unknown. The 3 Waters Team have requested an investigation into the water use of extraordinary users and the possible charging options to effectively reflect the consumption of these extraordinary water users.

Waimakariri District Council currently have 115 water meters installed across the district that have been read and recorded monthly since the start of February 2011. Of the 115 water meters, 72 are commercial connections and 43 are residential connections with a property size greater than 2000m².

3. **ISSUES AND OPTIONS**

The following relationships were analysed using the Council’s available water meter data.

3.1. **Activity Type versus Water Consumption**

Figure 1 below compares the average water use per connection to the activity type of each property sampled. The main advantage of separating the properties into different activity types is that they can be grouped and analysed by activity. This information is useful to understand the rationale behind the extraordinary user definition.

![Figure 1. Activity type versus average water usage](image-url)
The activity types that standout as high water users are swimming pools, schools, hospitality activities, and the Water Unit.

Figure 2 below compares the average and maximum water use for each swimming pool sampled. It can be seen that Dudley Swimming Pool has a significantly higher water use than Oxford Swimming Pool. This may simply be reflective of the capacity and size of the pool site, however the Dudley Pool does appear to have significantly high water consumption.

Figure 2. Swimming pools sampled versus average and maximum water usage

Figure 3 below compares the average and maximum water use for each school sampled. It can be seen that Rangiora High School, Oxford Area School and Woodend School are relatively high water users compared with the remaining schools sampled. However, this data does not reflect the size of the school or the number of pupils that attend.

Figure 3. Schools sampled versus average and maximum water usage

Figure 4 below compares the average water use per student for each school sampled. It can now be seen that most of the schools have similar levels of consumption, however Oxford Area School and Woodend School still standout with relatively high water figures.
Table 2 below summarises potential reasons for the comparatively high water use for Oxford Area School and Woodend School.

**Table 2. High Water Use Schools**

<table>
<thead>
<tr>
<th>High Water Use Schools</th>
<th>Reason for High Water Use</th>
</tr>
</thead>
</table>
| Oxford Area School     | • No swimming pool on site.  
                         | • Potential leaks in pipes/system or large irrigation use.  
                         | • Step change found in data in March 2017.  
                         | • Average water use drops to 8.48m$^3$/day (0.017m$^3$/day/student). |
| Woodend School         | • No swimming pool on site.  
                         | • Potential leaks in pipes/system or large irrigation use.  
                         | • No step change found in the water meter data.  
                         | • Leak detection may be needed at this site. |

Based on the latest figures for Oxford Area school, which show more reasonable levels of water consumption, it is recommended that further investigation be undertaken into the unusually high water consumption at Woodend School.

Figure 5 below compares the average and maximum water use for each hospitality activity sampled. It can be seen that Plough Hotel, Gateway Restaurant, Waikuku Beach Holiday Park, Rangiora Bakery and Woodend Rest Home are relatively high water users compared with the remaining hospitality activities sampled.
Figure 5. Hospitality activities sampled versus average and maximum water usage

Table 3 below summarises potential reasons for the comparatively high water use for the relevant hospitality activities.

<table>
<thead>
<tr>
<th>High Water Use Hospitality Activities</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Plough Hotel                          | • Leak found in pipes in 2016.  
|                                       | • Step change found in data in March 2016.  
|                                       | • Average water use drops to 26.92m³/day.  
|                                       | • Recent water use is still relatively high.  
|                                       | • Potential leaks in pipes/system due to age of site. |
| Gateway Restaurant                    | • Site is no longer active.  
|                                       | • No readings taken after June 2015. |
| Holiday Park                          | • Special Case – Not your standard hospitality activity |
| Rangiora Bakery                       | • Special Case – Not your standard hospitality activity.  
|                                       | • Site include industrial activities. |
| Woodend Rest Home                     | • Special Case – Not your standard hospitality activity |

Based on the fact that the Plough Hotel’s water consumption is still relatively high it is recommended that the Water Asset Manager considers undertaking additional leak investigations on this site.
Overall, no correlation or patterns were found between water use and activity type. However, analysing the individual properties and their specific needs does highlight where some high water users lie.

3.2. Time of Year versus Water Consumption

Figure 6 below shows the average water use for all properties sampled over the course of a year.

![Figure 6. Time of year versus average water usage]

Overall there is a twenty percent decrease in water use over the winter months. Figure 6 shows that hospitality activities and residential properties are the main contributors to the seasonal variation. The remaining commercial activities do not seem to share this same trend.

Therefore, providing differential charges for extraordinary water users between peak season and the remainder of the year is not recommended.

3.3. Land Area versus Water Consumption

Figure 7 below compares the average and maximum water use to the land area of each property sampled.

![Figure 7. Land area versus average and maximum water usage]
No correlation was found between water use and land area. Charging against land area for water supply is therefore not considered a fair way of charging as it does not reflect actual water usage.

### 3.4. Rating Units versus Water Consumption

Figure 8 below compares the average and maximum water use to the rating units of each property sampled.

![Figure 8. Rating units versus average and maximum water usage](image)

No correlation was found between water use and rating units. However it should be noted that the sample size varies considerably over the number of rating units. Therefore, there is not enough data to reliably determine any relationships between water use and rating units. Refer to Table 4 for the number of properties sampled in each rating unit category.

<table>
<thead>
<tr>
<th>Rating Units</th>
<th>Number of Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>115</strong></td>
</tr>
</tbody>
</table>

Based on the above data it shows many properties are not being charged equitably for their water consumption.

### 3.5. Connection Size versus Water Consumption

Figure 9 below compares the average and maximum water use to the connection size of each property sampled.
A clear correlation can be seen between water use and connection size. This relationship shows that properties with larger connections, who are able to obtain higher flows, attract higher water consumptions.

Figure 9 above does not provide any indication of the range of water usage, only the average and maximum water use. Charging water consumption based on connection size could disadvantage properties that use considerably less water than others with the same connection size. However, properties with larger connection sizes will likely have higher peak consumption which directly impacts on the performance of the reticulation network.

Table 5 sets out the range of water consumption for each connection size.

### Table 5. Number of Properties for Each Connection Size, categorised by Water Usage Range

<table>
<thead>
<tr>
<th>Water Usage Range (m³/day)</th>
<th>15mm</th>
<th>20mm</th>
<th>25mm</th>
<th>50mm</th>
<th>100mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5</td>
<td>1</td>
<td>24</td>
<td>3</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>5 - 10</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>10 - 20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 20</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 6 uses the water usage ranges above and compares these to the estimated district wide average of 1.04 m³/day.

### Table 6. Water Usage Ranges for Different Connection Sizes

<table>
<thead>
<tr>
<th>Meter Size (mm)</th>
<th>Average Water Use (m³/day)</th>
<th>Water Usage Range (m³/day)</th>
<th>Comparison to District Wide Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>1.66</td>
<td>&lt; 5</td>
<td>1.60</td>
</tr>
<tr>
<td>20</td>
<td>1.65</td>
<td>&lt; 5</td>
<td>1.59</td>
</tr>
<tr>
<td>25</td>
<td>13.21</td>
<td>10 - 20</td>
<td>12.70</td>
</tr>
<tr>
<td>50</td>
<td>16.49</td>
<td>10 - 20</td>
<td>15.86</td>
</tr>
<tr>
<td>100</td>
<td>44.60</td>
<td>&gt; 20</td>
<td>42.88</td>
</tr>
</tbody>
</table>

Based on the information above it is recommended that the Water Asset Manager considers charging a fixed annual charge based on connection size for each property as a more fair and reasonable way of charging for water consumption.
3.6. Volumetric Water Consumption

Another possible option for charging for water consumption is volumetric charging. This option is fair and transparent, however, there would be considerable costs associated with implementing metering and volumetric charging. There is also uncertainty around the exact costs and benefits associated with this option.

4. DISCUSSION

No correlation or patterns were found between water use and activity type. However, analysing the individual properties and their specific needs did highlight where the high water users lie.

A twenty percent decrease in the average water consumption was found over the winter months. Hospitality activities and residential properties were the main contributors to the seasonal variation. The remaining commercial activities did not seem to share this same trend, therefore, providing differential charges for extraordinary water users between peak season and the remainder of the year was not recommended.

No correlation was found between water use and land area. Charging against land area for water supply was therefore not considered a fair way of charging.

No correlation was found between water use and rating units. The sample size varied considerably over the number of rating units. Therefore, there was not enough data to reliably determine any relationships between water use and rating units.

Volumetric charging was considered to be a fair and transparent option, however, there would be considerable costs associated with implementing metering and volumetric charging.

A clear correlation was found between water use and connection size. This relationship showed that properties with larger connections attracted higher water consumptions. It was noted that charging for water consumption based on connection size could disadvantage properties that use considerably less water than others with the same connection size. However, properties with larger connection sizes will likely have higher peak consumption which directly impacts on the performance of the reticulation network. Water meters could be installed where large historical connections are present to confirm the exact water consumption.

Overall, charging a fixed annual charge based on connection size for each property was considered to be a fair and reasonable way of charging for water consumption and it is recommended that the Water Asset Manager considers this as a fairer means of charging for water.

It should be noted that Waimakariri District Council collects development contributions for all new water connections based on their connection size and associated contribution multiplier. Charging for water consumption based on connection size could be implemented in a similar manner. The current development contributions are shown in Table 7 below.
Table 7. Development contributions for different water connection sizes

<table>
<thead>
<tr>
<th>Water Connection Size</th>
<th>Development Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>15mm</td>
<td>1.0 Contributions</td>
</tr>
<tr>
<td>20mm</td>
<td>1.5 Contributions</td>
</tr>
<tr>
<td>25mm</td>
<td>2.1 Contributions</td>
</tr>
<tr>
<td>32mm</td>
<td>3.2 Contributions</td>
</tr>
<tr>
<td>40mm</td>
<td>4.9 Contributions</td>
</tr>
<tr>
<td>50mm</td>
<td>7.8 Contributions</td>
</tr>
</tbody>
</table>

Table 8 shows the ratio as compared to a standard 15mm residential connection for:
- Development Contributions (as charged)
- Average Water Use (as metered)
- Maximum Water Use (as metered)

Table 8. Water Connection Comparison (Assuming a residential average use of 1 m³/day and a residential maximum use of 2 m³/day)

<table>
<thead>
<tr>
<th>Water Size</th>
<th>Connection</th>
<th>Development Contribution Ratio</th>
<th>Average Water Use Ratio</th>
<th>Maximum Water Use Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>15mm</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>20mm</td>
<td>1.5</td>
<td>1.7</td>
<td>14.0</td>
<td>95.2</td>
</tr>
<tr>
<td>25mm</td>
<td>2.1</td>
<td>13.2</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>32mm</td>
<td>3.2</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td>40mm</td>
<td>4.9</td>
<td>Unknown</td>
<td>16.5</td>
<td>113.4</td>
</tr>
<tr>
<td>50mm</td>
<td>7.8</td>
<td>16.5</td>
<td>44.6</td>
<td>139.1</td>
</tr>
<tr>
<td>100mm</td>
<td>Unknown</td>
<td>44.6</td>
<td>139.1</td>
<td></td>
</tr>
</tbody>
</table>

Harriette Davies
Project Engineer
### APPENDIX 1. 2017/2018 Targeted Water Rates for Local Authorities close to Waimakariri District

<table>
<thead>
<tr>
<th>Council</th>
<th>Connection Type</th>
<th>Base Charge</th>
<th>Volumetric Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ashburton District Council</strong></td>
<td>Residential - Ashburton</td>
<td>$161.90</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Residential - Methven</td>
<td>$265.10</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Residential - Rakaia</td>
<td>$150.50</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Extraordinary - Residential</td>
<td>Residential Charge +</td>
<td>$0.96/m³ over 90m³ per quarter</td>
</tr>
<tr>
<td></td>
<td>Commercial</td>
<td>Residential Charge +</td>
<td>$0.96/m³ over 90m³ per quarter</td>
</tr>
<tr>
<td><strong>Buller District Council</strong></td>
<td>Residential - Westport</td>
<td>$680</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Commercial - Westport</td>
<td>$680 +</td>
<td>$1.70/m³ over 400m³ p.a.</td>
</tr>
<tr>
<td><strong>Christchurch City Council</strong></td>
<td>Residential</td>
<td>Varies (Approx. $217.36)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Commercial - Excess Water Users</td>
<td>Varies</td>
<td>$0.75/m³ over 0.6986m³ per day</td>
</tr>
<tr>
<td><strong>Grey District Council</strong></td>
<td>Residential - Greymouth</td>
<td>$442.50</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Residential - Dobson and Stillwater</td>
<td>$486.20</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Residential - Runanga</td>
<td>$353.20</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Commercial</td>
<td>Residential Charge +</td>
<td>$1.33/m³ over 300m³ p.a.</td>
</tr>
<tr>
<td><strong>Hurunui District Council</strong></td>
<td>Amberley Township</td>
<td>$228.16 +</td>
<td>$0.8904/m³</td>
</tr>
<tr>
<td></td>
<td>Hanmer Springs</td>
<td>$228.16 +</td>
<td>$0.8904/m³</td>
</tr>
<tr>
<td></td>
<td>Rural - Ashley</td>
<td>-</td>
<td>$687.50 per 1.8 m³</td>
</tr>
<tr>
<td><strong>Kaikoura District Council</strong></td>
<td>Residential</td>
<td>$273.88</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Extraordinary Users and Commercial</td>
<td>$273.88 +</td>
<td>$1/m³ over 365m³ p.a. + Maintenance Charge ($50 p.a.)</td>
</tr>
<tr>
<td><strong>Selwyn District Council</strong></td>
<td>Rolleston</td>
<td>$226 +</td>
<td>$0.44/m³</td>
</tr>
<tr>
<td></td>
<td>Prebbleton</td>
<td>$226 +</td>
<td>$0.44/m³</td>
</tr>
<tr>
<td><strong>Westland District Council</strong></td>
<td>Residential - Hokitika</td>
<td>$312.06</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Residential - Other Townships</td>
<td>$312.06</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Commercial - Hokitika</td>
<td>-</td>
<td>$1.30/m³</td>
</tr>
<tr>
<td></td>
<td>Commercial - Franz Joseph and Fox</td>
<td>-</td>
<td>$1.20/m³</td>
</tr>
<tr>
<td></td>
<td>Non-treated Residential - Other Townships</td>
<td>$234.05</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Non-treated Commercial</td>
<td>$405.68</td>
<td>-</td>
</tr>
</tbody>
</table>
### APPENDIX 2. 2017/2018 Targeted Water Rates for Other Local Authorities

<table>
<thead>
<tr>
<th>Council</th>
<th>Connection Type</th>
<th>Base Charge</th>
<th>Volumetric Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tauranga City Council</td>
<td>20mm Meter Size</td>
<td>$25.22</td>
<td>$1.64/m³</td>
</tr>
<tr>
<td></td>
<td>25mm &amp; 32mm Meter Size</td>
<td>$49.57</td>
<td>$1.64/m³</td>
</tr>
<tr>
<td></td>
<td>40mm Meter Size</td>
<td>$199.13</td>
<td>$1.64/m³</td>
</tr>
<tr>
<td></td>
<td>50mm Meter Size</td>
<td>$394.78</td>
<td>$1.64/m³</td>
</tr>
<tr>
<td></td>
<td>80mm Meter Size</td>
<td>$791.30</td>
<td>$1.64/m³</td>
</tr>
<tr>
<td></td>
<td>100mm Meter Size</td>
<td>$990.44</td>
<td>$1.64/m³</td>
</tr>
<tr>
<td></td>
<td>150mm Meter Size</td>
<td>$990.44</td>
<td>$1.64/m³</td>
</tr>
<tr>
<td></td>
<td>200mm Meter Size</td>
<td>$990.44</td>
<td>$1.64/m³</td>
</tr>
<tr>
<td></td>
<td>Residential - Yet to be metered</td>
<td>$558.26</td>
<td>-</td>
</tr>
</tbody>
</table>
WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO: EXC-03-01 / 190227023196

REPORT TO: Utilities & Roading Committee

DATE OF MEETING: 19 March 2019

FROM: Colin Roxburgh, Water Asset Manager
       Gary Stevenson, Development Manager

SUBJECT: Engineering Code of Practice – Update of Water Supply Drawings

SIGNED BY: [Signature]
            Department Manager
            [Signature]
            Chief Executive

1. SUMMARY

1.1 The purpose of this report is to request that the Utilities & Roading Committee adopt new and revised water supply standard drawings developed for the Engineering Code of Practice (ECOP).

Attachments:

i. New / revised drawings:
   - Plan 600 Sheet 346 Issue B, Thrust Block
   - Plan 600 Sheet 409A Issue B, High Hazard Backflow Preventer
   - Plan 600 Sheet 409B Issue B, Medium Hazard Backflow Preventer
   - Plan 600 Sheet 414A Issue D, Urban Water Supply Lateral Connection
   - Plan 600 Sheet 414B Issue D, Rural and Rural Residential Water Supply Lateral Connection

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) Receives report No. 190227023196.

(b) Adopts the following new ECOP drawings for backflow prevention:
   - Plan 600 Sheet 409A Issue B, High Hazard Backflow Preventer
   - Plan 600 Sheet 409B Issue B, Medium Hazard Backflow Preventer

(c) Adopts the following revised ECOP drawings for water supply lateral connections and thrust blocks, to replace earlier revisions of these drawings:
   - Plan 600 Sheet 346 Issue B, Thrust Blocks
   - Plan 600 Sheet 414A Issue D, Urban Water Supply Lateral Connection
   - Plan 600 Sheet 414B Issue D, Rural and Rural Residential Water Supply Lateral Connection

(d) Notes that these drawings have been produced in order to formalise current practices and requirements, rather than introducing new requirements.
3. **BACKGROUND**

3.1 A need has been identified for the creation of backflow prevention device standard drawings to make the implementation of the Council’s backflow prevention policy more efficient, to ensure consistency across the district, and to ensure that backflow preventers meet the Council’s requirements.

3.2 Draft drawings of backflow prevention devices were initially created when the backflow prevention policy was adopted. These were however never finalised or officially approved.

3.3 There is an existing drawing for residential and restricted water connections. This drawing does not provide sufficient detail on the type of surface box, or the make and model of connection manifold. Therefore, there is a need for this to be updated.

4. **ISSUES AND OPTIONS**

*Thrust Block Drawing*

4.1. The current thrust block drawing in the ECOP is not considered to be fit for purpose as the design pressure that is used (400kPa) is significantly less than the pressure rating of pipes that are typically installed (1200kPa). The proposed revised drawing has a design pressure to match this typical pipe pressure rating, and gives the appropriate dimensions. The proposed drawing has been referred to frequently in draft state for some time to give designers, developers and contractors guidance on thrust block sizing. The adoption of this drawing will formalise the use of this drawing.

*Backflow Preventer Drawings*

4.2. Two new standard drawings have been developed to set out the requirements for backflow prevention devices for sites identified as either medium or high risk under the Council’s backflow prevention policy.

4.3. These drawings were created in accordance with the Water New Zealand Boundary Backflow Prevention for Drinking Water Supplies document, and in consultation with the Council’s Water Unit who undertake testing of the backflow prevention devices once installed. The drawings reflect the preferred design of connections that are currently being installed.

4.4. Up to this point in time, the requirements for the design of the backflow prevention devices had been communicated in words only, or in some cases this had not been clearly communicated and relied on developers and their developers having a good understanding of what is required. The adoption of these drawing will simplify the process for communicating what is required both to the Council’s Water Unit, and to external contractors, developers and consultants.

*Water Connection Drawings*

4.5. There is an existing drawing within the ECOP for water supply water connections (or ‘toby boxes’). The key issues with the existing drawing are outlined below:

4.5.1. It does not specify what type of manifold is acceptable. Some makes are more susceptible to leakage than others, or may be more difficult to maintain.

4.5.2. It does not include any requirements for the box that houses the manifold. This can lead to some water connections being difficult to access or maintain.
4.5.3. The existing drawing does not provide any guidance for larger than standard connections.

4.6. The current individual drawing (600-414 Issue C) has been split into two new drawings:
4.6.1. 600-414A Issue D covers residential connections, with one drawing to cover standard sized connections, and one to cover larger than standard connections.
4.6.2. 600-414B Issue D covers restricted water supply connections.

4.7. In both cases there is more guidance on the specific type of manifold required, and the requirements for the box that houses the manifold.

**ECOP Update**

4.8. The ECOP has not been fully updated since 2010 and is currently undergoing a full review.

4.9. It is intended that ECOP will be continually updated for specific items as required, until a full review of the ECOP is completed.

4.10. The Management Team have reviewed this report and support the recommendations.

5. **COMMUNITY VIEWS**

5.1. **Groups and Organisations**

5.2. The new and revised drawings have been reviewed internally by the 3 Waters team, Subdivisions team and the Water Unit.

5.3. **Wider Community**

5.4. No external consultation has been undertaken as part of this process.

5.5. The updated version of the ECOP will be made available on the WDC website and contractors and developers will be made aware of these changes as part of tender documentation, resource consent notices or advice notes, and at engineering approval for existing consents.

6. **IMPLICATIONS AND RISKS**

6.1. **Financial Implications**

6.2. There are no financial implications from adopting these standard drawings into the Engineering Code of Practice.

6.3. **Community Implications**

6.4. The drawings are intended to clarify and simplify the requirements for parties that construct either water connections or backflow prevention devices, and will ensure that maintenance of water connections is more efficient going forward as the standard of water connections improves.

6.5. **Risk Management**

6.6. The adoption of the new and revised drawings into the ECOP will reduce the risk of incorrect or inappropriate infrastructure being constructed.
6.7. **Health and Safety**

6.8. The drawings will help with the overall implementation of the Council’s backflow prevention policy, which will improve the safety of the district’s public water supplies.

7. **CONTEXT**

7.1. **Policy**

7.2. This matter is not a matter of significance in terms of the Council’s Significance and Engagement Policy.

7.3. **Legislation**


7.5. The Local Government Act 2002 sets out Council’s role in providing infrastructure services. The Building Act 1991 provides a national focus for building control to ensure that buildings are safe and sanitary. The Resource Management Act is the principal statute under which the use and subdivision of land is controlled.

7.6. **Community Outcomes**

7.7. The following community outcomes are relevant in this matter:

- Core utility services are provided in a timely and sustainable manner
  - Council sewerage and water supply schemes, and drainage and waste collection services are provided to a high standard.

7.8. **Delegations**

7.9. The Utilities & Roading Committee have delegated power to adopt the changes to the Engineering Code of Practice as the standing committee responsible for 3 Waters and Roading assets.
<table>
<thead>
<tr>
<th>PIPE OUTSIDE DIAMETER, OD (m)</th>
<th>TEE HEIGHT / WIDTH (m)</th>
<th>22.5°BEND HEIGHT / WIDTH (m)</th>
<th>45°BEND HEIGHT / WIDTH (m)</th>
<th>90°BEND HEIGHT / WIDTH (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X = ( \frac{OD \times P}{94} )</td>
<td>Y = ( \frac{OD \times P}{184} )</td>
<td>Z = ( \frac{OD \times P}{83} )</td>
<td>U = ( \frac{OD \times P}{45} )</td>
<td></td>
</tr>
<tr>
<td>0.115</td>
<td>0.50x0.30</td>
<td>0.31x0.31</td>
<td>0.44x0.44</td>
<td>0.50x0.50</td>
</tr>
<tr>
<td>0.185</td>
<td>0.72x0.72</td>
<td>0.45x0.45</td>
<td>0.63x0.63</td>
<td>0.85x0.85</td>
</tr>
<tr>
<td>0.180</td>
<td>0.76x0.78</td>
<td>0.49x0.49</td>
<td>0.68x0.68</td>
<td>0.83x0.83</td>
</tr>
<tr>
<td>0.225</td>
<td>0.96x0.98</td>
<td>0.61x0.61</td>
<td>0.85x0.85</td>
<td>1.16x1.16</td>
</tr>
<tr>
<td>0.250</td>
<td>1.09x1.09</td>
<td>0.86x0.86</td>
<td>1.05x1.05</td>
<td>1.31x1.31</td>
</tr>
<tr>
<td>0.280</td>
<td>1.22x1.22</td>
<td>1.06x1.06</td>
<td>1.35x1.35</td>
<td>1.65x1.65</td>
</tr>
<tr>
<td>0.315</td>
<td>1.37x1.37</td>
<td>1.16x1.16</td>
<td>1.31x1.31</td>
<td>1.63x1.63</td>
</tr>
<tr>
<td>0.350</td>
<td>1.44x1.44</td>
<td>0.98x0.98</td>
<td>1.35x1.35</td>
<td>1.83x1.83</td>
</tr>
<tr>
<td>0.400</td>
<td>1.74x1.74</td>
<td>1.08x1.08</td>
<td>1.62x1.62</td>
<td>2.07x2.07</td>
</tr>
<tr>
<td>0.500</td>
<td>2.17x2.17</td>
<td>1.36x1.36</td>
<td>1.90x1.90</td>
<td>2.58x2.58</td>
</tr>
</tbody>
</table>

Notes:
- Faces X, Y, Z and U to be poured against natural ground.
- Thrust blocks designed for minimum soil bearing capacity of 50kPa. Thrust blocks in unsuitable soils required specific design.
- Concrete to be 10MPa, 160mm slump, un-reinforced.
- Do not use for upward thrust (specific design required).
- Bends and ties adjacent to concrete shall be wrapped with 6mm Densio tape or 250 micron Polythene film or equivalent.
- A safety factor is not included or required unless otherwise stated by Council.

For pipe sizes specified and for a design pressure of 1200kPa, use the thrust block dimensions specified in the table.

For non-standard pipe size or where the design pressure is not 1200kPa, use the formula supplied, which requires the following inputs:
- OD = Design Pipe Outside Diameter (m)
- P = Design Pressure (kPa)
GALVANISED TEE SUPPORT SECURELY FIXED, ATTACH RPZ TO SUPPORT WITH CABLE TIE

COUNCIL OWNED ASSETS  PRIVATELY OWNED ASSETS

Y STRAINER

BALL VALVE (BRASS/STAINLESS STEEL)

BORDER <1M TYP

SERVICE CONNECTION. FOR DETAILS REFER TO STANDARD DRAWING 414A

WILKINS RPZ

BALL VALVE (BRASS/STAINLESS STEEL)

CHEVRON BOX & BASE (OR APPROVED ALTERNATIVE)

PVC SLEEVE

1000mm MINIMUM CONCRETE BASE

FLOW

POINT OF SUPPLY

300mm MINIMUM

FLOW

REDUCED PRESSURE ZONE BACKFLOW PREVENTER

Ø15 - 50mm

N.T.S.

414A
NOTE:

1. LOCATE RESTRICTED CONNECTION TOBY BOXES ADJACENT TO PROPERTY ACCESS/ ENTRANCES WHERE POSSIBLE.
2. ALL TOBY BOXES TO BE MARKED BY MARKER POST AS PER ENGINEERING CODE OF PRACTICE.
WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO: EXC-05-04 / 190205013519

REPORT TO: Utilities & Roading Committee

DATE OF MEETING: 19 March 2019

FROM: Kalley Simpson, 3 Waters Manager
Gary Stevenson, Development Manager

SUBJECT: Engineering Code of Practice – HIRDS Version 4

SIGNED BY:

(for Reports to Council, Committees or Boards)

1. SUMMARY

1.1 The purpose of this report is to request that the Utilities & Roading Committee adopt the new rainfall data HIRDS (High Intensity Rainfall Design System) Version 4 released by NIWA in October 2018 for inclusion in the Engineering Code of Practice (ECOP).

1.2 The report also recommends that the RCP8.5 climate change scenario published by the Ministry for the Environment in 2017 is adopted for use with the HIRDS Version 4 rainfall data.

1.3 This change will align us with best industry practice and will have no material impact on our existing levels of service.

Attachments:

i. Investigation of High Intensity Rainfall Design System (HIRDS V4) - TRIM 181203142028.

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) Receives report No. 190205013519.

(b) Adopts HIRDS Version 4 as the rainfall data to be used for modelling and design purposes in the Engineering Code of Practice.

(c) Adopts the RCP8.5 scenario for climate change to apply to the HIRDS Version 4 rainfall data for inclusion in the Engineering Code of Practice.

(d) Notes that the Engineering Code of Practice is currently due for a full review, but specific updates are being undertaken on a case by case basis.

3. BACKGROUND

3.1 The Engineering Code of Practice currently references the HIRDS (High Intensity Rainfall Design System) Version 2 rainfall data. This version was superseded in 2010 and while the current practice is to require the use of HIRDS Version 3, the Engineering Code of Practice (ECOP) has never been formally updated.
3.2 HIRDS Version 4 was released by NIWA in October 2018, which provide a good opportunity to update the ECOP.

3.3 The new version of HIRDS also includes the latest approach to applying climate change factors based on the Coastal Hazards and Climate Change Guidance for Local Government issued by the Ministry for the Environment in December 2017.

3.4 This approach provides a specific climate factor based on the duration and frequency of the rainfall event, rather than a constant factor of 10% as was previously specified in the ECOP or 16% as is currently applied as standard practice.

3.5 The guidance document sets out a range of climate change projections, called Relative Concentration Pathways (RCPs), based on four different climate change scenarios (RCP2.6, RCP4.5, RCP6.0 and RCP8.5). RCP8.5 (2091-2100), which is the most conservative of the four scenarios, is considered to be the most appropriate for design infrastructure that has a long design life (typically 80-100 years for 3 Waters assets).

4. **ISSUES AND OPTIONS**

4.1. The new HIRDS Version 4 data has been assessed and compared to the current rainfall data used for the 5 and 50 year storm events (refer Attachment I).

4.2. The results show that generally the HIRDS Version 4 data with a RCP8.5 climate change factor is higher than the HIRDS Version 3 with a 16% climate change factor currently required, with shorter durations increasing more than longer durations. The exception to this is in the Oxford area where the HIRDS Version 3 with a 16% climate change factor is generally higher for longer duration events and in Kaiapoi where less of a change occurred.

4.3. The variability in the changes between the two approaches partly occurs as a result of the additional rainfall data, it is likely the accuracy of the Oxford rainfall data would have improved with the additional 10 years of data, and also that the climate change factor is not constant with the revised RCP approach.

4.4. Overall, the HIRDS Version 4 data with a RCP8.5 climate change factor is considered to be the most appropriate design rainfall standard to use as HIRDS version 4 uses the latest rainfall data available and the RCP8.5 climate change scenario is the most conservative for infrastructure design.

4.5. It is noted that the ECOP has not been fully updated since 2010 and is currently overdue for a full review. It is intended that ECOP will be continually updated for specific as required, until a full review of the ECOP is undertaken.

4.6. The Management Team have reviewed this report and support the recommendations.

5. **COMMUNITY VIEWS**

5.1. **Groups and Organisations**

5.2. The new rainfall data figures have been reviewed internally within the Utilities and Roading Department.

5.3. **Wider Community**

5.4. No external consultation has been undertaken as part of this process.
5.5. The updated version of the ECOP will be made available on the WDC website and also registered ECOP users will be made aware of the change.

6. IMPLICATIONS AND RISKS

6.1. Financial Implications

6.2. There is no financial implications from adopting the new rainfall data into the Engineering Code of Practice.

6.3. Community Implications

6.4. There is no community implications from adopting the new rainfall data into the Engineering Code of Practice.

6.5. Risk Management

6.6. The adoption of the new rainfall data will ensure the most appropriate design data is used to accommodate for future climate change.

6.7. Health and Safety

6.8. The adoption of the new rainfall data will ensure the most appropriate modelling data is used for assessing public safety from flooding.

7. CONTEXT

7.1. Policy

7.2. This matter is not a matter of significance in terms of the Council’s Significance and Engagement Policy.

7.3. Legislation

7.4. The Local Government Act 2002 is relevant in this matter.

7.5. The Local Government Act 2002 sets out Council’s role in providing infrastructure services.

7.6. Community Outcomes

7.7. The following community outcomes are relevant in this matter:

- Core utility services are provided in a timely and sustainable manner
  - Harm to the environment from sewage and stormwater discharges is minimised.
  - Council sewerage and water supply schemes, and drainage and waste collection services are provided to a high standard.
  - Renewable energy technologies and their efficient use is encouraged.

7.8. Delegations

7.9. The Utilities & Roading Committee have delegated power to adopt the changes to the Engineering Code of Practice as the standing committee responsible for 3 Waters and Roading assets.
WAIMAKARIRI DISTRICT COUNCIL

MEMO

FILE NO AND TRIM NO: DRA – 12 / 181203142028

DATE: 3rd December 2018

MEMO TO: Kalley Simpson, 3 Waters Manager

FROM: Jordan Cathcart, Graduate Engineer

SUBJECT: Investigation of High Intensity Rainfall Design System (HIRDS V4)

1. Summary
In August 2018 NIWA released an updated version of the High Intensity Rainfall Design System (HIRDS V4). The main purpose of the HIRDS tool is used to provide estimates of high intensity rainfall at ungauged locations (Carey Smith, Henderson, Singh 2018).

In 2017 the Ministry for the Environment (MfE) released a report providing guidance for local authorities to interpret the various climate change scenarios and introduced four relative concentration pathways that could be used.

The Waimakariri District Council (WDC) currently uses HIRDS V3 for rainfall analysis and modelling. HIRDS V2 is also still referenced in the WDC Engineering Code of Practice (ECoP) and can be used for design storm events. The purpose of this memo is to document the difference between each HIRDS version and recommend the most appropriate system to use. This investigation also included consideration of the various climate change scenarios that are introduced in the MfE report and form part of the HIRDS V4 output.

2. Recommendations
That the Waimakariri District Council
2.1. Adopts HIRDS V4 for sewer and stormwater modelling and design
2.2. Incorporates HIRDS V4 as part of the Engineering Code of Practice update
2.3. Adopts the RCP8.5 climate scenario in conjunction with HIRDS V4 data

3. Comparison
The methodology behind HIRDS V4 has largely remained unchanged from HIRDS V3 (released in 2010). The regionalised index-frequency method allows for estimates of high intensity rainfall at any location throughout New Zealand for several return periods and durations. The key difference between each version is the amount of data, with HIRDS V4 updated to include gauged locations and records from the last 8-10 years as well as older records that were found to not be included in older versions.

It is important to consider the impact of climate change on rainfall estimates in the future, especially due to the relatively long life of the infrastructure assets in which rainfall is an input of design. MfE previously recommended a 16% factor be used in Canterbury to account for climate...
change factors. It is also noted that prior to adopting HIRDS V3 the WDC had applied a 10% climate change factor to HIRDS V2 data which can still be seen in the ECoP.

For HIRDS V4, four different climate change scenarios, called relative concentration pathways (RCPs), are made available. These scenarios (RCP2.6, RCP4.5, RCP6.0 and RCP8.5), represent different rates of increase of climate change and are provided for the mid (2031-2050) and late (2081-2100) 21st century.

MfE provide a report (Bell, Lawrence, Allan, Blackett, Stephens 2017) which provides guidance into how to use these RCPs for planning and design. This document highlights the importance of a risk-based approach and consequentially has moved away from recommending a specific climate change factor. For additional information this report is referenced in Section 6 below.

For the purpose of this investigation the most conservative option available in HIRDS of RCP8.5, (2081-2100) has been used. This is considered to be the most appropriate due to the importance of infrastructure to be able to achieve sufficient design life. Refer to Section 6 for a link to the MfE report. In addition, the time extent aligns well with infrastructure physical life of around 80-100 years.

4. Result Comparison

To make a comparison between each HIRDS version the 5 year and 50 year storm return periods were compared for all durations. A range of sites across the district were considered to highlight spatial differences.

4.1. Raw Data

On average, the raw data produced from HIRDS V4 is less than HIRDS V3 except for the 10, 20 minute and 72 hour durations. The overall trend is similar between the 5 year and 50 year return periods, with the 50 year having slightly larger percentage change.

For the majority of sites and durations HIRDS V2 produced the lowest rainfall depths for the 5 and 50 year return period. For this reason the summary tables below exclude HIRDS V2 and present the percentage change in rainfall depth if a change from HIRDS V3 to HIRDS V4 was to occur.

Table 1 5 Year Storm - Percentage Change from HIRDS V3 to V4

<table>
<thead>
<tr>
<th>Site</th>
<th>10m</th>
<th>20m</th>
<th>30m</th>
<th>1hr</th>
<th>2hr</th>
<th>6hr</th>
<th>12hr</th>
<th>24hr</th>
<th>48hr</th>
<th>72hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rangiora</td>
<td>3%</td>
<td>-2%</td>
<td>-3%</td>
<td>-2%</td>
<td>-1%</td>
<td>-1%</td>
<td>-3%</td>
<td>-8%</td>
<td>2%</td>
<td>6%</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>-15%</td>
<td>-18%</td>
<td>-18%</td>
<td>-17%</td>
<td>-13%</td>
<td>-8%</td>
<td>-7%</td>
<td>-10%</td>
<td>0%</td>
<td>3%</td>
</tr>
<tr>
<td>Oxford</td>
<td>24%</td>
<td>13%</td>
<td>8%</td>
<td>2%</td>
<td>0%</td>
<td>-3%</td>
<td>-7%</td>
<td>-15%</td>
<td>-11%</td>
<td>-11%</td>
</tr>
<tr>
<td>Woodend</td>
<td>1%</td>
<td>-3%</td>
<td>-4%</td>
<td>-5%</td>
<td>-5%</td>
<td>-5%</td>
<td>-8%</td>
<td>-14%</td>
<td>-4%</td>
<td>0%</td>
</tr>
<tr>
<td>Cust</td>
<td>19%</td>
<td>12%</td>
<td>1%</td>
<td>-5%</td>
<td>-4%</td>
<td>-1%</td>
<td>-1%</td>
<td>-3%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Sefton</td>
<td>8%</td>
<td>6%</td>
<td>-3%</td>
<td>-6%</td>
<td>-6%</td>
<td>-7%</td>
<td>-10%</td>
<td>-16%</td>
<td>-3%</td>
<td>2%</td>
</tr>
<tr>
<td>Average</td>
<td>7%</td>
<td>2%</td>
<td>-3%</td>
<td>-6%</td>
<td>-5%</td>
<td>-4%</td>
<td>-6%</td>
<td>-11%</td>
<td>-2%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Table 2 50 Year Storm - Percentage Change from HIRDS V3 to V4

<table>
<thead>
<tr>
<th>Site</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10m</td>
</tr>
<tr>
<td>Rangiora</td>
<td>4%</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>-14%</td>
</tr>
<tr>
<td>Oxford</td>
<td>14%</td>
</tr>
<tr>
<td>Woodend</td>
<td>5%</td>
</tr>
<tr>
<td>Cust</td>
<td>17%</td>
</tr>
<tr>
<td>Sefton</td>
<td>12%</td>
</tr>
<tr>
<td>Average</td>
<td>6%</td>
</tr>
</tbody>
</table>

4.2. Raw Data + Climate Change Factors

HIRDS V4 (RCP8.5) typically returns the largest rainfall depth across the district for storms up to 12 hour duration, and for 72 hours and above. It is evident that HIRDS V3 (+16%) produces the larger rainfall depth for the durations of 24 and 48 hours. HIRDS V2 (+10%) in turn produces rainfall depths that are lower than HIRDS V4 and V3 across most sites. The trends of these results are consistent across the 5 year and 50 year return period.

The most significant difference proportionately is for the storms of 10, 20, 30 minute and 24 hour durations and in particular for the Oxford Township, where the general trend is exaggerated.

Table 3 5 Year Storm - Percentage Change from HIRDS V3 +16% to V4 (RCP8.5)

<table>
<thead>
<tr>
<th>Site</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10m</td>
</tr>
<tr>
<td>Rangiora</td>
<td>18%</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>-3%</td>
</tr>
<tr>
<td>Oxford</td>
<td>42%</td>
</tr>
<tr>
<td>Woodend</td>
<td>16%</td>
</tr>
<tr>
<td>Cust</td>
<td>26%</td>
</tr>
<tr>
<td>Sefton</td>
<td>19%</td>
</tr>
<tr>
<td>Average</td>
<td>20%</td>
</tr>
</tbody>
</table>

Table 4 50 Year Storm - Percentage Change from HIRDS V3 +16% to V4 (RCP8.5)

<table>
<thead>
<tr>
<th>Site</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10m</td>
</tr>
<tr>
<td>Rangiora</td>
<td>21%</td>
</tr>
<tr>
<td>Kaiapoi</td>
<td>0%</td>
</tr>
<tr>
<td>Oxford</td>
<td>31%</td>
</tr>
<tr>
<td>Woodend</td>
<td>22%</td>
</tr>
<tr>
<td>Cust</td>
<td>36%</td>
</tr>
<tr>
<td>Sefton</td>
<td>30%</td>
</tr>
<tr>
<td>Average</td>
<td>23%</td>
</tr>
</tbody>
</table>
4.3. Result Presentation

Appendix A presents charts for the 5 year and 50 year storm event for each scheme as a comparison between the three HIRDS outputs. These are plotted across each duration and compared to the relative climate change adjusted outputs.

5. Discussion

The methodology behind HIRDS V4 has largely remained unchanged from HIRDS V3 (released in 2010). The key difference between each version is the amount of data, with HIRDS V4 supported by additional monitoring sites combined with an additional 8 years of data.

The method of applying a climate change factor has also changed, with four different scenarios representing different rates of climate change applied to the HIRDS output. This promotes a risk based approach to application of these factors, however it is considered that the most appropriate for long life infrastructure assets is RCP8.5 which is the most conservative option. This is also supported by guidance from MFE (refer Section 6).

It is important to note that the RCP climate adjustment is not a linear increase across the different rainfall durations. This method weights the percentage change more heavily for the smaller durations, ranging from 33% at 10 minutes to 14% at 72 hours. This is reflected by the results above with HIRDS V4 produced higher rainfall depths up to the 12 hour duration.

The changes between the HIRDS tools are reasonably consistent between each scheme, with the exception of Oxford. For this area HIRDS V4 RCP8.5 is higher than average for the lower durations and lower than average for the higher durations. As there haven’t been significant changes to the methodology this could be a result of limited data for the surrounding area of Oxford in previous versions of HIRDS.

Overall, if a change to HIRDS V4 RCP8.5 was to be adopted the infrastructure design would be more conservative for storm durations up to 12 hours and slightly less conservative for storm durations of 24 hours and above. However it is considered that the most appropriate system to use is HIRDS V4 due to this being the latest rainfall projection tool available and being supported by a more comprehensive database than previous versions.

6. References


7. **Appendix A**

![Graph](#)

**Rangiora - 5 Year Storm HIRDS Comparison**

![Graph](#)

**Rangiora - 50 Year Storm HIRDS Comparison**