WAIMAKARIRI
DISTRICT COUNCIL

Utilities and Roading Committee

Agenda

Tuesday 24 September 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)

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 24 SEPTEMBER 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

Page No

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 20 August 2019

RECOMMENDATION *8-16*

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 20 August 2019.

4 MATTERS ARISING

5 DEPUTATION

6 REPORTS

6.1 Update on Solid Waste Activities in 2018/2019 – Kitty Waghorn (Solid Waste Asset Manager)

RECOMMENDATION *17-24*

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190904124164number.

(b) **Notes** that the Council has achieved a number of milestones during the 2018/19 financial year, including:

I. Adoption of the Waste Management & Minimisation Plan.

II. Tender and award of solid waste services for kerbside collections and facilities operations.

III. Completion of the kerbside recycling shed and use of shed for consolidating kerbside recycling prior to the end of June 2019.

IV. Delivery of over 19,000 rubbish and organics bins by end June 2019.

V. Replacement of the rubbish compactor at Southbrook resource recovery park at the end of June 2019.

(c) **Notes** that school and community education and community engagement continues to be a significant focus for staff in order to raise awareness about appropriate waste disposal practices and waste minimisation.

(d) **Circulates** report No 190904124164 to the Council.

(e) **Circulates** report No 190904124164 to the Community Boards.

6.2 Update on new Solid Waste Services and Waste Quantities – Kitty Waghorn (Solid Waste Asset Manager)

RECOMMENDATION *25-32*

THAT the Utilities and Roading Committee

(a) **Receives** report No. 190905124856.

(b) **Notes** that staff will continue to monitor the weight of waste collected at kerbside over the spring and summer periods, and will regularly report back to the Utilities & Roading Committee on these figures.

(c) **Notes** that there are early indications that the new organics collection service is reducing the weight of waste sent to landfill in the 2019/20 year.

(d) **Circulates** report No 190905124856 to the Council.

(e) **Circulates** report No 190905124856 to Community Boards.

6.3 Rangiora Woodend Road Safety Improvements at Boys Road Intersection – Kieran Straw (Civil Projects Team Leader) and Joanne McBride (Roading and Transport Manager

RECOMMENDATION *33-72*

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190909125545;

(b) **Approves** the scheme design that is inclusive of removal of existing overhead services, installation of a new right turn lane, and installation of complying intersection lighting, as per section 4.3 of this report.

AND

RECOMMENDS THAT the Council:

(c) **Approves** bringing forward funding of $400,000 from the 2020/2021 and 2021/22 years into the 2019/20 budget (PJ 101034.000.5133), to allow this work to be undertaken;

(d) **Notes** that the current 2019 / 2020 budget is $200,000, meaning the overall project budget for this financial year will increase to $600,000 (based on recommendation c being approved);

(e) **Notes** that if $40,000 savings in other Low Cost/Low Risk projects can be found, then this will be used for engaging a consultant for the purposes of investigating the alternative long term solutions, and that if savings cannot be found by December 2019, that a request for an additional $40,000 will be requested in the draft Annual Plan;

(f) **Notes** that the project has an NZTA subsidy of 51%;

(g) **Circulates** this report to all Community Boards for their information

6.4 Park and Ride Strategy – Don Young (Senior Engineering Advisor)

RECOMMENDATION *73-80*

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190820116067.

(b) **Adopts** the Park and Ride general locations, and timed staging as per the Park and Ride – Phased Implementation Plan (Trim 190812112165)

(c) **Notes** that the Community Boards have been briefed on the Park and Ride – Phased Implementation Plan in September 2019.

(d) **Notes** that a further report recommending sites for the phase 1 sites and appropriate levels of Service will be presented to a future U&R Committee meeting, after consultation with the affected Community Boards. This will occur in the new Council term.

(e) **Circulates** this report to all Community Boards.

6.5 Cycle Skills Education Programme "Cycle Sense" – Kathy Graham (Road Safety Co-ordinator/Journey Planner)

RECOMMENDATION *81-140*

THAT the Utilities and Roading Committee

(a) **Receives** report No. 190911127503

(b) **Notes** that Cycle Sense is now an established cycle skills education programme being delivered in schools in the Waimakariri District.

(c) **Circulates** this report to Council and Community Boards for their information.

6.6 Avian botulism occurrence, costs and management of avian botulism during the 2018-19 season – Sophie Allen (Water Environment Advisor)

RECOMMENDATION *141-164*

THAT the Utilities and Roading Committee recommends:

(a) **Receives** report No. 190905124322.

(b) **Notes** the update on bird death numbers and species for 2018-19, as collected by contractors to contain avian botulism.

(c) **Notes** the production of a WDC Avian Botulism Management Plan, which outlines current management practices, and documents communication, collaboration, monitoring, reporting and other requirements.

(d) **Circulates** this report to Council, the Waimakariri Water Zone Committee, and Community Boards for information.

6.7 Oxford Wastewater Scheme – Request for Information – Gavin Hutchison (Wastewater Asset Manager)

RECOMMENDATION *165-170*

THAT the Utilities and Roading Committee

(a) **Receives** report No. 190906125260.

(b) **Notes** that Infiltration & Inflow reduction works will focus on investigations over the 2019/20 and 2020/21 financial years.

(c) **Notes** that the nitrogen loading applied to the soils from irrigation of treated effluent from the Oxford WWTP are at 60% of that allowed under the discharge consent conditions.

(d) **Notes** that the nitrogen levels discharged from the WWTP have reduced following the recent upgrade of the aeration system.

(e) **Circulates** this report to the Oxford-Ohoka Community Board.

6.8 Ocean Outfall 2018 to 2019 Compliance review – Gavin Hutchison (Wastewater Asset Manager)

RECOMMENDATION *171-232*

THAT the Utilities and Roading Committee

(a) **Receives** report No. 190827119588.

(b) **Notes** that the Ocean Outfall discharge consent was compliant with all consent conditions for the year 2018-2019.

(c) **Circulates** this report to Council for their information.

(d) **Circulates** this report to all Community Boards for information.

7 MATTERS REFERRED FROM THE OXFORD-OHOKA COMMUNITY BOARD MEETING OF 5 SEPTEMBER 2019

7.1 Request for Approval to Proceed with Consultation on Poyntzs Road Joining with West Eyreton and Summerhill Water Supplies

RECOMMENDATION *233-257*

THAT the Oxford-Ohoka Community Board recommends:

THAT the Utilities and Roading Committee recommends:

THAT the incoming Council:

(a) **Receives** report No. 190820116633.

(b) **Notes** that an upgrade to the Poyntzs Road scheme is required to achieve compliance with the Drinking-water Standards for New Zealand.

(c) **Notes** that the optimum way to achieve this upgrade is by installation of a pipeline from West Eyreton the Poyntzs Road, and that the optimum pipe route has been determined to be the Main Race Road alignment, following previous consultation with residents on two potential pipe routes.

(d) **Notes** that three funding options have been identified for consideration by the communities for the upgrade, following consultation with the West Eyreton and Summerhill Water Supply Advisory Groups.

(e) **Approves** staff to consult with the affected communities on the proposal and funding options identified, based on the draft consultation material attached, noting that the consultation material is currently in draft format and will be refined prior to distribution to residents.

(f) **Notes** that an identical report is to be presented to the Rangiora-Ashley Community Board prior to progressing with consultation.

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

WAIMAKARIRI DISTRICT COUNCIL

MINUTES OF THE MEETING OF THE UTILITIES AND ROADING COMMITTEE HELD IN THE COUNCIL CHAMBERS, 215 HIGH STREET, RANGIORA ON TUESDAY 20 AUGUST 2019 COMMENCING AT 4.00PM.

PRESENT

Councillor P Williams (Chairperson), Councillors R Brine, J Meyer and S Stewart.

IN ATTENDANCE

Councillors W Doody, K Barnett, and D Gordon.

J Palmer (Chief Executive) G Cleary (Manager Utilities and Roading), J McBride (Roading and Transport Manager), O Davies (Drainage Asset Manager), G Hutchison (Waste Water Asset Manager), J Pascoe (Minute Taker)

1 APOLOGIES

Apologies were received and sustained from Mayor D Ayers and Deputy Mayor K Felstead.

2 CONFLICTS OF INTEREST

There were no conflicts of interest.

3 CONFIRMATION OF MINUTES

3.1 Minutes of a meeting of the Utilities and Roading Committee held on Tuesday 18 June 2019

Moved: Councillor Brine Seconded: Councillor Meyer

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 18 June 2019.

CARRIED

3.2 Minutes of a Public Excluded portions of a meeting of the Utilities and Roading Committee held on Tuesday 18 June 2019

(Refer to Public Excluded minutes)

4 MATTERS ARISING

There were no matters arising.

5 DEPUTATIONS

There were no deputations.

6 REPORTS

6.1 Approval of the 2019/20 Roading Renewals and minor Works Programme – J McBride (Roading and Transport Manager)

J McBride reported that a renewal programme, including new footpaths, kerb and channel renewals and minor safety projects, is prepared each year and is circulated to Community Boards prior to being presented to this committee.

J McBride noted that the kerb and channel renewals for John's Road scheduled for 2019/2020 have been deferred to 2020/2021 because of a scheduled stormwater upgrade and to avoid damage to footpaths. The preliminary design for Otaki Street East is being re-examined but work through to property number 94 will occur so as to relieve flooding.

The three yearly condition ratings of footpaths and kerb and channel will take place from February 2020 in order to produce a new programme of works for Community Board approval in May.

Cr Barnett asked why the older areas of Woodend are not included in the 3-year plan. J McBride said that she was unable to comment but that concrete footpaths can be minor maintenance instead of full renewals depending on their condition.

Cr Brine asked if there was more work to be done on the Ivory Street kerb and channel. J McBride replied that funding of around $150,000 is allocated for kerb and channel and around $215,000 for footpaths but that roading work will come from the roading maintenance budget.

Moved: Councillor Meyer Seconded: Councillor Brine

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190808110863;

(b) **Approves** the attached 2019/20 Roading Programme (Trim No. 190808110865);

(c) **Authorises** the Roading Manager to make minor changes to this programme as a result of consultation or technical issues that may arise during the detailed planning phase, provided the approved budgets and levels of service are met, and the changes are reported to the Utilities & Roading Committee;

(d) **Endorses** the indicative Roading Programme for the 2020/21, 2021/22 and 2022/23 years;

(e) **Notes** that the three yearly condition rating of footpaths and kerb & channel is due to be carried out in early 2020 and this may alter the indicative programme;

(f) **Circulates** this report to the Community Boards for information.

CARRIED

Cr Meyer commented that he was pleased to see these results and in particular for Kaiapoi. He felt the system is fair and is working well.

6.2 District Road Network – Term Service Contract 2015-2018 – Extension of Service Period to October 2020 – J McBride (Roading and Transport Manager) and C Grabowski (Roading Operations Team Leader)

J McBride noted that the Road Maintenance Contract with Sicon is to be extended through to October 2020 due to satisfactory performance.

Cr Barnett asked why arterial roads are so low on the Performance Monitoring Graphs. J McBride replied that there needs to be more focus on arterial roads due to increase in traffic and district growth. Spending needs to be monitored.

G Cleary said that there is a steer from NZTA on this and there may be a lower service on local roads in the future.

Moved: Councillor Meyer Seconded: Councillor Brine

THAT the Utilities and Roading Committee

(a) **Receives** report No. 190806109604;

(b) **Approves** the extension of Contract 15/31- District Road Maintenance Services with Sicon Ltd for one further year to 31 October 2020;

(c) **Notes** that there are no further extensions to the Service Period following this, with a new tender to be let on 1 November 2020;

(d) **Circulates** this report to Council and the Community Boards for information.

CARRIED

Cr Meyer noted that trucks are now heavier and this causes damage and puts pressure on roads. He added that Sicon will want the opportunity to continue with their current contract and will perform well.

Cr Williams expressed disappointment that this report had come so late to the Committee and there would have been more time for consideration if it had come earlier.

Cr Gordon agreed with the contract being extended and noted the improvements in service and that heavier vehicles do cut up roads. He felt the extension was deserved and would be assessed over the next twelve months.

Cr Barnett noted that most complaints are about local roads and this report addressed this. Also noted that some roads and footpaths are breaking up and communication with residents is needed.

6.3 1 June 2019 Flood Event – O Davis (Drainage Asset Manager)

O Davis presented this report providing an overview of the flooding event that occurred on 1 June 2019. There were a total of 108 service requests received by the Council relating to this storm event, which included flooding of seven houses and six garages. 42 service requests were received relating to flooding on private properties. An update of this investigation will be given at the September Utilities and Roading Committee meeting.

The Kaiapoi-Tuahiwi Community Board have received an update on these investigations and are supportive of the direction being taken.

O Davis also noted that a sleepout has now been classified as a house due to an insurance claim being lodged.

Cr Doody asked about the cause of the flooding of the Oxford Gorge Reserve caretakers house and shop. O Davis replied that the investigation is not finished and a lot of water had come off the hillside at this time. There were few issues in rural areas and this incident is an exception.

Cr Barnett asked how the Kaiapoi-Tuahiwi Community Board will receive information on the streets that were flooded. O Davis replied that he will report to the Community Board and felt that residents will be more interested in what will be done to prevent flooding in future and will also brief the community.

G Cleary noted that the Kaiapoi-Tuahiwi Community Board would like to be more informed of these issues and noted three key programmes of work:

- Parnham Drain Pumping Station (timed with the next stage of the Silverstream development) and communication with affected residents.
- Work in the Feldwick area
- Progress of the modelling programme for planned work.

Cr Barnett suggested communication releases to local papers. O Davis agreed that this could be done.

Cr Williams asked about estimated start times and if the budget is sufficient.
G Cleary replied that there is a budget in the LTP and there will be more certainty of funding needed when the design is completed. Raven Quay may need an increase in funding and this will be brought back to this Committee.

G Cleary noted that Kiln Place need for a pipe upgrade through to Williams Street is being investigated and this will come back to this committee if needed.

Following a question from Cr Stewart, G Cleary noted that the Raven Quay house had been identified.

Cr Meyer noted that a house in Kiln Place had been flooded and asked if staff see it at the peak of the flooding. G Cleary noted that a response had been slow due to communications but this would have not stopped the flooding but that pumping could have started sooner.

J Palmer noted work done in 2007 to prevent flooding at Kiln Place and that this is the first flooding incident since then.

O Davis noted that flooding events have three categories:

- Flooding on the property
- Flooding in the garage
- Flooding in the house.

He added that the flooding in Kiln Place was due to a clogged system as a result of blocked grates. Some question as to whether the primary system is large enough for a rain event of this magnitude.

Cr Stewart asked if the stormwater valve into the Kaikanui malfunctioned.
G Cleary replied that the gate into the river became blocked and water was unable to drain out of the area. Filter bags in the system in Kiln Place are not an issue but the outlet pipe is only 300mm in diameter so could not carry the flow. The system will be assessed as to how to provide additional capacity.

G Cleary added that the filter bags have been removed and are no longer used in Kiln Place and other older areas with no have no secondary flow path. The

flood gate on the Kaikanui has been cleared and a corner apron may be installed around the gate to stop weed growth.

Moved: Councillor Williams Seconded: Councillor Meyer

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190806109901

(b) **Notes** that the further investigation work is being undertaken as a result of flooding at 53 properties, which comprise of:

7 houses that were flooded,

6 garages that were flooded

40 properties that were flooded

(c) **Notes** that staff will report back to the Utilities and Roading Committee when the results of the investigations are known.

(d) **Notes** that staff will seek additional budget from Council through the annual plan process if necessary, to carry out drainage upgrades where they cannot be funded using existing approved budgets.

CARRIED

Councillor Williams asked for this work to be done with haste.

6.4 Oxford WWTP Aeration Upgrade Completion Report – G Hutchison (Wastewater Asset Manager)

G Hutchison updated the Committee on this project and the commissioning work. New blowers have been installed as this system relies on aeration to treat waste water. The system is now performing well. The project was over budget by 9% due to the complexity of the project and the shut-down of the plant for three days and the resulting transport of waste to Kaiapoi and Rangiora.

There have been some post-commissioning issues such as control of air in the aeration basin and some minor modifications needed. A variation of the Ecan consent is needed as it will not be compliant during a weather event.
G Cleary noted an alteration to Recommendation C from $68,582.18 to $69,582.18. He added that he would like to bring more completion reports to the Committee.

Cr Stewart noted that 220kg/hectare/year of nitrate discharge has been consented and the discharge is currently substantially below that. G Hutchinson replied that the consent allows for 22ml/day and that modelling will be done around the ground water area of discharge. The Committee will be updated on this.

Cr Stewart asked for the cost of both the current plant and the upgrade to be included in the report and asked what the current rate is. It was noted that the current rate is around $990/year. G Cleary noted that the reticulation in Oxford has some leakage and the management of this is an ongoing challenge.

Cr Doody asked if staff would like to visit specific area with a positive response received from staff present.

Moved: Councillor Meyer Seconded: Councillor Brine

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190722102153

(b) **Notes** the upgrade to the Oxford WWTP has been completed and is performing well.

(c) **Notes** that the Oxford WWTP capital budget was exceeded by $69,582.18, over and above the $757,069.20 budget.

(d) **Notes** a variation to the discharge consent to vary the daily discharge volumes has been submitted to ECAN.

CARRIED

6.5 Improvement to Fencing of Wastewater Treatment Plant Sites – G Hutchison (Wastewater Asset Manager)

G Hutchison noted that a new budget for wastewater site fencing was presented to this committee at an earlier meeting and that improvements, where requested by this Committee The majority of the District's wastewater sites have deer fencing and Oxford has a security fence.

Some concern had been expressed about the budget and G Hutchison noted that adding barbed wire to the top and bottom of the Oxford fence could be sufficient but that this fence could still be considered scaleable.
An X-fence was previously recommended and the difference in cost between this and the stock fence is around $110,000.

Cr Gordon asked what fencing would be recommended from a health and safety perspective. G Hutchison replied that the X-Fence meets health and safety concerns but that budget and affordability must also be considered.

Cr Meyer asked how many wastewater plants needed improvements to fencing and had there been any accidents or intrusions at these sites. G Hutchison replied that Rangiora, Woodend, Waikuku and Kaiapoi wastewater sites needed some improvement to fencing. The only intrusion into site is a child at Woodend when it was a 7 wire fence. The drowning accident at Gore is the impetus for the recommended improvements. G Cleary noted that there was one adult intrusion also recorded at Kaiapoi.

Cr Doody suggested angling the tops with barbed wire. G Hutchison replied that this option was considered in a previous report and a pricing given.

Moved: Councillor Williams Seconded: Councillor Brine

THAT the Utilities and Roading Committee

(a) **Receives** report No. 190805108803

(b) **Refers** this report to the Council for a decision at the 3 September Council meeting.

CARRIED

Cr Williams noted the need to consider the funding saving and the need for trees to be milled at the Kaiapoi Wastewater plant. Further improvements to fencing could be considered once the trees are milled.

Cr Brine supported the Chair's comments and noted that if a person is intent on gaining access then they will succeed however barbed wire will deter a child.

Cr Meyer did not support the recommendation.

Cr Barnett noted the sensible options presented and that access of children would be prevented and that this is a win-win solution.

Cr Stewart did not support the lower standard of fencing and noted that an agile young person could scale 7-wire and deer fencing and noted that X-Fencing is an extra $100,000 and this would have little impact on the rate.

Cr Gordon noted that he had done a site visit and noted issues with gaps at the base of the fence. He agreed with Cr Stewart and asked about legal obligations re health and safety and added that the installation of barbed wire is a band-aid to an old fence. He recommended funding improvement now rather than coming back later.

Cr Doody is in favour of proper security fencing to ensure safety and does not want the Council to be responsible for a death.

Cr Brine asked if this report could be considered by the full Council. J Palmer replied that the report could be referred to Council.

7 REPORTS FOR INFORMATION ONLY

7.1 Direct procurement of modelling services for McIntosh/Feldwick catchment assessment – D Young (Senior Engineering Advisor)

(report no. 190625089163 to the Management Team meeting of 1 July 2019)

This report was received for information.

8 MATTERS REFERRED FROM THE RANGIORA-ASHLEY COMMUNITY BOARD MEETING OF 13 AUGUST 2019

8.1 Cone Street Project Update – J McBride (Roading and Transport Manager) and G Kempton (Project Engineer)

J McBride noted that this report on the Cone Street upgrade and layout options for this street has been considered by the Rangiora-Ashley Community Board. Feedback from the Board was mixed and further workshops will be held to work through the issues.

The Board wishes to progress the footpath installation and has recommended the removal of five carparks because of the very narrow carriageway to enable this to happen.

Moved: Councillor Brine Seconded: Councillor Meyer

THAT the Utilities and Roading Committee:

(a) **Approves** the removal of five carparks on the western side of Cone Street between High Street and the new development to allow for the installation of a new footpath and two on the eastern side of the road opposite the new development entrance to allow for manoeuvring;

(b) **Notes** that four of these spaces should, according to our Code of Practice, be marked as no-stopping within the current road layout due to either the existing road width, or proximity to the intersection of High Street.

CARRIED

Cr Brine noted that the focus of the Community Board was the installation of the footpath and to not have pedestrians competing with vehicle traffic.

Cr Williams noted concern with the removal of carparks.

9 PORTFOLIO UPDATES

9.1 Roading – Councillor John Meyer

Cr Meyer noted the good information and comments in this meeting.

9.2 Drainage and Stockwater – Councillor Sandra Stewart

Cr Stewart invited members to attend the Plan Change 7 workshop where Ecan will give an overview of drainage issues. Cr Stewart also noted the leakage from stockwater races in high nitrate areas and the environmental effect of this and the impact on farmers needing to reduce nitrate leaching. Ecan have been asked to clarify this issue and have done calculations on the effects.

9.3 Utilities (Water Supplies and Sewer) – Councillor Paul Williams

Cr Williams noted the West Eyreton and Summerhill community meeting on 28 August and the comments on the Poyntz Road issues.

9.4 Solid Waste– Councillor Robbie Brine

Cr Brine noted an issue with the disposal of plastics with a very weak market for plastic categories 3-7.

10 QUESTIONS

There were no questions.

11 URGENT GENERAL BUSINESS

There was no general business.

12 MATTERS TO BE CONSIDERED WITH THE PUBLIC EXCLUDED

Section 48, Local Government Official Information and Meetings Act 1987

Moved: Councillor Brine Seconded: Councillor Stewart

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:

Item Nº	Minutes/Report of:	General subject of each matter to be considered	Reason for passing this resolution in relation to each matter	Ground(s) under section 48(1) for the passing of this resolution
12.1	Minutes of the Public Excluded portion of the Utilities and Roading Committee meeting of 18 June 2019	Confirmation of minutes	Good reason to withhold exists under Section 7	Section 48(1)(a)

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:

Item Nº	Reason for protection of interests	Ref NZS 9202:2003 Appendix A
12.1	Protection of privacy of natural persons To carry out commercial activities without prejudice	A2(a) A2(b)ii

CARRIED

Closed Meeting

Resolution to resume in Open Meeting

Moved Councillor Williams seconded Councillor Meyer

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

CARRIED

Open Meeting

THERE BEING NO FURTHER BUSINESS, THE MEETING WAS CLOSED AT 5.42PM.

CONFIRMED

_____
Chairperson

_____
Date

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	SHW-02-01 / 190904124164
REPORT TO:	Utilities & Roading
DATE OF MEETING:	24 September 2019
FROM:	Kitty Waghorn, Solid Waste Asset Manager
SUBJECT:	Update on Solid Waste Activities in 2018/19
SIGNED BY: **(for Reports to Council, Committees or Boards)**	

Department Manager	Chief Executive

1. SUMMARY

1.1 This report is to provide the Utilities & Roading Committee information about solid waste activities that were undertaken in the 2018/19 financial year.

1.2 Major milestones achieved in 2018/19 were:

a. Adoption of the Waste Management & Minimisation Plan in August 2018

b. Tender and award of solid waste services (collections and facilities operations) by end December 2018

c. Completion of the kerbside recycling shed and use of shed for consolidating kerbside recycling as from May 2019

d. Delivery of over 19,000 rubbish and organics bins by end June 2019

e. Replacement of the rubbish compactor at Southbrook resource recovery park at the end of June 2019

1.3 A site upgrade options study into has been undertaken, providing guidance to staff around the timing and costs of the two budgeted upgrade projects. The report and plans will be workshopped with the Solid & Hazardous Waste Working Party.

1.4 School education activity has been steady with almost all schools making use of the resources funded by the Council. There has been an increase in community education activity compared to the previous year, including an increased participation in the waste free living workshops.

1.5 Staff have been progressing the trial of a rural residents' recycling drop-off facility in Cust, following submissions from the Cust Community Network during the Waste Management & Minimisation Plan consultation process.

Attachments: Nil

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) **Receives** report No. 190904124164number.

(b) **Notes** that the Council has achieved a number of milestones during the 2018/19 financial year, including:

i. Adoption of the Waste Management & Minimisation Plan.

ii. Tender and award of solid waste services for kerbside collections and facilities operations.

iii. Completion of the kerbside recycling shed and use of shed for consolidating kerbside recycling prior to the end of June 2019.

iv. Delivery of over 19,000 rubbish and organics bins by end June 2019.

v. Replacement of the rubbish compactor at Southbrook resource recovery park at the end of June 2019.

(c) **Notes** that school and community education and community engagement continues to be a significant focus for staff in order to raise awareness about appropriate waste disposal practices and waste minimisation.

(d) **Circulates** report No 190904124164 to the Council.

(e) **Circulates** report No 190904124164 to the Community Boards.

3. BACKGROUND

Activities in the 2018/19 Year

Waste Management & Minimisation Plan

3.1 The Council adopted the advanced option for improved services and waste minimisation initiatives when it adopted the Waste Management & Minimisation Plan (WMMP) in August 2018. Under this option our targets are to:

a. Reduce annual per capita waste to landfill from 294kg per capita in 2015/16 to 236kg per capita over a 10-year period (that is, by 2027/28)

b. Increase the annual per capita quantity of materials diverted from 170kg per capita in 2015/16 to 228kg per capita over a 10-year period.

3.2 The advanced option in the WMMP included providing an optional bin collection service for rubbish and mixed organic waste, in addition to retaining the recycling bin and rubbish bag collection services. It also included upgrades to Southbrook resource recovery park (SRRP) to increase site capacity for growth and level of service. The action plan also included provision to trial a recycling drop-off facility for rural residents, continued education of residents.

Solid Waste Contracts

3.3 Staff began to prepare a tender for solid waste services in mid-2018: this was for provision of kerbside collection and facilities operation services. The tender period ran from 30 August to 10 October 2018, and four tenders were received. Council awarded the solid waste contracts to Waste Management in early December 2018.

3.4 We contacted the owners of all properties inside the Council collection areas twice to ask them to confirm what collection service they wanted. The first time was in late 2018 to give

some certainty about bin numbers for the tender document, using post-paid tick-box cards, and advised property owners that they could also make their choices on-line. The second time was in early 2019 to provide final bin numbers so that deliveries could be scheduled. This letter included the previous choice made, or noted that we had not been advised of a choice, and invited property owners to make their final choice on line, or to email or call the Council.

3.5 Staff have previously reported on this project and on the work that was involved in delivering over 19,000 bins prior to the end of the financial year.

3.6 The old rubbish compactor at Southbrook resource recovery park was replaced over the last weekend of June, in time for the new facilities operations portion of the contract.

Kerbside Recycling Shelter and Consolidation of Recycling

3.7 The kerbside recycling building was completed to budget before 30 June 2019. Waste Management refurbished the smaller compactor (referred to as the 'consolidator') and this was ready for use in May 2019. The building was completed to the stage where site staff could begin using the building for accepting recycling from our own kerbside collections and also from commercial collectors, at that time.

3.8 EcoCentral have reported that the materials they receive are of an acceptable quality, meaning that there is a relatively low contamination rate, and the materials are not being over-compacted.

3.9 Keeping the kerbside recycling out of the rubbish pit is beneficial in a number of ways:

a. People used to see the recycling stored in the pit and though it was destined for landfill, now this does not happen.

b. Removing bulk stored materials from the pit gives more space for both domestic and commercial customers to dispose of materials at the same time, which will be most relevant in the summer high-use months.

c. Not having bulk stored materials in the pit enables staff to mix heavier and lighter waste materials and load the rubbish containers more evenly.

d. The recycling does not get cross-contaminated by the rubbish in the pit.

e. Staff can remove the most obvious contamination from the recycling as they load the materials into the hopper of the consolidator.

f. Having extra space in the pit allows Waste Management to sort through the materials from commercial skips and divert materials from landfill, using their specialised excavator and grab.

Site Upgrades

3.10 The Council has allocated budgets to upgrade the pit area and access roads around the refuse pit in 2020/21 and to upgrade the recycling and recovery area in 2021/22, in the Long Term Plan. A budgetary allowance of $54,000 was allocated for an options study in 2018/19.

3.11 Staff requested proposals for this work from three selected consultants. Tonkin & Taylor (T+T) were subsequently engaged to undertake a review of the operations at SRRP, look at options to increase site capacity and through-put, increase diversion, improve the user experience for our customers, and reduce identified health and safety risks.

3.12 T+T provided a draft report with two upgrade options in July 2019. The options study determined that diversion could be increased with a relatively small increase in the current site's footprint, and that the portion of land along Flaxton Road is not currently needed for the planned upgrade works. This area could therefore be retained for future site expansion.

3.13 Staff will workshop these options with the Solid & Hazardous Waste Working Party to confirm the preferred option for design and construction. We will also discuss with them the best short to medium term use for approximately 5,500 m2 of land to the west of the recycling and recovery area.

Solid Waste and Waste Handling Licensing Bylaw 2016

3.14 The purpose of the Solid Waste and Waste Handling Licensing Bylaw 2016 is to prevent contamination of recoverable resources and maximise the recovery of recyclable resources, to ensure waste is collected in a safe and efficient manner and that waste does not cause a nuisance. The Terms and Conditions (T&C) set out the Councils requirement for use of the kerbside collection service and waste collection points.

3.15 In March 2019, the Council approved updates to the Terms & Conditions, which were amended to include:

a. Changes to the kerbside collection services to include organics and rubbish bins, the change from weekly to fortnightly rubbish collection, and the additional fees that will apply as from 1 July 2019

b. Changes to the way motels are being rated for kerbside services

c. Removing details of permitted waste streams from the T&C document and advising that any changes would be advised via the media and on Council's website

d. Modifications to clauses relating to organisations such as rest homes, the "three strike" process, provision of assisted kerbside collection services and responsibilities for landlords to manage bins for tenants.

Education

3.16 In-School programmes. EcoEducate staff have been to 232 classes (was 25 pre and 25 schools) and spoken to 6,116 students and teachers about a wide range of waste minimisation topics including Love Food Hate Waste, reduce, reuse, recycle and rethink waste. This includes some class visits to Southbrook resource recovery park. EcoEducate has assisted many schools with waste audits, vision sessions to help schools decide how they will reduce waste, setting up worm farms and compost bins, and sessions with children on making mini worm farms and bees-wax wraps.

3.17 This programme is co-funded by Solid Waste and Water, and additional classroom sessions and assistance was provided to teach students and staff about water conservation and care of drains, streams and rivers.

3.18 Enviroschools. This programme, which is solely funded out of the solid waste budgets, is still growing. We have a total of 18 schools and early education centres involved in the award programme, an increase of two on the previous year. There are 6 schools with bronze awards, 4 with silver and 2 with Green-gold.

3.19 Last year Loburn School achieved Green-Gold award status (a step up from silver), and Little Peppertree Preschool received a bronze award. Bright Horizons preschool was sold during the year, and with that change lost their Green-Gold award status.

3.20 Paper4Trees. This programme encourages schools to recycle paper rather than dump it. Schools report on the volume of paper and cardboard they have recycled, and are gifted native plants in return. The costs to administer this programme are funded out of the solid waste accounts.

3.21 Twenty four schools and 10 preschools recycled 65 tonnes of paper and cardboard in 2018, and earned 252 native plants through this programme. This is equivalent to saving 517 cubic metres of landfill space and 349 tonnes of carbon emissions.

3.22 Since the introduction of the P4T programme in 2008, participating schools in Waimakariri have recycled 673 tonnes (equivalent to 5,390 m^3 of landfill space and 3,638 tonnes of carbon emissions) and received 2,922 trees.

3.23 Community Outreach. Lesley from EcoEducate has spoken on Compass FM about recycling, waste reduction and reuse on 8 separate occasions this year. EcoEducate staff have also attended 46 events in conjunction with the Council, and had 2,250 conversations with people about waste minimisation. These events included:

a. Composting and worm farm workshops at community gardens and Kaiapoi food forest

b. Love food hate waste stall and discussions at the Vege Co-op, Winter Festival, Oxford A&P Show and farmers markets.

c. Tours plus recycling workshops and advice given at Southbrook RRP; presentations at a local business networking meeting, the Women's Institute, Scout/Cub and Guide/Pippins/brownies groups, retirement homes; assisting three businesses with audits and advice; stalls at Fernside Garden Tour, school galas and Fetes, farmers markets and carnivals.

3.24 Kate Meads' Waste Free Living workshops were held in Kaiapoi in September 2018 and Rangiora in March 2019. We reduced the value of the gift packs and dropped the cost of the workshop from $30 to $20, and this seems to have brought more people into the workshops, with an attendance of 47 in Kaiapoi and 52 in Rangiora. Council staff that attended the Rangiora workshop said that this was an entertaining and eye-opening seminar.

3.25 Rebranding. In the lead up to the change in contracts, staff 'rebranded' the solid waste services to "Rethink Rubbish". This branding has been used to create new brochures and advertisements around correct use of the bins, changes to collection services, and changes to what we can take in the recycling bins. We have begun to update site signage to reflect the new branding. Videos have been created to provide people with a quick visual reminder about the changes to collection services, and what can and can't go into each bin: these videos are up on the Councils website.

Other Initiatives

3.26 Cust rural recycling drop-off facility. During 2018/19 staff worked toward running a trial rural resident's recycling facility in the Cust area, with support from the Cust Community Network (CCN). CCN had run a survey to determine that there would be a lot of support from and use by rural residents in the wider Cust area and potentially from West Eyreton.

3.27 The carpark at the rear of the Cust Hotel was selected after three other sites – all Council owned – were ruled out owing to a range of issues that made them unavailable or unsuitable.

3.28 The recycling skips are fully enclosed and there will be no discharge from them, therefore we did not need to seek a discharge consent from Environment Canterbury.

3.29 This type of facility is classed as a waste transfer station in our District Plan, therefore we applied for and received a land use consent from the Waimakariri District Council. The consent was limited notified with one objector, and there was a 'paper' hearing as neither party wanted to be heard. The consent was granted in February 2019.

3.30 Staff subsequently negotiated a formal agreement with the owners of the Cust Hotel to occupy a portion of their car park, and for them to regularly inspect the area to ensure there would be no litter or other nuisance issues for neighbours. We also finalised negotiations with Waste Management for a variation to the facilities contract for supply of containers and transport of the recyclable materials to Southbrook RRP.

4. ISSUES AND OPTIONS

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

5. COMMUNITY VIEWS

5.1. Groups and Organisations

There was a wide-ranging consultation process undertaken in the previous year, after the Waste Management & Minimisation Plan was reviewed.

5.2. Wider Community

Staff wrote to all owners of properties within serviced collection areas on two occasions to ask them to inform the Council about their chosen waste collection services. They had the option to choose the status quo (keep using bags and recycling bins), to receive an 80 or 140 litre rubbish bin, and to receive an 80, 140 or 240 litre organics bin.

6. IMPLICATIONS AND RISKS

6.1. Financial Implications

The Kerbside Collection Account includes all costs associated with kerbside collections, disposal of collected materials, administration and management of public awareness about the services, rubbish bag supply costs and income from bag sales and targeted rates. Income was lower than budgeted for the Kerbside Collection Account, primarily owing to fewer rubbish bags being sold than had been forecast in the budgets. However this was offset by lower collection contract charges and lower disposal costs than budgeted.

The below table shows the financial status of the Kerbside Collection Account as at the end of the financial year. This account ended the year with a $254,335 surplus, which is over 5% of expenditure.

Kerbside Collection	**Budgeted**	**Actual**	**Variance**	
Income	2,796,002	2,671,977	(124,025)	-4.4%
Total Expenditure	2,700,108	2,571,262	(128,846)	-4.8%
Surplus/(Deficit)	**95,894**	**100,715**	**4,821**	**5.0%**
Accumulated Funds start of year	327,352	293,624	(33,728)	
Less net capital costs	-	-	-	
Net funding (transfers)	(140,000)	(140,004)	(4)	
Total Equity: end of year	**283,246**	**254,335**	**(28,912)**	

The sale of Council-branded bags provides an income for only the Kerbside Collection account. These bags are accepted at no charge at Southbrook RRP and Oxford transfer station, therefore the disposal charges for the rubbish in the bags deposited at these facilities are funded by a $140,000 transfer out of the Kerbside Collection account into the Disposal Account.

The Disposal Account includes transfer station operations, cleanfill pit operations and closed landfill monitoring and maintenance. Income was lower than budgeted as less rubbish and cleanfill was disposed of at the transfer stations and cleanfill pit than was forecast when budgets were being prepared. These reduced waste quantities also resulted in lower operational costs. Greenwaste costs were higher because the growing season continued over the summer period instead of ‘drying off’ as is usual in Canterbury.

The below table shows the financial status of the Disposal Account as at the end of the financial year. This account ended the year with a $183,734 surplus, which is approximately 4% of expenditure.

Disposal	**Budgeted**	**Actual**	**Variance**	
Income	4,185,951	3,885,560	(300,391)	-7.2%
Total Expenditure	5,349,444	4,999,764	(349,680)	-6.5%
Surplus/(Deficit)	**(1,163,493)**	**(1,114,204)**	**49,289**	**-4.2%**
Accumulated Funds start of year	(79,450)	276,963	356,413	
Less net capital costs	337,969	304,908	(33,061)	
Net funding (transfers)	1,528,077	1,325,882	(202,195)	
Total Equity: end of year	**(52,835)**	**183,734**	**236,568**	

The Waste Minimisation Account includes all waste minimisation activities, and is primarily funded by the Waste Disposal Levy (Landfill Levy), with some funding from sale of home-compost systems, and a contribution from the general rate. Income was slightly higher than budgeted. Overall, operational costs were lower than budgeted.

The below table shows the financial status of the Waste Minimisation Account as at the end of the financial year. This account ended the year with a $403,623 surplus. These funds are being accumulated to fund future resource recovery area upgrade design and constructions costs.

Waste Minimisation	**Budgeted**	**Actual**	**Variance**	
Income	242,709	246,138	3,429	1.4%
Total Expenditure	232,656	230,278	(2,378)	-1.0%
Surplus/(Deficit)	**10,053**	**15,860**	**5,807**	**57.8%**
Accumulated Funds start of year	368,770	389,828	21,058	
Less net capital costs	27,000	14,585	(12,415)	
net funding (transfers)	2,419	12,520	10,101	
Total Equity: end of year	**354,242**	**403,623**	**49,381**	

The capital works scheduled in the Disposal and Waste Minimisation Accounts were completed within the budgets allocated for the 2018/19 financial year.

6.2. Community Implications

Solid waste services are a significant and important service, and the recent changes have been implemented after the Council carried out public consultation for the Waste Management & Minimisation Plan and the 2018-28 Long Term Plan.

6.3. Risk Management

The risks around implementation of the solid waste contracts were managed by a project control group that met on a fortnightly basis.

6.4. Health and Safety

Health and Safety risks in the provision of Solid Waste Services have been addressed during the contract process, and were also a consideration for the options study for the site upgrades.

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

S78: Requires local authorities to give due consideration to the views and preferences of persons likely to be affected by, or to have an interest in, the matter.

S79: outlines the responsibility of local authorities to achieve compliance with (S77 and) S78 that is largely in proportion to the significance of the matters affected by the decision.

Waste Minimisation Act 2008

S42: Requires territorial authorities to promote effective and efficient waste management and minimisation within their districts.

7.3. Community Outcomes

k. 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. [1,4]
- Waste recycling and re-use of solid waste is encouraged and residues are managed so that they minimise harm to the environment. [1,3,4]

7.4. Delegations

The Utilities & Roading Committee has the delegated authority to consider the matters raised in this report.

Kitty Waghorn
Solid Waste Asset Manager

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	SHW-02-01 / 190905124856
REPORT TO:	Utilities & Roading Committee
DATE OF MEETING:	24 September 2019
FROM:	Kitty Waghorn, Solid Waste Asset Manager
SUBJECT:	Update on New Solid Waste Services and Waste Quantities
SIGNED BY: **(for Reports to Council, Committees or Boards)**	

Department Manager | Chief Executive

1. SUMMARY

1.1 This report is to provide the Utilities & Roading Committee information with an update on the new services, waste quantities and waste trends.

1.2 The weight of materials collected from kerbside bins during July and August indicates that the initial bin weight estimates for rubbish and organics in the budgets are realistic, and that the budgets for disposal of materials are set at an appropriate level. Staff will continue to monitor bin weights throughout the year.

1.3 In 2018/19 there was a drop in the total tonnage of landfilled waste, which reversed the recent trend where landfilled weight has been increasing roughly in proportion to population growth. The weight of diverted material has been increasing only slowly each year, and the 2018/19 year was no exception.

1.4 The weight of waste landfilled during the first two months of 2019/20 is around 7% lower, and diverted materials weights are approximately 18% higher, than the same period in 18/19. This indicates that the new kerbside collection services may be having the desired result but it is too early to confirm if that is the case.

1.5 There is a tension between reducing waste tonnages and funding the fixed costs of facility operation and maintenance, which staff will consider when preparing the Annual Plan budgets.

1.6 There is a risk that the changes in international recycling markets may further impact our Council's recycling services, as has happened in other Council areas. This is being monitored by staff and EcoCentral.

Attachments:

Nil

2. RECOMMENDATION

THAT the Utilities & Roading Committee:

(a) **Receives** report No. 190905124856.

(b) **Notes** that staff will continue to monitor the weight of waste collected at kerbside over the spring and summer periods, and will regularly report back to the Utilities & Roading Committee on these figures.

(c) **Notes** that there are early indications that the new organics collection service is reducing the weight of waste sent to landfill in the 2019/20 year.

(d) **Circulates** report No 190905124856 to the Council.

(e) **Circulates** report No 190905124856 to Community Boards.

3. BACKGROUND

Kerbside Collections

3.1 The new collection services began on 1 July 2019. The statistics around bin numbers and weight of waste collected have been collated for the period between 1 July and 30 August, and are tabulated below.

Bin Type	Recycling	Rubbish	Organics
Bins in service at 30 August	18,831	11,130	8,740
Bins delivered 1 July to 30 August	63	184	138
Number bags used (estimated)		14,876	
Tonnes collected	342.63	544.67	411.36
Estimated weight of rubbish from bags (t)		112	
Average weight per bin (kg) (*refer to 3.5 to 3.7 for a discussion on these figures*)	7.8	8.7	5.3
Estimated weight per bin (kg) budgeted	7.8	8.9	7.4

3.2 Note that the average weight of bins has been calculated based on the weight collected divided by the total number of bins in service (on properties), not the number of bins actually presented (placed out) for collection. This is the same method that was used to estimate tonnages for the budgets.

3.3 Bag numbers are based on the total number of bags delivered to Council service centres and supermarkets during this period, less the number of bags disposed of at Southbrook resource recovery park. Bag weights are based on audited weights plus a 25% increase, as the change to a fortnightly collection is expected to have resulted in a proportion of the bags being packed fuller than was measured in the last audit. *Refer to 3.8 to 3.11 for discussion on waste audits.*

3.4 This gives an approximate tonnage weight of rubbish collected from bags, which has been subtracted from the total weight of rubbish before calculating the bin weight.

3.5 The tabulated figures indicate that the initial bin weight estimates for rubbish and organics in the budgets are realistic, and that the budgets for disposal of materials are set at an appropriate level. However bins are expected to be lighter than the average at this time of year, and bins may not always be presented on their collection day if they are not full.

3.6 We expect that the Organics bins will be heavier than the average during spring and autumn and be lightest in winter and at the height of summer. Rubbish and recycling bins are both likely to be heaviest over the summer period, although some residents may choose to put excess garden waste into their rubbish bins and bags during high-growth periods if they don't have an organics bin or run out of space in their organics bin.

3.7 Staff will continue to monitor the weight of waste collected and calculate the average bin weights over the spring and summer periods, and will report on these figures to the Utilities & Roading Committee on a regular basis.

Waste Audits

3.8 There is a budgetary allowance to undertake comprehensive waste audits of rubbish at Southbrook RRP and of kerbside waste containers (bins and bags), every three to four years. The last audit was undertaken in March 2017, which provided up-to-date information for the Waste Management & Minimisation Plan review. Previous audits have been undertaken on both Council bags and private collector rubbish bins, with approval being sought from private collectors prior to undertaking the audits.

3.9 Staff anticipate that it will take at least six months before the use of kerbside waste containers settles enough to ensure that an audit will provide reliable information.

3.10 We propose to engage a consultant to undertake a SWAP audit during the 2020 year, either in March or September as there have been audits undertaken in both of those months. This will include sort and weigh audits of Council organics bins, Council and private collector rubbish bins and Council rubbish bags, and will exclude the contents of recycling bins. At that time the weight of bags and average number of bags put out per household will be measured, and we will also get a snapshot of bin weights.

3.11 Kerbside recycling bins are audited for contamination by staff, and the contents of randomly selected loads are sorted and weighted by EcoCentral who provide detailed audit results back to staff, therefore there is no need to specifically undertake individual recycling bin sort-and-weigh audits.

Facilities Operations

3.12 The new contract for the operation and maintenance of Southbrook resource recovery park (RRP) and Oxford transfer station commenced on 1 July 2019. So far there have only been minor changes made to site operations at both facilities, mainly around staffing and improvements to site safety.

3.13 Waste Management have begun to remove materials from the pit with a specialised excavator with a sorting-arm. The diverted materials include items that are retrieved for sale in the re-use area, timber that can be used by groups like the Menz Shed, and recyclable materials, including scrap metal. Staff and contractors will continue to work together to identify end uses for other materials that can be readily sorted from the waste stream, in order to increase diversion from landfill.

3.14 In-site waste flows at Southbrook RRP have been measured as from 1 July 2019. This enables staff to measure the weight of unacceptable materials received at the recycling and reuse area, the weight and type of material being diverted from the pit, and weight of contamination that is removed from the kerbside recycling as these materials are loaded into the consolidator.

3.15 The below table shows the tonnage of waste diverted from the pit over the past two months. This is expected to increase over time, although space limitations in the pit and finding appropriate and sustainable end-uses for the materials will be a constraint.

Tonnes of Material diverted	**July**	**August**	**Total**
Recycling	–	0.17	0.17
Reuse	0.58	1.30	1.88
Steel Recycling	3.05	2.53	5.88
Timber for Reuse	0.51	0.51	1.02
Total	**4.14**	**4.51**	**8.65**

3.16 Waste coming from the reuse and recycling area totalled 7.22 tonnes in these two months, and 1.07 tonnes from the recycling shed. The latter figure excludes a single overly

contaminated load recycling weighing 3.06 tonnes which was redirected into the rubbish pit as it was unable to be de-contaminated.

3.17 Measuring the levels of contamination will allow staff and the contractor to plan how to educate users and residents around what can and can't be dropped off at the facility and into kerbside bins, and to better manage waste on the site. For example, we are looking at providing containers for soft plastics beside the plastics recycling skip to reduce contamination of the other plastics in the skip.

3.18 Staff from the Solid Waste and Communications teams are discussing the levels of contamination with collection and site staff to come up with a strategy to make people aware that all acceptable materials are sold into the recycling market to be recycled, not dumped. Further we will continue to push the message that it is important for residents to only put clean and acceptable materials into the appropriate bins to ensure that we can continue doing recycling the materials.

Cust Rural Recycling Drop-Off

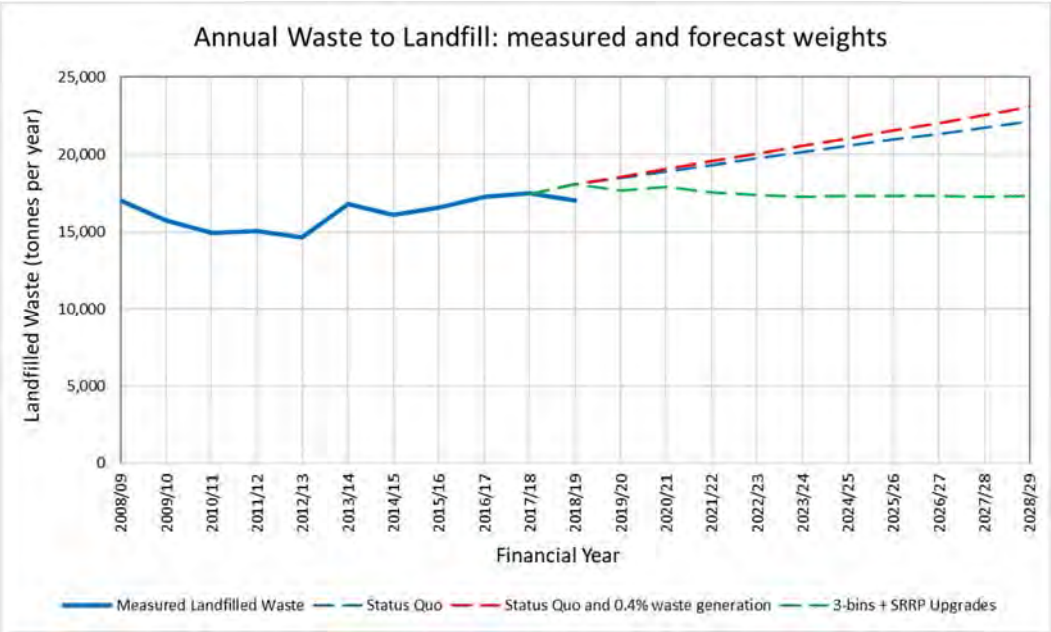
3.19 The Cust Rural Recycling Drop-off Facility was opened to the public on 28 July 2019. To date the quality of the materials placed in the bins has been good, with a very low level of contamination. CNN have been very proactive in reminding users about what can and can't be put in the containers, and about the fact that rubbish cannot be dropped off at this facility.

3.20 Both containers have been emptied twice in August coming to a total of 3.24 tonnes, indicating that there is a good level of use at this time of the year. It is too early to tell if there has been an effect on numbers using Southbrook RRP or Oxford transfer station.

Waste and Diversion Quantities and Trends

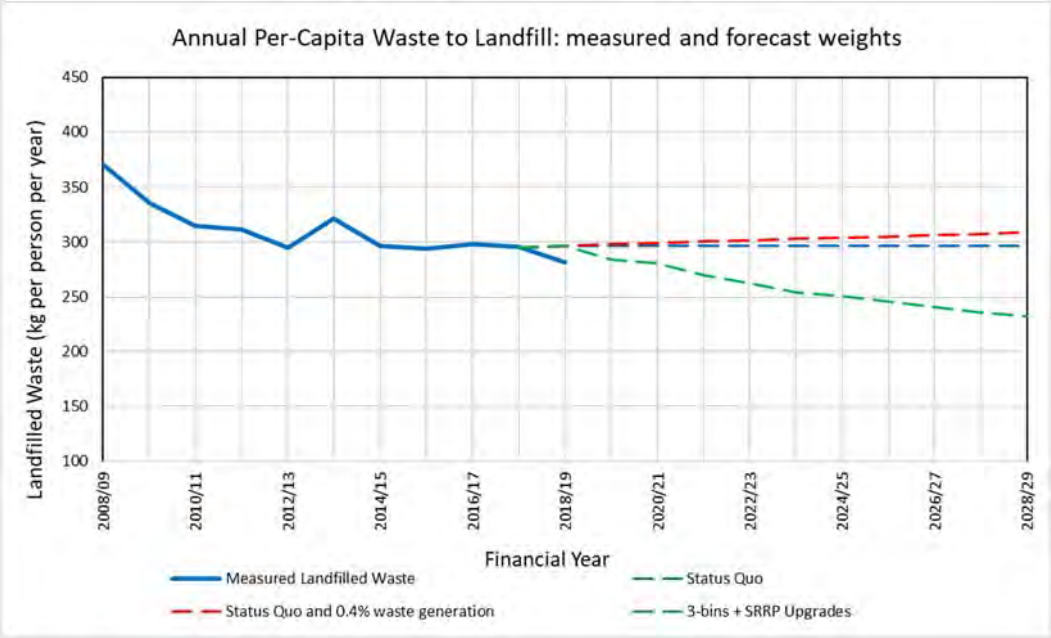
Waste Data to End of 2018/19

3.21 The annual weight of waste sent to landfill has been increasing since 2014/15, however this trend was reversed in 2018/19 as can be seen in the below graph. The graph, which was prepared for the Waste Management & Minimisation Plan, has been amended to show the actual weight of landfilled waste in 2017/18 (17,515 tonnes, which was virtually as forecast) and 2018/19 (a drop to 17,080 tonnes compared to a forecast of 18,100 tonnes).



3.22 The weight of landfilled weight per-capita, shown in the below graph, is indicating that the amount of waste sent to landfill has changed very little from 2014/15 to 2017/18, apart from

the 16/17 year where there was a slight increase. The weights are based on annual tonnages divided by the estimated population at the start of each financial year. Note that in 2018/19 the per-capita waste has dropped from 296 kg/person/year to 281 kg/person/year, which is a significant decrease.



3.23 It should be noted that waste tonnages are directly linked to economic factors. This flattening off is likely to be a result of a slight downturn in the economy and a flattening off in building activity in the district, in addition to the district's residents growing environmental awareness.

Waste Trends in 2019/20

3.24 The early indications for the current year are that landfill tonnages are dropping further, as shown in the table below. July saw a 4.9% decrease and August saw a 8.7% decrease in waste sent to landfill compared to the same months in 2018/19, which is an overall decrease of 6.8% for this 2 month period.

Landfill Weights	Annual	July	August	To End Aug	Change from previous year (same period)
Tonnes to Landfill 16/17	17,258.2	1,298.7	1,377.1	2,675.2	
Tonnes to Landfill 17/18	17,515.1	1,250.1	1,485.0	2,735.1	59.9 2.2%
Tonnes to Landfill 18/19	17,079.6	1,292.9	1,379.9	2,672.8	-62.3 -2.3%
Tonnes to Landfill 19/20	–	1,229.5	1,260.3	2,489.8	-183.0 -6.8%

3.25 Greenwaste disposal at Southbrook resource recovery park is generally very dependent on weather conditions and varies throughout the season. It is difficult to accurately forecast trends from historical data however there has been a reasonable steady increase in greenwaste tonnages since 2014/15.

3.26 The below table shows greenwaste tonnages and the observed annual changes, with the kerbside organic tonnages included as a reference.

Greenwaste Weights	Annual	July	August	To End Aug	Change from previous year
Tonnes Greenwaste 16/17	2,665.4	154.6	118.3	272.9	
Tonnes Greenwaste 17/18	3,226.0	116.1	187.6	303.7	30.8 +11.3%
Tonnes Greenwaste 18/19	3,478.0	197.5	181.0	378.5	74.8 +24.6%
Tonnes Greenwaste 19/20	–	171.5	120.0	291.5	-87.0 -23.0%
Kerbside Organics 19/20		*180.3*	*231.1*	*411.4*	

3.27 There has been a noticeable drop (around 23%) in the weight of greenwaste coming into Southbrook RRP this year compared to the previous year, however the 2018/19 greenwaste tonnages were substantially up (approximately 25%) from the year before that. The cause for the lower weights could be caused by a range of factors and it is too early to speculate whether this is a trend caused by the new service, or a seasonal fluctuation.

3.28 The total weight of materials received at the RRP (including greenwaste) that are not sent to landfill during July and August this year is 17.5% higher (267 tonnes) than the same period in 2018/19. This is a reasonable increase in diverted waste, given that last year's total increase in diverted materials was in around 4% (456.3 tonnes for the year).

Diverted Waste Weights	Annual	July	August	To End Aug	Change from previous year
Tonnes Diverted 16/17	10,155.4	671.6	719.8	1,391.4	
Tonnes Diverted 17/18	10,520.8	597.1	807.6	1,404.7	13.3 +1.0%
Tonnes Diverted 18/19	10,977.1	747.4	827.4	1,574.8	170.1 +12.1%
Tonnes Diverted 19/20	–	878.5	972.2	1,850.7	275.9 +17.5%

3.29 The drop in landfill and diverted materials tonnages are an early indication that the new collection services may be having the desired result in reducing waste to landfill, however we will need to have a full year's worth of data before we can have any level of confidence in the trending data.

4. ISSUES AND OPTIONS

4.1. There is always a tension between reducing waste and funding the fixed costs of facility operation and maintenance. Staff will continue to monitor these waste trends in order to determine appropriate levels of funding for our solid waste facilities, as well as for kerbside collections.

4.2. There is a risk that the changes in international recycling markets may further impact the Council's solid waste services, and this is a risk that the Council bears. *This is discussed in 6.3 below*.

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

5. COMMUNITY VIEWS

5.1. Groups and Organisations

Groups and organisations have been consulted about the collection services when the Waste Management & Minimisation Plan was reviewed and during the last Long Term Plan, as part of the SCP's for both of those documents.

The potential impact on private collection businesses was a consideration when the Council was making their decision on the opt-in nature of the new service.

5.2. Wider Community

The wider community has been consulted about the collection services when the Waste Management & Minimisation Plan was reviewed and during the last Long Term Plan, as part of the SCP's for both of those documents.

Two letters were sent to all owners of properties within the kerbside collection areas: we asked them to make their bin choices in August 2018, and to confirm or change their choices in February 2019.

6. IMPLICATIONS AND RISKS

6.1. Financial Implications

If rubbish, organics and recycling bin weights prove to be higher than estimated for the budgets, disposal costs will be higher than budgeted. The opposite also holds true. The kerbside collection account began the year with an opening balance of around $250,000 which provides some level of protection against unanticipated variance in costs in this current year.

Staff will continue to analyse bin weights and collection and disposal costs to determine if the rates will need to be adjusted in the Annual Plan. It is too early at this stage for staff to determine if an adjustment will be necessary.

There is always a tension between reducing waste and funding the fixed costs of facility operation and maintenance. Staff will continue to monitor these observed waste trends in order to determine appropriate levels of funding and funding mechanisms at our facilities.

6.2. Community Implications

The new kerbside collection services are a significant and important service, which have been implemented after the Council carried out public consultation for the Waste Management & Minimisation Plan and the 2018-28 Long Term Plan.

Southbrook RRP and Oxford transfer station are used by a considerable proportion of the district for disposal of waste that cannot be put in collection bins.

The Council's new collection services appear to have impacted private collection businesses as there has been a decrease in the weight of rubbish and greenwaste disposed of by private collection companies, compared to the same period in 2018/19.

6.3. Risk Management

The contract, which is based on NZS 3917, clearly shares risk between the Council (as Principal) and the Contractor, and the risk share is based on standard industry practice.

There is a risk that private collection companies may seek alternative disposal facilities to take their waste to (rubbish, green waste or recycling), which would affect tonnages coming into our facilities.

There is a risk that the changes in international recycling markets may further impact the Council's solid waste services, and this is a risk that the Council bears. Many Councils, Auckland being the most recent one, have stopped accepting plastics 3 to 7 owing to market forces.

EcoCentral have indicated to Canterbury Councils that at this stage they can still accept and sell these materials into their current markets, and they have signalled that this may come an increase in processing costs unless contamination levels decrease.

There is still a risk that EcoCentral may advise of changes in their acceptance criteria with very little notice. Staff will work to develop a contingency plan so that we can react quickly should this prove to be necessary.

6.4. Health and Safety

The contractor has an extensive H&S plan, which has been reviewed by staff. Staff will continue to monitor the contractor's H&S performance and standards over the term of the contract.

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

S78: Requires local authorities to give due consideration to the views and preferences of persons likely to be affected by, or to have an interest in, the matter.

S79: outlines the responsibility of local authorities to achieve compliance with (S77 and) S78 that is largely in proportion to the significance of the matters affected by the decision.

Waste Minimisation Act 2008

S42: Requires territorial authorities to promote effective and efficient waste management and minimisation within their districts.

7.3. Community Outcomes

k. 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. [1,4]
- Waste recycling and re-use of solid waste is encouraged and residues are managed so that they minimise harm to the environment. [1,3,4]

7.4. Delegations

The Utilities & Roading has the delegated authority to consider the matters raised in this report.

Kitty Waghorn
Solid Waste Asset Manager

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO:	RDG-32-58-01 / 190909125545
REPORT TO:	Utilities & Roading Committee
DATE OF MEETING:	24 September 2019
FROM:	Kieran Straw – Civil Project Team Leader Joanne McBride – Roading and Transportation Manager
SUBJECT:	Rangiora Woodend Road Safety Improvements at Boys Road Intersection
SIGNED BY: **(for Reports to Council, Committees or Boards)**	Department Manager Chief Executive

1. SUMMARY

1.1 The purpose of this report is to:

a. Seek approval to bring forward $400,000 of funding allocated to this project in the Council's Long Term Plan to fund the road safety improvements at the Rangiora Woodend Road / Boys Road / Tuahiwi Road intersection.

b. Seek approval of the overall Scheme Design, which is for the installation of a right turn lane on Rangiora Woodend Road at the intersection.

1.2 It is noted that consideration of longer term options for the intersection need to be progressed and that due to significant changes in both roading standards, and the local speed environment further work needs to be carried out on alternative options. The likely estimated cost for this work is approx. $40,000.

1.3 However, funding for this is not currently available in this financial year. It is proposed that if savings can be found in other Low Cost/Low Risk category works, then this additional assessment will proceed this year. If that isn't clear by the end of December 2019, then an application for additional funding will be made to the Annual Plan.

1.4 Feedback has been received from the Rangiora-Ashley Community Board that they would prefer to see an alternative option such as a roundabout developed at the intersection, rather than implementation of the right turn bays. While this desire is acknowledged there is a risk that this is likely to take considerable time to resolve.

Attachments:

i. Intersection Scheme Plan (TRIM 190906125249)
ii. Lighting Design (190912128142)
iii. MWH Crash Report (TRIM 190912128144)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190909125545;

(b) **Approves** the scheme design that is inclusive of removal of existing overhead services, installation of a new right turn lane, and installation of complying intersection lighting, as per section 4.3 of this report.

AND

RECOMMENDS THAT the Council:

(c) **Approves** bringing forward funding of $400,000 from the 2020/2021 and 2021/22 years into the 2019/20 budget (PJ 101034.000.5133), to allow this work to be undertaken;

(d) **Notes** that the current 2019 / 2020 budget is $200,000, meaning the overall project budget for this financial year will increase to $600,000 (based on recommendation c being approved);

(e) **Notes** that if $40,000 savings in other Low Cost/Low Risk projects can be found, then this will be used for engaging a consultant for the purposes of investigating the alternative long term solutions, and that if savings cannot be found by December 2019, that a request for an additional $40,000 will be requested in the draft Annual Plan;

(f) **Notes** that the project has an NZTA subsidy of 51%;

(g) **Circulates** this report to all Community Boards for their information

3. BACKGROUND

3.1 This intersection has had 19 recorded accidents over the past 10 years. Following a serious crash in April 2015, MWH (now Stantec Ltd) were engaged to investigate the crash, and prepare a report outlining possible options to improve intersection safety.

3.2 Some works, including the removal of advertising signage, installing new intersection warning signage, and additional line marking were carried out following the 2015 crash report.

3.3 The report also outlined three alternative intersection layouts for consideration. Those three alternative options were as follows:

a. Installation of a Right Turn Bay
b. Realignment of Tuahiwi Road
c. Installation of a Roundabout

3.4 $50,000 was included in the 2018 / 2019 Minor Works budget to start the design for the installation of the Right Turn Bay as a short to medium term solution, with a view to investigate options 3.3 (b) and 3.3 (c) in the future. As part of the design process it was identified that the right turn bay could not be installed due to the proximity of the existing overhead service poles and therefore this budget was carried over.

3.5 Mainpower were asked to price the option of removing 4 adjacent power poles, as well as an option of removing all power poles adjacent to the intersection, that may be required to be relocated should option 3.3 (c) be constructed in the future.

3.6 The Project Team recognise the risk that both long-term options, 3.3 (b) and 3.3 (c) would require the purchase of land subject to the Silent File area of Maori Reserve. It has clearly been signalled by Ngai Tuahuriri that they would oppose land purchase. As such it is likely that there will be significant challenges and delays associated with the delivery of either option 3.3 (b) or 3.3 (c).

3.7 Therefore the inclusion of street lighting at this intersection that fully complies with NZTA standards as part of the project will result in an improved intersection that complies from a lighting perspective, and therefore is adequate for the medium to long term should delays impede progress on either 3.3 (b) or 3.3 (c).

3.8 It is noted that the relocation of the street lights and power poles is sufficient to allow for all future designs. However it is also noted that the proposed works do not address other power poles that may also need shifting under certain future designs, and it is considered this is best left until there is greater certainty in a future design.

3.9 Given the significant changes to both roading standards, and the local speed environment, an external consultant will be sought to review the alternative options in relation to the long term feasibility of 3.3 (a), 3.3 (b) and 3.3 (c). If savings can be found this financial year, this will be carried out this financial year. Otherwise additional funding will be requested next financial year.

4. ISSUES AND OPTIONS

4.1. Option One: Do Nothing

This option defers all work at the intersection until the review of the long term options as per section 3.9 is completed, along with confirmation of land purchase requirements.

This option is not recommended due to the high accident rate, and the risks associated with land purchase of Maori Reserve land.

4.2. Option Two: Remove Existing Overhead Services, and Install Right Turn Bay

Proceed with the removal of the existing overhead service poles, and the installation of the right turn bay. This option has an estimated cost of $439,084.45, however the intersection would remain poorly lit. It is desirable to light the right turn lane with street lighting that complies with appropriate standards, and given the likelihood of extended delays in relation to other long term options, complying lighting should be considered at this intersection. This option is therefore not recommended.

4.3. Option Three: Remove Existing Overhead Services, and Install Right Turn Bay, and full intersection lighting, compliant to NZS 1158

Proceed with the removal of the existing overhead service poles, and associated lighting design, as well as the installation of the right turn bay. This option has an estimated cost of $599,109.00, and is the recommended option as it is a suitable option for medium to long term while land purchase process is completed (if required), and considers future provision for option 3.3 (c). By completing the lighting installation in conjunction with the under-grounding of the overhead lines, savings can be made over a re-establishment to install lighting at a later date.

This is the recommended Option

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

5. COMMUNITY VIEWS

5.1. **Groups and Organisations**

No formal consultation has been carried out with the local community, however the safety of this intersection was raised as a concern by Rūnanga at a recent workshop regarding

the speed limits in the Tuahiwi area. Rūnanga are keen to see improvements made, however have also stated that Maori Reserve land will not be sold for the purposes of constructing roads, including intersection widening etc.

Mainpower have been working with the project team to develop options for the removal of the overhead lines in order to fit in the installation of the right turn lane.

Targeted consultation is intended with the neighbouring residents to seek ways to address any negative effects on them.

Feedback has been received from the Rangiora-Ashley Community Board that they would like to see the final option developed rather than implementation of the right turn bays. While this desire is acknowledged there is a risk that this is likely to take considerable time to resolve.

5.2. Wider Community

No community consultation has been carried out to date, however with 19 recorded vehicle accidents at this intersection over the past 10 years, there is a significant benefit to the wider community to improve road safety at this intersection.

6. IMPLICATIONS AND RISKS

6.1. Financial Implications

6.1.1 The table below demonstrates the funding allocation as provided for in the Long Term Plan.

Account Name	***Account Number***	***2019/20 Budget Allocation***	***2020/21 Budget Allocation***	***2021/22 Budget Allocation***
Rangiora Woodend Road Improvements including Boys Rd	*101034.000.5133*	*$200,000*	*$250,000*	*$150,000*

6.1.2 This report is requesting that the $400,000 allocated in the 2020/21 and 2021/22 financial years is brought forward and added to the existing $200,000 budget for the 2019/2020 financial year, to provide a total budget allocation of $600,000.

6.1.3 The Engineers Estimate for the project is $599,109.00 and is made up as follows:

Activity	**Cost Estimate**
Removal of Overhead Services	$209,975.45
Installation of Street Lighting	$160,024.55
Installation of Right Turn Lane	$179,155.00

Professional Fees	$21,425.00
Project Contingency	$28,529.00
Project Total	**$599,109.00**

6.1.4 The Engineers Estimate makes no allowance for approx. $40,000 for further investigations in regards to alternative long term options, which will either be funded from other savings, or sought for 2020/21.

6.2. Community Implications

This project will have positive impacts on the residents in the Rangiora, Woodend, and Tuahiwi areas by improving road safety at this notorious intersection.

The proposed Right Turn lane does not require any additional land purchase that may be required for any future upgrade.

6.3. Risk Management

The installation of the Right Turn Lane is intended as a short to medium term safety improvement, while options for suitable long term options are investigated. There is therefore a risk that expenditure on the removal of overhead services and street lighting for a short to medium term option is not desirable.

However, removal of roadside hazards in the vicinity of the intersection is desirable regardless of the final design, and dependant on what long term option is selected, the overhead lines may require removal at a later date. In addition, retaining poor street lighting in the interim is a significant risk if the Council have upgraded the intersection and not addressed this item.

It is likely that any alternative long-term option will require land purchase, and with all properties immediately east of the intersection being Maori Reserve Land, it is unlikely that the land purchase will be a viable option based on feedback from the Rūnanga to date.

6.4. Health and Safety

This project has significant Health & Safety benefits for road users of the intersection, by both providing a right turning traffic a lane to wait until it is safe to turn, and by removing several roadside hazards in the vicinity of the intersection.

The Scheme Design has already been subjected to an Independent Road Safety Audit to ensure that the proposed plan will be safe for all road users.

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

The Land Transport Act is relevant to this matter.

7.3. Community Outcomes

a. Effect is given to the principles of the Treaty of Waitangi

The Council in partnership with Te Ngāi Tūāhuriri Rūnanga, continue to build our relationship through mutual understanding and shared responsibilities.

c. There is a safe environment for all

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

f. The community's cultures, arts and heritage are conserved and celebrated

Mana whenua are acknowledged and respected.

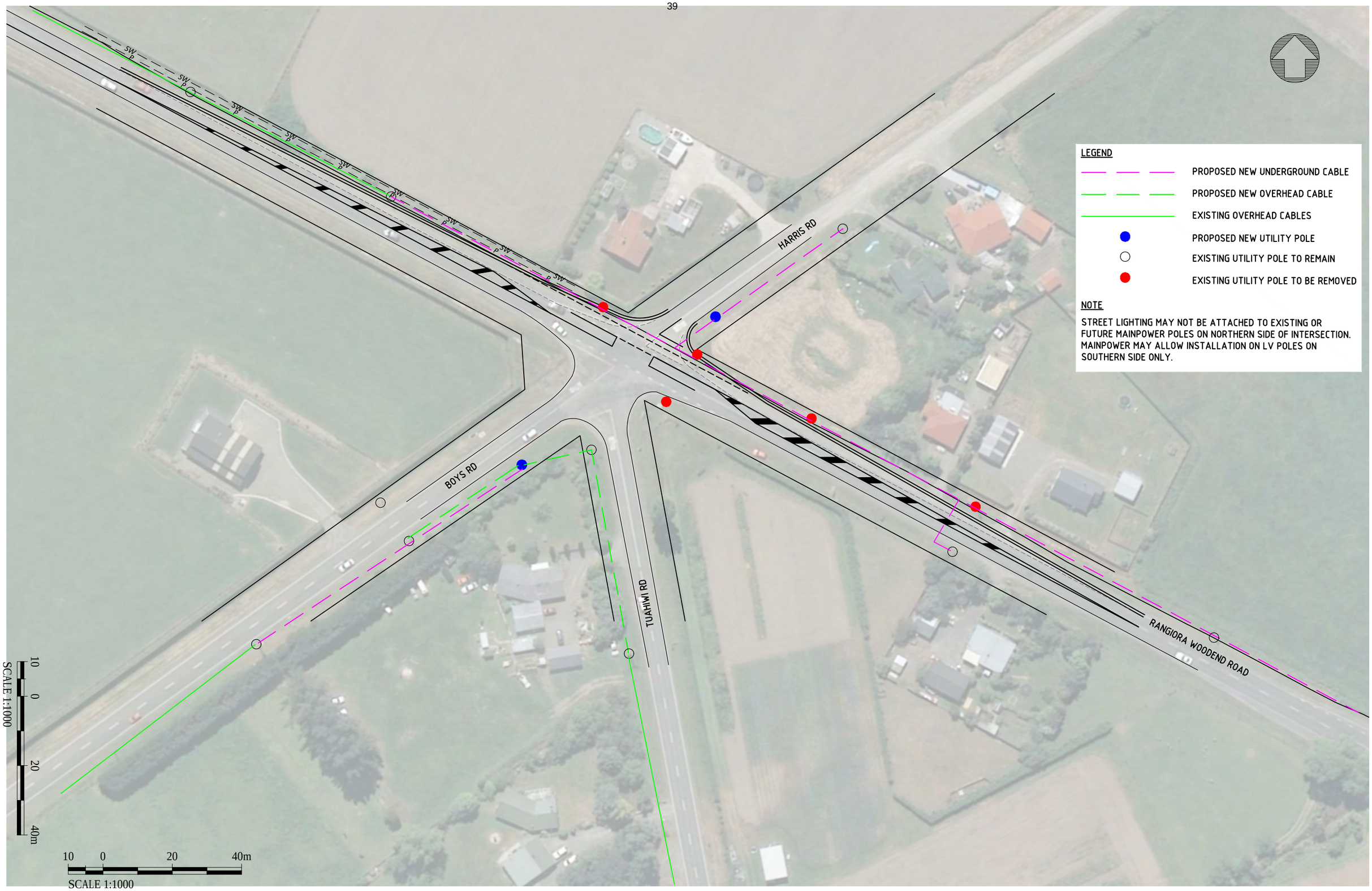
j. Transport is accessible, convenient, reliable and sustainable

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.

7.4. Delegations

The Utilities & Roading Committee has delegated authority to generally (except where otherwise provided by delegation to another committee or council officer) the implementation of tasks identified in the Long Term or Annual Plan for the committee's activities, as adopted by the Council from time to time where financial provisions have been made.

Council has the delegated authority to approve funding to be brought forward, provided the funding has been allocated within the Long Term Plan.



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	FOR INTERSECTION LIGHTING DESIGN	HP	KS	---	29/08/2019

SURVEYED			PROJECT No	PD001466
DRAWN			CON No	CON201534
DRAWING CHKD	KS	29/08/2019	SCALE (A3)	1:1000
DESIGNED	HP	29/08/2019		
DESIGNED CHKD			DATE ISSUED	
APPROVED				

WAIMAKARIRI DISTRICT COUNCIL

PROJECT
RANGIORA WOODEND ROAD
MAINPOWER PROPOSED
SERVICE ALTERATIONS

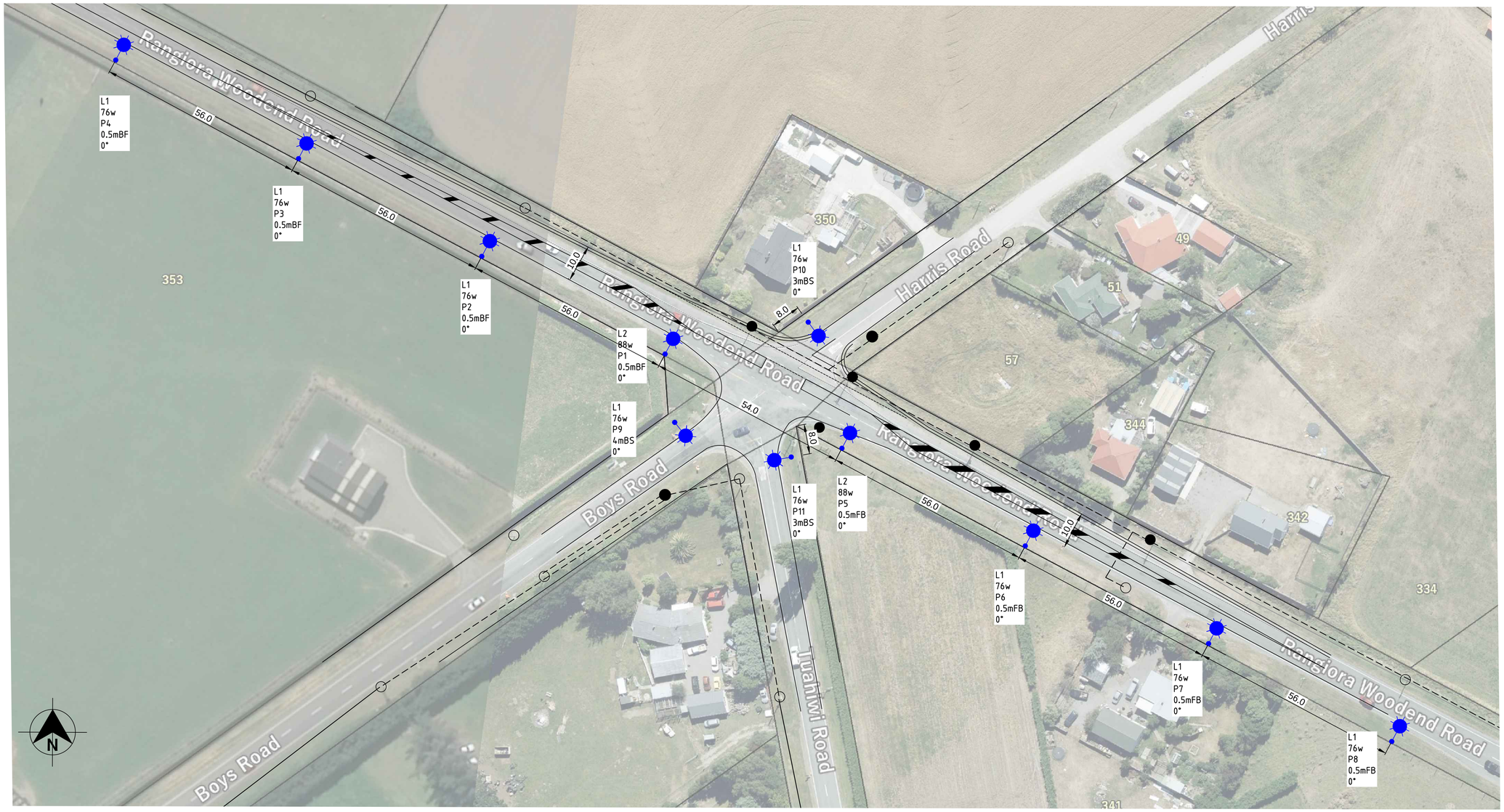
SHEET TITLE
PLAN

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING 4047

SHEET 1 OF 1 | REVISION A

PLOT DATE: 06/09/2019 FILE: S:\PDU\PDU JOBS\PD001400-1499\PD001466 - RANGIORA WOODEND RD IMPROVEMENTS\DESIGN\RANGIORA WOODENED_BOYS RD PROPOSED SERVICE ALTERATIONS.DWG



LIGHTING SCHEDULE

L1 AEC ITALO 1 0F2 STU-M 4.70.4M, 76W, 4000K c/w an integral TMS compatible dimmable DALI Driver and a pre-wired 7 pin NEMA socket and shorting cap mounted on a Spunlite Standard ground planted f rangible sectional steel 10.6m octagonal column with a 3.0m 10° tilt curved outreach arm & 5 degree 42mm o.d. spigot.

L2 AEC ITALO 1 0F2 STA1-M 4.90.4M, 88W, 4000K c/w an integral TMS compatible dimmable DALI Driver and a pre-wired 7 pin NEMA socket and shorting cap mounted on a Spunlite Standard ground planted f rangible sectional steel 10.6m octagonal column with a 3.0m 10° tilt curved outreach arm & 5 degree 42mm o.d. spigot.

SYMBOLS

- New pole, outreach arm and luminaire
- Existing pole and luminaire to remain.
- Remove existing light pole
- New luminaire on existing pole

SYMBOLS LEGEND

LX	Lighting Schedule Reference
XXXW	Luminaire Wattage
P1	Pole Identification
0.0-XX	Pole offset
0	Luminaire Tilt

B	At Boundary
BS	Behind Edge of Seal
BF	Behind Footpath
BK	Behind Face of Kerb
BG	Behind Guard rail
FB	From Boundary
E	Existing Pole Location

GENERAL NOTES

1. All distances are in meters unless stated otherwise.
2. Drawings do not necessarily show all the existing services, driveways and trees. It is the responsibility of the contractor to locate all existing services prior to commencement of construction. If necessary, pole positions may be altered by up to 1m while retaining general pole arrangement to avoid clashes with existing services.
3. All work shall conform to the requirements of NZ Transport Agency M30:2014 Specification and Guidelines for Road Lighting Design, AS/NZS1158, and AS/NZS3000:2007.
4. Supply and install, including trenching of underground lighting cable including connections to all lighting columns and into the transformer, as required by the Electricity Network Operator.
5. All luminaires shall be fitted with a 7 Contact Nema Socket (compliant with ANSI C136.41:2013) plus shorting cap (for future use).
6. All new road lighting columns shall be in accordance with the NZ Transport Agency M26:2012 Road Lighting Column Specification, manufactured to NZS 4676 and galvanized to AS/NZS 4680:2006.
7. All new luminaires shall have labels as per the requirements of section 27.8 of NZ Transport Agency M30:2014 Specification and Guidelines for Road Lighting Design.

NOTE

1. Intersection designed in accordance with AS/NZS 1158, Category V4 and WDC Construction Standards Requrements.

MAXIMUM DESIGN SPACING

Street Name	Category	Width	Offset	Arrangement Type	Max Spacing
Rangiora Woodend Road	V4	10m	boundary	Single Sided	60m

FOR INFORMATION

Revision	Amendment	Approved	Revision Date
1	ISSUED FOR INFORMATION	ST	2019.09.04
2	ISSUED FOR INFORMATION	ST	2019.09.05

WAIMAKARIRI DISTRICT COUNCIL

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Drawn	Designed	Approved	Revision Date
A. Lee	A. Lee	S. Tippett	2019.09.04

Project No.	Scale
6-ME918.00	1:600 @ A1

Project
WAIMAKARIRI DISTRICT COUNCIL
RANGIORA WOODEND ROAD / BOYS ROAD INTERSECTION
RANGIORA

Sheet
ROAD LIGHTING
DESIGN LAYOUT

Drawing No.	Sheet. No.	Revision
6-ME918.00	E01	2

REPORT

BOYS/TUAHIWI/RANGIORA WOODEND INTERSECTION CRASH REPORT

Prepared for Waimakariri District Council

March 2016

MWH®

BUILDING A BETTER WORLD

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This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

QUALITY STATEMENT

PROJECT MANAGER	PROJECT TECHNICAL LEAD
Alix Newman	Mike Smith

PREPARED BY		
Oliver Brown		10/03/2016
CHECKED BY		
Mike Smith		10/03/2016
REVIEWED BY		
Alix Newman		10/03/2016
APPROVED FOR ISSUE BY		
Alix Newman		10/03/2016

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REVISION SCHEDULE

Rev No	Date	Description	Signature or Typed Name (documentation on file).			
			Prepared by	Checked by	Reviewed by	Approved by
1	July 2015	Draft Report for Client Comment	O Brown	M Smith	A Newman	A Newman
2	March 2016	Final	O Brown	M Smith	A Newman	A Newman

CRASH REPORT

Boys / Tuahiwi / Rangiora Woodend Intersection

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1 Introduction

A serious traffic crash occurred at the Boys Road / Tuahiwi Road / Rangiora Woodend Road intersection on Sunday 26th April 2015 before 11.20 am. The conditions were partially cloudy with a dry road and slight breeze.

A campervan eastbound on Rangiora Woodend Road has rear ended a car waiting to turn right into Boys Road and pushed the car to the nearside shoulder. The campervan has subsequently crossed the centreline to the right and into the path of a westbound car resulting in a head on crash. A sketch of the crash layout is presented in Appendix A.

Occupants of the campervan and second car have sustained serious injuries.

2 Site Details

The crash occurred at the intersection of Boys Road / Tuahiwi Road / Rangiora Woodend Road before 11.20am on Sunday 26th April 2015. Rangiora Woodend Road forms the key link between Rangiora and Woodend. Boys Road links south Rangiora to Rangiora Woodend Road, and is planned to become the key southern east-west collector route. Tuahiwi Road links Boys Road to SH1 and Lineside Road.

The Rangiora Woodend Road / Tuahiwi Road / Boys Road / Harris Road forms a five way intersection, with the Rangiora Woodend Road being the through movement.

Photo 1 presents the view southeast on Rangiora Woodend Road towards the intersection with Boys Road. Note there are no right turn bays on Rangiora Woodend Road. This is the direction of campervan travel before the crash. Photo 2 presents a view from Rangiora Woodend Road looking southeast up Tuahiwi Road. Note the limited offset between Rangiora Woodend Road and the intersection of Tuahiwi Road with Boys Road.

Photo 1 - View southeast (direction of travel) on Rangiora Woodend Road. Crash site arrowed. Note Boys Road and Tuahiwi Road on right of photo, Harris Road on the left

Photo 2 - View southeast from Rangiora Woodend Road to Tuahiwi Road looking over Boys Road.

The intersection location is presented in Figure 2-1and an aerial view presented in Figure 2-2

Figure 2-1: Intersection Location Map

Figure 2-2: **Intersection Aerial**

3 Site Inspection

A detailed site inspection was undertaken on Wednesday 17th June by Mike Smith and Oliver Brown at 8am during fine weather conditions. A night time inspection was not undertaken due to the crash occurring during daylight hours.

3.1 Road Alignment

While the intersection is in the form of a cross road between Rangiora Woodend Road and Boys Road and a T-intersection between Boys Road and Tuahiwi Road, the overall geometry is effectively 5-arms, with Rangiora Woodend Road forming the main east-west spine, Boys Road / Harris Road forming the northeast southwest crossing and Tuahiwi Road forming the southeast arm. Tuahiwi Road effectively forms a Tee intersection with Boys Road for exit movements (i.e. vehicle turns from Tuahiwi to Boys to Rangiora Woodend) however entry movements are direct from Rangiora Woodend Road to Tuahiwi Road.

The geometry results with undesirable intersection angles with the following constraints:

- Poor observation angles looking to the left for drivers stopped at the limit lines on Boys Road and Harris Road. The driver is required to look through the vehicle B-pillar to observe approaching vehicles on Rangiora Woodend Road.
- Poor observation angle looking to the right from the Tuahiwi Road limit line, with separation to Rangiora Woodend Road of 15 m measured centreline to centreline.
- Potential for high speed left turn off Rangiora Woodend Road into Boys Road, cutting over the Tuahiwi Road intersection.

Photo 3 is taken on Rangiora Woodend Road viewed southeast towards the intersection. Note Boys Road and Tuahiwi Road to the right (arrowed) and Harris Road to the left. Photo 4 is viewed northwest from Tuahiwi Road. Note the location of the Boys Road Stop sign in the background and limited offset to Rangiora Woodend Road.

Photo 3 - View southeast (direction of travel) on Rangiora Woodend Road. Note Boys Road and Tuahiwi Road on right of photo (arrowed).

Photo 4 - View northeast from Tuahiwi Road looking towards Rangiora Woodend Road over Boys Road.

Photo 5 - View southwest on Harris Road looking straight up Boys Road. Note the avenue effect, where the drivers eye is drawn up Boys Road through the intersection.

Photo 6 - View southeast from Harris Road looking up Rangiora Woodened Road towards Woodend. Note damaged shoulder from vehicles turning right out of Boys Road.

Photo 5 is viewed along Harris Road looking up to Boys Road through the Rangiora Woodend Road intersection. This avenue effect also occurs driving along Boys Road looking towards Harris Road. Photo 6 is viewed from Harris Road and presents the damaged northern shoulder on Rangiora Woodend Road as consequence of heavy vehicles turning right out of Boys Road.

3.2 Site Topography

The surrounding topography is flat and straight. The serious crash site is located at the intersection with Boys Road.

The land use is predominantly farmland with rural residential properties located on the north and south sides of the intersection and a number of residential properties on Tuahiwi Road. The surrounding boundaries are typically of post and wire fence construction, and mature hedges.

3.3 Road Signs

There are intersection warning signs and Advance Direction Signs (ADS) on Rangiora Woodend Road as presented in Photo 7 and Photo 8. The warning signs are located on the left hand side of the road and are not gated.

Photo 7 - View northwest on Rangiora Woodend Road approaching intersection. Note intersection warning sign in foreground and ADS sign in background.

Photo 8 – Close-up of ADS sign. Note advertising signs obstructing sight lines and distracting the driver.

Photo 9 presents the stop ahead warning sign on Boys Road, the same is also provided on Tuahiwi Road. Photo 10 is viewed from the Boys Road limit line along Rangiora Woodend Road and presents the proliferation of advertising signs that restrict sight distance and divert driver's attention.

Photo 9 - View north on Boys Road of stop ahead warning sign.

Photo 10 - View southeast along Rangiora Woodend Road from Boys Road limit line. Note location of advertising signage.

3.4 Road Cross Section

Rangiora Woodend Road has a rural speed limit of 100 km/hr and is 7.5 m wide including 0.5 m wide sealed shoulders and generally 4.0 m wide grassed verges on either side leading into an open drainage channel. Delineation on the road includes centre line, edge lines, edge marker posts (approx. 100m crs) and RRPM's on the centreline.

Boys Road has a rural speed limit of 100 km/hr and is 7 m wide including 0.3 m wide sealed shoulders and generally 3.0 m wide grassed verges forming swales on either side of the road. Delineation on the road includes centre line, edge lines and edge marker posts (approx. 100m crs).

Tuahiwi Road has a speed limit of 80 km/hr, increasing to 100 km/hr immediately before the intersection with Boys Road. The road is 6.5 m wide including 0.1 m wide sealed shoulders and generally 4.0 m wide grassed verges forming swales on either side of the road. Delineation on the road includes centre line, edge lines and edge marker posts (approx. 100m crs).

The surrounding topography is flat with straight road geometry. Tuahiwi Road is Stop controlled, with priority to Boys Road, and Boys Road is Stop controlled with priority to Rangiora Woodend Road. There are no auxiliary turn lanes.

3.5 Safety Zone

Current best practice requires the introduction of safety zones on New Zealand roads; this is detailed in Transit New Zealand's (now NZTA) policy in their State Highway Draft Geometric Design Guide and the AUSTROADS Guide to Road Design Part 6: Roadside Design, Safety and Barriers.

An adequate roadside safety zone (or clear zone) provides drivers of errant vehicles an opportunity to recover and stop safely, or return to the road. Where this is not possible, careful design of these roadside safety zones should be undertaken to reduce the severity of the resulting crash as much as possible.

Significant safety benefits are gained from roadside safety zone strategies, which prioritise:

- Removing hazards or redesigning them so the roadside can be traversed safely.
- Relocating hazards to a position where they are less likely to be struck.
- Reducing impact severity by using appropriate breakaway/frangible / passively safe designs.

- Reducing impact severity by protecting hazards with longitudinal safety barriers and/or crash cushions.
- Delineating hazards where the above alternatives are not appropriate or until funding is available for any of the above approaches.

As reflected in the above documents, recent developments in road safety have introduced the concept of a safety zone within the road environment. This concept establishes a recovery zone for drivers who have left the carriageway, due to factors such as; inattention, fatigue, inexperience, climatic factors, evasive action, etc. Where the clear zone cannot be met a secondary road safety initiative is to consider the economically most affordable solution to protect the road users from the hazard.

3.6 Safety Proofing

Safety Proofing relies on the integration of a range of safety devices (RRPMs, edge marker posts, bridge end markers, road markings as well as signs and chevrons) to result in a roadway that delivers a consistent message to the driver. The concept relies on the cross relationship of all devices to convey an accurate message, acknowledging that while one component may be out of tolerance, the sum of the whole conveys sufficient information to a driver.

This underpins the recently published Ministry of Transport Safer Journeys "*New Zealand's Road Safety Strategy, 2010–2020"*, which promotes a "Safe System" vision for improved safety on New Zealand roads.

3.7 Night Time Safety Inspections

The Waimakariri District Council night time inspection database was interrogated for the 2006 to 2014 period to identify any records related to this intersection. Three records were revealed, all in 2009, which are:

1. 845mm stop sign currently installed on Boys Road approach to Rangiora-Woodend Road. Sign is aged HI grade. This intersection is complex with multiple legs coming in on crossroad formation reducing the amount of available space for clear guidance for the driver. Suggest replacement of existing 845 HI grade sign with VIP class 1 for high angularity and high impact in this complex zone.
2. Refer back to previous safety inspections for Tuahiwi/Boys/Rangiora-Woodend intersection improvement. Review intersection for crash history. Review scheme design previously undertaken.
3. Advertising signs installed on boundary fencepost. Review resource consent for signs and remove if not necessary. Signs are confusing at a complex crossroad five-way intersection.

The inspections identify improvements to signage that a scheme design for intersection improvements has been prepared and that removal of advertising signage is required.

It is notable that there are currently advertising signs onsite restricting sight distance and contributing to intersection clutter as shown in Photos 11 and 12.

Photo 11 - View east from Boys Road at the intersection – note proliferation of advertising signs

Photo 12 - Note excessive amount of advertising at this complex intersection.

4 Crash Analysis

4.1 Crash Data

4.1.1 Summary of crashes

The latest 5-year crash history was extracted from the NZ Transport Agency Crash Analysis System (CAS) for a 100 metre radius centred at the intersection. The 10-year history was also extracted for the same area to allow identification of any longer term crash trends.

In the 5-year period, from 2010 to 2014 there were 11 recorded crashes, none were fatal or serious, two minor injury and nine non-injury crashes recorded. There is one minor injury crash reported in 2015 and a serious injury crash in April 2015, which is not yet coded in CAS. The five-year crash diagram is presented in Figure 4-1, with the 2015 minor injury coded crash included.

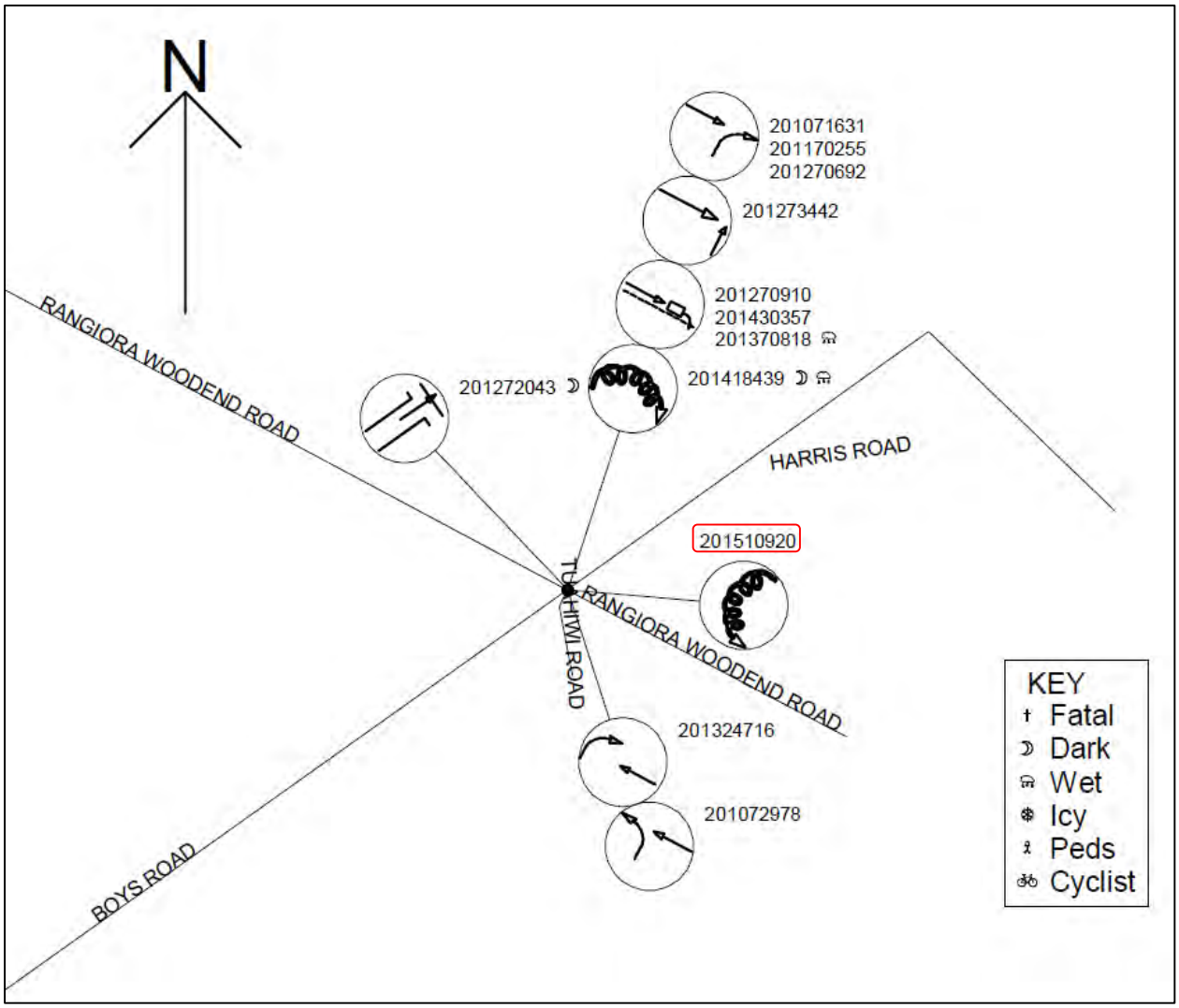


Figure 4-1: Five-year crash diagram (including 2015)

Review of the 10-year crash record from 2005 to 2014 identified 18 crashes with two serious crashes, five minor injury crashes and 11 non-injury crashes. With consideration of the observed crash rate from 2005 to 2010, there were two serious crashes, two minor injury crashes and three non-injury crashes indicating that the observed injury crash rate is decreasing, despite the frequency of crashes increasing. However, the difference in crash factors resulting with a minor or serious crash outcome is small, and the severity could easily be higher or lower.

The two most common crash types at this location were turning/crossing crashes from drivers failing to give way on Boys Road at Rangiora Woodend Road (10), and rear-end crashes from vehicles east-bound on Rangiora Woodend Road hitting vehicles waiting to turn right into Boys Road (3).

For the 10-year crash analysis, of the ten crashes from drivers failing to give way on Boys Road:

- Six were making the right-turn movement out of Boys Road/Tuahiwi Road onto Rangiora Woodend Road, four of which collided with vehicles travelling east on Rangiora Woodend, the remaining two with vehicles travelling west. Sun strike was a factor in one of the crashes. Two of the six crashed vehicles had just turned onto Boys Road from Tuahiwi Road, prior to attempting to make the turning movement.
- One was a driver making a straight crossing movement from Boys Road into Harris Road, colliding with a vehicle travelling westbound on Rangiora Woodend Road.
- One was a driver attempting to turn left out of Boys Road from Tuahiwi Road, colliding with a vehicle travelling westbound on Rangiora Woodend Road.
- Two were drivers failing to notice the intersection due to distraction or a loss of concentration.

The three rear-end crashes involving eastbound traffic on Rangiora Woodend Road all involved the driver of the following vehicle not seeing the right-turning vehicle stopped in front of them in time to stop. None of these were attributed to sunstroke.

A driver turning right from Rangiora Woodend Road into Boys Road/Tuahiwi Road failed to see a motorcycle travelling westbound on Rangiora Woodend, which collided with the trailer of the turning vehicle.

Of the three single-vehicle, loss of control type crashes, one was not related to the intersection, one was an intoxicated driver failing to take the corner at low speed, while one was caused by a driver becoming confused by the presence of the two roads, Boys Road and Tuahiwi Road, immediately past the intersection.

The remaining crash resulted from a young cyclist crossing to enter a property close to the intersection without looking and not seeing a car travelling westbound on Rangiora Woodend Road.

4.1.2 Analysis of Crashes

A review of NZTA's CAS database over the five-year period from January 2010 to December 2014 revealed a total of two injury crashes and nine non-injury crashes within a 100 metre radius of the intersection. There is one minor injury crash reported in 2015, and a serious injury crash in April 2015 that is not yet coded in CAS. The minor injury crash has been included in the analysis of crashes, and the serious injury has been included for crash risk, however insufficient formal details are available to include crash type or factors analysis.

The intersection has also been assessed using High Risk Intersections Guide[1] (HRIG).
The following tables provide a summary of the CAS output data for the intersection for the 5-year period, with Table 4-1 including the 10-year period.

Table 4-1: Annual Distribution of Crashes

Year	Fatal	Serious	Minor	Non-Injury	Total
2005	-	1	1	-	**2**
2006	-	-	-	-	**-**
2007	-	1	1	1	**3**
2008	-	-	-	2	**2**
2009	-	-	-	-	**-**
Sub-total	**-**	**2**	**2**	**3**	**7**
2010	-	-	-	2	**2**
2011	-	-	-	1	**1**
2012	-	-	-	4	**4**
2013	-	-	1	1	**2**
2014	-	-	1	1	**2**
Sub-total	**-**	**-**	**2**	**9**	**11**
Total	**-**	**2**	**4**	**12**	**18**

Table 4-1 shows that there have been no deaths or serious injuries recorded at this location over the five year period from 2010-2014, however it is noted that in 2015 there has been one serious and one minor injury crash.

[1] High Risk Intersection Guide (HRIG), NZTA, July 2013

There were seven crashes recorded in the previous five years (2005-2009), two were serious injury, two were minor injury, and three non-injury. The CAS outputs show a spike in the non-injury crash rate in 2012.

Table 4-2: CAS Crash Type – 5 yr

Crash Type	Number of Reported Crashes	Percentage of Reported Crashes	Number of Injury Reported Crashes
Overtaking Crashes	0	0%	
Straight Road Lost	0	0%	
Bend - Lost Control/Head On	2	18%	
Rear End/Obstruction	3	27%	
Crossing/Turning	6	55%	
Pedestrian Crashes	0	0%	
Miscellaneous Crashes	0	0%	
Total	**11**	**100%**	

Table 4-2 shows a breakdown of the types of crashes recorded over the five year period from 2010-2014. As discussed earlier, crossing/turning crashes (from Boys Road) and rear end/obstruction crashes on Rangiora Woodend Road are the predominant crash types at this location.

Table 4-3: Environmental Factors – 5 yr

	Wet/Icy	Dry		Night	Day		Weekend (Fri 6:00PM to Monday 5:59AM)	Weekday
No.	2	9		2	9		5	6
%	18%	82%		18%	82%		45%	55%

Table 4-3 shows that the crashes are occurring during daylight hours in fine weather with an even split between weekend and weekdays.

Table 4-4: Crash Causation Factors of Reported Injury Crashes – 5 yr

Causation	Number of Reported Injury Crash Causation Factors
Vehicle factors	1
Poor Judgement	2
Poor observation	1
Poor handling	1
Failed to Give Way/Stop	1
Too fast	1
Other (all remaining)	2

Table 4-4 shows there have been no trends of any note observed in the reported injury crash causation factors, noting however that the sample size of two injury crashes is not large enough from which any meaningful conclusions can be drawn.

4.2 Typical Crash Rate

A typical crash rate analysis was undertaken using the NZ Transport Agency Economic Evaluation Manual (EEM) to estimate the expected crash rate.

Based on the EEM Method C Weighted Accident Procedure Conflict models Appendix 6.6 (9 & 10) high-speed priority crossroads and T-intersections (≥70km/hr), the expected crash rate is 0.44 crashes per year at the crossroads and 0.06 crashes per year at the T-intersection for a total estimated crash rate of 0.50 crashes per year. The analysis is based on a crossroad intersection for Rangiora Woodend / Boys and T-intersection for Boys / Tuahiwi.

The observed 5-year crash rate is 0.76 injury crashes per year (including the two 2015 crashes and adjusted for trends). This is higher, though not inconsistent, with the EEM expected crash rate with the difference being an additional 1.3 injury crashes observed in the previous 5-years.

4.3 High Risk Intersection Review

The intersection safety has been evaluated in accordance with the NZ Transport Agency High-Risk Intersections Guide (HRIG).

4.3.1 Intersection Crash Risk

The intersection was analysed according to the HRIG which identifies two types of crash metrics, Collective risk and Personal risk.

In terms of collective crash risk for the intersection, there are two methods of calculation:

- Reported Fatal & Serious (F&S) Crashes: Over the five year assessment period there need to be three or more fatal and/or serious reported crashes. There has been one serious crash reported.
- Estimated Deaths & Serious Injury (DSI) Equivalent Crashes: The second method involves the estimation of DSI crashes that have occurred at an intersection using all injury crashes that have occurred during the crash period. This method takes into account the crash movement type, intersection form and control, and collision speed on crash severity outcomes. The estimated collective crash risk is calculated at 0.66 DSI crashes for a 5-year period for the cross intersection and 0.34 for the T-intersection. This is presented in the table below:

Table 4-5: Estimation of DSI Collective Risk Using Severity Index

Crash Type	Number of Reported Injury Crashes	Adjusted DSI crashes / All injury crashes[2]	Estimated Number of DSI Crashes
X-intersection			
Cornering (D Type)	1	0.30	0.30
Crossing (turning) (J Type)	1	0.36	0.36
Total	**2**		**0.66**
T-intersection			
Cornering (D Type)	1	0.34	0.34
Total	**1**		**0.34**

[2] HRIG, Table A3-8 and A3-10

Therefore, according to HRIG[3] and using the estimated DSI method of calculation, the cross intersection is considered 'medium' risk and the T intersection considered 'low-medium' risk when quantifying collective risk.

When considering personal risk; a calculation is performed which considers the major and minor road traffic volumes to determine the product of flow to standardise the number of potential conflicts that could occur at an intersection. The cross and T-intersections are calculated as having a personal risk value of 46 and 50 respectively. According to HRIG[4], this results in a 'High' personal risk level for both intersections.

The Level of Safety Service (LoSS)[5] for the cross and T-intersections has been calculated to be 0.4 and 0.2 which is category I[6] and demonstrates a good safety performance on a five point scale. LoSS I indicates the observed crash rate is lower than that expected of 30% of similar intersections.

As outlined above, the intersections are classified as medium and low-medium risk, the HRIG recommended safety improvement strategy is 'safety management' with an overlap with 'safe system transformation works'. This supports larger cost infrastructure developments for the cross intersection and lower cost improvements for the T-intersection.

5 Traffic Analysis

5.1 Traffic Volumes

Table 5-1 presents daily traffic volumes extracted from RAMM and estimated peak hour volumes. Also presented are the road widths and hierarchies. The peak hour volume is estimated to be 15% of the daily volume, which is a typical factor for rural roads.

Table 5-1: Road details

Road Name	AADT Volume (vpd)	Est Peak Hour Volume (15%) (vph)	Seal Width	Hierarchy
Rangiora Woodend Road (west of Boys)	5,221	780	7.5 m	Arterial
Rangiora Woodend Road (east of Boys)	5,300	795	7.5 m	Collector
Boys Road	1,724	260	7.0 m	Collector
Tuahiwi Road	861	130	6.5 m	Local
Harris Road	100	10	unsealed	Local

[3] HRIG, Table 4-1

[4] HRIG, Table 4-2

[5] Level of Safety Service, as defined by HRIG, is a method of categorising the safety performance of an intersection compared to other intersections of that type.

[6] LoSS categories range from I (one) to V (five) where intersections classified as LoSS I have a safety performance that is better than other intersections of that type, in the same speed environment and with similar traffic flows. For intersections of Category V, the converse is true. Category V have LoSS values greater than 3.

5.2 WDC Intersection Type

The WDC Engineering Code of Practice includes intersection standard drawings for roads catering for various traffic through volumes and turning volumes.

Standard Drawing SD260A presents the intersection type decision chart which assists decision makers in determining the most appropriate intersection type. For this intersection the key inputs are the right turn volume off Rangiora Woodend Road and the opposing westbound traffic on Rangiora Woodend Road that the right turning traffic must give way to. The decision chart is presented below and indicates a Type C intersection would be most appropriate for this location. Also below is the WDC SD263B of a standard rural cross junction Type C.

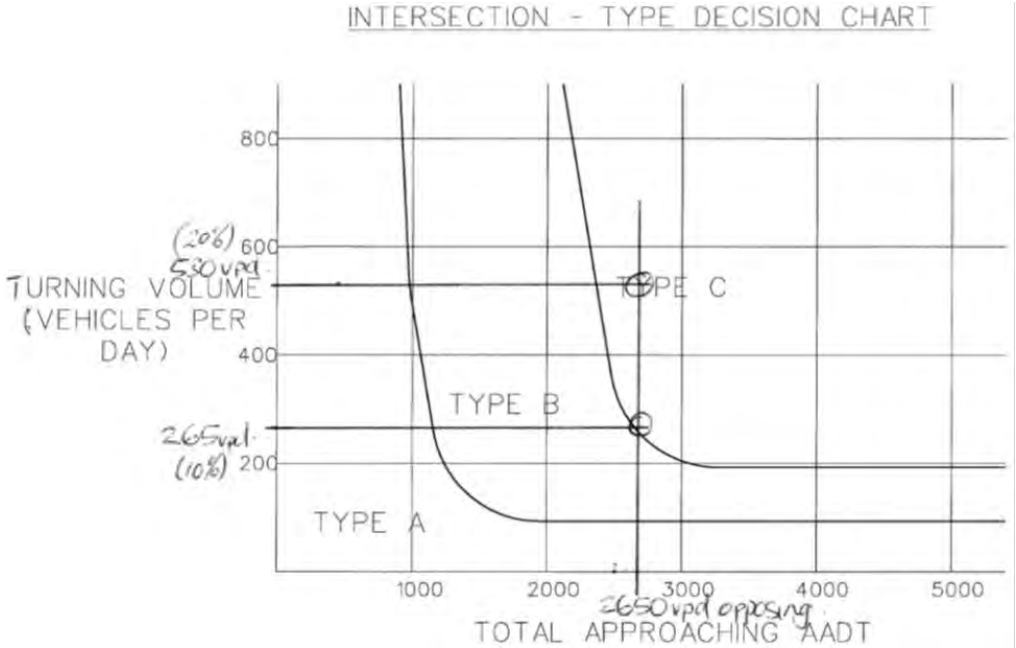


Figure 5-1: WDC intersection type decision chart

One sensitivity test was undertaken to evaluate a lower right turn volume from Rangiora Woodend Road, which evaluated 10% of the RAMM AADT turning compared to 20% turning. This demonstrated that the Type C intersection was warranted.

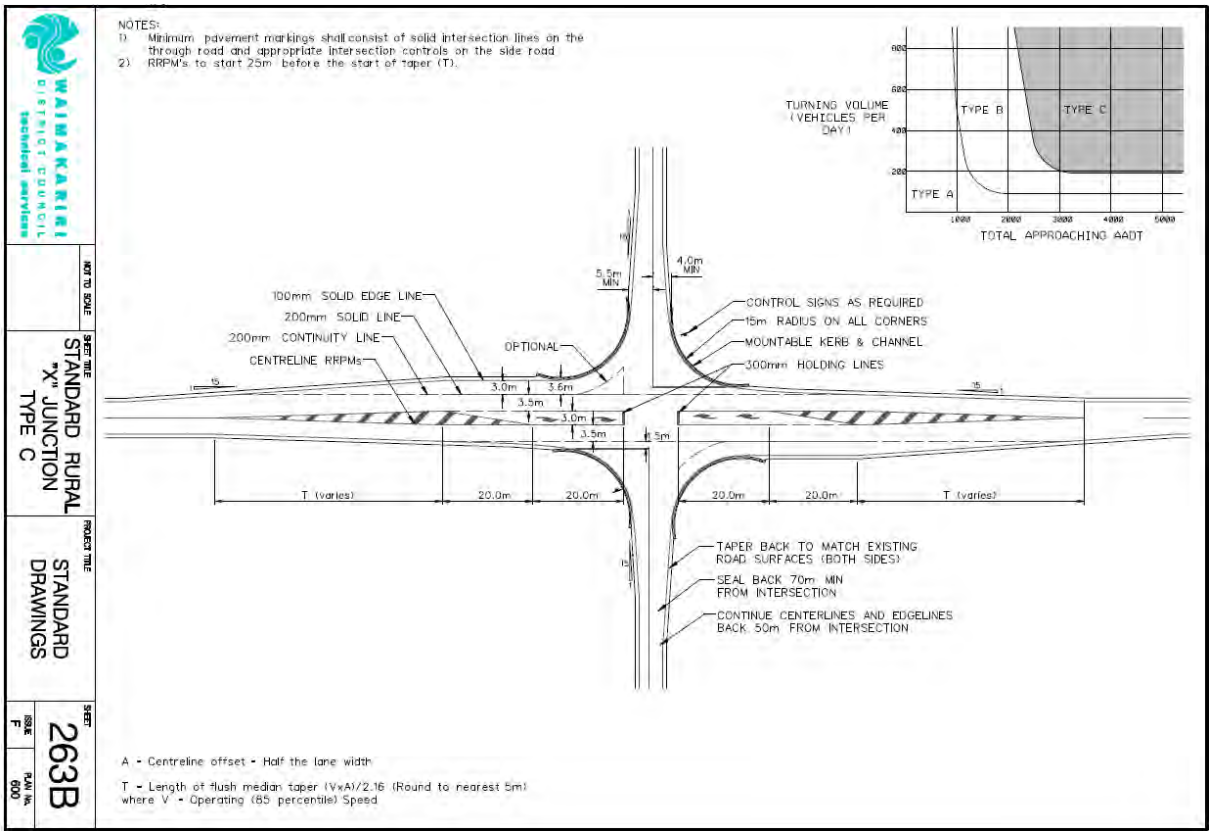


Figure 5-2: WDC standard drawing

5.3 Right Turn Bay Warrant

Further to the WDC intersection type evaluation, determination of whether a right turn bay is warranted on Rangiora Woodend Road has been evaluated using the peak hour traffic volumes at the intersection and evaluation using Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, 2010. Figure 4.9: Warrants for turn treatments on the major road at unsignalised intersections, diagram (a) design speed ≥100 km/h presents the figure relevant to this location and is presented below.

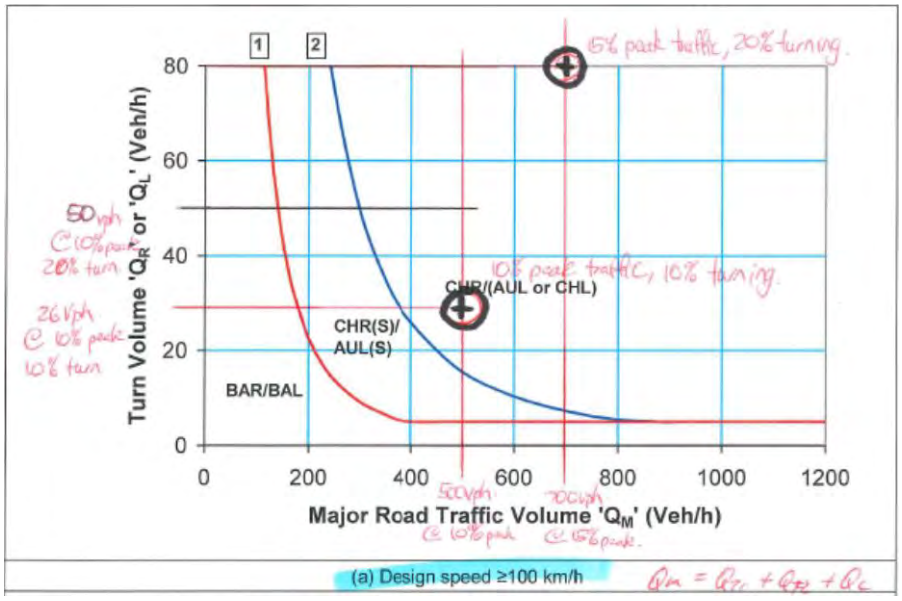


Figure 5-3: Austroads warrants for turn treatments

Highlighted on the diagram in black vivid are the sensitivity tests for peak hour volume and right turn off Rangiora Woodend Road volume, with both demonstrating that a marked right turn bay is warranted on Rangiora Woodend Road.

The two sensitivity tests presented are:

1. 15% peak hour volumes (that's 15% of the RAMM ADT) and 20% of Rangiora Woodend Road eastbound traffic turning right into Boys Road or Tuahiwi Road. This presents the higher expected through vehicle volume and right turn volume.
2. 10% peak hour volumes (that's 10% of the RAMM ADT) and 10% of Rangiora Woodend Road eastbound traffic turning right into Boys Road or Tuahiwi Road. This presents the lower expected through vehicle volume and right turn volume.

It should be noted that Part 4A considers the main road volume to comprise of traffic approaching behind the right turn vehicle and through the left turning traffic opposing the right turn vehicle. The WDC evaluation does not include consideration of traffic approaching behind the right turn vehicle.

6 Option Identification and Assessment

6.1 Option Identification

A series of improvement options have been identified, increasing in cost and timeframe to implement from work that can be completed within the existing network maintenance contract to full road realignment. Drawings are presented in each section, with enlargements in Appendix B.

6.1.1 Do now: Signs and survey

These works are minor and should be undertaken now, and include:

- Removal of all advertising signage on Rangiora Woodend Road
- Erect gated Advance Warning signs on Boys Road approach and the Rangiora Woodend Road approaches to match existing size signs on Rangiora Woodend Road
- Undertake traffic turning movement survey to determine traffic volume, composition and movements

The do now removes distraction and potential visibility restrictions caused by advertising signs; reinforces the presence and form of the intersection when approaching on Rangiora Woodend Road from Boys Road and the survey provides information to help determine the need for further works.

Expected cost: $3-$5k

6.1.2 Option 1: Paint markings

Option 1 adds to the “do now” treatments with addition of paint markings, which are:

- Treatment as per “do now”
- Painted islands on Tuahiwi Road and Boys Road to square up approaches as per Option 2 and presented in Figure 6-1.

The paint markings further highlight the intersection presence; improves viewing angles for vehicles with priority against, whilst retaining space for the tracking of larger vehicles. Raised islands, opposed to painted islands, are likely to have a greater benefit however these would restrict turning movements and would require the installation of street lighting.

Expected cost: $4-$7k

6.1.3 Option 2: Right turn bay on Rangiora Woodend Road

Option 2 provides dedicated right turn bays on Rangiora Woodend Road as presented in Figure 6-1. Details include:

- Treatments as per Option 1
- Widening of Rangiora Woodend Road to allow installation of right turn bays
- Widening on the left-hand side of Boys Road approaching Rangiora Woodend Road to enable further squaring up of the approach
- Review of street lighting in conjunction with design

This option mitigates rear-end crashes on Rangiora Woodend Road by providing a dedicated location to stop while waiting to turn. This is also likely to reduce the pressure for drivers making a right turn to accept a smaller gap in order to get out of the through traffic lane.

There is potential for an increase in crossing crashes with installation of right turn bays, however given the Boys Road to Harris Road crossing movements are very low (estimated to be less than 100vpd) then an increase in crashes is considered unlikely at this intersection.

Expected cost: $80-$150k

Figure 6-1: Option 2 concept plan

6.1.4 Option 3: Realignment of Tuahiwi Road

Option 3 involves closure of Tuahiwi Road at Boys Road and relocation of the intersection to further southwest on Boys Road as presented in Figure 6-2.

Details include:

- Inclusion of relevant parts of Options 1 and 2 (right turn bays, lighting improvements on Rangiora Woodend Road)
- Closure of Tuahiwi Road at Boys Road, with a realignment bringing Tuahiwi Road square onto Boys Road approximately 250 m southwest of Rangiora Woodend Road
- Boys Road and Harris Road squared-up at Rangiora Woodend Road, creating a right-left stagger with painted splitter island on Boys Road.

This option removes confusion and conflicts of the 5-leg cross-road intersection by creating the right-left stagger and improves viewing angles for vehicles with priority against. The stagger also provides the opportunity to tighten the turning radius and slow the left-turn movement from Rangiora Woodend Road into Boys Road. The avenue effect on Boys Road and Harris Road is eliminated with the stagger.

Expected cost: $700k-$1.0m

Figure 6-2: Option 3 concept plan

6.1.5 Option 4: Roundabout

Option 4 involves construction of a 5-arm roundabout as presented in Figure 6-3. Details include:

- 5-arm Austroads compliant roundabout with a 44 m central island diameter. This requires the purchase of private property and demolition of a house.
- Single approach and circulating lanes

The option addresses the observed crashes with a fundamental change to the intersection type. This results in the lower vehicle speeds and therefore likely lower crash severity. The capacity and operation of this would require evaluation via traffic modelling, which due to the uneven approach flows may raise capacity concerns.

Expected cost: $1.1-$1.3m

Figure 6-3: Option 4 concept plan

6.2 Option Assessment

The estimated crash reductions from each of the treatment options are detailed below. Each option's expected crash reductions are cumulative in that they include the treatments from the previous options.

Table 6-1: Intersection Option Assessment Summary

Option	Targeted crash type	Expected crash reduction	Const'n Cost ($,000)	Indicative BCR	Comments
Do now	Missed intersection, rear-end on minor road and major road	7%	3 - 5	High (65)	Based on static warning of intersection, excludes benefits from reduced driver distraction.
Opt 1	Missed intersection, rear-end on minor road and major road, Turning/crossing (poor observation)	10%	4 - 7	High (67)	As per Do Now plus benefit of flush islands on side roads
Opt 2	Missed intersection, rear-end on minor road and major road, Turning/crossing (poor observation), right turn against	30%[7]	80 - 150	High (9)	As per Option 1 plus benefit of right turn bays on main road.
Opt 3	Missed intersection, rear-end on minor road and major road, Turning/crossing (poor observation), right turn against	35%	700 - 1,000	Low (2)	As per Option 2 plus removal of 5th leg and creation of new Tee. Significant land acquisition required.
Opt 4	All movements – fundamental change	53%[8]	1,100 – 1,300	Low (2)	Fundamental intersection change. Land acquisition and demolition of house.

An indicative BCR has been calculated based solely on construction cost and crash savings. It does not include operating or maintenance costs.

The analysis indicates the "do now", Option 1 and Option 2 will attract NZTA funding, Option 3 and Option 4 will not attract funding.

Option 1 has the highest indicate BCR with an expected 10% crash reduction for a modest construction cost.

[7] The NZTA EEM Crash Estimation Compendium (New Zealand Crash Risk Factors Guideline) dated 1/1/2016 indicates in Section 8.2 in the Common Intersection Crash Modification / Reduction Factors (Urban and Rural) table on Page 46 that installation of a right turn lane is expected to reduce crashes by 30%.

[8] Based on EEM Method B Accident Rate Analysis Procedure Conflict models Appendix 6.6 (8) high-speed roundabout (≥70km/hr), the expected crash rate is 0.38 crashes per year at the roundabout.

Option 2 provides the highest crash benefits with retention of the fundamental intersection geometry (i.e. 5-leg priority controlled). This is related to the implementation of right turn bays on Rangiora Woodend Road. The potential for an increase in crossing crashes related to marking of the right turn bays is considered unlikely to be a factor at this site due to the low number of vehicles making this movement.

The Option 3 crash reduction is comparable to Option 2, however the construction cost is significantly higher due to the extensive land acquisition required for the Tuahiwi Road realignment.

Option 4 provides the highest crash reduction with implementation of the 5 leg roundabout. However this is offset by land acquisition costs and need to demolish a house. A smaller roundabout could be constructed which may allow retention of the house, however it's likely this would still have a low BCR. Further analysis would be required on the capacity and operation of a roundabout, and there are known vehicle operating and travel time disbenefits associated with roundabouts.

7 Discussion

Review of this intersection was instigated as a result of a serious crash where a vehicle turning right from Rangiora Woodend Road into Boys Road was rear ended by a campervan that subsequently crossed the centre line and collided head on with a vehicle in the opposing direction.

Review of reported crashes over the previous five year period identified the predominant crash types as right turn out of Boys Road / Tuahiwi Road onto Rangiora Woodend Road (55% of crashes) and rear end / obstruction on Rangiora Woodend Road (27% of crashes).

Estimation of the intersection crash rate using the EEM indicates the observed rate is marginally higher than the expected for an intersection of this geometry and traffic volume in a rural area.

Evaluation using the HRIG the collective cross intersection risk was considered 'medium' and the T intersection considered 'low-medium' risk. Both intersections have a 'High' personal risk level. Level of Safety Service (LoSS) is I indicating a good safety performance on a five point scale.

The HRIG-recommended safety improvement strategy is 'safety management' with an overlap with 'safe system transformation works'. This supports lower cost improvements for the T-intersection and larger cost infrastructure developments for the cross intersection.

Typical safety management actions, the lower cost improvements, for intersections include signage, visibility improvements and surface improvements. Actions could also include speed management, such as reduced speed limits via intelligent signage. Consideration of safety management improvements is warranted at both intersections.

The cross intersection safety improvements also overlap with safe system transformation works, which are high cost works involving a change in intersection form, such as to a roundabout.

Traffic analysis of the vehicle turning movements and volumes indicate right turn bays should be provided on Rangiora Woodend Road based on the WDC standards and Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections.

A "do now" and four options have been identified for improvements to the intersection, starting with low cost line marking changes to new road alignments.

The "do now", Option 1 and Option 2 will attract NZTA funding with a high rating. They include removal of advertising signage from Rangiora Woodend Road and low cost line marking improvements. The objective of these options is to reduce driver distraction, increase Rangiora Woodend Drivers awareness of the intersection and help guide Tuahiwi Road and Boys Road drivers to stop closer to 90 degrees to the main road and thereby improve observation angles. Option 2 provides the right turn bays on Rangiora Woodend Road, and this presents the single greatest safety benefit by allocating a protected area where right turning traffic can wait and this reducing the risk of rear end crashes. It is also likely to reduce the pressure on right turn drivers to select small gaps in opposing traffic for fear of being rear ended. Right turn bays are also supported by the traffic analysis.

The larger transformation works presented in Option 3 and Option 4 are not supported by BCR analysis due to their high construction costs. The need to acquire land, and in Option 4 demolish a house, may not be supported by the public. Option 3 has marginally higher safety benefits than Option 2 related to increased separation of Tuahiwi Road from Rangiora Woodend Road.

8 Conclusion

This intersection assessment has identified deficiencies at the Boys / Rangiora Woodend / Tuahiwi intersection, that while they are unlikely to have caused the recent serious crash they are potentially contributing factors.

The assessment has focused on options to improve intersection safety, and is summarised in the following points:

1. The observed crash rate is marginally higher than the expected crash rate (0.76 crashes/year observed vs 0.50 crashes/year expected).
2. Analysis using the High Risk Intersection Guide indicates 'safety management' with an overlap with 'safe system transformation works should be considered. That is low cost lines and signs through to higher cost civil works, such as fundamental intersection changes.
3. Historic night time safety inspections identified advertising signage was a problem, and this trend continues.
4. Identification and assessment of the "do now" and four options indicates Option 3 and Option 4 are not supported based on construction costs. The "do now", Option 1 and Option 2 offer crash savings that are likely to attract NZTA funding.
5. The current traffic volumes using Boys Road and Tuahiwi Road warrant the marking of dedicated right turn bays on Rangiora Woodend Road as indicated in the WDC guidelines and Austroads Part 4a.

9 Recommendation

Based on the investigation undertaken to date it is recommended that Council develop a strategy and programme for:

1. Implementation of the "do now" and Option 1 recommendations;
2. Undertake topographical survey, design and BCR analysis for Option 2 with the view of obtaining NZTA funding for construction.

Appendix A Crash Layout Sketch

Source – Sicon Ferguson Ltd

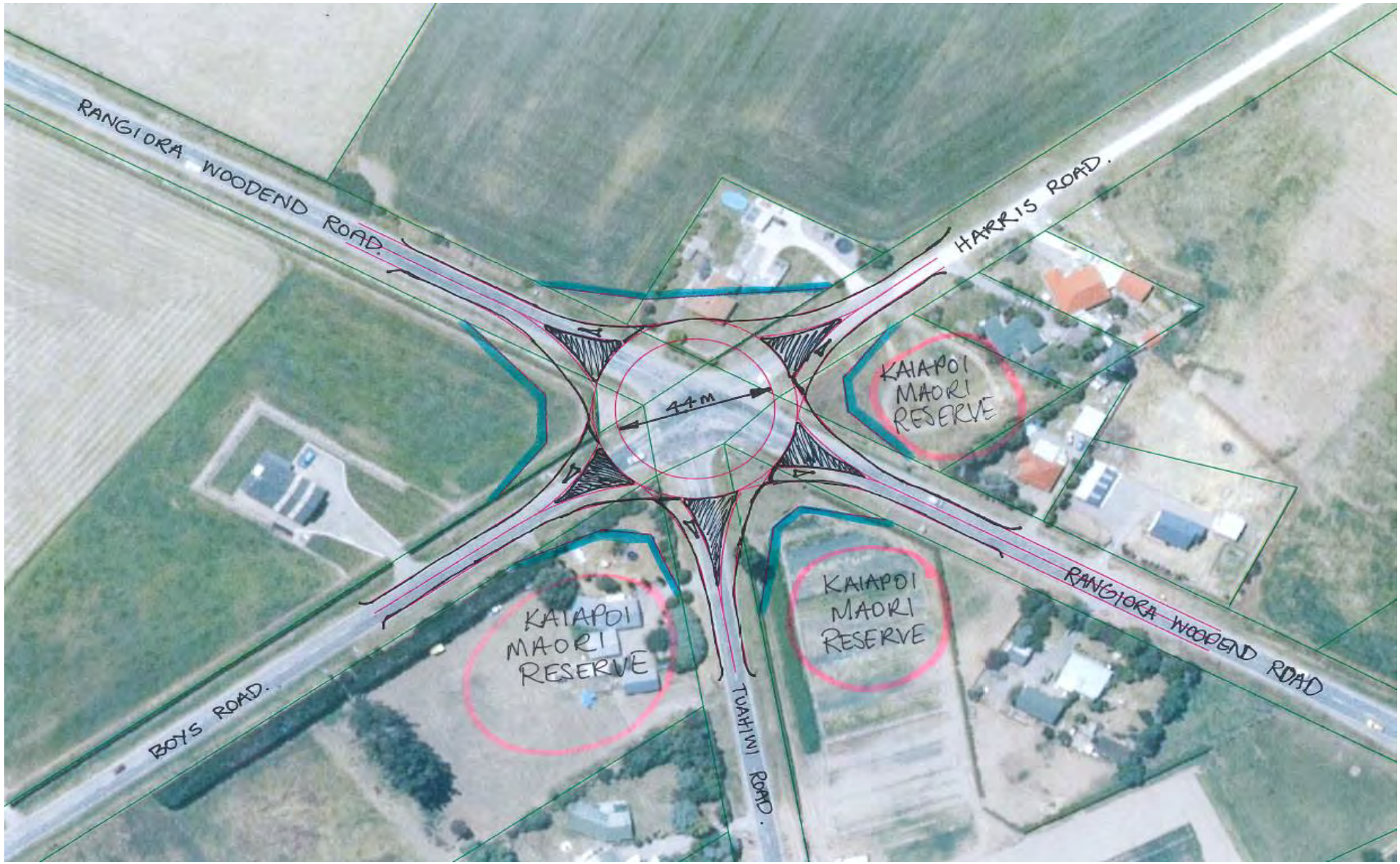
Appendix B Option Drawings


Rangiora Woodend Road
Harris Road
Boys Road
Tuahiwi Road
STOP
STOP

Option 2


Rangiora Woodend Road
Harris Road
Harris Road
Gressons Road
Boys Road
Tuahiwi Road
Land purchase to Stagger & tee up intersection
Right turn bays on Rangiora woodend Road
Land purchase for Tuahiwi Road Realignment

Option 3


RANGIORA WOODEND ROAD.
HARRIS ROAD.
44m
KAIAPOI MAORI RESERVE
KAIAPOI MAORI RESERVE
KAIAPOI MAORI RESERVE
RANGIORA WOODEND ROAD
BOYS ROAD.
TUAHIWI ROAD.

Option 4

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO:	RDG-32-77-02 / 190820116067
REPORT TO:	Utilities and Roading Committee
DATE OF MEETING:	24th September 2019
FROM:	Don Young, Senior Engineering Advisor
SUBJECT:	Park and Ride Strategy
SIGNED BY: (for Reports to Council, Committees or Boards)	Department Manager / Chief Executive

1. SUMMARY

1.1 This report is to seek approval for implementing the approach to Park and Ride as detailed below.

Attachments:

i. Park and Ride – Phased Implementation Plan (Trim 190812112165)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190820116067.

(b) **Adopts** the Park and Ride general locations, and timed staging as per the Park and Ride – Phased Implementation Plan (Trim 190812112165)

(c) **Notes** that the Community Boards have been briefed on the Park and Ride – Phased Implementation Plan in September 2019.

(d) **Notes** that a further report recommending sites for the phase 1 sites and appropriate levels of Service will be presented to a future U&R Committee meeting, after consultation with the affected Community Boards. This will occur in the new Council term

(e) **Circulates** this report to all Community Boards

3. BACKGROUND

3.1. As part of its longer term Travel Demand Management (TDM) programme, Council has committed to investing in Park and Ride facilities and other supporting TDM measures to support the HOV lane which is proposed on the Northern Corridor, to ensure it is a success.

3.2. In June 2019, the Council passed the following resolutions:

a. Commits to funding Park & Ride facilities required as part of Travel Demand Management Measures during the 2020/21 financial year and up to a maximum value of $4 million as allowed for in the Long Term Plan, subject to NZTA confirmation of a 51% Funding Assistance Rate;

b. Advises NZTA that if they front fund the project then Council will repay the local share in 2020/21;

c. Notes that funding of $4 million for Park & Ride currently sits in 2025/26 and 2026/27 and that this resolution will commit Council to bringing forward funding into the 2020/21 financial year;

d. Notes that the current high level estimate for these facilities is $3,420,000 (including $600,000 of operational capex);

e. Notes that $100,000 of funding has been brought forward to 2019/20 for investigation;

f. Notes that further work is needed to refine costs, confirm locations of the facilities and consider options around staging of the delivery of these sites before funding is brought forward;

g. Notes that staff will continue to work in conjunction with the Greater Christchurch Partners to confirm the scope of Travel Demand Management required and report back to Council;

3.3. The effect of this is that the Council has now committed to the Park and Ride facilities being progressed over the next 12 months, with the Council paying back the local share of agreed costs in 2020/2021.

3.4. Abley Consultants have previously been commissioned to assist with undertaking preliminary investigation for the implementation of this work. To date they have carried out a literature review, as well as considering possible sites for Park and Ride facilities. The criteria utilised for this search were chosen to ensure any future sites would meet all of the objectives of Park and Ride over the long term. To date, this exercise has not progressed beyond a preliminary map of possible sites.

3.5. It is generally agreed at a Greater Christchurch Partners (GCP) level that it is necessary to have Park and Ride facilities in place prior to the opening of the Northern Corridor, which is planned for June 2020.

3.6. ECan are currently planning to consult on an express bus service to and from Rangiora and Kaiapoi. The Park and Ride facilities will need to be in place for this service. While the planning of the buses and the planning of the sites are closely interrelated, the Council needs to progress the implementation in the meantime in order to meet the agreed timeframes.

3.7. The planned ECan consultation is intended to take place in November 2019. At this stage it is not clear as to exactly what service will eventuate - however the current service to Rolleston gives some indication as to what might occur. This service has three buses in the morning (approx. 6.30am – 7.30am) and three buses in the afternoon (approx. 4.00pm – 5.00pm).

3.8. The express bus service will only stop at one or two locations within each town, and it is possible that there will be a separate direct Rangiora / Christchurch and a Kaiapoi / Christchurch service, in order to make the service as quick (and therefore attractive) as possible.

3.9. A recent briefing to Council suggested that the Council needed to implement a ‘staged strategy’ in order to both meet its short term requirements, and well as develop, consult on and implement longer term approach that met the needs of the district. This was generally supported, by the Council, and so this is being formalised by this report.

4. ISSUES AND OPTIONS

4.1. LOCATIONS

4.2. There are a number of principles behind Park and Ride facility locations that determine whether specific sites will be successful or not.

4.3. In particular the following principles have been identified when determining locations.

4.3.1. Expand access to the PT network.

4.3.2. Intercept car commuter as early as possible.

4.3.3. Integrate with local PT network.

4.3.4. Enhance safety, security, and amenity.

4.3.5. Minimise adverse environmental effects.

4.3.6. Accommodate active modes and emerging technology.

4.3.7. Support future land use development.

4.3.8. Prioritised for those with the genuine need to drive to public transport.

4.3.9. Have users contribute to costs of P&R

4.3.10. Have any overspill parking appropriately mitigated and managed

4.3.11. Be located further away from the CBD

4.4. In Waimakariri District's situation, it is difficult if not impossible to find single locations that meet all of these principles, and in fact some of them are specifically at odds with each other. For instance with Rangiora, it is not possible to locate a single site that intercepts commuter traffic as early as possible, as well as minimising congestion on Southbrook Rd.

4.5. For this reason, it is proposed to have multiple sites, so that multiple objectives can be met. For Rangiora and Kaiapoi, this is achieved by identifying both a site near to the CBD area (Central Rangiora and Central Kaiapoi), as well as a site on the Christchurch side of each urban area (South Rangiora and South Kaiapoi).

4.6. In addition, future sites to service Oxford, Mandeville, and Woodend/Pegasus are proposed to allow early interception of commuter traffic at these smaller locations, although these may be more Park and Share, than Park and Ride.

4.7. Lastly, due to the large upstream catchment that enters the motorway at Tram Rd, consideration should be given to a further site near the Tram Rd / Motorway confluence. It may be that this site is found to be not necessary in the future due to either the Mandeville facility, or the South Kaiapoi facility, but at this stage it is included in the proposed network for completeness.

4.8. At this stage of the Park and Ride strategic development, this proposal is to adopt general locations, not specific sites. There is further work necessary to identify specific sites for each location.

4.9. It is worth noting that the proposed sites might fulfil either a Park and Ride function (i.e. park and catch public transport) or a Park and Share function (i.e. park and car-share) or both.

4.10. It is also worth noting that the Council will be undertaking other initiatives focussed at minimising the effects of high volumes of commuter traffic, including:

4.10.1. Discussions / agreement with ECan on express bus routes

4.10.2. NZTA are building High Occupancy Vehicle (HOV) motorway lanes

4.10.3. Completing Route-wide efficiency initiatives for West Rangiora Route

4.10.4. Completing deficiency improvements on Southbrook Rd

4.10.5. Development of Greater Christchurch TDM initiatives

4.10.6. Car-pooling initiatives

4.10.7. Communication

4.10.8. Education

4.10.9. Development of cycle networks

4.10.10. Future consideration of regional transport initiatives

4.11. **STAGING**

4.12. There would be advantages if the Council could invest in a long term solution immediately. This would have a number of advantages including:

4.12.1. Avoiding 'sunk costs' in a temporary solution,

4.12.2. Ensuring that the facility could be designed and implemented in the short term – increasing the attractiveness to users,

4.12.3. Ensuring that users were not required to change their patterns once the programme had started,

4.12.4. Ensuring that long term decisions relating to Public Transport linkages could be made with certainty,

4.12.5. Giving a good impression of the Council in terms of delivery,

4.12.6. Minimising staff time in terms of planning the project only once.

4.13. However, the practicality of implementing a solution in the time frame noted above needs to be considered. The timeframe likely to make decisions that will prove to be the appropriate long term solution will significantly exceed the available time before an initial solution is required. An assessment of the tasks would suggest a timeframe of 2-3 years is necessary as per the following:

4.13.1. Determine a preferred site (Subtotal 5 months)

4.13.2. Negotiations and Investigations on the preferred site subject to further investigations (Subtotal 4 months)

4.13.3. Preliminary design to confirm suitability and costs of preferred site (Subtotal 5 months)

4.13.4. Finalise property procurement (2 months)

4.13.5. Detailed design and documentation (Subtotal 5 months)

4.13.6. Procurement (Subtotal 2 months)

4.13.7. Construction (Subtotal 4 months)

4.14. Therefore it is clear that initially an alternative approach is required in order to ensure that some Park and ride facilities are available in time to meet the short term commitments.

4.15. The proposed approach is to implement a staged methodology, whereby Park and Ride facilities that will have an immediate benefit and can be practically implemented within the next 9-12 months are progressed immediately, while those that will take a longer time to resolve will be progressed over a longer term.

4.16. **LEVEL OF SERVICE**

4.17. There are a range of different Levels of Service that can be considered appropriate for different types of park and ride facilities.

4.18. At this stage it is not intended that specific Levels of Service are set. Instead these will considered on a case by case basis, as the usage and the Council's intended outcomes at each site becomes clearer. The types of issues that will be considered at each site include:

4.18.1. Number of vehicle spaces

4.18.2. Sealed or unsealed pavement surface

4.18.3. Level of on-site and on-road signage

4.18.4. Real-time electronic reporting of bus timeframes

4.18.5. Level of site access

4.18.6. Road-marking of parking bays and circulation patterns

4.18.7. Bike facilities

4.18.8. Lighting for security

4.18.9. CCTV

4.18.10. Seating and wet weather shelter

4.18.11. Drinking fountain – bottle filling

4.18.12. Toilets

4.18.13. Electric charging

4.18.14. Amenity / planting / landscaping

4.19. The Park and Ride facilities

4.20. It would be envisaged that specific sites may begin at a lower level of service, and only have a change to its level of service once usage increased.

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

5. COMMUNITY VIEWS

5.1. **Groups and Organisations**

5.2. The full Council, and then subsequently the four Community Boards have been briefed on this approach and are generally supportive.

5.3. The Greater Christchurch Partners, (including Christchurch City Council and NZTA) have an expectation that the Council will have Park and Ride facilities available around the time that the Northern Corridor is opened to traffic.

5.4. Staff have met with ECan and had preliminary discussions about the express bus service and what it may look like.

5.5. Staff have met with different groups associated with specific sites, to begin forming a view on possible short and long term options, and will report on this once a recommendation has been reached.

5.6. The next steps are that staff will continue with the process of assessing potential sites. This will include identifying a 'long list' of possible options, carrying out a 'desktop' assessment on the merits and disadvantages of each site, discussing the possibility of short or long term lease and/or purchase with high-ranking sites, carrying out a more detailed Due Diligence, and then making workshopping the possibilities with the applicable Community Board.

5.7. It is noted that at this stage, rail is not an option due to the lack of commitment of other parties. However, in determining the advantages of different sites, proximity to rail will be one of the factors considered.

5.8. Once the Community Boards have formed a view, then a report will be brought back to the Committee for a decision.

5.9. **Wider Community**

The wider community is generally supportive of Park and Ride facilities being installed as soon as is practicable.

6. IMPLICATIONS AND RISKS

6.1. **Financial Implications**

6.2. The Council has resolved to budget $100,000 for the 19/20 financial year, and a further $4,000,000 for the 20/21 financial year.

6.3. The recommendations in this report will give effect to the initial steps for spending this expenditure. However, recommendations will be brought to the Community Boards, U&R Committee and Council before any significant financial decisions are made. At this stage there is no further information on likely costs. This will be advised to the Committee in the future as the planning progresses.

6.4. It is noted that this expenditure is occurring as part of a much larger programme of transport improvement projects by a number of organisations, including the new Northern Motorway, the High Occupancy Vehicle lanes on the bridge, and changes to the Passenger Transport delivery framework.

6.5. **Community Implications**

6.6. The intended programme to obtain agreement to the Implementation Plan, and the Phase 1 sites is as follows:

6.6.1. Council briefing to obtain 'general buy-in' (13th August)

6.6.2. Staff discuss with key partners - NZTA, ECan, CCC (late August)

6.6.3. Community Boards engagement (5th-16th September)

6.6.4. U&R adopt District Wide implementation plan and timeframe (24th September)

6.6.5. Staff consider options for Phase 1 sites (Sept-Nov 2019)

6.6.6. Community Boards consider and recommend Phase 1 sites and concept designs (Dec 2019)

6.6.7. U&R adopt chosen Phase 1 sites (Feb 2020)

6.6.8. Staff design, procure and oversee 'Phase 1' sites (March - June 2020)

6.7. The intended programme for developing a full strategy document and for implementing the Phase 2 and 3 sites will be advised separately.

6.8. **Risk Management**

6.9. There are a number of risks to this project. Particular it is worth noting the following

6.9.1. Delayed implementation

6.9.2. Exceed budgets

6.9.3. Changing political environment

6.9.4. Under usage

6.9.5. Over usage

6.10. Due to the poor perception associated with under usage, the initial requirements will be kept to a minimum until there is a better understanding of usage.

6.11. A risk register will be developed and maintained to manage the risks throughout the project.

6.12. **Health and Safety**

6.13. The health and safety consequences of the overall project will be managed in accordance with Council's agreed processes.

6.14. The health and safety consequences of individual sites will be investigated and managed as part of the analysis process.

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. Local Government Act

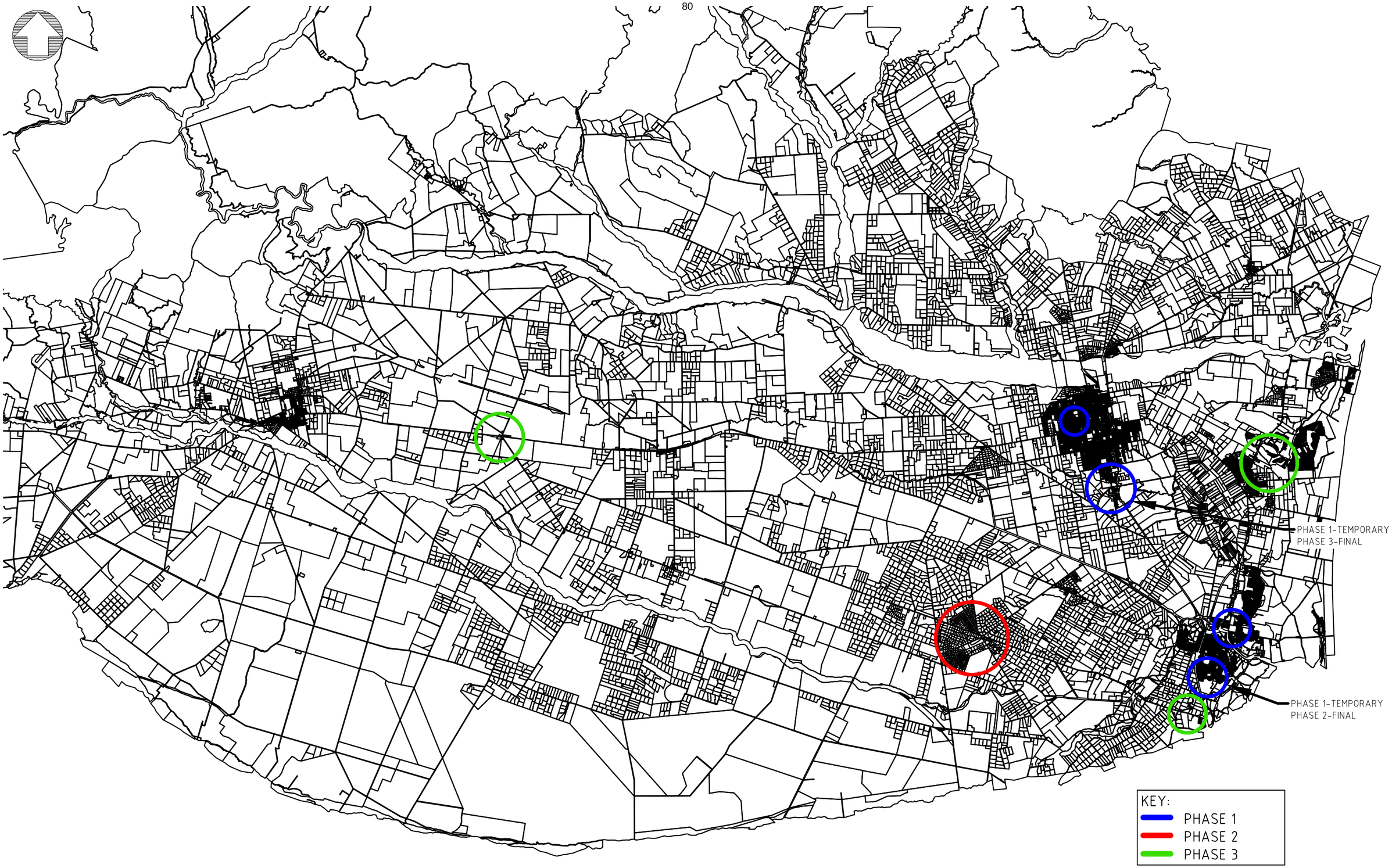
7.5. **Community Outcomes**

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.
- Opportunities to increase the occupancy of commuter vehicles is actively encouraged.

7.6. **Delegations**

7.7. The Utilities and Roading Committee can determine this matter.



REV	REVISION DETAILS	DRN	CHK	APP	DATE
A	DRAFT STRATEGY FOR COUNCIL BRIEFING	AK			12/08/2019

SURVEYED			PROJECT No
DRAWN			CON No
DRAWING CHKD			SCALE (A3)
DESIGNED			
DESIGNED CHKD			DATE ISSUED
APPROVED			12/08/2019

WAIMAKARIRI DISTRICT COUNCIL

PROJECT

PARK AND RIDE

SHEET TITLE

PARK AND RIDE
DRAFT STRATEGY
FOR COUNCIL BRIEFING 13/08/2019

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING ----

SHEET - REVISION A

PLOT DATE: 13/08/2019 FILE: C:\USERS\AARONK\DOCUMENTS\PARK & RIDE STRATEGY PLAN.DWG

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	CMS-06-05/ 190911127503
REPORT TO:	Utilities and Roading Committee
DATE OF MEETING:	24 September 2019
FROM:	Kathy Graham, Road Safety Co-ordinator/Journey Planner
SUBJECT:	Cycle Skills Education Programme "Cycle Sense"
SIGNED BY: **(for Reports to Council, Committees or Boards)**	Department Manager / Chief Executive

1. SUMMARY

1.1. The purpose of this report is to update the Utilities & Roading Committee on the newly established Cycle Skills Education Programme in the Waimakariri district known as "Cycle Sense".

Attachments:

I Contract for Service Delivery between Waimakariri District Council and the North Canterbury Sport & Recreation Trust (NCST) (DOC 190627091293)

ii Schedules relating to the Contract for Service Delivery (DOC 190627091294)

iii. Copy of a Cycle Sense Certificate awarded to students (DOC 190911127470)

iv. Photos of bike trailer (DOC 190911127500)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190911127503

(b) **Notes** that Cycle Sense is now an established cycle skills education programme being delivered in schools in the Waimakariri District.

(c) **Circulates** this report to Council and Community Boards for their information.

3. BACKGROUND

3.1 In mid-2017 the NZ Transport Agency advised they, along with Accident Compensation Corporation (ACC), were investing in a National Cycling Education System that would improve the reach, quality and efficiency of cycling education, to contribute to making cycling a safer and more attractive transport choice. The national programme called Bike Ready was subsequently launched in mid-2018.

3.2 In October 2017 Council approved funding to deliver a cycle skills education programme in schools alongside the NLTP funding which had been sought (total $70,000 p/a for 3 years).

3.3 In addition ACC funding was successfully secured, allowing an extra $9,300 to be available for the 2018/19 year. ACC funding of $11,130 has been secured for the current financial year, 2019/20 and an indicative amount of $11,130 has been sought for the 2020/21 year. This amount is 100% funded from ACC.

3.4 The cycle skills education programme that was developed for the district is based on the national system of training called “Bike Ready” and is delivered to Year 6 students in schools. The Bike Ready programme outlines the different grades of training as well as the guidelines to be followed when delivering the programme. Accreditation can be undertaken to become a “Bike Ready’ qualified provider.

3.5 In mid-2018 Christchurch City Council (CCC) Cycle Safe team delivered a successful pilot programme to four schools in our district utilising ACC funding they had secured. It was initially hoped the CCC Cycle Safe team would have capacity to deliver an ongoing cycle skills education programme in our district, however, this has not eventuated due to their limited resources and demand for the programme in the city.

3.6 In late 2018 discussions were started with the North Canterbury Sports Trust (NCST) in regard to their ability to deliver the cycle skills education programme in schools on behalf of Council. The North Canterbury Sport & Recreation Trust were approached as they have an existing and respected presence in a number of schools across the district, an existing relationship with Council, and the same type of partnership is utilised by other councils around the country to deliver cycle skills programmes.

3.7 A Contract for Service Delivery has subsequently been signed by both the North Canterbury Sport & Recreation Trust and Council in regard to delivery of the programme.

3.8 Purchase of logistical equipment, including a dedicated bicycle trailer, required for the programme has been undertaken. Management team have also approved the purchase of a suitable vehicle to be used as part of delivery of the programme. This vehicle is due to be provided to North Canterbury Sports Trust in the coming month.

3.9 Ten second hand bikes to be used in the programme were gifted to Waimakariri District Council by the Christchurch City Council Cycle Safe Team as a result of them upgrading their fleet.

3.10 The North Canterbury Sport & Recreation Trust have engaged staff for the programme directly rather than Council employ them as employees or contractors. Staff involved in delivery of the programme have undergone training with the NZTA Bike Ready instructors. They are also spending time shadowing Christchurch City Council Staff to gain additional experience.

3.11 By the end of 2019 the Trust would have delivered Grade 1 cycle skills education to around 400 Year 6 students in the Waimakariri District across 10 schools. Grade 1 education involves cycle education and skills within the school grounds.

3.12 It is intended that the programme will ultimately also deliver Grade 2 cycle skills, which includes on-road training. Staff employed in the programme are currently working to achieve the necessary requirements to deliver Grade 2.

3.13 While the national cycle skills education system is called Bike Ready, providers are not able to call themselves “Bike Ready” providers until they have been accredited by NZTA. It is the intention to work with the North Canterbury Sport & Recreation Trust towards “Bike Ready” accreditation over the next few years.

3.14 In order to promote the programme and its successes, the name “Cycle Sense” has been adopted for the programme with the approval of Management Team.

3.15 Demand for the programme amongst schools in the district has been high, even though publicity around the programme has been limited. It is anticipated the programme will continue to grow.

4. ISSUES AND OPTIONS

4.1 Council does not have the capacity in-house to deliver the cycle skills education programme and there are limited options available in the district to outsource delivery of the programme. The North Canterbury Sport & Recreation Trust already has a recognised and respected presence in schools as well as already being a partner with Council in several initiatives.

4.2 The North Canterbury Sport & Recreation Trust did not have funding available to secure the logistical items required as part of the delivery of the programme, particularly the larger resources such as suitable vehicle and dedicated bike trailer.

4.3 In order to get the programme operating a bike trailer and new vehicle has been sourced which fits the criteria required. Funding for both vehicles is from the programme funding.

4.4 In order to promote and market the cycle skills education programme both to schools and the wider community a suitable name was required. “Cycle Sense” was approved by Management Team as a suitable name for the programme.

4.5 It was considered appropriate and practical that the North Canterbury Sport & Recreation Trust directly engage staff as they already have processes in place for staff being placed into the school environment. . These staff have all undergone the necessary checks under the Vulnerable Children Act 2014.

4.6 While the programme currently only delivers Grade 1 cycle skills education to students, the aim is to build capacity of the instructors to deliver Grade 2 within this financial year.

4.7 There are future opportunities to grow the programme to include adult training and additional funding may be sought from Council in future Long Term Plans.

4.8 There are opportunities to consider sponsorship of the programme in areas such as signwriting of the trailer and vehicle to promote and advertise the programme. These opportunities are being investigated in collaboration with the North Canterbury Sport and Recreation Trust.

5. COMMUNITY VIEWS

5.1. Groups and Organisations

5.1.1. The Council is engaging with stakeholders including NZ Transport Agency, ACC and the local Police School Community Officer in regard to delivery of the cycle skills education programme.

5.1.2 The programme delivery is based on the national cycle skills education system, “Bike Ready”.

5.1.3 Seven schools have already had the Grade 1 programme delivered to date and a further four schools are booked in for Term 4 of this year. There is ongoing interest from schools in having the programme delivered.

5.2 Wider Community

5.2.1 There has been no specific wider community engagement or consultation on the programme delivery or naming of the programme, however feedback from the community on the Council’s Walking and Cycling Strategy update in 2017 included safety as a key priority, supporting and promoting driver and cyclist education to encourage sharing the road and the recognised benefits of walking and cycling for health and well-being.

5.2.2 Our Walking and Cycling Strategy 2017-2022 aims to encourage people to walk and bike both for recreation and transport to and from work and includes key priorities such as supporting programmes that improve safety for motorists, pedestrians and cyclists.

5.2.3 Safety has been given as one of the main reasons in district school travel surveys, on why parents or caregivers are reluctant to let children bike to school.

6. IMPLICATIONS AND RISKS

6.1. Financial Implications

6.1.1 Funding for delivery of the cycle skills education programme in schools comes within the Road Safety Education and Promotion budget, of $190,000 (including 51% NZTA subsidy). The amount allocated to cycle skills education is $70,000. There was additional 100 percent ACC funding of $9,300 for the 2018/19 year and $11,130 for 2019/20 and an indicative $11,130 for the 2020/21 year.

6.1.2 The ACC funding is dependent on the programme achieving the targets outlined in our initial application to them and meeting their reporting requirements. The programme successfully achieved this in the 2018/19 year and is well on track to achieve the targets for the 2019/20 year.

6.1.3 Various options were considered for the purchase of the vehicle required for the programme. Due to the nature of the vehicle required, purchase of a new vehicle was considered most appropriate and agreed to by Management Team, with initial purchase being funded from the plant account. The funding will be recovered from the usage of kilometres travelled by the vehicle, or on a basis of a set amount based on the estimated running costs over each of the three years. In the first three years a per km charge over 10,000 kms the costs are estimated to be approximately $12,711 pa.

6.1.4 Under the Contract for Service Delivery it has been agreed that the vehicle is only to be used in relation to delivery of the programme and would be able to be placed back into the Council fleet during those times it is not being used, e.g. school holidays.

6.1.5 A draft budget for the programme for the 2019/20 financial year is indicated below. This includes the areas the North Canterbury Sport & Recreation Trust will invoice Council for and the costs that Council will incur directly as part of the programme. This will enable delivery of Grade 1 and 2 cycle skills education to be delivered to approximately 200-250 students, a target we have indicated as part of our funding application to ACC.

6.1.6 The NZ Transport Agency suggests a cost estimate of around $153 per head for the delivery of Grade 1 and 2 cycle skills education to students. These are national averages and may vary and while including some administration costs, do not include the logistical equipment required a part of the programme, nor instructor training and upskilling. As indicated below there is sufficient budget for the programme to be delivered in 2019/20.

1st July to 30th June 2020 Draft Budget				
North Canterbury Sports Trust to invoice Council for:				
Wages				
4 staff @ $25.00ph $1,400per week for 30 weeks	$ 42,000.00			
Supervisor 14 hours per week ($28.00 p/h) x 30 weeks	$ 11,760.00			
Ongoing Equipment and repairs	$ 4,000.00			
Phones	$ 600.00			
Office rent photo copying stationery	$ 4,500.00			
Uniforms	$ 500.00			
Promotion and mapping	$ 800.00			
Total NCSRT Costs	**$ 64,160.00**			
			$ 64,160.00	
Council would cover costs relating to:				
Vehicle costs as detailed below based on 10,000km/year		$ 12,711.00		
Council liaison - staff time		$ 4,200.00		
Total Council Costs		**$ 16,911.00**		
			$ 16,911.00	
			$ 81,071.00	
AVAILABLE BUDGET				
Council/NZTA funding (51%/49%)				$ 70,000.00
ACC Funding - (100%)				$ 11,130.00
Total Budget Available				**$ 81,130.00**

6.1.7 The vehicle costs are estimated below:

Hi Ace Van			
kms	**10,000**	**20,000**	**30,000**
Vehicle	36,160	36,160	36,160
Residual	27,120	19,888	14,464
Depreciation	7,232	7,232	7,232
Cofs/admin	1,989	1,989	1,989
GPS	524	524	524
Fleetsmart	325	325	325
insurance	350	350	350
Registration	98	98	98
Road user	694	1,387	2,081
Fuel	1,200	2,400	3,600
Servicing	250	300	400
Warrant of fitness	50	50	100
Total cost	**12,711**	**14,654**	**16,698**
Cost per km	$ 1.27	$ 0.73	$ 0.56

6.2. **Community Implications**

6.2.1 Failure to deliver the cycle safety skills education programme will result in loss of NLTP and ACC funding and we will fail to meet some of our priorities under the Walking and Cycling Strategy 2017-2022.

6.3 **Risk Management**

6.3.1 Risks associated with the delivery of this programme and vehicle use have been captured as part of the Contract for Service Delivery which has been signed by the Waimakariri District Council and the North Canterbury Sport and Recreation Trust.

6.4 **Health and Safety**

6.4.1 Health and Safety matters related to delivery of this programme have been captured a part of the Contract for Service Delivery to be agreed upon between Waimakariri District Council and the North Canterbury Sport and Recreation Trust.

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** **N/A**

7.3 Community Outcomes

7.3.1 *There is a safe environment for all*

- Improving young people's bike handling skills and knowledge of road use will assist to improve their ability to stay safe on our roads

People have wide-ranging opportunities for learning and being informed

- The cycle skills education programme enables young people to access skills and learning they may not have opportunity to gain otherwise

People are friendly and caring, creating a strong sense of community in our District

- Gaining confidence through improved knowledge of biking will allow young people the ability to participate in recreational activities.

7.4 Delegations N/A

Dated 12 September 2019

BETWEEN

Waimakariri District Council

AND

North Canterbury Sport and Recreation Trust

Contract for Service Delivery

Contract for Service Delivery

AGREEMENT made the 12th **day of September 2019**

BETWEEN Waimakariri District Council ("WDC")

AND North Canterbury Sports and Recreation Trust ("Trust")

BACKGROUND

A. The NZ Transport Agency has implemented a national framework of cycle skills education called "**BikeReady**" and has made funding available to Councils for the delivery of cycle skills education programmes.

B. WDC, as an approved organization, successfully applied to the NZ Transport Agency for this funding, which is distributed through the National Land Transport Programme.

C. Additional funding has been secured from WDC and the Accident Compensation Corporation to deliver cycle skills education in the Waimakariri District.

D. In consideration of the Trust agreeing to comply with the terms of this agreement, the WDC has agreed to make a funding allocation available to the Trust as set out in the Schedules to this Agreement.

Definitions

Commencement Date	**Means the date of the signing of this Agreement**
Intellectual Property	**Means without limitation, all rights to, and any interest in, any patent, design, trademark, copyright, know-how, trade secret and any other proprietary right or form of intellectual property (whether prosecutable by registration or not), agency contract, purchase contract, specification, formula, drawing, program, design, system, process, logo, mark or style, including any modification or addition to Intellectual Property existing at the date of this Agreement, which is created, made or discovered by the Trust or supplied by the WDC or the New Zealand Transport Agency in connection with this Agreement.**
The Activity	**Means the cycle skills education programme delivery to be performed by the Trust as described in Schedule 1**
Insolvency Event	When: a a party becomes unable to pay its debts as they fall due, or the value of its assets is less than the amount of its liabilities taking into account its contingent and prospective liabilities; b in relation to a party, an order is made or resolution passed for the liquidation of the party, a receiver is appointed in respect of the party or any of its assets, the party enters voluntary administration, the party enters into a compromise with any its creditors, or the party enters statutory management; or c any analogous demand, appointment or procedure is instituted or occurs in relation to a party.

IT IS AGREED AS FOLLOWS:

Term

1. This Agreement shall commence on the Commencement Date and shall expire on 30 June 2021 (the **Term**).

2. The Term does not preclude a new agreement being entered into by the parties to extend beyond this expiry date.

Variation

3. No variation to this Agreement will be valid unless agreed in writing by both parties.

The Trust's Obligations

4. The Trust shall complete the Activity set out in Schedule 1 to achieve the outcomes set out in Schedule 1 and the reporting requirements set out in Schedule 2 and 3 of this Agreement.

5. The Trust shall deliver the Activity in accordance with any applicable best practice, guidelines or policies with particular reference to to the training delivery and provider management standards as per the BikeReady Guidelines. And additionally, that there is a system of processes internally that allow them to objectively monitor and improve quality continuously. .

6. The Trust shall act as a good employer and shall:

    a. Abide by the equal employment opportunities principles set out in the Employment Relations Act 2000;

    b. Ensure that its own staff and its sub-providers which are carrying out the Activity on its behalf, are suitably trained, experienced and fully qualified to carry out the requirements of this Agreement in a safe manner that will avoid harm to themselves or to any other people, and at all times will comply with the requirements of the NZ Health and Safety at Work Act 2015 and its amendments

    c. Ensure any notifiable incident is notified to WorkSafe within the statutory timeframe;

    d. Ensure that its employees and sub-providers are vetted by the New Zealand Police Vetting Service in accordance with the Children's Act 2014;

    e. Ensure all of its employees and sub-providers comply with the Trust's obligations under this Agreement;

    f. Ensure a qualified medic or first aider is available during the delivery of the Activity;

    g. If directed by the WDC acting reasonably, replace any employee or sub-provider that is not complying with the Trust's obligations under this Agreement and the Trust shall do so immediately (but in any event no later than 10 working days after receipt by the Trust of the relevant request); and

    h. Ensure that all generally recognized safety procedures are to be adhered to, and appropriate safety equipment used as the work is carried out. All accidents or incidents arising from the execution of this agreement must be immediately reported to the WDC Liaison Person or nominated representative and investigated in keeping with legislative requirements. Failure to observe these conditions may result in the termination of this Agreement.

7. If the Trust fails to complete the Activity as agreed and as a result the WDC incurs loss or damages, the Trust shall be liable for such proportion of the loss or damages as is attributable to the Trust's failure.

8. The Trust undertakes to advise the WDC immediately if it becomes aware of, or suspects with reasonable grounds that there may have been, misappropriation or misapplication of any of the funds. Where fraud or misappropriation of the funds is suspected or established, the Trust shall also immediately notify the NZ Police of the situation.

9. The Trust shall not undertake any action that could bring the WDC into disrepute.

Inability to Complete Provision of Activity

10. The Trust shall promptly notify the WDC in writing of any situation or event arising from circumstances beyond its control and which it could not have reasonably foreseen which makes it impossible for the Trust to carry out in whole or in part its obligations under this Agreement.

11. Where the Trust is unable to meet the targets specified in Schedule 1, the Trust shall immediately notify the WDC.

12. If completion of any part of the Activity is delayed by matters beyond the control of the Trust, or the WDC requests additional work or requires the Activity to be varied, the WDC shall grant a fair and reasonable extension/amount of time to the Trust to complete that task.

The WDC's Obligations

13. The WDC shall nominate a Liaison Person to liaise between the Trust and the WDC.

14. The WDC shall provide the Allocation to the Trust as specified in Schedule 2 to this Agreement and in accordance with Schedule 2. To the extent that the Trust has already carried out part of the Activity prior to this Agreement and in accordance with Schedule 2, WDC will reimburse the Trust for that part of the Activity in accordance with Schedule 2, provided that the Activity has otherwise been carried out in accordance with this Agreement.

15. The WDC shall:

    a. Support the Trust with information as appropriate;

    b. Ensure the WDC is represented at agreed meetings of the Trust;

    c. Reasonably support the Trust to work on any issues arising from monitoring and evaluation and provide advice on evaluation and planning processes as requested; and

    d. Respond to regular progress reports;

16. The Allocation made under this Agreement is GST exclusive. The WDC provides no guarantee of additional funding and accepts no responsibility for budget overruns. The Allocation is the total amount that WDC will provide for the Trust providing the Activity and complying with its obligations under this Agreement.

Progress

17. During the term of the Agreement, the WDC and Trust shall monitor the progress of the Activity. The parties shall meet on a regular basis during the term of the Activity.

18. The WDC shall keep a written record of those meetings and all decisions arising from them.

Expenditure of Allocation

19. The Trust shall expend the Allocation provided to it by the WDC under this Agreement only to fund the Activity. If the Trust fails to comply with this clause without written permission from the WDC, the WDC may terminate this Agreement in accordance with this Agreement and such termination shall take effect immediately without further notice.

20 Should any portion of the Allocation provided under this Agreement remain unspent at the expiry of the Term, that amount shall be immediately returned to the WDC, unless the parties otherwise agree in writing.

22. Nothing in this Agreement, or in the relationship of the parties in relation to this Agreement, shall be construed as creating an employer/employee relationship. For the avoidance of doubt the Trust shall be responsible for all PAYE, Taxes and Accident Insurance and all costs relating to the provision of the Services and the Trust's performance of its obligations under this Agreement in respect of completion of the Activity.

Reports

23. The Trust shall provide Activity reports as required under the Bike Ready programme reporting requirements and outlined in the Schedule 3. The Trust shall keep (and shall procure that any sub-provider keeps) full, accurate and up-to-date records relating to the delivery of the Activity (including supporting documents for all amounts payable by WDC). The Trust shall retain such records for seven years from the expiry or termination of this Agreement.

24. Subject to the conditions (if any) described in this Agreement, the Trust shall produce at the time of the final end of year report the Trust's financial statement of the expenditure of the Allocation and the Trust's own funds (if applicable) used in funding the Activity. Notwithstanding this, the Trust shall, at any time, upon request produce any other additional specific written reports to the WDC.

Information, Meetings and Audits

25. Clause 13 notwithstanding, the Trust shall meet with the WDC and any other persons required by the WDC from time to time at the WDC's request and provide the WDC or any other such persons with such information as the WDC may require and considers necessary to determine whether the terms of this Agreement are being complied with by the Trust.

26. The WDC and any other persons approved by the WDC may conduct a random sample audit of the Activity at any time to ensure that the Allocation is being used for the agreed purpose and that the programme is being delivered in the agreed manner. The Trust shall comply with all reasonable directions and requests of WDC to enable it to carry out such an audit including giving access to the Trust's premises, personnel and relevant records as may be reasonably required by WDC.

Intellectual Property

27. The parties agree and acknowledge that ownership of all Intellectual Property of the Trust in relation to this Activity shall remain vested with the Trust and the WDC and the New Zealand Transport Agency are authorized and entitled to use such on a royalty-free basis for the Term.

28. The parties further agree and acknowledge that ownership of all Intellectual Property of the WDC in relation to this Activity shall remain vested with the WDC and the Trust is authorized and is entitled to use such for the purpose of this Activity, on a royalty-free basis for the Term.

29. The parties further agree and acknowledge that ownership of all Intellectual Property of the New Zealand Transport Agency in relation to his Activity shall remain vested with the New Zealand Transport Agency, and the Trust is authorized and is entitled to use such for the purpose of the Activity on a royalty-free basis for the Term. This clause is inserted for the New Zealand Transport Agency's benefit in terms of Part 2, Subpart 1 of the Contract and Commercial Law Act 2017 and may be relied upon it as if it was a party to this Agreement.

30. The Trust must not at any time during and after the term of this Agreement do or permit anything to be done that infringes the New Zealand Transport Agency's or the WDC's Intellectual Property rights.

31. Where the New Zealand Transport Agency provides any community focused land transport Activity funding (irrespective of value) via the WDC, the Trust shall allow the WDC and/or the New Zealand Transport Agency to distribute the product (such as posters, videos, publications, lessons learned) of that Activity for use elsewhere within the National Land Transport Programme. Such access and right of distribution shall be free of charge to all approved organisations (as defined in the Land Transport Management Act 2003) and all providers who have agreed or contracted with an approved organization to provide community focused land transport activities.

Confidentiality

32. Each party shall abide by the provisions and constraints of the Local Government Official Information and Meetings Act 1987 and the Privacy Act 1993.

Public Announcements and Statements

33. The parties will not make any public announcements or statements about any of the subject matter of this Agreement without first consulting each other.

Negotiation

34. The parties will negotiate with each other in relation to any further agreement contemplated by this Agreement or any matter of ambiguity or difference of opinion as to interpretation. In the event of a dispute Clause 35 of this Agreement (Dispute Resolution) shall apply.

Dispute Resolution

35. In the event of any dispute or disagreement between the parties regarding the subject matter of this Agreement (including, without limitation, anything referred to in Clause 34) then the parties will first promptly and reasonably attempt to agree on the matter in dispute. If after ten (10) working days of the parties first discussing such matter the parties have been unable to resolve the dispute or disagreement to the satisfaction of either party then either party may commence mediation of the dispute. If within fifteen (15) working days of the commencement of mediation the parties have been unable to agree on the appointment of a mediator then either party may make application to Arbitrators and Mediators Institute of New Zealand for the appointment of a mediator. Neither party is entitled to commence court proceedings until a qualified mediator has certified that a mediation has taken place.

Indemnity

36. If a legal claim is lodged against the Trust that is related to the provision of Activity, the Trust will remain entirely liable for its own actions and shall meet all of its own costs to defend any such claim.

37. If the Trust suffers loss or damage to their property while undertaking the WDC funded Activity, the WDC is not liable unless the damage was directly caused by the WDC.

Termination

38. The Trust may terminate this Agreement by notice in writing to the WDC if:

    a. The WDC fails to pay any invoice within thirty (30) days of being received by the WDC, unless the WDC has given notice within twenty (20) working days of receipt of the invoice that it disputes the payment; or

    b. The WDC has breached any of the terms of this Agreement and fails to remedy the breach within fourteen (14) days of notice in writing from the Trust requiring the breach to be remedied.

39. The WDC may terminate this Agreement by notice in writing if:

    a. The Activity is not carried out in accordance with this Agreement; or

    b. The Trust commits or allows to be committed any breach of the terms of this Agreement and fails to remedy the breach within fourteen (14) days of notice in writing from the WDC requiting the breach to be remedied;

    c. The Trust brings the WDC into disrepute by their actions; or

    d. The Trust suffers an Insolvency Event.

40. In any other circumstances, WDC may terminate this Agreement by giving the Trust one month's notice in writing.

41. Where this Agreement is terminated prior to the Agreement expiry date, the WDC shall be liable for making payment to the Trust for Activity rendered up to the termination date provided that the

Activity has been carried out in accordance with this Agreement. To the extent that the Trust has received funds under this Agreement which have not, at the date the Agreement has been terminated, been spent on carrying out the Activity, those funds shall be returned to the WDC.

Complete Agreement

42. This Agreement constitutes the entire agreement, understanding and arrangement (express and implied) between the parties relating to the subject matter of this Agreement, and supersedes and cancels any previous agreement, understanding and arrangement relating to the Activity, whether written or oral.

Authority to Execute

43. Each of the signatories executing this Agreement on behalf of the WDC and the Trust hereby warrants that they hold full and valid authority on behalf of the WDC and the Trust respectively which authority has not been revoked at the date of this Agreement.

44. The Trust guarantees that it is not receiving funds from any other organization(s) to perform the Activity specified in Schedule 1 that are being funded by the WDC.

Waiver

45. Any delay, failure or forbearance by a party to exercise (in whole or in part) any right, power or remedy under, or in connection with, this Agreement shall not operate as a waiver of such right, power or remedy.

46. A waiver of any breach of any provision of this Agreement shall not be effective unless that waiver is in writing and is signed by the party against whom that waiver is claimed.

47. A waiver of any breach shall not be, nor be deemed to be, a waiver of any other or subsequent breach.

Insurance

48. For the Term the Trust shall put in place and maintain public liability insurance with a reputable insurance company to provide adequate coverage for each and every occurrence arising from the delivery of the Activity and not limited in the aggregate for any one period of insurance for the usual risks.

Assignment

49. The Trust shall not assign, transfer, subcontract, charge or otherwise deal with any of its rights or obligations under this Agreement in any way without the written consent of the WDC.

Authorities

50. The Laws of New Zealand shall govern the construction, validity and the performance of this Agreement.

51. Both parties shall operate at all times in a manner consistent with the Treaty of Waitangi.

Condition

52. This Agreement is conditional upon (as a condition precedent) WDC determining (in its sole and absolute discretion) at a formal WDC meeting or under delegated authority (in its sole and absolute discretion) within three (3) months of the date of this Agreement that the proposed transactions evidenced by this Agreement and the terms and conditions of this Agreement are fully acceptable to WDC. WDC may take into account any matters it considers appropriate (in its sole and absolute discretion) in making such decision and shall not be under any obligation whatsoever to provide the Trust with reasons for its decision under this clause. This condition is inserted for the sole benefit of WDC.

Vehicle, Trailer and Equipment

53. The WDC agrees to make:

    a. a Toyota Hiace van – registration details to be advised (the **Vehicle**);

    b. trailer registration number 33C54 (**the Trailer**); and

    c. the cycling equipment set out in schedule 4 to this agreement (the **Equipment**),

    available for the use of the Trust during the Term for the sole purposes of delivering the Activity and only at the time that the Trust is undertaking the Activity. To avoid doubt, the Vehicle, Trailer and Equipment will at all times be owned by the WDC.

54. In addition to any other duties set out elsewhere in this Agreement the Trust shall:

    a. ensure all of its staff abide by the WDC's Driver Safety Policy (attached as schedule 5 and as amended by the WDC from time to time) as if they were workers of WDC (where there is a requirement to report under the Driver Safety Policy, the Trust shall report to the WDC Liaison Person); and

    b. ensure all of its staff are aware of the WDC's FleetSmart Vehicle Procedures (attached as Schedule 6 and as amended by WDC or FleetSmart from time to time) as if they were workers of WDC (where there is a requirement to report under the Vehicle Procedures document, the Trust shall report to the WDC Liaison Person); and

    c. ensure the Vehicle, Trailer and Equipment are only used for the purposes of carrying out the Activity; and

d. Where a WDC fuel card is supplied for use, ensure all staff are aware of their responsibilities when using the card;

   a. The fuel card must only be used for fuel purchases for the WDC supplied vehicle;
   b. Fuel may only be purchased at nominated service station brands advised by WDC;
   c. A logbook recording start date, vehicle odometer date, distance and reason for each journey shall be kept and a copy supplied to WDC liaison person on a monthly basis in order for vehicle running costs to be apportioned against the cycle education budget

55. The WDC shall take all reasonable steps to ensure that the Vehicle and Trailer are mechanically sound and able to be used by the Trust as contemplated in this agreement. In the event that there is a mechanical breakdown of the Vehicle and/or Trailer, the WDC will take all reasonable steps to effect repair as soon as possible. If, after having taken advice, it appears at the discretion of the WDC (acting reasonably) that the Vehicle and/or Trailer cannot be repaired in time to perform the duties under this agreement, the WDC shall provide the Trust with an alternate vehicle/trailer of the same or similar type as the vehicle/trailer.

56. During periods where the Trust does not require the Vehicle or Trailer for the Activity, (by way of example only school holidays), the Trust must return the Vehicle and Trailer to the WDC and the WDC may use the Vehicle and Trailer for its own purposes provided that the WDC ensures the Vehicle and the Trailer are returned to the Trust when they are required for the Activity:

57. Upon the expiry of the Term or earlier termination of this Agreement, or if the Trust fails to comply with any term of this Agreement, the Trust shall immediately return the Vehicle, Trailer and Equipment to the WDC. If the Vehicle, Trailer and/or Equipment are not returned, the WDC will be entitled to take all practical steps to recover the items (including the WDC or its agent entering any land or building owned, occupied or used by the Trust, to search for and re-take possession of the Vehicle, Trailer and/or Equipment) in addition to any other rights or remedies the WDC may have at law and the Trust shall reimburse the WDC for its costs of recovery.

58. To secure the return of the Vehicle Trailer and Equipment at the expiry of the Term or earlier termination of this Agreement:

   a. the Trust grants the WDC a security interest in the Vehicle, Trailer and Equipment (the Security Interest);

   b. the WDC shall register the Security Interest on the Personal Property Securities Register; and

   c. the Trust waives any right it may have to receive from the WDC a copy of any financing statement, verification statement or financing change statement that is registered, issued or received in relation to the Security Interest and the Trust shall immediately notify the WDC in writing of any change of name of the Trust, and

d. to the extent permitted by the Personal Property Securities Act 1999 (PPSA) the enforcement requirements under Part 9 of the PPSA shall not apply on the enforcement by the WDC of any security interest created or provided for by this agreement. The Trust also waives any rights it may have under sections 116, 119, 120(2), 121, 125, 129, 131 and 132 of the PPSA on such enforcement.

Dated this day of 2019

NORTH CANTERBURY SPORT AND RECREATION TRUST
THE COMMON SEAL OF

SIGNED for and on behalf of)
the **North Canterbury Sport and**)
Recreation Trust)
By the Trust's Chairperson)

Michael Shaupe)

Name of Authorized Chairperson

Signature of Chairperson

In the presence of:

Witness:

Signature: R Allen

Occupation: Operations Manager

Residential Address: 345 Flaxton Road, Rangiora

SIGNED for and on behalf of)
the **Waimakariri District WDC**)
By its Authorised Officer)

Jim PALMER)

Name of Authorized Officer

Signature of Authorised Officer

In the presence of:

Witness:

Signature: ----------

Occupation: EXECUTIVE ASSISTANT

Residential Address: 361 BARKERS RD, ROBURN

SCHEDULE 1 – Activity

CYCLE SKILLS EDUCATION IN SCHOOLS PROGRAMME

1 July 2019 to 30 June 2021

This Schedule 1 details the Activity to be provided and the relevant contact personnel.

The Trust will deliver the BikeReady education programme (https://www.bikeready.govt.nz/) to school students in the Waimakariri district in accordance with the terms and conditions of this Agreement (the Activity).

The Council Liaison Person for this Agreement is: Journey Planner/Road Safety Co-ordinator

Contact details of the WDC Liaison Person: Waimakariri District Council, 215 High Street, Rangiora
Ph: 0220681 615
Kathy.graham@wmk.govt.nz

The Trust Liaison Person for this Agreement is: Operations Manager

Contact details for the Trust Liaison Person: North Canterbury Sport & Recreation Trust
28 Edward Street, Rangiora
Ph: 0274373 627
roliver@sportstrust.org.nz

Definitions

Grade 1	**Preparing for on-road riding as outlined in Grade One Lesson Plan**
Grade 2	**Introduction to on-road riding as outlined in Grade Two Lesson Plan**
Grade 1 instructor	**Has attended a BikeReady training course and completed an agreed* number of hours 'shadowing' an approved cycle skills education provider**
Grade 2 instructor	**Has attended a BikeReady training course, completed an agreed* number of hours 'shadowing' an approved cycle skills education provider and is enrolled and working towards National Certificate in Recreation and Sport - Coaching (Cycle Skills Instruction) (Level 3)**

. ****Agreed number of hours to be established between the WDC and Trust Liaison persons on a case by case basis***

Timeframe: 2019/20 Financial Year

Start Date: 1 July 2019 **End Date:** 30 June 2020

Target Group: Year 6 students

Expected outcomes:

Minimum of 1 x additional instructor has attended a BikeReady National Instructor Training Course and has completed an agreed number of hours 'shadowing' an approved cycle skills education provider.

- Existing suitably qualified Instructors are enrolled and working towards obtaining the National Certificate in Recreation and Sport - Coaching (Cycle Skills Instruction) (Level 3)
- Grade 1 and Grade 2 programme is delivered to a minimum of 200 students with observable outcomes and competencies as described in the BikeReady Cycle Training Guidelines https://www.bikeready.govt.nz/instructors/bikeready-guidelines/
- Reporting on programme delivery as required is completed under the Bike Ready delivery reporting tool requirements https://www.bikeready.govt.nz/instructors/training-provider-hub/delivery-reporting/
- Observes the best practice guidance of cycle skills education as outlined by the Bike Ready programme https://www.bikeready.govt.nz/instructors/bikeready-guidelines/

Timeframe: 2020/21 Financial Year

Start Date: 1 July 2020 **End Date:** 30 June 2021

Target Group: Year 6 students

Expected outcomes:

Minimum of 1 x additional instructor has attended a BikeReady National Instructor Training Course and has completed an agreed number of hours 'shadowing' an approved cycle skills education provider.

- Existing suitably qualified Instructors are enrolled and working towards obtaining the National Certificate in Recreation and Sport - Coaching (Cycle Skills Instruction) (Level 3)
- Grade 1 and Grade 2 programme is delivered to a minimum of 250 students with observable outcomes and competencies as described in the BikeReady Cycle Training Guidelines https://www.bikeready.govt.nz/instructors/bikeready-guidelines/
- Reporting on programme delivery as required is completed under the Bike Ready delivery reporting tool requirements https://www.bikeready.govt.nz/instructors/training-provider-hub/delivery-reporting/
- Observes the best practice guidance of cycle skills education as outlined by the Bike Ready programme https://www.bikeready.govt.nz/instructors/bikeready-guidelines/

Attachments:

Course Lesson Plan Grade 1

Course Lesson Plan Grade 2

SCHEDULE 2 – Payment Schedule

CYCLE SKILLS EDUCATION IN SCHOOLS PROGRAMME

1 July 2018 to 30 June 2021

This Schedule 2 outlines the payment schedule for the Allocation and Payments.

DETAILS OF THE ALLOCATION

2019/20	
Total Allocation Approved:	$70,000
Additional funding (ACC)	$11,130
TOTAL	**$81,130 (GST exclusive)**
2019/20	
Total Allocation Approved:	$70,000
Indicative additional funding (ACC)	$11,130
TOTAL	**$81,130 (GST exclusive)**

Payments will be made monthly on receipt of a valid tax invoice submitted to WDC in a form reasonably requested by WDC from time to time, outlining in adequate detail a breakdown of costs related to the delivery of the cycle skills education programme and the timing of the delivery of the Activity. Reimbursement of costs will not be greater than the amount provided for within the contract or the amount of funding actually received by WDC. Any indicative additional funding is subject to ACC approval.

Payment date	Payment amount (excl GST)	Payment Conditions (if any)
Monthly	As per supplied invoice/receipts	Reporting conditions as outlined in Schedule 3 met

*As per Bike Ready reporting requirements

SCHEDULE 3 – Reporting Requirements and Forms

CYCLE SKILLS EDUCATION IN SCHOOLS PROGRAMME

1 July 2019 to 30 June 2021

This Schedule 3 specifies the reporting requirements and mechanisms for reporting.

Reporting on delivery of programme:

Reporting should be completed ideally within 5 days of a course being delivered and no later than 10 days via the online Delivery Reporting tool provided on the Bike Ready website

https://www.bikeready.govt.nz/instructors/training-provider-hub/delivery-reporting/website – Training Provider Hub

A report shall be supplied to WDC at the end of each financial year on the programme delivery for the year preceding, including a financial statement of the expenditure of the Allocation used in funding the Activity(ies).

ACC injury claims tracking:

Complete the ACC injury claims tracking process as outlined on the Bike Ready website

https://www.bikeready.govt.nz/instructors/training-provider-hub/acc-injury-claims-tracking/

Feedback surveys:

As per the requirements contained in the Bike Ready training provider hub, seek feedback on cycle skills training following delivery of the programme.

https://www.bikeready.govt.nz/instructors/training-provider-hub/feedback-surveys/

Meetings with Council Liaison Person:

A minimum of one meeting every three months.

BikeReady

Skills and experience to bike for life
bikeready.govt.nz

COURSE LESSON PLAN - GRADE 1

3 hours in total

(two 1½-hour sessions or three 1-hour sessions or one 3-hour session with a break in the middle)

Grade 1 - Session 1 (1½ hours)		
Key observable outcome	**Teaching time**	**Notes**
Introduction and course outline	10 minutes	Explain what is involved in grade 1 training.
Carry out a simple helmet check/fit **Carry out a simple bike check e.g. ABCD Quick check or M-Check (adults)** **Check other equipment, clothing and gear (including legal requirements)**	20-25 minutes	Trainees to check and fit helmets and build their knowledge about what makes a safe bike and helmet. The legal requirements for riding on the road can be included here. Instructor/s to then check the helmets and bikes using the helmet/bicycle check form.
Get on and off the bike without help	55 minutes	Incorporate exercises to develop balance, bicycle control skills and observation techniques.
Start off and pedal without help		
Stop by using both brakes		
Steer the bike and manoeuvre safely to avoid objects		

Grade 1- Session 2 (1½ hours)		
Key teaching point/core skill	**Teaching time**	**Notes**
Introduction	5 minutes	Recap previous session and explain the focus of session 2.
Using the gears	20 minutes	
Look behind	20 minutes	
Signal – stop, left and right	30 minutes	
Conclusion	15 minutes	Recap what trainees have achieved from grade 1.

COURSE LESSON PLAN – GRADE 2

7–8 hours in total (30 minutes theory and a minimum of 6 hours on the road)
(four 1½-hour sessions over two school mornings, plus one additional hour if necessary)

(note: course sessions should be flexible and can be adapted to fit within the school programme)

Grade 2 Session 1 (1½ hours) **THEORY and GRADE 1 REVISION**		
Key teaching point/observable outcome	**Teaching time**	**Notes**
Introduction, roll call and course outline	20 minutes	Explain what is involved in grade 2 training.
Helmet and bicycle check	15 minutes	Recap grade 1 outcomes in the playground / other off-road area.
Briefing and recap of grade 1 outcomes	25 minutes	
Theory – recall an understanding of road signs and the road rules	15 minutes	Classroom/ School ground discussion
Briefing	20 minutes	Brief trainees for on-road training – roll call, trainees assigned to groups, check of safety vests and warm clothing, ground rules established.

Grade 2 Session 2 (1½ hours) **ON-ROAD TRAINING – START/STOP FR THE SIDE OF THE ROAD, RIDE ALONG THE ROAD, PASS A PARKED VEHICLE**		
Key teaching point/observable outcome	**Teaching time**	**Notes**
Briefing reminder	5 minutes	Vests on, toileting addressed, quick check of shoelaces etc.
Time travelling to the training area	10 minutes	This may be more or less, depending on where the training is taking place in relation to the school/organisation.
Start from side of road (kerb)	55 minutes	Aim for 10–15 minutes for each observable outcome and discussion.
Stop on side of road (kerb)		
Ride along the road		
Pass a parked or slower-moving vehicle		
Understand hazard identification in Grade 2 environments		
Time travelling back to school	10 minutes	
Recap session	10 minutes	Brief recap of what was covered in the session and what comes next.

Grade 2 - Session 3 (1½ hours) **ON-ROAD TRAINING – PASSING A SIDE ROAD, LEFT TURNS AND HAZARD IDENTIFICATION**		
Key teaching point/core skill	**Teaching time**	**Notes**

Briefing	15 minutes	Roll call, trainees into groups, check off safety vests, warm clothing, bikes and helmets checked and signed off. Recap ground rules from session 1.
Time travelling from school	10 minutes	This may be more or less, depending on where the training is taking place in relation to the school/organisation.
Passing a side road	55 minutes	Aim for 10–15 minutes for each observable outcome and discussion. Move to another location to check understanding and transference.
Left turns: • **From a side road to a main road** • **From a main road to a side road**		
Understand hazard identification in Grade 2 environments		
Time to travelling back to school	10 minutes	
Grade 2 - Session 4 (1½ hours) **ON-ROAD TRAINING – RIGHT TURNS, TRAVELLING STRAIGHT THROUGH AND HAZARD IDENTIFICATION**		
Key teaching point/core skill	**Teaching time**	**Notes**
Briefing	10 minutes	Roll call, regather trainees, recap ground.
Time travelling from school	10 minutes	This may be more or less, depending on where the training is taking place in relation to the school/organisation.
Right turns: • **From a side road to a main road** • **From a main road to a side road**	45 minutes	Aim for 10–15 minutes for each observable outcome and discussion. Move to another location to check understanding and transference.
Travelling straight through at controlled and uncontrolled intersections		
Understand hazard identification in Grade 2 environments		
Time to travelling back to school	10 minutes	
Conclusion	15 minutes	Recap what trainees have achieved from grade 2.

Grade 2 Session 5 (1 hour) ON-ROAD TRAINING – RECAP AND/OR OPTIONAL OBSERVABLE OUTCOMES		
Key teaching point/core skill	**Teaching time**	**Notes**
Briefing	15 minutes	Roll call, trainees into groups, check of safety vests, warm clothing, bikes and helmets checked and signed off. Recap ground rules from session 1.
Time travelling from school	10 minutes	This may take more or less time, depending on where the training is taking place in relation to the school/organisation.
Recap of skills learnt and/or optional skills	25 minutes	Optional observable outcomes include use of shared paths and cycle lanes, cycling through single lane roundabouts and traffic signals.
Time to travel back to school	10 minutes	

SCHEDULE 4 - EQUIPMENT

1. 10 x bicycles in used condition – variety of sizes

2. Bike Trailer – Registration 33C54

   1780x1650 high and 2440 long

   Features : Dropped axle ramp, custom bike mounts for 10 bikes, 400x400x1500 front lockable storage box, plywood floor, LED lights including marker and high stop, spare wheel, jockey wheel, painted finish

3. Toyota Hiace 3 ZL 5 Door Turbo Diesel Van

   Features: Automatic, tow bar, 1 x fixed bench seat 3 headrests & 3 point diagonal belts

   Registration Number (TBA)

4. Equipment

- 20 x PVC Small orange cones 450 non-reflectorised
- 10 x Adult safety vests – orange
- 30 x Children's safety vests – yellow (12 small, 10 med, 8 large)
- 2 x disc cone sets (100 cones)
- Any additional equipment purchased specifically for the delivery of the cycle skills education programme

SCHEDULE 5 – Waimakariri District Council Driver Safety Policy

Driver Safety Policy

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Policy

Purpose

This purpose of the driver safety policy is to outline Waimakariri District Council's expectations of workers that are driving vehicles on Waimakariri District Council business, and is intended to undertake proactive risk management of what has been assessed as a high-risk activity for Waimakariri District Council workers. The purpose of this policy is to also ensure that workers that drive Council or other vehicles as part of their work demonstrate safe, efficient driving skills, and display the highest level of professional conduct and attitude when driving a Council vehicle. This includes the protection of Waimakariri District Council workers and assets.

Scope

The policy and procedure applies to all Waimakariri District Council workers and volunteers, however does not extend to Waimakariri District Council contractors, who are expected to develop and enforce their own driver safety policies. The policy applies to all driving that is undertaken for work purposes, whether in a Council-supplied or personal vehicle. This policy does not apply to workers when driving their personal vehicle to and from work, however it does apply when workers are driving a Council-supplied vehicle to and from work, or for any other reason. A bicycle is considered to be a vehicle for the purpose of this policy and procedure.

Statement

A vehicle is considered a place of work when it is used for work purposes, and workers who are mobile are covered by the Health and Safety at Work Act 2015. There are also specific requirements under the Land Transport Act 1998 which apply to all vehicles and drivers. Driving is considered to be a high-risk activity, as informed by the risk identification and management processes undertaken by Waimakariri District Council, and information that is generally available in the public domain.

It is recognised that the social cost of a road crash and the associated injuries include a number of elements such as loss of life and life quality, loss of productive work due to temporary incapacitation, medical costs, legal costs and property damage costs. This policy and procedure is one mechanism by which the Waimakariri District Council intends to keep staff safe in the workplace and reduce the social costs associated with vehicle crashes and incidents.

Responsibilities

Waimakariri District Council (Organisation)

- Provision of fleet of vehicles which have been assessed and are appropriate to need/task.
- Resourcing of safety equipment and vehicle maintenance.
- Assessment of vehicle safety ratings during procurement process with a goal of purchasing vehicles with the highest safety rating that is practicable.
- Compliance checks to ensure that all workers that are driving Waimakariri District Council vehicles or their own vehicles on behalf of Waimakariri District Council are adequately licensed and qualified to drive the particular vehicle type.
- Provision of induction training to ensure workers are familiar with driving policies and fleet requirements at the commencement of their employment with Waimakariri District Council
- Provision of training for ongoing competence in driver safety and/or off-road driving.
- Maintenance of insurance policies which cover work-related driving and fleet.

Managers

- Identification of training needs at Annual Performance Review, and ensuring compliance and completion of training.
- Scheduling of workload to ensure that workers are able to remain compliant with Driver Safety Policy.

Health and Safety Advisor

- Scheduling of driver safety training and off-road driver training courses.

Driver of any vehicle (Worker)

- Attendance at any induction or driver safety training which is offered in relation to their work tasks.
- Provision of driver qualifications (licences) to Human Resources and Health and Safety for retention on file.
- Safety of their own actions and behaviours while driving for work purposes.
- Assessment of driving conditions on an ongoing basis.
- Ensure familiarity with the particular vehicle which they will be driving.
- Undertake vehicle pre-start checks prior to commencing any vehicle journey.
- Report all incidents, crashes, near misses and hazards to both Health and Safety and Fleet Manager.
- Complete all insurance activities for crashes occurring when operating the vehicle.
- Advise Fleet Manager or Notional Driver if there is anything wrong with the vehicle or damage has occurred to the vehicle during their time of use.
- Report to manager should workload or scheduling force non-compliance with Driver Safety Policy.
- Ensure all items stored in the vehicle are stored safely and adequately restrained during travel.
- Adherence to all related policies, including but not limited to: WDC Employee Drug and Alcohol Policy, Safe Working in the Field Manual, Lone Working Policy.
- Communication with Line Manager, HR and/or H&S if for any reason the worker has been deemed medically unfit to drive.
- Communication with Line Manager, HR and/or H&S the worker has had their licence suspended for any reason.

Notional Driver

All of the above Driver responsibilities, and:

- Completion of monthly vehicle checks as per checklist.
- Scheduling of Warrant of Fitness checks and maintenance servicing.
- Cleanliness of the vehicle inside and out (in particular windscreen).
- All responsibilities as outlined in QP-C590 Vehicle Use and Monitoring – General.

Breach of Policy

In the instance of a breach of Driver Safety Policy, the other following policies may apply:

- Waimakariri District Council Employee Drug and Alcohol Policy
- Waimakariri District Council Code of Conduct
- Waimakariri District Council Disciplinary Procedure

The following actions in Council vehicles will be viewed as serious breaches of conduct and disciplinary action may be a consequence:

- being under the influence of drugs or alcohol while driving.
- driving while disqualified or not correctly licensed.
- reckless or dangerous driving, including excessive speeding
- failing to stop after a crash.
- acquiring demerit points leading to suspension of licence
- any actions that warrant the suspension of a licence.

Other breaches of the Driver Safety Policy and any associated unacceptable behaviours will be considered on a case-by-case basis and will be managed according to the Waimakariri District Council Disciplinary Policy.

Related Documents

- QP-C590 Vehicle Use and Monitoring – General
- QP-C593 Use of Council Pool Vehicles

- Safe Working in the Field Manual TRIM 150709108063
- Lone Working Policy TRIM 160704064030
- WDC Employee Drug and Alcohol Policy TRIM 160630062600

Procedure

Guidelines for Buying or Hiring of Council Vehicles

The procurement of any Council vehicle should meet a minimum of 4-star ANCAP rating where applicable. This requirement will form a part of the risk assessment process prior to purchase. The risk assessment will also need to take into account the use that vehicle will have, and the vehicle must therefore be fit-for-purpose according to intended use. This requirement acknowledges the multiple different functions for which Council vehicles are used.

Additionally, the primary/notional driver must specify any additional safety equipment which is necessary to undertake their role while using the vehicle, and that equipment must also be fit-for-purpose. This requirement includes not only vehicle safety equipment, but also trailers and attachments.

When the vehicle is handed over to the notional driver from fleet management, all relevant safety information will be brought to their attention, and any vehicle-specific requirements will be communicated clearly. Handover of vehicle will include an explanation of all checks required.

Staff Training

Staff training will be delivered according to need, and relevance to role. The hierarchy of training is as below:

1. 'Driving in the Waimakariri' information pack provided at induction.
2. Internal Driver Safety Awareness (5 yearly): desktop course available to all staff, mandatory if staff are required to drive a vehicle on a regular basis for their role.
3. Anti-skid Driver Safety Training (5 yearly): if staff are required to drive a vehicle on a regular basis for their role.
4. Off Road Driver Safety Training (5 yearly): if staff are required to drive a vehicle off-road for their role.

Drivers must remain within their training and competence, in particular not engaging 4WD or driving off-road if not trained to do so. If any driver feels uncomfortable about the task that is being requested or the vehicle they are required to drive, the driver must inform their manager. Each driver is expected to familiarise themselves with the capabilities of the vehicle that they are driving, and keep the vehicle within its capabilities.

If training is requested by a staff member, it will be considered by Management and Health and Safety on a case by case basis, even if staff member does not fit requirements.

Crashes and Damage

All drivers are required to report any near-misses, crashes and scrapes to their manager within 24 hours, including those that do not result in injury, as per incident reporting requirements. All crashes involving Council vehicles or workers during work time will be recorded and investigated by a representative of the Council.

If the crash involves damage to either a Council Vehicle or other vehicle, then it is the responsibility of the driver involved in the crash to complete the appropriate insurance documentation and complete any associated tasks.

Those crashes involving any notifiable incident, injury or illness will be advised to the Health and Safety Advisor, and/or a Level 2 Manager, who will notify WorkSafe NZ as per reporting requirements in the Health & Safety at Work Act 2015.

All other requirements are defined by Section 4.9 in the QP-C590 Vehicle Use and Monitoring – General.

Further Sources of Risk

Driver fatigue and distraction:

A high percentage of crashes are due to distraction and fatigue. Fatigue can be defined as tiredness, weariness or exhaustion which has the potential to impair capabilities or judgement. Drivers are required to monitor their own fatigue levels, and not drive if fatigued; particularly in regard to the combination of physical work and driving.

Likewise if drivers are experiencing high levels of stress or mental distraction they are to monitor themselves and make decisions accordingly as to whether or not they are safe to drive.

Waimakariri District Council is required to provide reasonable expectations and deadlines to minimise the risk that drivers are fatigued or stressed, and will make every attempt to schedule work in such a manner as to ensure stress and fatigue are minimised.

It is recognised that there are no Waimakariri District Council departments which are entirely transportation focused, and therefore maximum driving hours are not determined in this policy. However should the requirement to drive long distances arise, maximum driving times must be determined prior to departure. In order to minimise the effect of fatigue on drivers, an indicative reasonable maximum for combined work and driving time for most Waimakariri District Council roles is 10 hours.

Distraction can be defined as anything which diverts the driver's attention for more than two seconds. Distraction greatly increases the likelihood of a crash or a near crash.

With regard to mobile phone and mobile device use in the vehicle, hands-free (Bluetooth) use is acceptable, however it is recognised that this is a source of distraction. No outbound calls are to be made while moving (but can be made while stationary), however inbound calls can be accepted while driving. When accepting inbound calls is expected that the driver will answer the call and then pull over at the first safe opportunity.

The driver must ensure that the vehicle is set up prior to departure, so that adjustments aren't being made while driving, in particular mirrors and seating. The driver must make sure windscreens and mirrors are clean, and that the route to the destination has been determined prior to departure. Headphones are not permissible in Council vehicles due to the inability to discern external noise.

Vehicle Checking Requirements

Pre-start checks – every driver, at the start of every trip

External Visual

- tyres are in acceptable condition (legal tread depth and not visibly flat)
- windscreen is clean and all windows are de-misted

Pre-Start

- mirrors are positioned correctly
- seats are adjusted correctly
- first aid kit is present/fire extinguisher is present
- load is secured adequately and no equipment is stored on empty seats (any unsecured equipment should be in footwells)
- sufficient fuel is available for trip, and the vehicle is not returned with less than ¼ tank remaining.

Once Engine Running

- windscreen wipers are functioning
- headlights are functioning
- brakes are functioning correctly (brake warning light not showing, and brakes working when pressure placed on pedal)

Monthly Checks – notional driver

- WoF and Registration expiry dates
- vehicle is within service mileage and due mileage is noted
- Road User Charges are within mileage where required
- oil, water and radiator fluid are at the correct levels
- tyres are roadworthy, have correct pressure and tyre tread meets minimum requirements
- seat belts are working properly
- all internal and external lights are functioning

- adequate provision to secure loose loads
- windscreen wipers are in good condition
- first aid kit is stocked
- spare tyre and jack are in the vehicle and in good order
- horn working
- any new damage is reported to fleet manager
- cleanliness of vehicle both inside and out

The pre-start checks will be completed as a visual, unrecorded check by the driver of each vehicle. The notional drivers' monthly checks will be recorded and provided to the fleet manager by exception, should there be any findings of the check which require rectification. If all checks are satisfactory, the notional driver will scan and save completed checklists to TRIM folder VEC-08. If any remedial actions are required, the notional driver will also email the document TRIM link to Fleet Manager. The TRIM Keywords are as follows: registration number, plant number, date of check.

Each of the above checklists are included Appendix A which is attached to this policy.

Appendix A: Vehicle Safety Checklists

Pre-start checks – every driver, at the start of every trip

External Visual

- tyres are in acceptable condition (legal tread depth and not visibly flat)
- windscreen is clean and all windows are de-misted

Pre-Start

- mirrors are positioned correctly
- seats are adjusted correctly
- first aid kit is present/fire extinguisher is present
- load is secured adequately and no equipment is stored on empty seats (any unsecured equipment should be in footwells)
- sufficient fuel is available for trip and the vehicle is not returned with less than ¼ tank remaining.

Once Engine Running

- windscreen wipers are functioning
- headlights are functioning
- brakes are functioning correctly (brake warning light not showing, and brakes working when pressure placed on pedal)

Monthly Checks – notional driver

Name of Driver: .....

Plant (Vehicle) Number: ..... Registration Number: .....

Date of check: .....

Check	Satisfactory? Yes/No	Action Required
WoF and Registration expiry dates		
Vehicle is within service mileage and due mileage is noted		
Road User Charges are within mileage (where required)		
Oil, water and radiator fluid are at the correct levels		
Tyres are roadworthy, have correct pressure and tyre tread meets minimum requirements		
Seat belts are working properly		
All internal and external lights are functioning		
Adequate provision to secure loose loads		
Windscreen wipers are in good condition		
First aid kit is stocked		
Spare tyre and jack are in the vehicle and in good order		
Horn working		
Any new damage is reported to fleet manager		
Cleanliness of vehicle both inside and out		

*If all checks are satisfactory, scan and save completed checklists to TRIM folder VEC-08. If any remedial actions are required, also email the document TRIM link to Fleet Manager. TRIM Keywords: ***registration number, plant number, date of check.***

SCHEDULE 6 – Waimakariri District Council Driver FleetSmart Vehicle Procedures

Vehicle Insurance Details: Vero Policy Number: HOCMF4882931

ACCIDENTS: In the event of an accident, please call FleetSmart's Accident Line on **0800 800 358 Option 3**.

GLASS: If you require glass repairs/replacement, contact Instant Windscreens on 0508 132 444 or Smith & Smith on 0800 483 388 then direct them to **FleetSmart for authorisation**.

BREAKDOWNS: For any breakdown assistance please call FleetSmart Roadside Assistance on **0800 800 358 Option 1**.

TYRES: Checking of tyres are the driver's responsibility and should be undertaken regularly. Ensure tread depth is appropriate and tyre wear is even. This includes the spare tyre.

If tyres are required, preferred suppliers are Carters (Dunlop) or Laffey Tyres (Bridgestone or Firestone) in Rangiora depending on the make of tyre on the vehicle. Check what you are running before going to the supplier. Do not run a single odd tyre make on your vehicle.

Please inform the tyre merchant that the vehicle is a **FleetSmart managed vehicle**. The merchant will ring FleetSmart for prior approval to repair / fit new tyres on **0800 800 358 Option 2**.

FUEL: Please ensure the current ACCURATE Speedo reading is recorded whenever purchasing fuel, this enables accurate reporting to Waimakariri Management and FleetSmart, it is also used for checking servicing intervals and purchasing of Road User Charges.

Queries about your fuel card to be directed to Maree Luzak of Finance in the first instance. The PIN number for your fuel card SHOULD be 1 and then vehicle plant number eg. 1894, it should NOT BE ANYTHING ELSE.

REGISTRATION RENEWALS AND ROAD USER CHARGE (RUC): Registration & RUC labels will be automatically sent out to the Waimakariri District Council office in Rangiora. The office will then pass the labels on to drivers. You are still responsible for checking your vehicle regularly to ensure all labels are current. If you notice that the RUC or Registration is getting close to expiring please contact Fleet Manager who will follow up.

SERVICING/REPAIRS: Preferably your vehicle should be serviced / repaired at the local franchise in your area for the particular make & model i.e. for Toyota use Toyota dealership, Holden use Holden dealership.

Vehicles are to be serviced at the manufacturer's intervals i.e. **15,000 kms** or **12 Months**, as per the service booklet in the vehicle. FleetSmart will send a service reminder when your vehicle is due for a service or WOF, this may come to you via the Fleet Manager. You are still responsible for checking your vehicle regularly to ensure all labels are current and fluid levels are appropriate.

You will need to inform the service agent that vehicle is a **FleetSmart managed vehicle.** The FleetSmart merchant will ring FleetSmart for prior approval for the service or repair on **0800 800 358 Option 2**.

If you have any queries regarding any of these procedures or any other matter, please contact:

Lisa Geismar - FleetSmart Account Manager
Ph (04) 801 2511 or 021 842 040 or email: lisa.geismar@fleetsmart.co.nz

Ashleigh Radford - Waimakariri District Council Acting Fleet Manager

Ph (ext) 8351 or (03) 266 9201 or email: fleet@wmk.govt.nz

Chris Chick – Waimakariri District Council Acting Fleet Manager Back-up

Ph (ext) 8757 or (03) 266 9203 or email: fleet@wmk.govt.nz

SCHEDULE 1 – Activity

CYCLE SKILLS EDUCATION IN SCHOOLS PROGRAMME

1 July 2019 to 30 June 2021

This Schedule 1 details the Activity to be provided and the relevant contact personnel.

The Trust will deliver the BikeReady education programme (https://www.bikeready.govt.nz/) to school students in the Waimakariri district in accordance with the terms and conditions of this Agreement (the Activity).

The Council Liaison Person for this Agreement is:	Journey Planner/Road Safety Co-ordinator
Contact details of the WDC Liaison Person:	Waimakariri District Council, 215 High Street, Rangiora Ph: 0220681 615 Kathy.graham@wmk.govt.nz
The Trust Liaison Person for this Agreement is:	Operations Manager
Contact details for the Trust Liaison Person:	North Canterbury Sport & Recreation Trust 28 Edward Street, Rangiora Ph: 0274373 627 roliver@sportstrust.org.nz

Definitions

Grade 1	**Preparing for on-road riding as outlined in Grade One Lesson Plan**
Grade 2	**Introduction to on-road riding as outlined in Grade Two Lesson Plan**
Grade 1 instructor	**Has attended a BikeReady training course and completed an agreed* number of hours 'shadowing' an approved cycle skills education provider**
Grade 2 instructor	**Has attended a BikeReady training course, completed an agreed* number of hours 'shadowing' an approved cycle skills education provider and is enrolled and working towards National Certificate in Recreation and Sport - Coaching (Cycle Skills Instruction) (Level 3)**

. *Agreed number of hours to be established between the WDC and Trust Liaison persons on a case by case basis

Timeframe: 2019/20 Financial Year

Start Date: 1 July 2019 **End Date**: 30 June 2020

Target Group: Year 6 students

Expected outcomes:

Minimum of 1 x additional instructor has attended a BikeReady National Instructor Training Course and has completed an agreed number of hours 'shadowing' an approved cycle skills education provider.

- Existing suitably qualified Instructors are enrolled and working towards obtaining the National Certificate in Recreation and Sport - Coaching (Cycle Skills Instruction) (Level 3)
- Grade 1 and Grade 2 programme is delivered to a minimum of 200 students with observable outcomes and competencies as described in the BikeReady Cycle Training Guidelines https://www.bikeready.govt.nz/instructors/bikeready-guidelines/
- Reporting on programme delivery as required is completed under the Bike Ready delivery reporting tool requirements https://www.bikeready.govt.nz/instructors/training-provider-hub/delivery-reporting/
- Observes the best practice guidance of cycle skills education as outlined by the Bike Ready programme https://www.bikeready.govt.nz/instructors/bikeready-guidelines/

Timeframe: 2020/21 Financial Year

Start Date: 1 July 2020 **End Date**: 30 June 2021

Target Group: Year 6 students

Expected outcomes:

Minimum of 1 x additional instructor has attended a BikeReady National Instructor Training Course and has completed an agreed number of hours 'shadowing' an approved cycle skills education provider.

- Existing suitably qualified Instructors are enrolled and working towards obtaining the National Certificate in Recreation and Sport - Coaching (Cycle Skills Instruction) (Level 3)
- Grade 1 and Grade 2 programme is delivered to a minimum of 250 students with observable outcomes and competencies as described in the BikeReady Cycle Training Guidelines https://www.bikeready.govt.nz/instructors/bikeready-guidelines/
- Reporting on programme delivery as required is completed under the Bike Ready delivery reporting tool requirements https://www.bikeready.govt.nz/instructors/training-provider-hub/delivery-reporting/
- Observes the best practice guidance of cycle skills education as outlined by the Bike Ready programme https://www.bikeready.govt.nz/instructors/bikeready-guidelines/

Attachments:
Course Lesson Plan Grade 1
Course Lesson Plan Grade 2

SCHEDULE 2 – Payment Schedule

CYCLE SKILLS EDUCATION IN SCHOOLS PROGRAMME

1 July 2018 to 30 June 2021

This Schedule 2 outlines the payment schedule for the Allocation and Payments.

DETAILS OF THE ALLOCATION

2019/20	
Total Allocation Approved:	$70,000
Additional funding (ACC)	$11,130
TOTAL	**$81,130 (GST exclusive)**
2019/20	
Total Allocation Approved:	$70,000
Indicative additional funding (ACC)	$11,130
TOTAL	**$81,130 (GST exclusive)**

Payments will be made monthly on receipt of a valid tax invoice submitted to WDC in a form reasonably requested by WDC from time to time, outlining in adequate detail a breakdown of costs related to the delivery of the cycle skills education programme and the timing of the delivery of the Activity. Reimbursement of costs will not be greater than the amount provided for within the contract or the amount of funding actually received by WDC. Any indicative additional funding is subject to ACC approval.

Payment date	Payment amount (excl GST)	Payment Conditions (if any)
Monthly	As per supplied invoice/receipts	Reporting conditions as outlined in Schedule 3 met

*As per Bike Ready reporting requirements

SCHEDULE 3 – Reporting Requirements and Forms

CYCLE SKILLS EDUCATION IN SCHOOLS PROGRAMME

1 July 2019 to 30 June 2021

This Schedule 3 specifies the reporting requirements and mechanisms for reporting.

Reporting on delivery of programme:

Reporting should be completed ideally within 5 days of a course being delivered and no later than 10 days via the online Delivery Reporting tool provided on the Bike Ready website

https://www.bikeready.govt.nz/instructors/training-provider-hub/delivery-reporting/website – Training Provider Hub

A report shall be supplied to WDC at the end of each financial year on the programme delivery for the year preceding, including a financial statement of the expenditure of the Allocation used in funding the Activity(ies).

ACC injury claims tracking:

Complete the ACC injury claims tracking process as outlined on the Bike Ready website

https://www.bikeready.govt.nz/instructors/training-provider-hub/acc-injury-claims-tracking/

Feedback surveys:

As per the requirements contained in the Bike Ready training provider hub, seek feedback on cycle skills training following delivery of the programme.

https://www.bikeready.govt.nz/instructors/training-provider-hub/feedback-surveys/

Meetings with Council Liaison Person:

A minimum of one meeting every three months.

BikeReady

Skills and experience to bike for life
bikeready.govt.nz

COURSE LESSON PLAN - GRADE 1

3 hours in total

(two 1½-hour sessions or three 1-hour sessions or one 3-hour session with a break in the middle)

Grade 1 - Session 1 (1½ hours)		
Key observable outcome	**Teaching time**	**Notes**
Introduction and course outline	10 minutes	Explain what is involved in grade 1 training.
Carry out a simple helmet check/fit **Carry out a simple bike check e.g. ABCD Quick check or M-Check (adults)** **Check other equipment, clothing and gear (including legal requirements)**	20-25 minutes	Trainees to check and fit helmets and build their knowledge about what makes a safe bike and helmet. The legal requirements for riding on the road can be included here. Instructor/s to then check the helmets and bikes using the helmet/bicycle check form.
Get on and off the bike without help	55 minutes	Incorporate exercises to develop balance, bicycle control skills and observation techniques.
Start off and pedal without help		
Stop by using both brakes		
Steer the bike and manoeuvre safely to avoid objects		
Grade 1- Session 2 (1½ hours)		
Key teaching point/core skill	**Teaching time**	**Notes**
Introduction	5 minutes	Recap previous session and explain the focus of session 2.
Using the gears	20 minutes	
Look behind	20 minutes	
Signal – stop, left and right	30 minutes	
Conclusion	15 minutes	Recap what trainees have achieved from grade 1.

COURSE LESSON PLAN – GRADE 2

7–8 hours in total (30 minutes theory and a minimum of 6 hours on the road)

(four 1½-hour sessions over two school mornings, plus one additional hour if necessary)

(note: course sessions should be flexible and can be adapted to fit within the school programme)

Grade 2 Session 1 (1½ hours) **THEORY and GRADE 1 REVISION**		
Key teaching point/observable outcome	**Teaching time**	**Notes**
Introduction, roll call and course outline	20 minutes	Explain what is involved in grade 2 training.
Helmet and bicycle check	15 minutes	Recap grade 1 outcomes in the playground / other off-road area.
Briefing and recap of grade 1 outcomes	25 minutes	
Theory – recall an understanding of road signs and the road rules	15 minutes	Classroom/ School ground discussion
Briefing	20 minutes	Brief trainees for on-road training – roll call, trainees assigned to groups, check of safety vests and warm clothing, ground rules established.

Grade 2 Session 2 (1½ hours) **ON-ROAD TRAINING – START/STOP FR THE SIDE OF THE ROAD, RIDE ALONG THE ROAD, PASS A PARKED VEHICLE**		
Key teaching point/observable outcome	**Teaching time**	**Notes**
Briefing reminder	5 minutes	Vests on, toileting addressed, quick check of shoelaces etc.
Time travelling to the training area	10 minutes	This may be more or less, depending on where the training is taking place in relation to the school/organisation.
Start from side of road (kerb)	55 minutes	Aim for 10–15 minutes for each observable outcome and discussion.
Stop on side of road (kerb)		
Ride along the road		
Pass a parked or slower-moving vehicle		
Understand hazard identification in Grade 2 environments		
Time travelling back to school	10 minutes	
Recap session	10 minutes	Brief recap of what was covered in the session and what comes next.

Grade 2 - Session 3 (1½ hours) **ON-ROAD TRAINING – PASSING A SIDE ROAD, LEFT TURNS AND HAZARD IDENTIFICATION**		
Key teaching point/core skill	**Teaching time**	**Notes**

Briefing	15 minutes	Roll call, trainees into groups, check off safety vests, warm clothing, bikes and helmets checked and signed off. Recap ground rules from session 1.
Time travelling from school	10 minutes	This may be more or less, depending on where the training is taking place in relation to the school/organisation.
Passing a side road	55 minutes	Aim for 10–15 minutes for each observable outcome and discussion. Move to another location to check understanding and transference.
Left turns: • **From a side road to a main road** • **From a main road to a side road**		
Understand hazard identification in Grade 2 environments		
Time to travelling back to school	10 minutes	

Grade 2 - Session 4 (1½ hours) **ON-ROAD TRAINING – RIGHT TURNS, TRAVELLING STRAIGHT THROUGH AND HAZARD IDENTIFICATION**		
Key teaching point/core skill	**Teaching time**	**Notes**
Briefing	10 minutes	Roll call, regather trainees, recap ground.
Time travelling from school	10 minutes	This may be more or less, depending on where the training is taking place in relation to the school/organisation.
Right turns: • **From a side road to a main road** • **From a main road to a side road**	45 minutes	Aim for 10–15 minutes for each observable outcome and discussion. Move to another location to check understanding and transference.
Travelling straight through at controlled and uncontrolled intersections		
Understand hazard identification in Grade 2 environments		
Time to travelling back to school	10 minutes	
Conclusion	15 minutes	Recap what trainees have achieved from grade 2.

Grade 2 Session 5 (1 hour) ON-ROAD TRAINING – RECAP AND/OR OPTIONAL OBSERVABLE OUTCOMES		
Key teaching point/core skill	**Teaching time**	**Notes**
Briefing	15 minutes	Roll call, trainees into groups, check of safety vests, warm clothing, bikes and helmets checked and signed off. Recap ground rules from session 1.
Time travelling from school	10 minutes	This may take more or less time, depending on where the training is taking place in relation to the school/organisation.
Recap of skills learnt and/or optional skills	25 minutes	Optional observable outcomes include use of shared paths and cycle lanes, cycling through single lane roundabouts and traffic signals.
Time to travel back to school	10 minutes	

SCHEDULE 4 - EQUIPMENT

1. **10 x bicycles in used condition – variety of sizes**

2. **Bike Trailer – Registration 33C54**

   1780x1650 high and 2440 long

   Features : Dropped axle ramp, custom bike mounts for 10 bikes, 400x400x1500 front lockable storage box, plywood floor, LED lights including marker and high stop, spare wheel, jockey wheel, painted finish

3. **Toyota Hiace 3 ZL 5 Door Turbo Diesel Van**

   Features: Automatic, tow bar, 1 x fixed bench seat 3 headrests & 3 point diagonal belts

   Registration Number (TBA)

4. **Equipment**

- **20 x PVC Small orange cones 450 non-reflectorised**
- **10 x Adult safety vests – orange**
- **30 x Children's safety vests – yellow (12 small, 10 med, 8 large)**
- **2 x disc cone sets (100 cones)**
- **Any additional equipment purchased specifically for the delivery of the cycle skills education programme**

SCHEDULE 5 – Waimakariri District Council Driver Safety Policy

Driver Safety Policy

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Policy

Purpose
This purpose of the driver safety policy is to outline Waimakariri District Council's expectations of workers that are driving vehicles on Waimakariri District Council business, and is intended to undertake proactive risk management of what has been assessed as a high-risk activity for Waimakariri District Council workers. The purpose of this policy is to also ensure that workers that drive Council or other vehicles as part of their work demonstrate safe, efficient driving skills, and display the highest level of professional conduct and attitude when driving a Council vehicle. This includes the protection of Waimakariri District Council workers and assets.

Scope
The policy and procedure applies to all Waimakariri District Council workers and volunteers, however does not extend to Waimakariri District Council contractors, who are expected to develop and enforce their own driver safety policies. The policy applies to all driving that is undertaken for work purposes, whether in a Council-supplied or personal vehicle. This policy does not apply to workers when driving their personal vehicle to and from work, however it does apply when workers are driving a Council-supplied vehicle to and from work, or for any other reason. A bicycle is considered to be a vehicle for the purpose of this policy and procedure.

Statement
A vehicle is considered a place of work when it is used for work purposes, and workers who are mobile are covered by the Health and Safety at Work Act 2015. There are also specific requirements under the Land Transport Act 1998 which apply to all vehicles and drivers. Driving is considered to be a high-risk activity, as informed by the risk identification and management processes undertaken by Waimakariri District Council, and information that is generally available in the public domain.

It is recognised that the social cost of a road crash and the associated injuries include a number of elements such as loss of life and life quality, loss of productive work due to temporary incapacitation, medical costs, legal costs and property damage costs. This policy and procedure is one mechanism by which the Waimakariri District Council intends to keep staff safe in the workplace and reduce the social costs associated with vehicle crashes and incidents.

Responsibilities
Waimakariri District Council (Organisation)

- Provision of fleet of vehicles which have been assessed and are appropriate to need/task.
- Resourcing of safety equipment and vehicle maintenance.
- Assessment of vehicle safety ratings during procurement process with a goal of purchasing vehicles with the highest safety rating that is practicable.
- Compliance checks to ensure that all workers that are driving Waimakariri District Council vehicles or their own vehicles on behalf of Waimakariri District Council are adequately licensed and qualified to drive the particular vehicle type.
- Provision of induction training to ensure workers are familiar with driving policies and fleet requirements at the commencement of their employment with Waimakariri District Council
- Provision of training for ongoing competence in driver safety and/or off-road driving.
- Maintenance of insurance policies which cover work-related driving and fleet.

Managers

- Identification of training needs at Annual Performance Review, and ensuring compliance and completion of training.
- Scheduling of workload to ensure that workers are able to remain compliant with Driver Safety Policy.

Health and Safety Advisor

- Scheduling of driver safety training and off-road driver training courses.

Driver of any vehicle (Worker)

- Attendance at any induction or driver safety training which is offered in relation to their work tasks.
- Provision of driver qualifications (licences) to Human Resources and Health and Safety for retention on file.
- Safety of their own actions and behaviours while driving for work purposes.
- Assessment of driving conditions on an ongoing basis.
- Ensure familiarity with the particular vehicle which they will be driving.
- Undertake vehicle pre-start checks prior to commencing any vehicle journey.
- Report all incidents, crashes, near misses and hazards to both Health and Safety and Fleet Manager.
- Complete all insurance activities for crashes occurring when operating the vehicle.
- Advise Fleet Manager or Notional Driver if there is anything wrong with the vehicle or damage has occurred to the vehicle during their time of use.
- Report to manager should workload or scheduling force non-compliance with Driver Safety Policy.
- Ensure all items stored in the vehicle are stored safely and adequately restrained during travel.
- Adherence to all related policies, including but not limited to: WDC Employee Drug and Alcohol Policy, Safe Working in the Field Manual, Lone Working Policy.
- Communication with Line Manager, HR and/or H&S if for any reason the worker has been deemed medically unfit to drive.
- Communication with Line Manager, HR and/or H&S the worker has had their licence suspended for any reason.

Notional Driver

All of the above Driver responsibilities, and:

- Completion of monthly vehicle checks as per checklist.
- Scheduling of Warrant of Fitness checks and maintenance servicing.
- Cleanliness of the vehicle inside and out (in particular windscreen).
- All responsibilities as outlined in QP-C590 Vehicle Use and Monitoring – General.

Breach of Policy

In the instance of a breach of Driver Safety Policy, the other following policies may apply:

- Waimakariri District Council Employee Drug and Alcohol Policy
- Waimakariri District Council Code of Conduct
- Waimakariri District Council Disciplinary Procedure

The following actions in Council vehicles will be viewed as serious breaches of conduct and disciplinary action may be a consequence:

- being under the influence of drugs or alcohol while driving.
- driving while disqualified or not correctly licensed.
- reckless or dangerous driving, including excessive speeding
- failing to stop after a crash.
- acquiring demerit points leading to suspension of licence
- any actions that warrant the suspension of a licence.

Other breaches of the Driver Safety Policy and any associated unacceptable behaviours will be considered on a case-by-case basis and will be managed according to the Waimakariri District Council Disciplinary Policy.

Related Documents

- QP-C590 Vehicle Use and Monitoring – General
- QP-C593 Use of Council Pool Vehicles

- Safe Working in the Field Manual TRIM 150709108063
- Lone Working Policy TRIM 160704064030
- WDC Employee Drug and Alcohol Policy TRIM 160630062600

Procedure

Guidelines for Buying or Hiring of Council Vehicles

The procurement of any Council vehicle should meet a minimum of 4-star ANCAP rating where applicable. This requirement will form a part of the risk assessment process prior to purchase. The risk assessment will also need to take into account the use that vehicle will have, and the vehicle must therefore be fit-for-purpose according to intended use. This requirement acknowledges the multiple different functions for which Council vehicles are used.

Additionally, the primary/notional driver must specify any additional safety equipment which is necessary to undertake their role while using the vehicle, and that equipment must also be fit-for-purpose. This requirement includes not only vehicle safety equipment, but also trailers and attachments.

When the vehicle is handed over to the notional driver from fleet management, all relevant safety information will be brought to their attention, and any vehicle-specific requirements will be communicated clearly. Handover of vehicle will include an explanation of all checks required.

Staff Training

Staff training will be delivered according to need, and relevance to role. The hierarchy of training is as below:

1. 'Driving in the Waimakariri' information pack provided at induction.
2. Internal Driver Safety Awareness (5 yearly): desktop course available to all staff, mandatory if staff are required to drive a vehicle on a regular basis for their role.
3. Anti-skid Driver Safety Training (5 yearly): if staff are required to drive a vehicle on a regular basis for their role.
4. Off Road Driver Safety Training (5 yearly): if staff are required to drive a vehicle off-road for their role.

Drivers must remain within their training and competence, in particular not engaging 4WD or driving off-road if not trained to do so. If any driver feels uncomfortable about the task that is being requested or the vehicle they are required to drive, the driver must inform their manager. Each driver is expected to familiarise themselves with the capabilities of the vehicle that they are driving, and keep the vehicle within its capabilities.

If training is requested by a staff member, it will be considered by Management and Health and Safety on a case by case basis, even if staff member does not fit requirements.

Crashes and Damage

All drivers are required to report any near-misses, crashes and scrapes to their manager within 24 hours, including those that do not result in injury, as per incident reporting requirements. All crashes involving Council vehicles or workers during work time will be recorded and investigated by a representative of the Council.

If the crash involves damage to either a Council Vehicle or other vehicle, then it is the responsibility of the driver involved in the crash to complete the appropriate insurance documentation and complete any associated tasks.

Those crashes involving any notifiable incident, injury or illness will be advised to the Health and Safety Advisor, and/or a Level 2 Manager, who will notify WorkSafe NZ as per reporting requirements in the Health & Safety at Work Act 2015.

All other requirements are defined by Section 4.9 in the QP-C590 Vehicle Use and Monitoring – General.

Further Sources of Risk

Driver fatigue and distraction:

A high percentage of crashes are due to distraction and fatigue. Fatigue can be defined as tiredness, weariness or exhaustion which has the potential to impair capabilities or judgement. Drivers are required to monitor their own fatigue levels, and not drive if fatigued; particularly in regard to the combination of physical work and driving.

Likewise if drivers are experiencing high levels of stress or mental distraction they are to monitor themselves and make decisions accordingly as to whether or not they are safe to drive.

Waimakariri District Council is required to provide reasonable expectations and deadlines to minimise the risk that drivers are fatigued or stressed, and will make every attempt to schedule work in such a manner as to ensure stress and fatigue are minimised.

It is recognised that there are no Waimakariri District Council departments which are entirely transportation focused, and therefore maximum driving hours are not determined in this policy. However should the requirement to drive long distances arise, maximum driving times must be determined prior to departure. In order to minimise the effect of fatigue on drivers, an indicative reasonable maximum for combined work and driving time for most Waimakariri District Council roles is 10 hours.

Distraction can be defined as anything which diverts the driver's attention for more than two seconds. Distraction greatly increases the likelihood of a crash or a near crash.

With regard to mobile phone and mobile device use in the vehicle, hands-free (Bluetooth) use is acceptable, however it is recognised that this is a source of distraction. No outbound calls are to be made while moving (but can be made while stationary), however inbound calls can be accepted while driving. When accepting inbound calls is expected that the driver will answer the call and then pull over at the first safe opportunity.

The driver must ensure that the vehicle is set up prior to departure, so that adjustments aren't being made while driving, in particular mirrors and seating. The driver must make sure windscreens and mirrors are clean, and that the route to the destination has been determined prior to departure. Headphones are not permissible in Council vehicles due to the inability to discern external noise.

Vehicle Checking Requirements

Pre-start checks – every driver, at the start of every trip

External Visual

- tyres are in acceptable condition (legal tread depth and not visibly flat)
- windscreen is clean and all windows are de-misted

Pre-Start

- mirrors are positioned correctly
- seats are adjusted correctly
- first aid kit is present/fire extinguisher is present
- load is secured adequately and no equipment is stored on empty seats (any unsecured equipment should be in footwells)
- sufficient fuel is available for trip, and the vehicle is not returned with less than ¼ tank remaining.

Once Engine Running

- windscreen wipers are functioning
- headlights are functioning
- brakes are functioning correctly (brake warning light not showing, and brakes working when pressure placed on pedal)

Monthly Checks – notional driver

- WoF and Registration expiry dates
- vehicle is within service mileage and due mileage is noted
- Road User Charges are within mileage where required
- oil, water and radiator fluid are at the correct levels
- tyres are roadworthy, have correct pressure and tyre tread meets minimum requirements
- seat belts are working properly
- all internal and external lights are functioning

- adequate provision to secure loose loads
- windscreen wipers are in good condition
- first aid kit is stocked
- spare tyre and jack are in the vehicle and in good order
- horn working
- any new damage is reported to fleet manager
- cleanliness of vehicle both inside and out

The pre-start checks will be completed as a visual, unrecorded check by the driver of each vehicle. The notional drivers' monthly checks will be recorded and provided to the fleet manager by exception, should there be any findings of the check which require rectification. If all checks are satisfactory, the notional driver will scan and save completed checklists to TRIM folder VEC-08. If any remedial actions are required, the notional driver will also email the document TRIM link to Fleet Manager. The TRIM Keywords are as follows: registration number, plant number, date of check.

Each of the above checklists are included Appendix A which is attached to this policy.

Appendix A: Vehicle Safety Checklists

Pre-start checks – every driver, at the start of every trip

External Visual

- tyres are in acceptable condition (legal tread depth and not visibly flat)
- windscreen is clean and all windows are de-misted

Pre-Start

- mirrors are positioned correctly
- seats are adjusted correctly
- first aid kit is present/fire extinguisher is present
- load is secured adequately and no equipment is stored on empty seats (any unsecured equipment should be in footwells)
- sufficient fuel is available for trip and the vehicle is not returned with less than ¼ tank remaining.

Once Engine Running

- windscreen wipers are functioning
- headlights are functioning
- brakes are functioning correctly (brake warning light not showing, and brakes working when pressure placed on pedal)

Monthly Checks – notional driver

Name of Driver: .....

Plant (Vehicle) Number: ..... Registration Number: .....

Date of check: .....

Check	Satisfactory? Yes/No	Action Required
WoF and Registration expiry dates		
Vehicle is within service mileage and due mileage is noted		
Road User Charges are within mileage (where required)		
Oil, water and radiator fluid are at the correct levels		
Tyres are roadworthy, have correct pressure and tyre tread meets minimum requirements		
Seat belts are working properly		
All internal and external lights are functioning		
Adequate provision to secure loose loads		
Windscreen wipers are in good condition		
First aid kit is stocked		
Spare tyre and jack are in the vehicle and in good order		
Horn working		
Any new damage is reported to fleet manager		
Cleanliness of vehicle both inside and out		

*If all checks are satisfactory, scan and save completed checklists to TRIM folder VEC-08. If any remedial actions are required, also email the document TRIM link to Fleet Manager. TRIM Keywords: ***registration number, plant number, date of check***.

SCHEDULE 6 – Waimakariri District Council Driver FleetSmart Vehicle Procedures

Vehicle Insurance Details: Vero Policy Number: HOCMF4882931

ACCIDENTS: In the event of an accident, please call FleetSmart's Accident Line on **0800 800 358 Option 3**.

GLASS: If you require glass repairs/replacement, contact Instant Windscreens on 0508 132 444 or Smith & Smith on 0800 483 388 then direct them to **FleetSmart for authorisation**.

BREAKDOWNS: For any breakdown assistance please call FleetSmart Roadside Assistance on **0800 800 358 Option 1**.

TYRES: Checking of tyres are the driver's responsibility and should be undertaken regularly. Ensure tread depth is appropriate and tyre wear is even. This includes the spare tyre.

If tyres are required, preferred suppliers are Carters (Dunlop) or Laffey Tyres (Bridgestone or Firestone) in Rangiora depending on the make of tyre on the vehicle. Check what you are running before going to the supplier. Do not run a single odd tyre make on your vehicle.

Please inform the tyre merchant that the vehicle is a **FleetSmart managed vehicle**. The merchant will ring FleetSmart for prior approval to repair / fit new tyres on **0800 800 358 Option 2**.

FUEL: Please ensure the current ACCURATE Speedo reading is recorded whenever purchasing fuel, this enables accurate reporting to Waimakariri Management and FleetSmart, it is also used for checking servicing intervals and purchasing of Road User Charges.

Queries about your fuel card to be directed to Maree Luzak of Finance in the first instance. The PIN number for your fuel card SHOULD be 1 and then vehicle plant number eg. 1894, it should NOT BE ANYTHING ELSE.

REGISTRATION RENEWALS AND ROAD USER CHARGE (RUC): Registration & RUC labels will be automatically sent out to the Waimakariri District Council office in Rangiora. The office will then pass the labels on to drivers. You are still responsible for checking your vehicle regularly to ensure all labels are current. If you notice that the RUC or Registration is getting close to expiring please contact Fleet Manager who will follow up.

SERVICING/REPAIRS: Preferably your vehicle should be serviced / repaired at the local franchise in your area for the particular make & model i.e. for Toyota use Toyota dealership, Holden use Holden dealership.

Vehicles are to be serviced at the manufacturer's intervals i.e. **15,000 kms** or **12 Months**, as per the service booklet in the vehicle. FleetSmart will send a service reminder when your vehicle is due for a service or WOF, this may come to you via the Fleet Manager. You are still responsible for checking your vehicle regularly to ensure all labels are current and fluid levels are appropriate.

You will need to inform the service agent that vehicle is a **FleetSmart managed vehicle.** The FleetSmart merchant will ring FleetSmart for prior approval for the service or repair on **0800 800 358 Option 2**.

If you have any queries regarding any of these procedures or any other matter, please contact:

Lisa Geismar - FleetSmart Account Manager
Ph (04) 801 2511 or 021 842 040 or email: lisa.geismar@fleetsmart.co.nz

Ashleigh Radford - Waimakariri District Council Acting Fleet Manager

Ph (ext) 8351 or (03) 266 9201 or email: fleet@wmk.govt.nz

Chris Chick – Waimakariri District Council Acting Fleet Manager Back-up

Ph (ext) 8757 or (03) 266 9203 or email: fleet@wmk.govt.nz

Cycle Sense

Congratulations

You have participated in the Cycle Sense Programme

Name: _____

School: _____

Note to parent: This certificate does not guarantee your child's safety on their cycle.

WAIMA
DISTRICT

CYCLE SENSE –
CYCLE EDUCATION PROGRAMME BIKE TRAILER

CYCLE SENSE –
CYCLE EDUCATION PROGRAMME BIKE TRAILER

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	SEW-03-01-04-13.01 / 190905124322
REPORT TO:	Utilities and Roading Committee
DATE OF MEETING:	24 September 2019
FROM:	Sophie Allen – Water Environment Advisor
SUBJECT:	Avian botulism occurrence, costs and management of avian botulism during the 2018-19 season
SIGNED BY: (for Reports to Council, Committees or Boards)	Department Manager / Chief Executive

1. SUMMARY

1.1 This report summarises the occurrence, costs and management of avian botulism during the 2018-19 season at the Waimakariri District Council Wastewater Treatment Plants (WWTP) and selected sites within the wider Waimakariri District.

1.2 This report outlines the WDC Avian Botulism Management Plan; a document that collates current management practices.

1.3 This report discusses options for management, however a separate report scoping reduction of the size Kaiapoi WWTP wetland area to potentially reduce bird deaths from avian botulism among other drivers, will be reported shortly.

Attachments:

i. WDC Avian Botulism Management Plan 2018 (Trim 181129140606)
ii. Avian Botulism info pamphlet DLE (Trim 190204012544)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190905124322.

(b) **Notes** the update on bird death numbers and species for 2018-19, as collected by contractors to contain avian botulism.

(c) **Notes** the production of a WDC Avian Botulism Management Plan, which outlines current management practices, and documents communication, collaboration, monitoring, reporting and other requirements.

(d) **Circulates** this report to Council, the Waimakariri Water Zone Committee, and Community Boards for information.

3. BACKGROUND

3.1 An update on avian botulism and its management was presented to Council on 21 August 2018 (180719080426) and December 2015 (160301016953). These reports detailed the identification and management response of the disease at the Kaiapoi, Woodend, Rangiora and Waikuku WWTPs, and surrounding waterbodies.

3.2 Avian botulism is a paralytic disease of waterfowl, caused when toxin is released by bacteria commonly found in the substrates of lake and pond beds, including wastewater oxidation ponds. This toxin accumulates in aquatic invertebrates, which are then consumed by birds. The bacterium *Clostridium botulinum* is widespread in soil and requires warm temperatures, a protein source and an anaerobic (i.e. no oxygen) environment in order to become active and produce toxin. Decomposing vegetation and invertebrates combined with warm temperatures can provide ideal conditions for the botulism bacteria to activate and produce toxin.

3.3 Botulism is an intoxication (i.e. food poisoning) rather than an infectious disease. The affected birds show a number of consistent symptoms including weakness, lethargy and a progressive paralysis, which initially affects the legs and neck. Walking becomes difficult and paralysis of the neck means birds cannot hold their heads erect. For birds sitting on the water this inevitably leads to death by drowning.

3.4 Carcasses of dead birds are subsequently fed on by flies and their larvae, which then concentrates the botulinum toxin within the larvae and the bird-toxic maggot cycle commences. This leads to the deaths of subsequent waves of birds as they feed on the maggots in, and around, the dead bird carcasses.

3.5 Providing mildly affected birds with fresh water, shade and protection from predators may help them recover from the intoxication. Avian botulism antitoxin is available (potentially only overseas, such as in the USA), but requires special handling and must be given early in the intoxication. Birds that survive a botulism outbreak are not immune to future exposure to botulism toxin.

3.6 Fish, such as eels in Tutaepatu Lagoon in the Tuhaitara Coastal Park, have anecdotally died due to consuming birds containing the toxins. Dogs have also been anecdotally reported to have been affected overseas, though not within the Waimakariri District.

3.7 Avian botulism Type C, as identified at the Kaiapoi Wastewater Treatment plant, is not thought to be a risk to human health. Avian botulism Type E, which has not been identified in the Waimakariri District, does affect humans in rare cases.

3.8 Since the summer of 2011/12, there have been avian botulism Type C outbreaks in the Bromley Wastewater ponds in Christchurch. In summer 2012 there were 6,300 birds collected, with death attributed to avian botulism within the Bromley Oxidation ponds. The actual estimated number of bird deaths is over 7,000 due to a number unable to be recovered. Since then there have been outbreaks at the Christchurch City Council ponds every summer except 2018-19. The general noted pattern is that there is a reduction in dead birds after approximately 3 to 4 years.

3.9 The first outbreak in the Waimakariri District was at the Kaiapoi Wastewater Treatment Plant (WWTP) in the summer of 2013/14. In total there were 3,336 birds that died at the Kaiapoi WWTP and 7 at Woodend WWTP. The majority of the dead birds were paradise shelducks and mallards. The second outbreak in the summer of 2014/15 was more significant with a total of 5,499 dead birds over the summer period. The incidence of avian botulism was also more widespread with birds affected at the Kaiapoi, Woodend, Rangiora and Waikuku Beach treatment plants, at the Kaiapoi Lakes public area, the Pegasus

wetlands and the Tūhaitara Coastal Park wetlands (Tutaepatu Lagoon). The outbreaks in the summers of 2015/16 and 2016/17 were negligible, due to unknown factors such as potentially frosts or other weather-related events (see Figure 1). In 2017/18 there were an estimated 2505 bird carcasses collected by Council contractors.

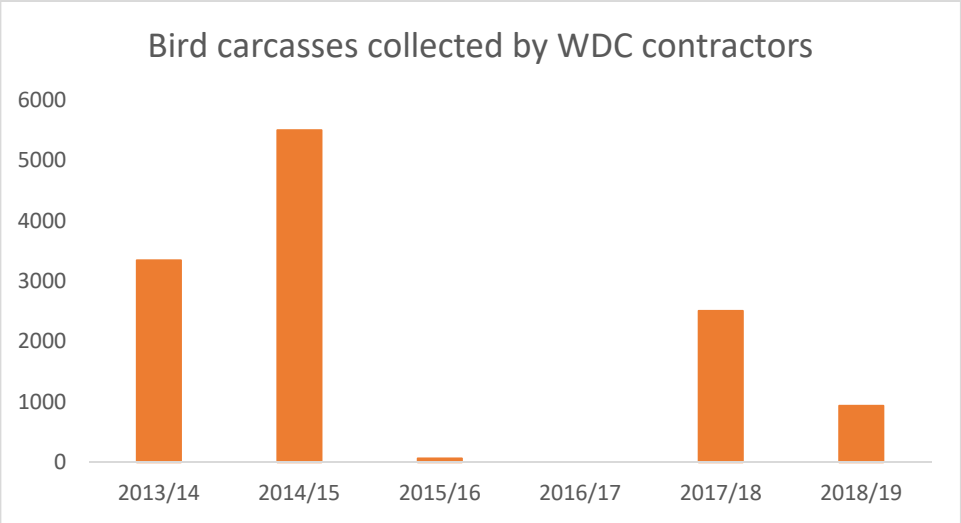

Figure 1: Bird carcasses collected 2013-19 by WDC contractors at all sites. NB data value may be incorrect for the 2015-16 year, due to varying reports.

3.10 During the 1 July 2018-30 June 2019 season, 935 birds were collected from all sites by Keystone Ecology Ltd. Kaiapoi WWTP recorded 471 bird carcasses collected, Rangiora WWTP 364 birds, Woodend WWTP 39 birds, and Waikuku WWTP 30 birds. Kaiapoi Lakes also recorded 31 bird carcasses collected. Although the total was lower in 2018-19 than 2017-18, bird carcasses numbers were from a wider spread of sites, in particular there was an increase at Rangiora WWTP in 2018-19. No rare or threatened bird species (as defined by the DOC Threat Classification System) were found during bird carcass collection by Keystone Ecology Ltd, who are experienced in bird identification.

4. ISSUES AND OPTIONS

WDC Avian Botulism Management Plan

4.1. Management options have been compiled into a WDC Avian Botulism Management Plan (dated October 2018). Within this management plan it recommends:

4.1.1. Carcass removal to continue, on an as required-basis, with removal frequency increasing in proportion to bird death numbers. The frequency of carcass removal can range from every day during a peak of an outbreak, down to weekly.

4.1.2. Pre-emptive grass mowing by WDC around the Kaiapoi Wastewater Treatment Plant waterline in early summer, which aids easier spotting and collection of bird carcasses.

4.1.3. To avoid spraying/cutting of macrophytes (water plants) before or during an outbreak. Rotting vegetation can also contribute to an outbreak.

4.2. Further work will be carried out by WDC staff to investigate options and feasibility of maintaining high water levels as a management option.

4.3. The Management Plan has not been peer-reviewed by an ecologist / ornithologist, however has been prepared in accordance with current best practice.

Community engagement

4.4. A WDC community guide has been prepared in the event of a significant outbreak within public areas, outside of the WWTPs (see Appendix ii). The community pamphlet details how to manage and report sick and dead birds.

Facilitated collaborative management

4.5. WDC staff have continued to meet with agencies to coordinate a joint response to outbreaks such as Christchurch City Council and North Canterbury Fish and Game. WDC staff provided interested parties with weekly updates on bird carcass collection numbers for the duration of the seasonal outbreak. Te Rūnanga o Ngāi Tūāhuriri received update information at joint WDC-Rūnanga meetings.

Kaiapoi WWTP wetland reduction

4.6. WDC staff have received a report from the consultants Beca Ltd, regarding implications of an option that has been explored to reduce the size of the current Kaiapoi WWTP wetland area, among other drivers to reduce bird deaths from avian botulism. A separate report will be presented to the Utillities and Roading Committee this financial year, which discusses the findings of the Beca Report.

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

5. COMMUNITY VIEWS

5.1. Groups and Organisations

5.1.1. **Te Kōhaka o Tūhaitara Trust (TKoT)**: The spread of avian botulism to TKoT wetlands in 2014/15 had negative consequences for carcass control, due to the difficulty in recovering the carcasses from this area. WDC staff encourage continued avian botulism management at WWTPs, as this likely reduces the probability of an outbreak within land administered by TKoT. Avian Botulism management could be a significant additional financial cost for the charitable trust.

5.1.2. **Te Rūnanga o Ngāi Tūāhuriri**: Outbreaks of avian botulism can restrict the ability to carry out mahinga kai (customary food-gathering) of both waterfowl and eels. Avian botulism outbreaks have been discussed at WDC meetings with Rūnanga. The Rūnanga has not been consulted specifically in relation to the issue of avian botulism management for this report. It is assumed that minimisation of bird deaths and extent of an outbreak would be held as important to the Rūnanga. Clear communication is also assumed to be of importance between WDC and the Rūnanga.

5.1.3. **SPCA**: The SPCA received a complaint from a member of the public regarding the treatment of birds at WWTPs in 2017-18 and in 2018-19. The SPCA has responded to this complaint with an investigation into whether current practises across the country could be improved, such as euthanasia of sick birds. WDC staff have raised concerns about health and safety issues, such as staff being able to safely access sick birds. SPCA is due to release guidance on this matter in late 2019.

5.1.4. **North Canterbury Fish and Game**: North Canterbury Fish and Game staff have shown an interest in the weekly updates provided by WDC staff on bird carcass collection data. The North Canterbury Fish and Game Council wish to discuss management of Avian Botulims management further with WDC, with an invitation accepted to present at the October North Canterbury Fish and Game Council meeting.

5.1.5. **Birds New Zealand (The Ornithological Society of New Zealand):** Members of this organisation have signalled the importance of the Kaiapoi Wastewater Treatment Plant as a moulting and roosting site for waterfowl, as well as hosting stopovers of rare migratory wader species. It is assumed that minimising bird deaths and the extent of an outbreak would be desired.

5.2. **Wider Community**

5.2.1. Service requests have been received from concerned members of the public who have reported dead birds at public locations such Kaiapoi Lakes. Their desire is to minimise further bird deaths, and any health risk to the public.

6. IMPLICATIONS AND RISKS

6.1. **Financial Implications**

6.1.1. The cost of bird carcass removal for 2018-19 was $45,829 excl. GST (compared to $41,980 excl. GST for 2017-18) for the bird collection by an ecology contractor. The cost for bin rental, collection and disposal in 2018-19 for the waste disposal contractor was $3,081 excl. GST (compared to $5,773 excl. GST for 2017-18). It should be noted that the waste disposal contractor company was sold during 2018-19, with no invoices received from the new owners for a portion of the financial year. This issue has been raised by WDC staff. Therefore late invoices may still be received, that have not been accounted for.

6.1.2. Costs to-date have come from within WDC Wastewater budgets, including for areas such as stormwater ponds and reserve areas. This may need to be re-evaluated if significant costs arise from outside of WWTP areas.

6.1.3. The cost of management is thought to be reduced by efficient monitoring, quick response and a coordinated response with other parties, such as the Christchurch City Council.

6.2. **Community Implications**

6.2.1. Although there is no legislative requirement, there is a social expectation of the Council to prevent outbreaks spreading to other wetland and lake areas, such as in the Selwyn District and Hurunui District (e.g. Lake Forsyth/Wairewa, Te Waihora/ Lake Ellesmere).

6.2.2. Gamebird hunters i.e. duck shooters may have reduced opportunities for hunting, and require clear communication on the severity and locations of outbreaks.

6.2.3. Bird-watchers, bird lovers and the general public could be saddened to see sick and dead birds at public locations. Rare or threatened birds could be affected, though no rare or threatened bird deaths have been recorded to date.

6.2.4. Opportunities for mahinga kai (customary food gathering) of waterfowl and tuna (eel) may be reduced. Clear communication is needed with appointed Tangata Tiaki (customary fisheries officers).

6.3. **Risk Management**

6.3.1. WDC staff monitor for weather predictions of warmer winters and summers, to enact management options early, and reduce risk of a larger outbreak that could also be more dispersed throughout the District.

6.3.2. Minimisation of risk is achieved by following the Avian Botulism Management Plan; ensuring clear communication with the public, efficient monitoring quick response and collaborative coordination with other management parties.

6.4. Health and Safety

6.4.1. Health and Safety documentation and practices will continue to be in place and reviewed when appropriate for WDC staff and contractors.

6.4.2. Risks to human health can be minimised by clear communication of risks to staff i.e. promoting the use of gloves when in contact with bird carcasses and implementation of contractors' Health and Safety Plans.

6.4.3. In 2014/15 eels in Tutaepatu Lagoon are thought to have consumed some of the carcasses, which led to over 20 observed eels deaths. This raises a potential health and safety issue, due to the fact eels are gathered as a food source. Collection of bird carcasses from wetlands is restricted to retrieval of wind-blown birds from the water's edge. This can reduce the efficiency and timeliness of bird carcass collection, with some areas unable to be safely accessed for carcass removal.

6.4.4. Outbreaks should be re-confirmed to be avian botulism Type C by the Ministry of Primary Industries at regular intervals, particularly if symptoms presented are atypical.

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. Health Act 1956. Botulism in humans (seen as acute gastroenteritis) is a notifiable infectious disease.

7.2.2. There is a general duty to inform the Ministry of Primary Industries under section 44 of the Biosecurity Act 1993 of any organism that is not normally seen or otherwise detected in New Zealand. This would be applicable if an outbreak is suspected to not be avian botulism Type C.

7.3. Community Outcomes

7.3.1. The relevant community outcomes are:

- There is a healthy and sustainable environment for all
- Harm to the environment from the impacts of land use, use of water resources and air emissions is minimised.
- Cultural values relating to water are acknowledged and respected.
- Harm to the environment from the spread of contaminants into ground water and surface water is minimised.

7.4. Delegations

7.4.1. No delegations apply to this report, as it is a report for information only.

Avian Botulism Management Plan 2018

Prepared by Sophie Allen – Water Environment Advisor
Waimakariri District Council
30th October 2018

TRIM 181129140606

Prepared for: 3 Waters, Waimakariri District Council

Prepared by: Sophie Allen – Water Environment Advisor

File / Record Number: SEW-03-01-04-13.01 / 181129140606

Version Number	Prepared By	Comments	Date
1	Sophie Allen	Living document – to be continually reviewed and updated	19 February 2019
2	Sophie Allen	Reviewed by Kalley Simpson – 3 Waters Manager	18 March 2019
3	Sophie Allen	Feedback from MTO meeting 16 September 2019	17 September 2019

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1. Objectives

The objectives of this management plan are to:

- Minimise bird deaths from avian botulism, particularly of rare or threatened species within the Waimakariri District.
- Minimise spread of an avian botulism outbreak to other areas within the District and Canterbury region.
- Minimise any real or perceived health risk from avian botulism to our community, and minimise further bird deaths.

2. Background

2.1. The Disease

Avian botulism is a paralytic disease of waterfowl, caused when toxin is released by bacteria commonly found in the substrates of lake and pond beds, including wastewater oxidation ponds and wetlands. This toxin accumulates in aquatic invertebrates, which are then consumed by birds. The bacterium Clostridium botulinum is widespread in soil and requires warm temperatures, a protein source and an anaerobic (i.e. no oxygen) environment in order to become active and produce toxin. Decomposing vegetation and invertebrates combined with warm temperatures can provide ideal conditions for the botulism bacteria to activate and produce toxin.

Botulism is an intoxication (i.e. food poisoning) rather than an infectious disease. The affected birds show a number of consistent symptoms including weakness, lethargy and a progressive paralysis, which initially affects the legs and neck. Walking becomes difficult and paralysis of the neck means birds cannot hold their heads erect. For birds sitting on the water this inevitably leads to death by drowning.

3. Introduction

3.1. Summary of Avian Botulism Outbreaks

3.1.1. Wider Canterbury

Since the summer of 2011/12, there have been avian botulism Type C outbreaks in the Bromley Wastewater ponds in Christchurch. In summer 2012 there were 6,300 birds collected, with death attributed to avian botulism within the Bromley Oxidation ponds. The actual estimated number of bird deaths is over 7,000 due to a number unable to be recovered. Since then there have been outbreaks at the Christchurch City Council ponds every summer. The general noted pattern is that there is a reduction in dead birds after approximately 3 to 4 years.

3.1.2. Waimakariri District

The first outbreak in the Waimakariri District was at the Kaiapoi Wastewater Treatment Plant (WWTP) in the summer of 2013/14. In total there were approximately 3,336 birds that died at the Kaiapoi WWTP and 7 at Woodend WWTP. The majority of the dead birds were paradise shelducks and mallards. The second outbreak in the summer of 2014/15 was more significant with a total of 5,499 dead birds over the summer period. The

spread of avian botulism was also more widespread with birds affected at the Kaiapoi, Woodend, Rangiora and Waikuku Beach treatment plants, at the Kaiapoi Lakes public area, the Pegasus wetlands and the Tūhaitara Coastal Park wetlands (Tutaepatu Lagoon). The outbreaks in the summers of 2015/16 and 2016/17 were negligible (see Figure 1). This was potentially due to seasonal factors, such as rainfall and temperature, with no direct factors such as WDC management confirmed.

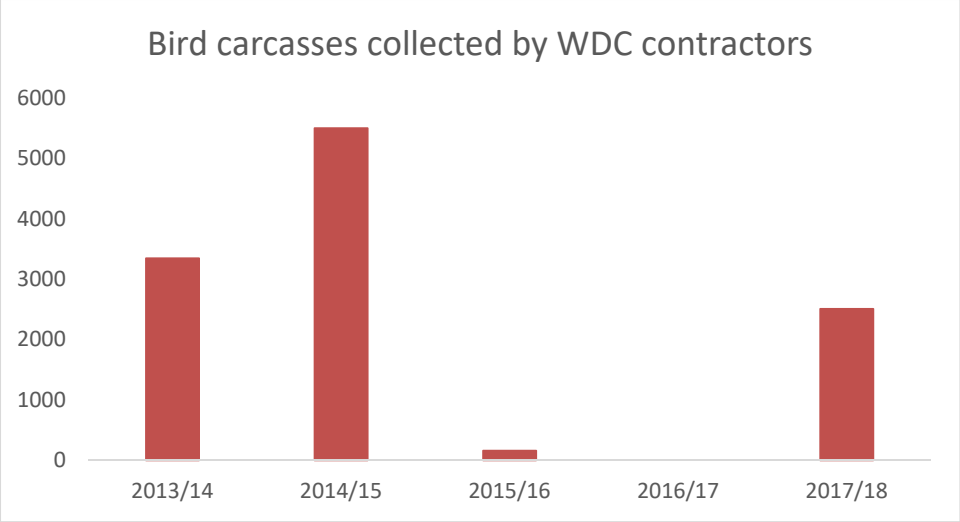

Figure 1: Bird carcasses collected 2013-18 by WDC contractors at all sites. NB data value may be incorrect for the 2015-16 year, due to varying reports.

3.2. 2017- 2018 Summary

During the 1 July 2017-30 June 2018 season, 2505 birds were collected at the Kaiapoi Wastewater Treatment Plant by Keystone Ecology Ltd under contract to the Council. Other wastewater treatment plants recorded low numbers of dead birds collected (Rangiora WWTP: 21 birds, Woodend WWTP: 2 birds). Eighteen birds were also recorded from the Kaiapoi Lakes. No rare or threatened bird species (as defined by the Department of Conservation Threat Classification System) were found during bird carcass collection by Keystone Ecology Ltd, who are experienced in bird identification.

3.3. Avian botulism toxic cycle

Birds initially consume invertebrates that contain the naturally-occurring botulism toxin. Carcasses of dead birds are subsequently fed on by flies and their larvae, which then concentrates the botulinum toxin within the larvae and the carcass-toxic maggot cycle commences (see Figure 2). This leads to the deaths of subsequent waves of birds as they feed on the maggots in, and around, the dead bird carcasses.

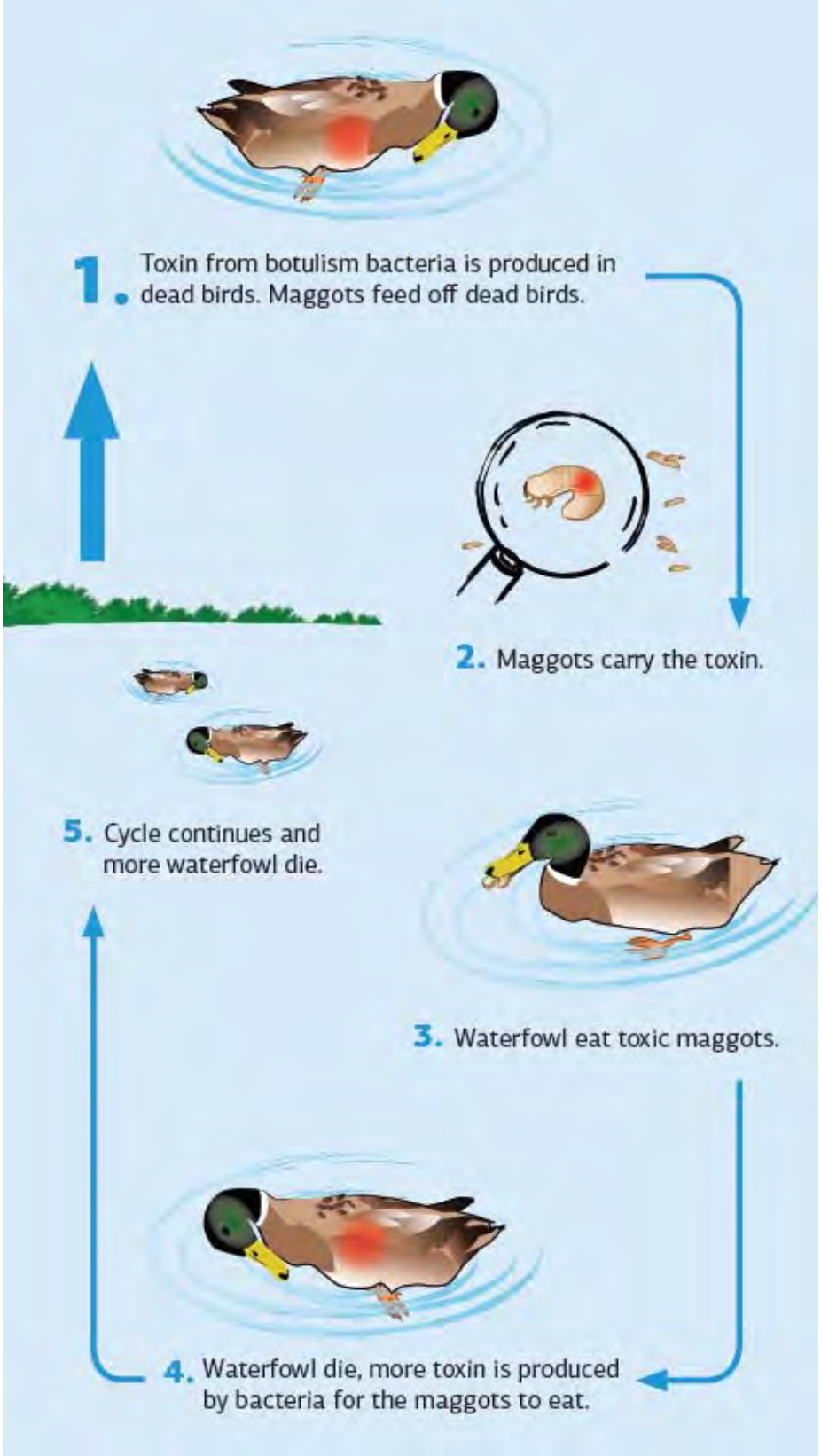

Figure 2: The carcass - maggot cycle, which perpetrates avian botulism.

3.4. Treatment

Providing mildly affected birds with fresh water, shade and protection from predators may help them recover from the intoxication. Avian botulism antitoxin is available (potentially only overseas, such as in the USA), but requires special handling and must be given early in the intoxication. Birds that survive a botulism outbreak are not immune to future exposure to botulism toxin.

3.5. Risk to other species

Avian botulism Type C, as identified at the Kaiapoi Wastewater Treatment plant, is not a risk to human health. Avian botulism Type E, which has not been identified in the Waimakariri District, does affect humans in rare cases.

Fish, such as eels in Tutaepatu Lagoon in the Tuhaitara Coastal Park, have anecdotally died due to consuming birds containing the toxins. Dogs have also been anecdotally reported to have been affected overseas, though not within the Waimakariri District.

4. Management options

Documented management options of avian botulism include bird carcass removal, bird deterrents (such as canons), barley straw bale installation, maintenance of water levels, and avoiding removal of macrophytes (water plants). Other management options may arise from further research and trials, therefore WDC should keep up-to-date with developments.

Management follows a seasonal pattern with an example of a typical year in Table 1.

Table 1: Overview example of the seasonal management cycle

Time of year	Management Action
July	Commence a new year for carcass removal data. Compile data for the previous year.
September	Annual report to Council / Utilities and Roading committee with data from the previous year and any new management options. Update of Management Plan if necessary. Preparatory discussions/meeting with stakeholders prior to the commencement of the summer season.
October	Review of any contracts for services and health and safety documentation.
November	Mow grass at Kaiapoi Wastewater Treatment Plant and other sites if required to enable ease of carcass spotting and collection. Installation of waste disposal bins, if not already kept on site all year.
On-going, particularly in summer and autumn	Review of bird carcass collection frequency. Contact and updates with stakeholder groups. Media release at the advent of an outbreak. Repeat of mowing grass at Kaiapoi Wastewater Treatment Plant and other sites to enable ease of carcass spotting and collection.

4.1. Carcass Removal

Carcass removal of dead birds is carried out on an as-required basis, with removal frequency increasing in proportion to bird death numbers. The frequency of carcass removal could range from every day during the peak of an outbreak, down to weekly. Early installation of collection bins by a hazardous waste collection company, such as San-I-Pak Ltd is effective, to ensure a quick response for an outbreak (see Figures 3 to 5 for locations). Ensure collected birds are disposed of safely, as biohazard waste. Pre-emptive grass mowing by WDC around the Kaiapoi Wastewater Plant waterline and any other site with long grass in early summer aids easier spotting and collection of bird carcasses.

Figure 3: Recommended location of waste disposal bin location (purple dot) at Kaiapoi Wastewater Treatment Plant, near the entrance gate for ease of collection.

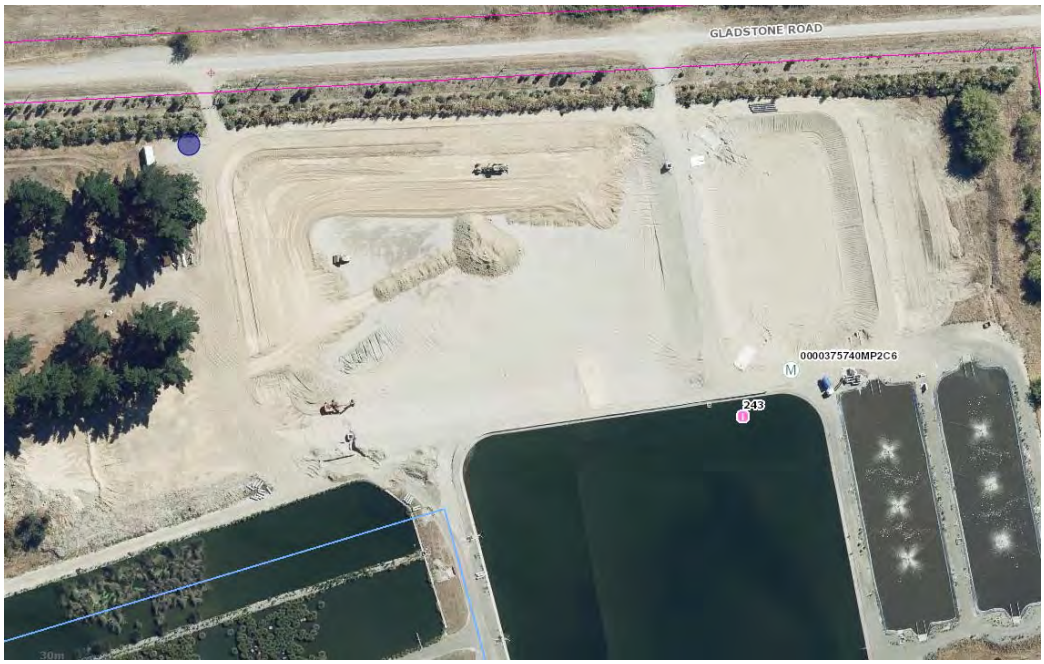

Figure 4: Recommended location of waste disposal bin location (purple dot) at Woodend Wastewater Treatment Plant, near the entrance gate for ease of collection.

Figure 5: Recommended location of waste disposal bin location (purple dot) at Rangiora Wastewater Treatment Plant.

4.2. Preferred contractors and record keeping

Use of experienced contractors with ecological knowledge of bird species, such as Keystone Ecology Ltd are preferred by WDC for bird carcass removal. Bird carcass disposal should be carried out by an experienced hazardous waste disposal company.

A standardised bird carcass recording sheet has been set up (for example 2017-18 data spreadsheet TRIM 180723081684), which should be replicated for each year (from 1 July – 30 June) on-going as required. Standardisation of data captured will allow comparisons between years, and potentially assessment of effectiveness of any novel management option.

4.3. Rehabilitation of rare and threatened birds

Rare or threatened species (as defined by the New Zealand Species Classification System, Department of Conservation) that are found sick will be rehabilitated where this is feasible. The New Zealand Bird Rescue Charitable Trust has a facility in Christchurch, run by Jackie Stevenson, which is suitable for this rehabilitation.

4.4. Stable water levels and water temperature

Maintenance of a stable water level has been recommended by the Department of Conservation to WDC, as fluctuating water levels may increase invertebrate and fish die-offs, creating a protein source for the avian botulism bacteria. This management option is not recommended at wastewater treatment plants due to the priority to maintain operating capacity, but could be employed in other waterbodies. It could be feasible to install an additional water supply at the Kaiapoi WWTP (i.e. from groundwater) during summer months when water levels drop due to high evaporation rates, if operating capacity was not significantly reduced. This could also help to cool water temperatures to be less suitable habitat for the botulism bacteria. However, an alternative water supply option is not currently available at this site.

4.5. Preventing rotting vegetation and algal mats

Rotting vegetation can also contribute to an outbreak. Therefore WDC should avoid spraying/cutting of macrophytes (water plants) before or during an outbreak, i.e. in the cut-off drain surrounding the Kaiapoi Wasterwater Treatment Plant, if feasible. Additionally, it has been suggested that removal of algal mats should be considered for feasibility, with safe disposal from the site. However, removal may be difficult, as the algae tend to disintegrate. Removal of algal mats has not been trialled by WDC, and there were no records found of algal mat removal trials elsewhere. This possible management option is therefore considered as experimental, and should only be pursued with caution.

4.6. Management options not recommended

Barley straw bale installation has been trialled by Auckland Council and other organisations to contain algal/organic material mats that harbour the botulism spores. This management option is not recommended as feasible for effective implementation in WDC wastewater treatment plants, due to disintegration of the bales causing potential problems such as blockages or failure of UV treatment downstream and the large number of bales (several thousand) that would be required. Bird deterrents, such as the use of canons to produce noise, have anecdotally been reported by the ecological contractor providing ornithological advice to WDC to not be effective over a the longer term, as birds become accustomed to the deterrent, and ignore it.

4.7. Future Management Options

WDC is investigating possible impacts and outcomes of a proposal to reduce the size of the current Kaiapoi oxidation ponds area (see Figure 6). A size reduction could potentially reduce avian botulism outbreaks and severity. However, there are many potential direct and indirect impacts that must be considered carefully for decision-making. When considering these impacts, the Kaiapoi Wastewater Treatment Plant is recognised firstly as a functioning plant, with an incidental role for bird populations.

Figure 6: An indicative area of the Kaiapoi WWTP wetland area that has been proposed for size reduction (shown in orange).

5. Monitoring and Reporting

WDC Wastewater Treatment Plants are monitored regularly by the visiting Water Unit and WDC staff (1-3 times per week) for signs of an outbreak during the summer season. In addition, WDC staff are recommended to monitor long-term weather forecasts for ideal outbreak conditions (i.e. long hot summers and/or warm winters with few frosts).

Records are kept of bird species numbers that are removed, as well as observation notes on i.e. sick birds following a reporting spreadsheet (Appendix 1). The reporting year follows the financial year of 1 July – 30 June.

Reporting of bird species, location and numbers will be forwarded, at least weekly, by contractors to WDC staff to manage any avian botulism response measures, distribute a weekly update to stakeholders during higher bird death periods, and compile an annual summary to be submitted to Council.

WDC staff will report incidences of unusual bird deaths to the Ministry for Primary Industries- Biosecurity New Zealand. WDC staff will advocate to MPI to repeat testing of bird carcasses to confirm avian botulism Type C or another disease, if there is any cause for concern.

6. Health and Safety

- Occupational Health and Safety Management Plan - Keystone Ecology (TRIM 160115002665)
- Site Specific Safety Management Plan and Job Specific Analysis (JSA) for bird carcass collection and wading – Keystone Ecology (TRIM 190204012536)

7. Collaboration and Communication

7.1. Communication plan

There will be clear communication with the public, such as a media release at the advent of an outbreak (see example TRIM 150126009655), and community guides (a pamphlet and Q&A sheet, see Appendix A). The community guides advise the public on the level of risk, and how to report sick and dead birds. Communications within WDC 3 Waters, Water Unit and Greenspace and with contractors will ensure continued sharing of information, such as Health and Safety documents, will continue to be conveyed to WDC staff and contractors.

7.2. Collaborative management

It is recommended to facilitate a joint response to outbreaks with Community Public Health, Christchurch City Council, North Canterbury Fish and Game, Te Rūnanga o Ngāi Tūāhuriri, Te Kōhaka o Tūhaitara Trust and the management of Pegasus Town.

Te Kōhaka o Tūhaitara Trust (TKoT): The spread of avian botulism to Tūhaitara Coastal Park wetlands in 2014/15 had negative consequences for carcass control, due to the difficulty in recovering the carcasses from this area. Tutaepatu Lagoon in Tūhaitara Coastal Park had 1,000 birds estimated to have died in 2014/15 with only wings remaining, indicating collection was carried out too late. Eels in Tutaepatu Lagoon are thought to have consumed some of the carcasses, which led to over 20 observed eels deaths. This raises a potential health and safety issue, due to the collection of eels as a food source.

Te Rūnanga o Ngāi Tūāhuriri: Outbreaks of avian botulism could restrict the ability to carry out mahinga kai (customary food-gathering) of both waterfowl and eels.

Community Public Health: Consumption of waterfowl and eels could be an unknown human health risk.

North Canterbury Fish and Game: Hold a role to protect the quality of waterfowl game for hunters, and to protect hunters from any potential illness.

Todd Property - managers of Pegasus Town: own land wetlands around Pegasus between the Kaiapoi and Woodend Wastewater Treatment Plants, which may be effected by an outbreak.

Department of Conservation: Have a responsibility to care for native biodiversity, particularly if rare or threatened.

Christchurch City Council: The Council has had large outbreaks at Bromley Wastewater Treatment Plant in the recent decade, with significant waterfowl deaths.

8. Budget

An indicative future costs for management of avian botulism is $50,000 per year, based on the cost of bird carcass removal for 2017-18, however costs will fluctuate significantly dependent on the level of outbreak.

2017-18 Costs
$41,980 (excl. GST) for the bird collection by Keystone Ecology Ltd, an ecological services contractor.
$5,773 (excl. GST) for bin rental, collection and disposal in 2017-18 for the waste disposal contractor San I Pak Ltd.

Costs to-date have come from within WDC Wastewater budgets, including for areas such as stormwater ponds and reserve areas. This may need to be re-evaluated if significant costs arise from outside of WWTP areas.

A minimal new cost in the form of a donation to the New Zealand Bird Rescue Charitable Trust, is proposed in the case of required rehabilitation of a rare or threatened bird. This donation is set at the discretion of WDC. To date, no sick birds that are rare or threatened have been sighted by the ecological contractor. The cost of management is reduced by efficient monitoring, quick response and a coordinated response with other parties, such as the Christchurch City Council.

APPENDIX A. Public communications materials

Information pamphlet (TRIM 190204012544)

Avian Botulism

Is avian botulism a threat to me?

Avian botulism cannot be contracted by humans but take the following procautions:

- Don't let pets eat dead birds/waterfowl (or fish)
- Don't handle dead birds/waterfowl (or fish) with bare hands
- Don't harvest sick or dying birds/waterfowl (or fish).

What if i see a sick bird?

If you discover an unwell bird you can take it to Bird Rescue Christchurch. Please follow the safety precautions above when handling sick waterfoul.

Bird Rescue Christchurch
2A Glen Place Parklands, Christchurch
Phone: (03) 383 1488
Email: gary.stevenson@xtra.co.nz

For more information go to:
waimakariri.govt.nz - search "avian botulism".

WAIMAKARIRI DISTRICT COUNCIL waimakariri.govt.nz

What is avian botulism?

- It is a disease causing lethargy, paralysis and can lead to death in birds (most commonly waterfowl). It cannot be contracted by humans
- Toxins produced by the *Clostridium botulinum* bacteria infect birds – even a small amount of the toxin can harm birds
- *Clostridium botulinum* is naturally occurring in soils present in ponds and wetlands. It's harmless until triggering environmental factors occur simultaneously – such as hot and humid weather
- Avian botulism proves to be very stubborn and difficult to eliminate because of the naturally occurring bacteria that produces the toxin. However, there are ways to mitigate its spread.

How does avian botulism spread?

The majority of outbreaks are caused by ducks eating maggots that have fed off dead birds. This diagram illustrates the lifecycle of the disease.

Our mitigation measures

- Swift removal of dead birds/waterfowl. This helps break the infection cycle
- Providing waste bins and bags for pet waste at select local parks.

How you can help reduce avian botulism?

- Avoid feeding the ducks. It's best if they forage naturally
- Don't feed bread to ducks. If it's not eaten, it can rot in the pond and promote growth of botulism bacteria
- If you do feed the birds/waterfowl, please feed them on land and with seeds and grains. These are also best for them
- Pick up and properly dispose of your pet's waste
- Contact the Council if you see a sick or dead duck *(if you think it may have avian botulism)*. If you live rurally, please bury any dead birds
- Share what you now know about the topic with family and friends so they can help to reduce its spread.

TRIM 181129140606

Q&A Infosheet (TRIM 190204012546)

FREQUENTLY ASKED QUESTIONS

Avian Botulism

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What are the Council's mitigation measures?

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How can I help reduce avian botulism?

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- Share what you now know about the topic with family and friends so they can help to reduce its spread.

Is avian botulism a threat to me?

Avian botulism cannot be contracted by humans so the risk to humans is considered very small. But it's still important to protect your health and the health of your pets. Here's how:

- Don't let pets eat birds/waterfowl (or dead fish)
- Don't handle birds/waterfowl (or dead fish) with bare hands
- Don't harvest sick or dying birds/waterfowl.

What if i see a sick bird?

If you discover an unwell bird you can take it to **Bird Rescue Christchurch**. Please follow the safety precautions above when handling sick waterfoul.

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Tel: (03) 383 1488 and Email: gary.stevenson@xtra.co.nz

For more information go to: waimakariri.govt.nz - search "avian botulism".

73.8%

WAI DISTRICT COUNCIL

kariri.govt.nz

Avian Botulism

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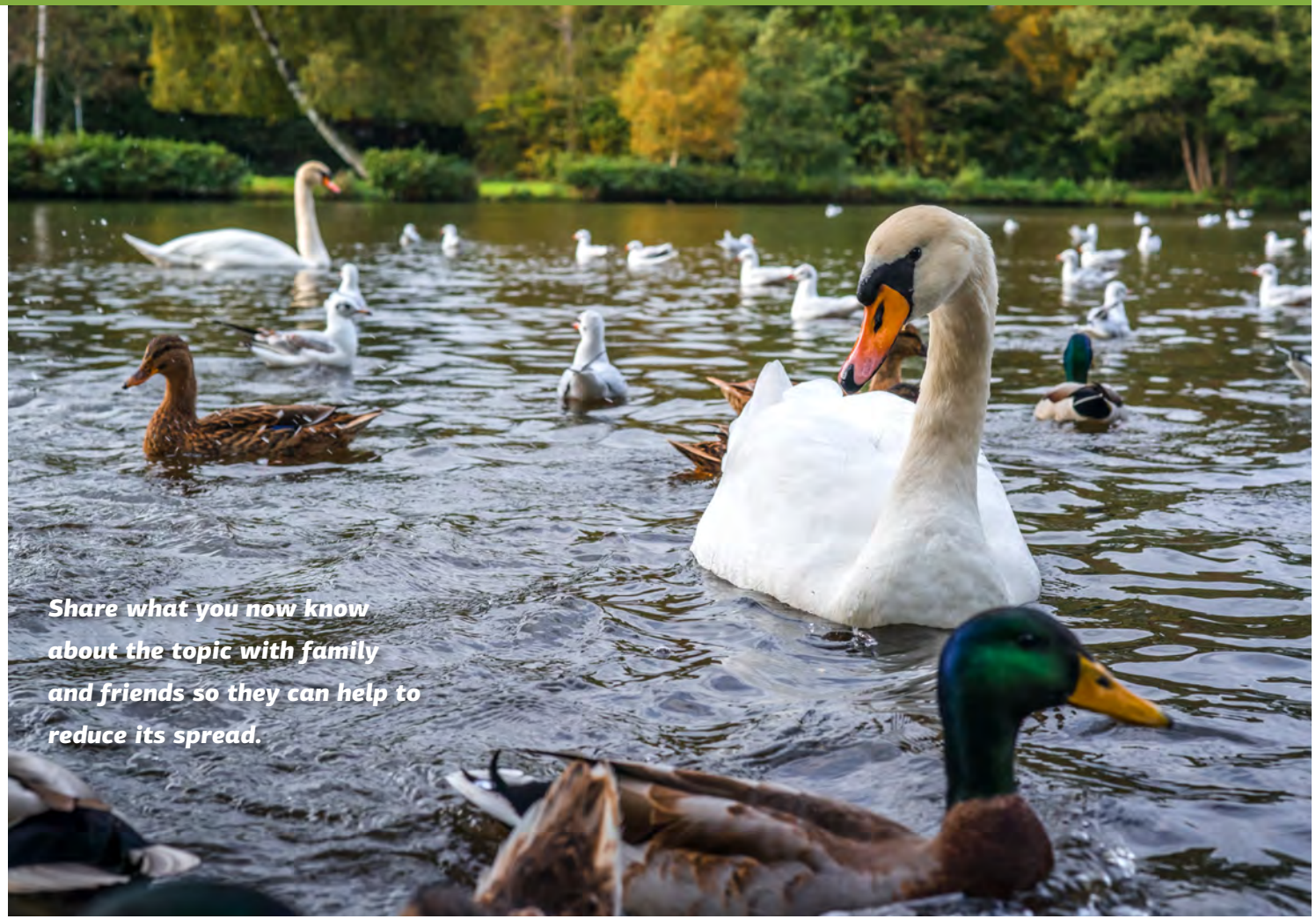

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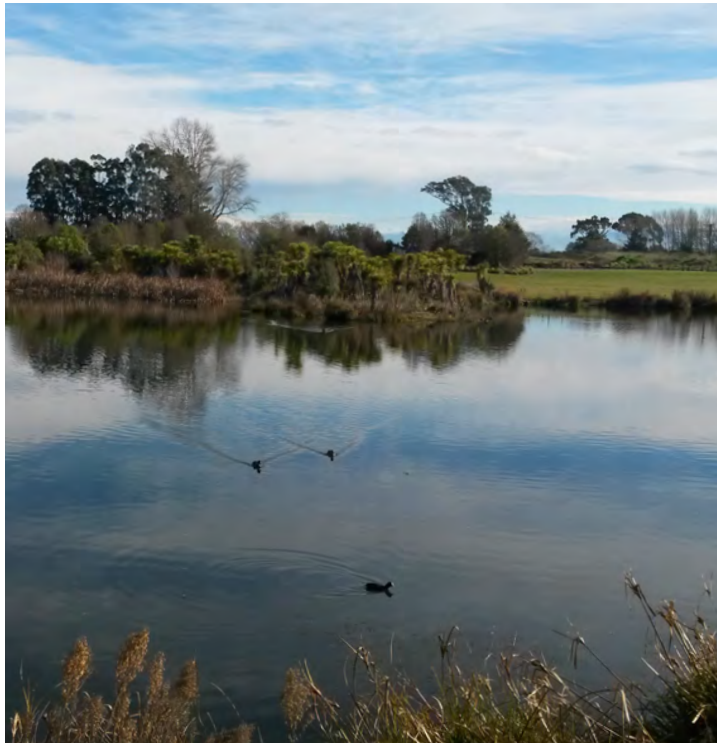
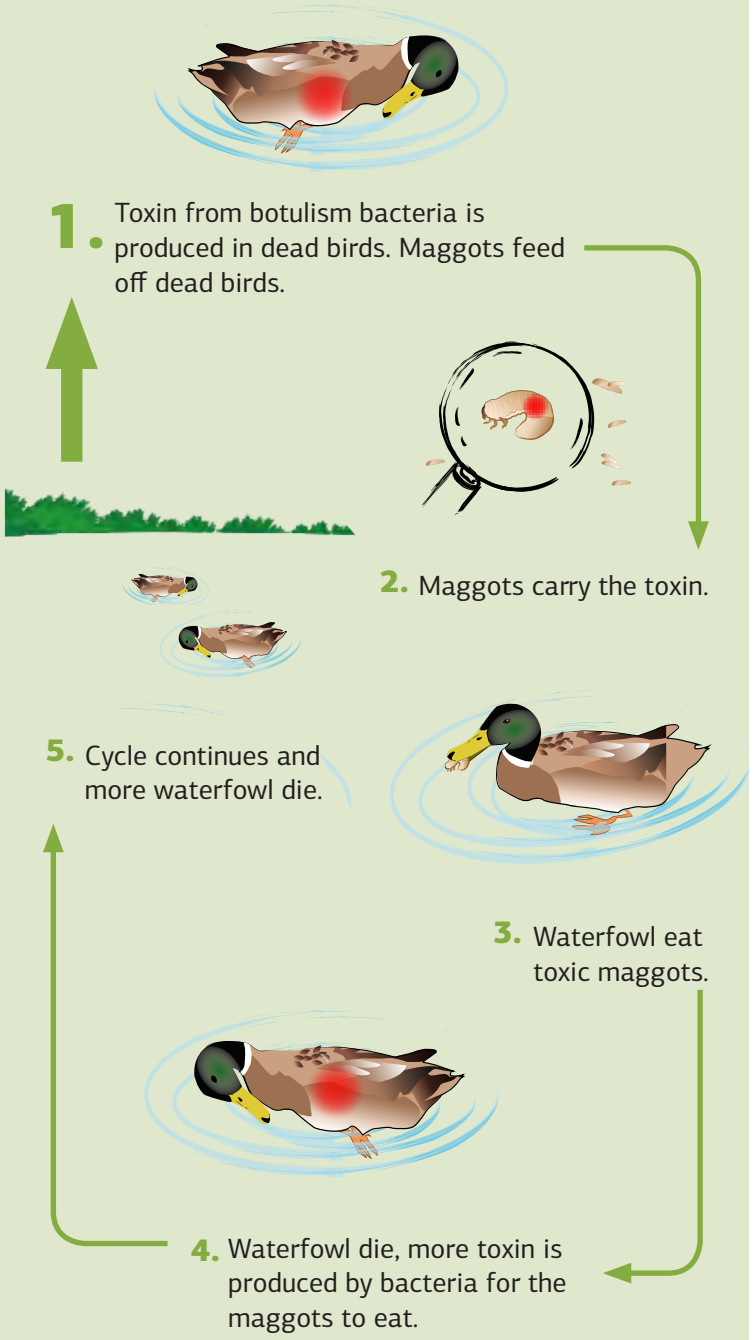
The majority of outbreaks are caused by ducks eating maggots that have fed off dead birds. This diagram illustrates the lifecycle of the disease.



Dead bird - maggot cycle



Our mitigation measures

- Swift removal of dead birds/waterfowl. This helps break the infection cycle
- Providing waste bins and bags for pet waste at select local parks.

How you can help reduce avian botulism?

- Avoid feeding the ducks. It's best if they forage naturally
- Don't feed bread to ducks. If it's not eaten, it can rot in the pond and promote growth of botulism bacteria
- If you do feed the birds/waterfowl, please feed them on land and with seeds and grains. These are also best for them
- Pick up and properly dispose of your pet's waste
- Contact the Council if you see a sick or dead duck *(if you think it may have avian botulism)*. If you live rurally, please bury any dead birds
- Share what you now know about the topic with family and friends so they can help to reduce its spread.

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	SEW-03-09-05/190906125260
REPORT TO:	Utilities and Roading Committee
DATE OF MEETING:	24th September 2019
FROM:	Gavin Hutchison, Wastewater Asset Manager
SUBJECT:	Oxford Wastewater Scheme– Request for Information
SIGNED BY: (for Reports to Council, Committees or Boards)	Department Manager / Chief Executive

1. SUMMARY

1.1 This purpose of this report is to provide a response to the Utilities and Roading committee request for information regarding the Oxford Wastewater Scheme. At the committee meeting on the 20th August 2019 a request was made to provide a report for the following:

- Summary of works completed to reduce Infiltration and Inflow (I&I) into the wastewater network
- Summary of the nitrogen levels irrigated at the WWTP
- Summary of major capital works undertaken on the Oxford Wastewater Treatment Plant

1.2 Investigations and minor works have been undertaken over the last 10 years to reduce I&I in the network. The works undertaken have primarily been the repair of manholes with high infiltration.

1.3 The I&I reduction program for 2019/20 and 2020/21 will focus on investigations. Before undertaking any further investment to reduce I&I the issue across the network needs to be clearly understood. This will allow informed decisions to be made on what works are undertaken that will provide the greatest cost/benefit.

1.4 The volume of treated effluent irrigated to land from the treatment plant currently has the potential to leach approximately 23kg N/ha/yr.

1.1. There have been a number of significant upgrades at the wastewater treatment plant since the [plant was first commissioned in 1997. Below is a summary of the significant upgrades, the capital costs have been included for the capital works post 2016:

- 1997 – Plant constructed and commissioned
- 2004 – Plant modified to improve performance
- 2012 – Inline UV unit installed
- 2016 – UV upgrade to meet consent conditions **($85,000)**

- 2016 – Holding Pond constructed to limit high wet weather flows through the treatment plant **($770,000)**

- 2019 – Aeration upgrade to replace end of life assets and improve the plant performance **($850,000)**

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190906125260.

(b) **Notes** that Infiltration & Inflow reduction works will focus on investigations over the 2019/20 and 2020/21 financial years.

(c) **Notes** that the nitrogen loading applied to the soils from irrigation of treated effluent from the Oxford WWTP are at 60% of that allowed under the discharge consent conditions.

(d) **Notes** that the nitrogen levels discharged from the WWTP have reduced following the recent upgrade of the aeration system.

(e) **Circulates** this report to the Oxford-Ohoka Community Board.

3. BACKGROUND

3.1 The Oxford WWTP was originally commissioned in 1997 and had an upgrade in 2004 to incorporate an aerobic zone in addition to the aeration basin. There have been additional upgrades undertaken over the past 15 years, these are listed in section 4.12 of this report.

3.2 The treated effluent is irrigated to land south of the Eyre River (Refer to Figure below).

Figure 1: Location of Oxford WWTP and Irrigators

3.3 The original consent allowed a maximum of 625m^3/d to be discharged to irrigation. The current average dry weather flow rates are 450m^3/d. The difference between average dry weather flow and the consent limit provide only a minor allowance for wet weather flows that would be difficult to achieve even for a reasonably well performing network.

3.4 During periods when the ground is saturated and there is a wet weather event, the plant inflow exceeds 625m^3/d.

3.5 A variation was made to the consent in 2007 to allow 625m^3/d to be exceed up to 42 times per years up to a maximum of 1700m^3/d. This variation was for only 10 years and expired in July 2017. This variation allowed the plant to comply on the maximum daily discharge volume condition of the consent.

3.6 A request for a variation to condition 3 of the consent was made in April 2019. This allows

'The volume of effluent discharged shall not exceed 1,382 cubic metres per day, and a maximum annual volume of 228,125 cubic metres between 1 July and the following 30 June'

3.7 The variation allows the plant to operate and maximum design flows for a 24 hours period. This allows discharge to the holding pond to only occur when the plant capacity is exceeded. This approach is in line with the intent of the holding pond consent conditions.

3.8 The variation to the consent was granted on the 28th August 2019. The consent expires in 2031.

4. ISSUES AND OPTIONS

Infiltration and Inflow Management

4.1. The network experiences high inflow and infiltration during periods of wet weather.

4.2. The following investigations and remedial works have been undertaken over the past 10 years:

- Manhole inspections
- Repairs to manholes with high I&I (approximately 8)
- House to house inspections to identify illegal connections
- CCTV inspections of gravity mains
- Construction of a holding pond to attenuate wet weather flows into the WWTP

4.3. Whilst these repairs have removed localised infiltration where identified there has not been an assessment of the effectiveness in reduction of flows. This is very difficult without more detailed network monitoring.

4.4. Planned I&I reduction works in 2019/20 and 2020/21 will focus on investigations. Before investing in the removal of I&I we need to understand where the best return for any investment in reductions can be gained.

4.5. In the next six months further CCTV of gravity sewer mains, and installation of remote monitoring in the sewer network will be undertaken. These investigations will help in

understanding where to focus our efforts with more detailed investigations, and allow us to measure the effectiveness of any works undertaken.

Nitrogen Loading from Irrigation

4.6. Condition 12 of the discharge consent states the following:

'The rate at which effluent is applied onto land shall not exceed 200 kilograms of nitrogen per hectare per year'

4.7. To support the application to vary condition 3 of the discharge consent, Pattle Delamore Partners Ltd (PDP) were engaged to undertake an Assessment of Environmental Effects (AEE). This work included the development of a model to assess the potential for nitrogen to leach as a result of irrigation. Three scenarios were modelled:

- Scenario 1: This scenario is wastewater volume irrigated based on recorded wastewater flows.
- Scenario 2. Consented baseline. This is based on applying the maximum allowable nitrogen loading at a maximum discharge rate of 625m^3/d under the consent.
- Scenario 3. Proposed variation. This is based on the future increase in irrigation from growth. The dry weather flows would increase to 500m^3/d, and a maximum daily discharge of 1,382 m^3/d

4.8. The graphs below are taken from the AEE for the variation of consent.

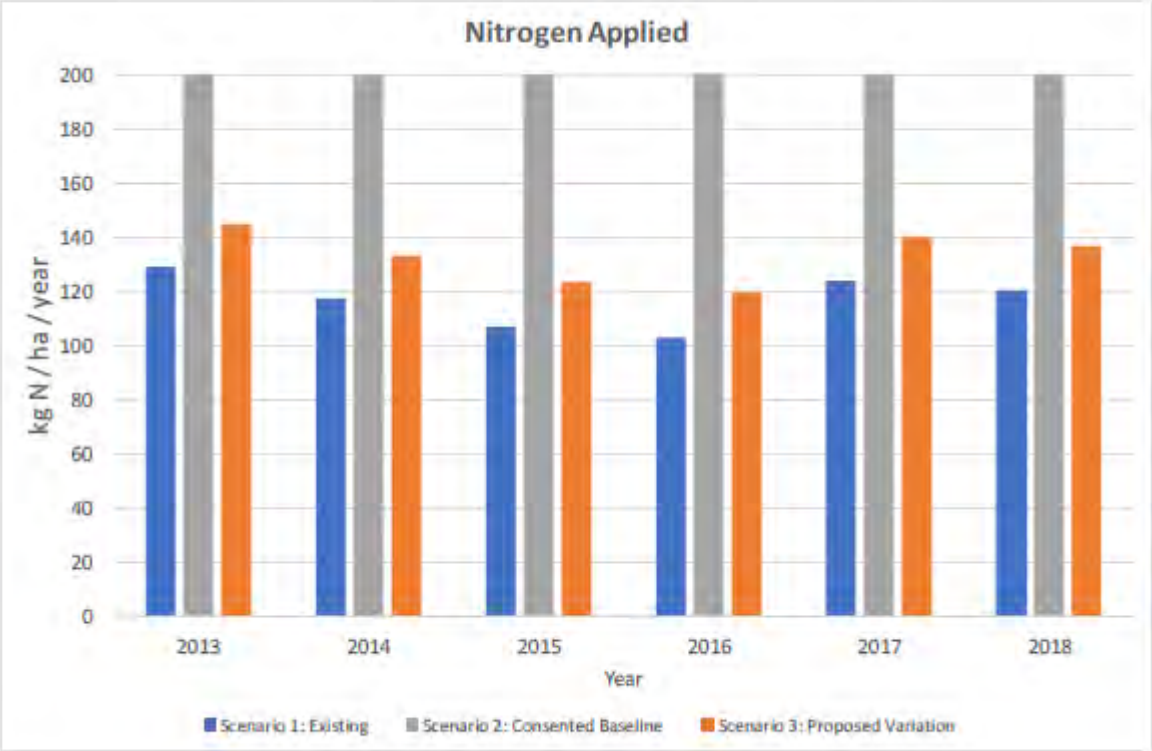


Figure 3: Nitrogen loading applied to soil

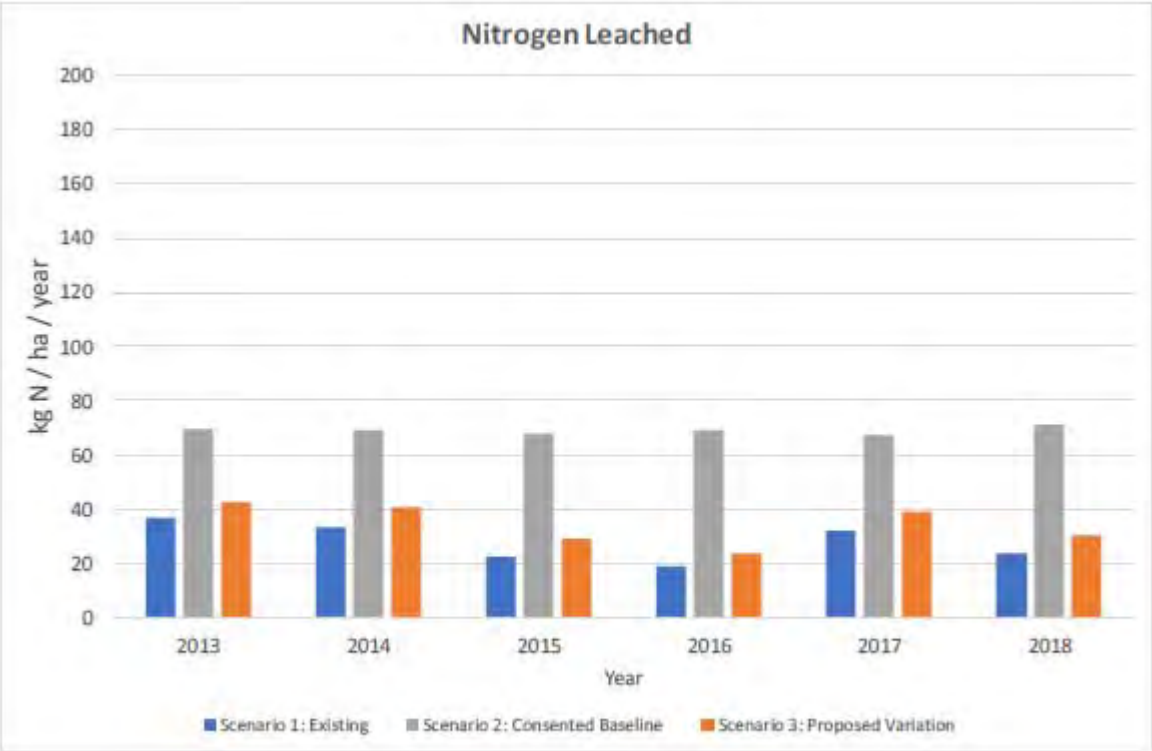


Figure 4: Potential nitrogen leached to groundwater

4.9. Scenarios 1 and 3 have assumed an average total nitrogen concentration of 10.3g/m^3 in discharge effluent. This was based on historical data from the Oxford WWTP. In the last three months following the plant upgrade the average total nitrogen concentration has reduced to 8.4g/m^3.

4.10. The results of the modelling show the Oxford WWTP applied nitrogen loading is well below the consented limit. The potential nitrogen leached into ground water is currently approximately 23 kg N/ha/year.

4.11. Changes in potential nitrogen leached into groundwater is largely driven by rainfall through the year. The higher the rainfall in a year the higher the potential for nitrogen to be leached.

<u>Oxford WWTP Capital Cost</u>

4.12. The Oxford WWTP was originally commissioned in 1997. There have been a number of plant upgrades over the years. Below is a summary of the significant upgrades completed since 1997. The capital costs have been included for the capital works post 2016:

- 1997 – Plant constructed and commissioned
- 2004 – Plant modified to improve performance
- 2012 – Inline UV unit installed
- 2016 – UV upgrade to meet consent conditions **($85,000)**
- 2016 – Holding Pond constructed to limit high wet weather flows through the treatment plant **($770,000)**
- 2019 – Aeration upgrade to replace end of life assets and improve the plant performance **($850,000)**

4.13. Planned capital renewal budgets for the next 10 years are summarised below.

Budget	Total Capital Budget (1 – 3 years)	Total Capital Budget (4 – 10 years)
Headworks	$112,000	$320,000
Reticulation	$162,000	$490,000

4.14. It is not anticipated that any significant treatment upgrades will be required prior to the consent expiry in 2031.

5. COMMUNITY VIEWS

5.1. There has been no consultation in regards to this report.

6. IMPLICATIONS AND RISKS

6.1. Financial Implications

6.1.1. The budgets discussed have be approved. There are no financial implications associated with this report.

6.2. Community Implications

6.2.1. There are no community implications associated with this report.

6.3. Risk Management

N/A.

6.4. Health and Safety

N/A.

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

There is no legislation applicable to this report.

7.3. Community Outcomes

- 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.

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR INFORMATION

FILE NO and TRIM NO:	SEW-12 /190827119588
REPORT TO:	Utilities and Roading Committee
DATE OF MEETING:	24th September 2019
FROM:	Gavin Hutchison, Wastewater Asset Manager
SUBJECT:	Ocean Outfall 2018 to 2019 Compliance Review
SIGNED BY: (for Reports to Council, Committees or Boards)	Department Manager / Chief Executive

1. SUMMARY

1.1 The purpose of this report is to update the Utilities and Roading Committee on the operation of the Ocean Outfall for the 2018-2019 reporting year. The Eastern District Sewer Scheme Ocean Outfall operates under resource consent CRC041162.2. Consent compliance for monitoring data of this nature is determined on two levels:

- Has the frequency of monitoring met the consent requirements
- Does the monitoring data comply with any numerical limits specified in the consent conditions

1.2 Compliance was achieved for all consent conditions during the 2018 -2019 monitoring period.

1.3 For the total nitrogen and total phosphorus monthly samples there were two samples that the laboratory failed to undertake the correct testing. A review of the incident identified the laboratory were requested to undertake the monthly sampling but failed to do so. This was reported to the Canterbury Regional Council by email on the 25th March 2019 with an explanation from the laboratory manager. Additional sampling was undertaken to ensure sufficient representative samples were collected for the monitoring period to meet compliance.

1.4 The five day biochemical oxygen demand (BOD_5) results have shown an improvement in the 2018/19 monitoring period. The median for this period was 14 g/m^3 compared to 27 g/m^3 in the previous monitoring period. This reduction is attributed to the new aeration basin at the Rangiora WWTP.

1.5 Ammonical-N concentrations compliance was met as required by Condition 11 of the consent. Concentrations were within the permitted exceedance limits with only 9 of an allowable 16 reading above 27 g/m^3 in each 26-week period during the 2018/19 monitoring period.

1.6 Ammoniacal-N (NH_4) has shown decrease particular between January and April. The median for this period was 8.6 g/m^3 compared to 10.65 g/m^3 in the previous monitoring period. This reduction is attributed to the new aeration basin at the Rangiora WWTP.

1.7 Metals and metalloids are required to be sampled six-monthly. The samples were taken for the 2018/19 period were comparable to results from previous years. There is no consent limit for trace metals and metalloids.

1.8 There were no exceedances of the consent limits for faecal coliforms over the 2018/19 monitoring period.

1.9 Compliance for enterococci limits was achieved as required by Condition 12. Enterococci values exceeded (1,500 cfu/100 mL) on two occasions, a sample on the 29th January 2019 (1,000 cfu/100mL) exceeded the standard value, and one sample collected on the 5th February 2019 (2,420 cfu/100 mL) exceeded the high limit (1,500 cfu/100 mL). This is permitted under Condition 12, which allows for two out of eight consecutive samples to exceed the high limit.

1.10 All organochlorine pesticide, PCB and PAH results were below their respective method detection limits.

Attachments:

i. Eastern Districts Sewer Scheme – Annual Compliance Monitoring Report 2018-2019 (Trim 190822117285)

2. RECOMMENDATION

THAT the Utilities and Roading Committee:

(a) **Receives** report No. 190827119588.

(b) **Notes** that the Ocean Outfall discharge consent was compliant with all consent conditions for the year 2018-2019.

(c) **Circulates** this report to Council for their information.

(d) **Circulates** this report to all Community Boards for information.

3. BACKGROUND

3.1. The purpose of this report is to update the Utilities and Roading Committee on the operation of the Ocean Outfall for the 2018-2019 monitoring year (the year). The treatment facilities at the Rangiora, Kaiapoi, Woodend and Waikuku Beach wastewater treatment plants (WWTP's) discharge into a pipeline, the Ocean Outfall line, that discharges into Pegasus Bay between Pines/Karaiki Beach and Woodend Beach. These treatment plants and the Ocean Outfall line comprise the Eastern Districts Sewer Scheme (EDSS). Figure 1 below is a schematic of the scheme. A schematic diagram of the EDSS is included on the following page. The EDSS operates under a number of resource consents from Canterbury Regional Council. The focus of this report is CRC041162.2, the consent that authorises the discharge of treated effluent into the coastal marine environment from the Ocean Outfall.

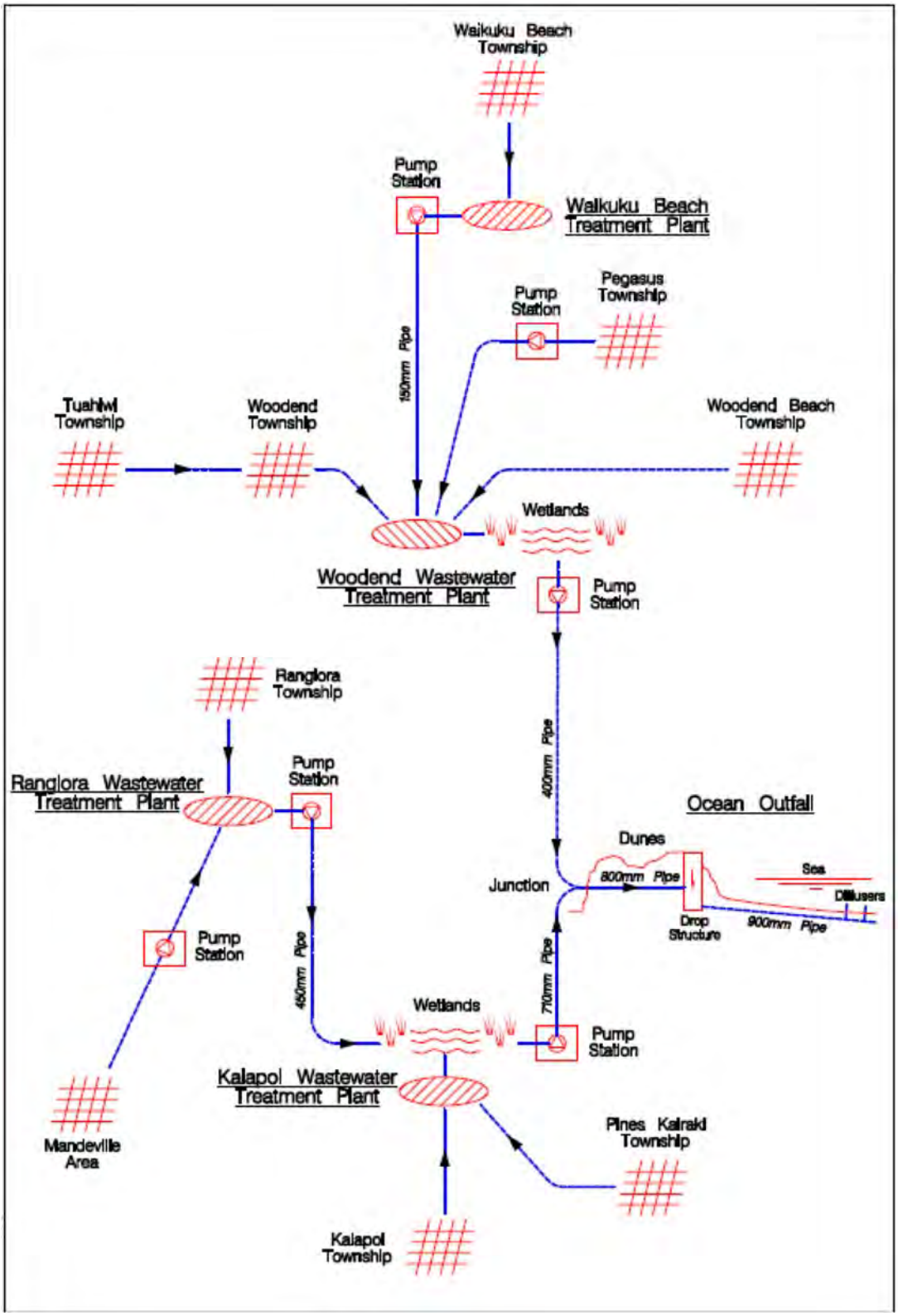


Figure 1: Eastern District Sewer Scheme Schematic

Condition 2 – Discharge Volume and Rate

3.2. Discharge volumes and instantaneous discharge rate to the Ocean Outfall are recorded by a supervisory control and data acquisition (SCADA) system. Figures 2 & 3 in the Annual report depict the annual measures of these metrics. There were no exceedances of either the discharge volume limit or the instantaneous discharge volume for the year.

Ocean Outfall Pipeline Effluent Water Quality

3.3. Six areas describing the quality of wastewater effluent from the Ocean Outfall are sampled and tested based on the schedule for each area as specified in the consent. Those areas are:

- Physiochemical
- Five-day biochemical oxygen demand (BOD_5)
- Nutrients
- Microbiological quality
- Metals and metalloids
- Human pathogens
- Pesticides, PCBs, and PAHs

3.4. Testing results for each area are described in more detail in the following sections.

3.4.1. Physiochemical

pH

Laboratory measured pH in 2018/19 were comparable with that seen in the previous monitoring period. There is no consent limit for pH.

Dissolved Oxygen

Dissolved Oxygen (DO) concentrations were reasonably consistent through the year. There were a few occasions where DO levels were low (<1g/3), and on average the levels were marginally lower than previous monitoring years.

Refer to Figure 5 of the Annual Compliance Monitoring Report. There is no consent limit for DO.

Temperature

Temperature data showed typical seasonal variation (Refer to Figure 6 Annual Compliance Monitoring Report). During the 2018/19 monitoring period, the lowest temperature (5.7 °C) was recorded in July 2019, while the highest temperature (20.3 °C) was recorded in December 2018. The temperature was sampled weekly at the Ocean Outfall structure as required under Condition 9. There is no consent limit for temperature.

Total Suspended Solids

There was no exceedance of the consent limit for TSS (200g/m3) for the 2018/19 monitoring period. Refer to Figure 7 of the Annual Compliance Monitoring Report.

3.4.2. Biochemical Oxygen Demand

Five day biochemical oxygen demand (BOD_5) results have shown an improvement in the 2018/19 monitoring period. The median for this period was 14 g/m^3 compared to 27 g/m^3 in the previous monitoring period. This reduction is attributed to the new aeration basin at the Rangiora WWTP.

Consistent with previous monitoring periods, soluble BOD_5 comprised between 10% and 20 % (interquartile range) of the total BOD_5 during the 2018/19 monitoring period. None of the soluble

BOD_5 results was above the consent limit of 25 g O_2/m^3 (Figure 9, Annual Report). Therefore full compliance was met.

3.4.3. Nutrients

Condition 9 requires dissolved inorganic nitrogen (DIN), ammoniacal-N and dissolved reactive phosphorus (DRP) to be measured weekly. Total nitrogen (TN) and total phosphorus (TP) are required to be measured monthly. The frequency of monitoring prescribed by Condition 9 was met in full for the parameters sampled weekly. For the TN and TP monthly samples there were two samples that the Laboratory failed to undertake the correct testing. This was reported to the regional Council (email 25/3/2019) with an explanation from the laboratory manager. Additional sampling was undertaken to ensure sufficient representative samples were collected for the monitoring period to meet compliance.

Ammoniacal-N (NH_4) has shown decreased particularly between January and April. This is most likely due to the nitrification that was occurring in the new aeration basin at the Rangiora WWTP. The NH_4 levels leaving the Rangiora plant dropped to <1g/m^3 during this period. There were 9 occasions in September and October when concentrations exceeded 25g/m^3. However, this exceedance did not result in a breach of Condition 11, which allows up to 16 exceedances in each 26-week period of the current monitoring period.

Figures 10-14 in the Annual Compliance Monitoring Report show the annual data for ammoniacal-N, nitrogen and phosphorus.

3.4.4. Metals and Metalloids

Full compliance achieved. Metals and metalloids are required to be sampled six-monthly. The samples were taken for the 2018/19 period were comparable to results from previous years. The exception was arsenic which all though in low concentration was slightly elevated. There is no consent limit for trace metals and metalloids.

3.4.5. Microbiological Quality

Faecal Coliforms

Faecal coliform numbers were below relevant seasonal consent limits over the entire 2018/19 monitoring period; therefore, full compliance with Condition 12 was achieved. Figure 16 in the Annual Report shows the annual data for faecal coliforms.

Enterococci

Enterococci values exceeded (1,500 cfu/100 mL) on two occasions, 29th January 2019 (1,000 cfu/100mL) exceeded the standard value, and one sample collected on the 5th February 2019 (2,420 cfu/100 mL) exceeded the high limit (1,500 cfu/100 mL) (Figure 17 in the Annual Compliance Monitoring Report). The resource consent allows for six out of eight consecutive samples to exceed the standard limit, and two out of eight consecutive samples to exceed the high limit. Therefore, full compliance with Condition 12 was achieved for enterococci.

Escherichia coli (E. coli)

There is no consent limit for E. coli. There were two occasions when results showed elevated levels of E.coli. Figure 18 in the Annual Compliance Monitoring Report shows annual data for E. coli.

3.4.6. Human Pathogens

The human pathogen sampling requirements of Condition 9(d) were met in full. Human enterovirus and adenovirus were below their respective minimum detection limit during the 2018/19 monitoring period.

4. COMMUNITY VIEWS

4.1. The community have not been specifically consulted as part of this monitoring.

5. IMPLICATIONS AND RISKS

5.1. Financial Implications

5.1.1. There are financial implications and risks should consent compliance is not achieved. Non-compliance of any consent parameter can result in increased monitoring costs and action being taken against the Council (i.e. abatement notice). Such instances can result in loss of confidence from the public and is a reputational risk.

5.2. Community Implications

There are no community implications.

5.3. Risk Management

This project is consistent with the following community outcome of:

- There is a safe environment for all, and
- Core utility services are provided in a timely, sustainable, and affordable manner.

5.4. Health and Safety

Sampling is undertaken by trained staff working to a standard operating procedure.

6. CONTEXT

6.1. Policy

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

6.2. Legislation

This project is not covered by specific legislation.

6.3. Community Outcomes

This project is consistent with the following community outcome of:

- There is a safe environment for all, and
- Core utility services are provided in a timely, sustainable, and affordable manner.

6.4. Delegations

Not applicable.

REPORT

Eastern Districts Sewer Scheme – Annual Compliance Monitoring Report 2018 – 2019

Waimakariri District Council

June 2019

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APPENDICES

APPENDIX A - Ocean Outfall Discharge Monitoring Results – Organochlorine Pesticides, PCBs and PAHs

LIST OF ABBREVIATIONS AND UNITS

ammoniacal-N	ammoniacal nitrogen
BODs	five-day biochemical oxygen demand
˚C	degrees Celsius
cfu/100 mL	colony forming units per 100 mililitres
CRC	Canterbury Regional Council
DIN	dissolved inorganic nitrogen
DO	dissolved oxygen
DRP	dissolved reactive phosphorus
EDSS	Eastern Districts Sewer Scheme
EDS	Eastern Districts Sewer
E. coli	*Escherichia coli*
ESR	Institute of Environmental Science and Research
g/m^3	grams per cubic metre
iu	infectious units
km	kilometre
LOESS	local polynomial regression fitting
L/s	litres per second
MDL	method detection limit
m	metres
mL	millilitres
m^3	cubic metres
m^3/day	cubic metres per day
N	number of samples
nitrate-N	nitrate nitrogen
NIWA	National Institute of Water and Atmospheric Research
PCB	polychlorinated biphenyls
PAH	polycyclic aromatic hydrocarbons
pfu	plaque forming units
SCADA	supervisory control and data acquisition

TN	total nitrogen
TP	total phosphorus
TSS	total suspended solids
UV	ultraviolet
WDC	Waimakariri District Council
WWTP	wastewater treatment plant

1. INTRODUCTION

1.1. Background

Waimakariri District Council (WDC) operates wastewater treatment plants (WWTPs) at Rangiora, Kaiapoi, Woodend and Waikuku Beach, all north of Christchurch. In 2006, the treatment facilities at each WWTP were upgraded, with the flows from these four locations combined for discharge to the coastal marine environment via an ocean outfall located in Pegasus Bay. The upgraded system and Ocean Outfall, shown in Figure 1, is known as the Eastern District Sewer Scheme (EDSS).

The EDSS operates under a number of resource consents from Canterbury Regional Council (CRC), which are listed in Table 1 along with their respective reporting requirements.

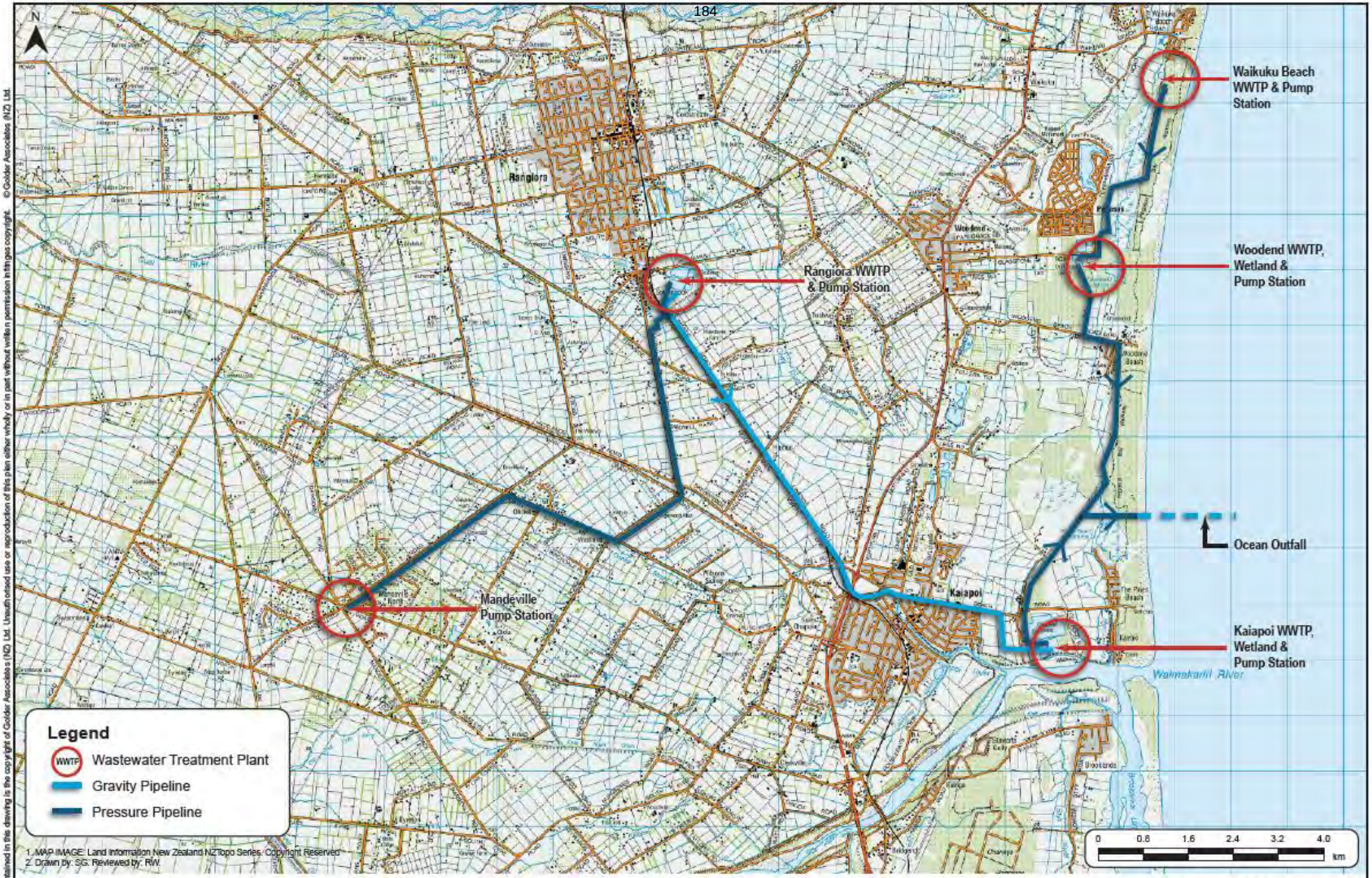
Table 1: Eastern District Sewer Scheme Resource Consents

Consent	Activity	Reporting	Compliance
CRC041162.2	To discharge treated sewerage effluent into coastal marine area from sub-aqueous ocean outfall	Refer to Section 2.0 of this report	Full compliance
CRC041049	To discharge treated sewage effluent to the infiltration wetland and to ground water via seepage at the Kaiapoi WWTP	Refer to Section 3.0 of this report	Full compliance
CRC168391	To discharge treated sewage effluent via seepage onto land (Woodend)	Refer to Section 4.0 of this report	Full compliance
CRC145027	To discharge dewatered sludge removed from a wastewater pond to land (Rangiora)	Refer to Section 6.0 of this report	Full compliance
CRC031724	To discharge groundwater from subsoil drains into the marine area of Jockey Baker Creek	Refer to Section 5.0	Full Compliance (no discharge)
CRC168388	To discharge contaminants to air (Woodend)	No reporting required No events to report	Full Compliance
CRC950610	To discharge contaminants to air (Kaiapoi)	No reporting required No Events to Report	Full Compliance
CRC962560	To discharge contaminants to air (Waikuku)	No reporting required No events to Report	Full Compliance
CRC030917	To discharge contaminants, via seepage, from Rangiora STP to land	No reporting required	Full Compliance
CRC041163	For the erection, placement and maintenance of an ocean outfall pipeline and temporary structures, including a trestle structure and sheet piling for the purpose of constructing an ocean	No reporting required	Full Compliance

	outfall, within the coastal marine area		
CRC154176	To discharged contaminants to land (Kaiapoi)	No reporting required	Full Compliance
CRC168390	To use land for storing, treating and discharging human effluent (Woodend)	No reporting required	Full Compliance
CRC173124	To discharge contaminants (odour) to air (Rangiora)	Section 7.0	Full Compliance

1.2. Report Scope

The scope of this report fulfils the reporting requirements of consents CRC041162.2, CRC041049, CRC168391, CRC173124 and CRC145027, which require an annual monitoring report to be submitted to CRC. The reports are required to be submitted variously between 31 July and 31 August each year. However, a report due date of 31 August for all four resource consents has been agreed between WDC and CRC.



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2. Drawn by: SG. Reviewed by: RW.

GOLDER

EASTERN DISTRICT SEWER SCHEME

OCTOBER 2018

PROJECT 1478107201

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2. CRC041162.2 – DISCHARGE FROM OCEAN OUTFALL

2.1. Overview

Consent compliance for the period 1 July 2018 through to 30th June 2019 ('the monitoring period'), has been assessed by Council. The report includes a comparison with data reported in the previous monitoring periods reported under the EDSS resource consents.

2.2. Condition 2 – Discharge Volume and Rate

Condition 2 states:

"The discharge shall not exceed a rate of 660 litres per second or 57,000 cubic metres per day."

Discharge volumes to the ocean outfall were recorded by a supervisory control and data acquisition (SCADA) system, which transmits via a broadband connection to an InTouch data visualisation system. This system is more reliable than the radio link previously used to download outflow data. The meter is still read manually on at least a monthly basis to provide a backup data record in the event the SCADA system fails.

Daily discharge volumes for the 2018/19 period are plotted in Figure 2. Note that outflows at the Kaiapoi WWTP were reduced in June 2019 to increase water levels in the wetlands to allow maintenance works to be undertaken.

The maximum daily instantaneous discharge rates for the 2018/19 monitoring period are illustrated in Figure 3 below.

The instantaneous discharge data showed high discharge rates in July 2018. This was due to the SCADA erroneously recording excessive flows at the Woodend WWTP. Below is a screen shot of the data showing Woodend pumping at 647 l/s. This data point is an error as the station can only deliver a maximum flow of approximately 290 l/s. The current capacity of the two Ocean Outfall pump stations is less than the maximum allowable of 660l/s under the consent.

14/07/2018 20:30	269	83
14/07/2018 20:35	647	83
14/07/2018 20:40	261	83
14/07/2018 20:45	257	83
14/07/2018 20:50	67	83

Any missing data is caused by outages or other issues with the SCADA system that result in no data being logged for those times. This can be caused by temporary communications outages, network outages or failure of the monitoring control systems on site.

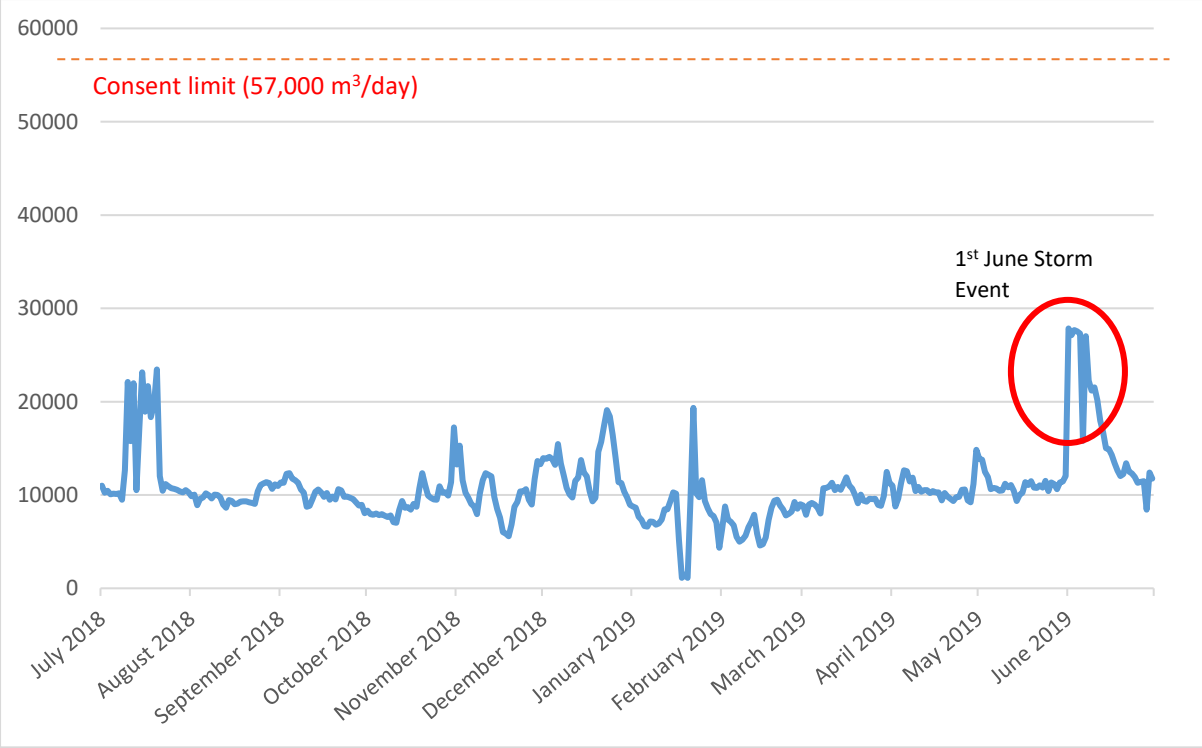

Figure 2. Daily discharge volumes to ocean outfall between July 2018 and June 2019

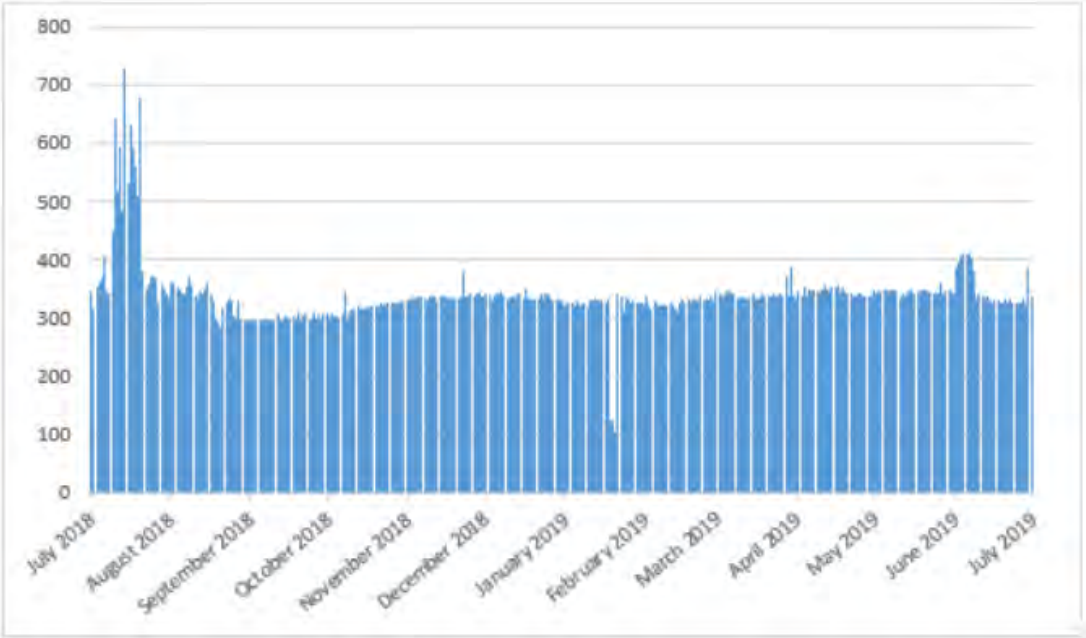

Figure 3: Maximum instantaneous daily discharge rate to ocean outfall between July 2018 & June 2019

The data is graphed in Figure 2 and Figure 3. The graphs show that the daily and instantaneous discharge volumes remained consistently below the respective limited of 57,000 m³/day and 660 L/s during the 2018/19 monitoring period. Compliance with Condition 2 was met in full.

2.3. Conditions 9 – 12: Ocean Outfall Pipeline Discharge Quality

2.3.1. Overview of monitoring and compliance requirements

Condition 9 states the following:

> *"A single grab sample shall be taken from the ocean outfall pipeline at the frequencies noted in this condition and the same shall be analysed for the identified contaminants at the frequencies noted for each contaminant. Report schedules shall be prepared recording the results of such analyses. Grab sample locations and the times at which the grab samples are taken shall be recorded and included in the reporting schedules. The consent holder shall retain the reporting schedules.*

a) Weekly

- *i. pH -reported as pH units*
- *ii. Dissolved oxygen - reported as % saturation*
- *iii. Temperature - reported as °C*
- *iv. Five-day biochemical oxygen demand - reported as g O/m^3*
- *v. Filtered five-day biochemical oxygen demand - reported as g 0/ m^3*
- vi. *Total suspended solids - reported as g/ m^3*
- *vii. Dissolved inorganic nitrogen - reported as g N/ m^3*
- *viii. Ammoniacal nitrogen - reported as g N/ m^3*
- *ix. Dissolved reactive phosphorus - reported as g P/ m^3*
- *x. Faecal coliforms - reported as no./100ml*
- *xi. Enterococci - reported as no./100ml*
- *xii. Escherichia coli - reported as no./100ml.*

b) Monthly

- *i. Total phosphorus – reported as g P/ m^3*
- *ii. Total nitrogen – reported as g N/ m^3*

c) Three Monthly for the first two years and then six monthly thereafter

- i. *Arsenic - reported as g/ m^3*
- *ii. Cadmium - reported as g/ m^3*
- *iii. Chromium - reported as g/ m^3*
- iv. *Copper - reported as g/ m^3*
- *v. Lead - reported as g/ m^3*
- *vi. Nickel - reported as g/ m^3*
- *vii. Zinc - reported as g/ m^3*
- *viii. Mercury - reported as g/ m^3*

All metal analysis shall be for total metals only.

d) Three Monthly for the first two years and then annually thereafter

- *i. Human Enterovirus. (no./10l)*
- *ii. Human Adenovirus. (no./10l).*

e) Annually

- *i. Thermophilic campylobacter spp (cfu/l)*
- *ii. Salmonella spp (no./l)*
- *iii. Organo chlorine pesticides – reported as g/ m^3*
- *iv. Polychlorinated biphenyls – report as g/ m^3*
- *v. Polycyclic aromatic hydrocarbons – reported as g/ m^3*

The initial two-year monitoring period began in May 2006 and concluded in April 2008. Since then, metals have been analysed at six monthly intervals, with viral and bacterial monitoring completed annually, in line with Condition 9 above.

Condition 11 requires that monitoring results for five-day biochemical oxygen demand (BODs), total suspended solids (TSS) and ammoniacal nitrogen (ammoniacal-N) are compared with the following limits:

> *"Based on the weekly sampling required by Condition (9) of this consent, and taken over each 26 week period commencing on the 1st of May, and the 1st of November of each year during the term of this consent, no more than 16 values in each 26 week period shall exceed the following standards for each of the named contaminants [Table 3]:"*

Table 3: Condition 11 limit of resource consent CRC041162.2.

Contaminant	Unit	Standard
BOD5 (filtered)	g/m^3	25
Total suspended solids	g/m^3	200
Ammoniacal nitrogen	g/m^3	27

Condition 12 requires that faecal indicator bacteria monitoring results are compared with prescribed limits:

> *"Based on the weekly sampling required by Condition (9) of this consent, over each Summer period (November - February inclusive) and over each Winter period (March - October inclusive), no more than six values from eight consecutive samples, shall exceed the following standard values and no more than two values from eight consecutive samples, shall exceed the higher value for enterococci and faecal coliforms /Table 4/."*

Table 4: Condition 12 limits of resource consent CRC041162.2.

Contaminant	Unit	Standard value		Higher value	
		Summer	Winter	Summer	Winter
Enterococci	No./100mL	500	500	1,500	1,500
Faecal coliforms	No./100mL	1,000	9,000	5,000	20,000

2.3.2. Physiochemical

The results of weekly physicochemical monitoring at the Ocean Outfall structure between July 2018 and June 2019 are summarised in Table 5 alongside results from the previous monitoring period. These results are discussed by parameter below. Physiochemical monitoring requirements (i.e., weekly monitoring) were met in full during the 2018/19 period.

Table 5: Physiochemical water quality in the ocean outfall discharge.

Parameter	June 2018 to June 2019			May 2017 to June 2018		Consent Limit
	Samples	Median	Range	Median	Range	
Laboratory pH (unit less)	52	7.9	7.6 - 9	7.95	7.6 – 9	
Field pH (unit less)	52	7.84	7.4 – 8.6	8	7.91 – 8.1	
DO (g/m^3)	52	1.06	0.1 -5.6	4.11	0.18 - 8.9	
Temperature (˚C)	52	13.7	5.7 – 20.3	14.1	13.1-15	
TSS (g/m^3)	52	32	8 - 80	38	13-138	200

pH

Laboratory and field measured pH in 2018/19 were comparable with that seen in the previous monitoring period (Figure 4). The field measured pH was comparable to that measured in the lab. There is no consent limit for pH.

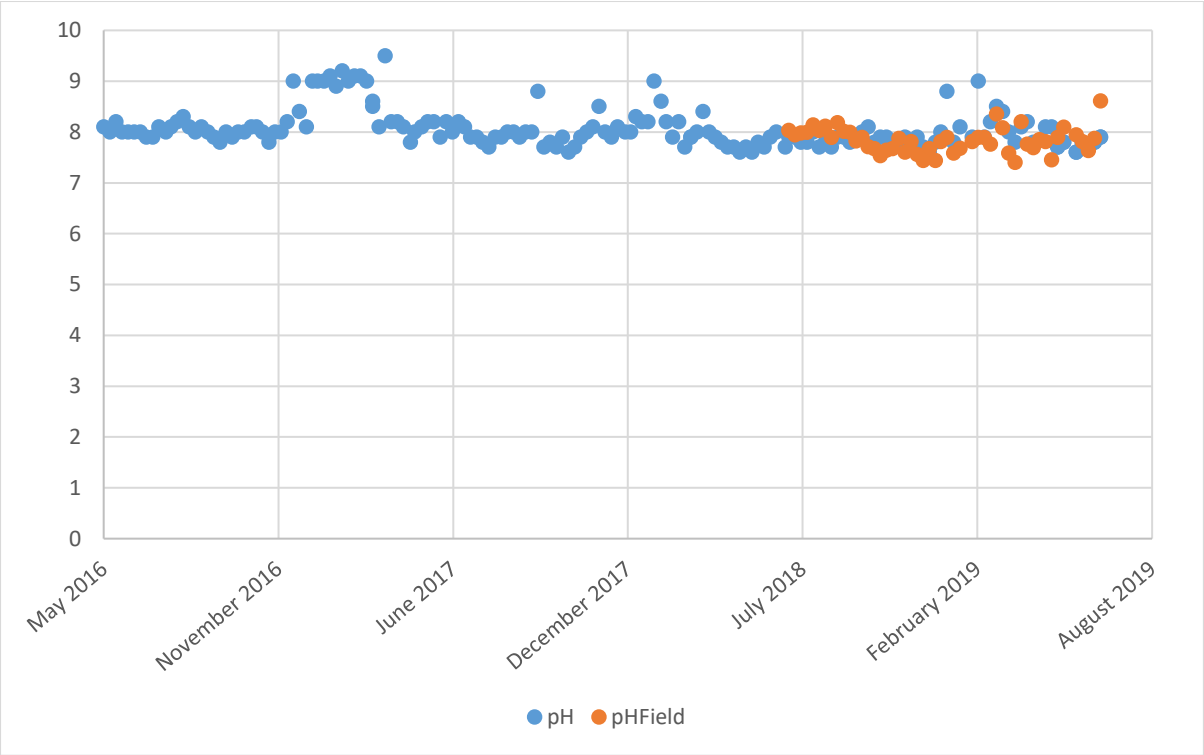

Figure 4: pH of the ocean outfall discharge between May 2016 and June 2019.

Dissolved oxygen

DO concentrations were reasonably consistent through the year with a couple of outliers. There were a few occasions where DO levels were low (<1gm/3). On average the DO concentrations at the Outfall have reduced. (Figure 5). The DO was sampled weekly at the Outfall structure as required under condition 9. There is no consent limit for DO.

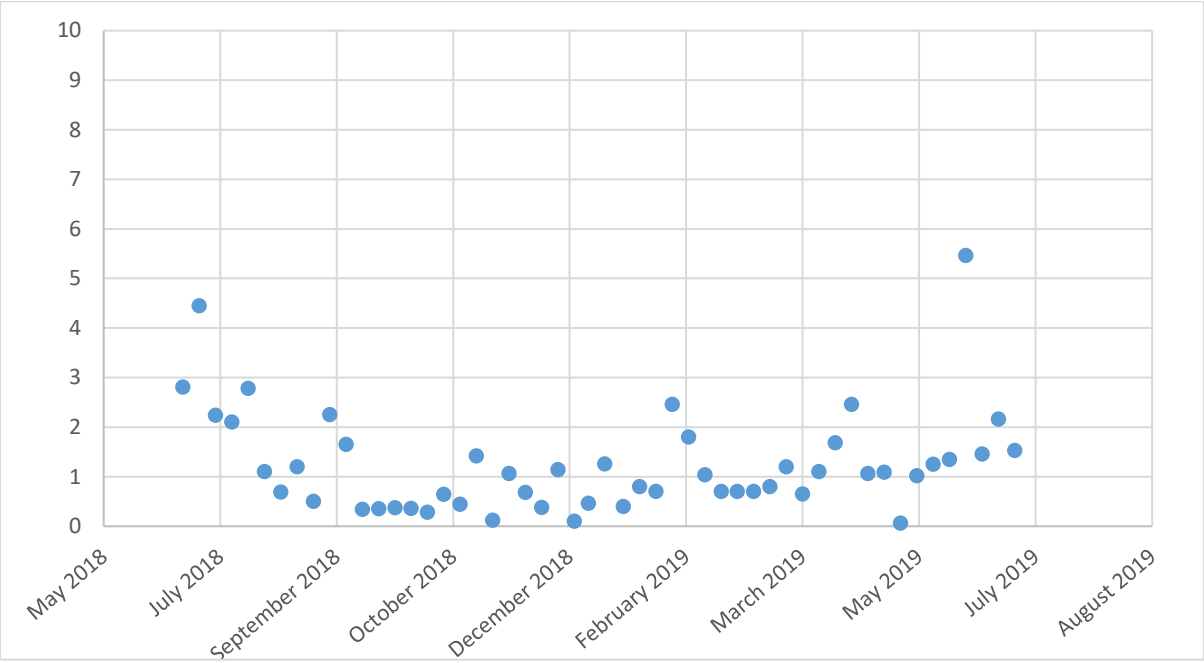

Figure 5. Dissolved oxygen concentrations in the ocean outfall discharge between May 2018 and July 2019.

Temperature

Temperature data showed typical seasonal variation (Figure 6). During the 2018/19 monitoring period, the lowest temperature (5.7 °C) was recorded in July 2019, while the highest temperature (20.3 °C) was recorded in December 2018. The temperature was sampled weekly at the Outfall structure as required under condition 9. There is no consent limit for temperature.

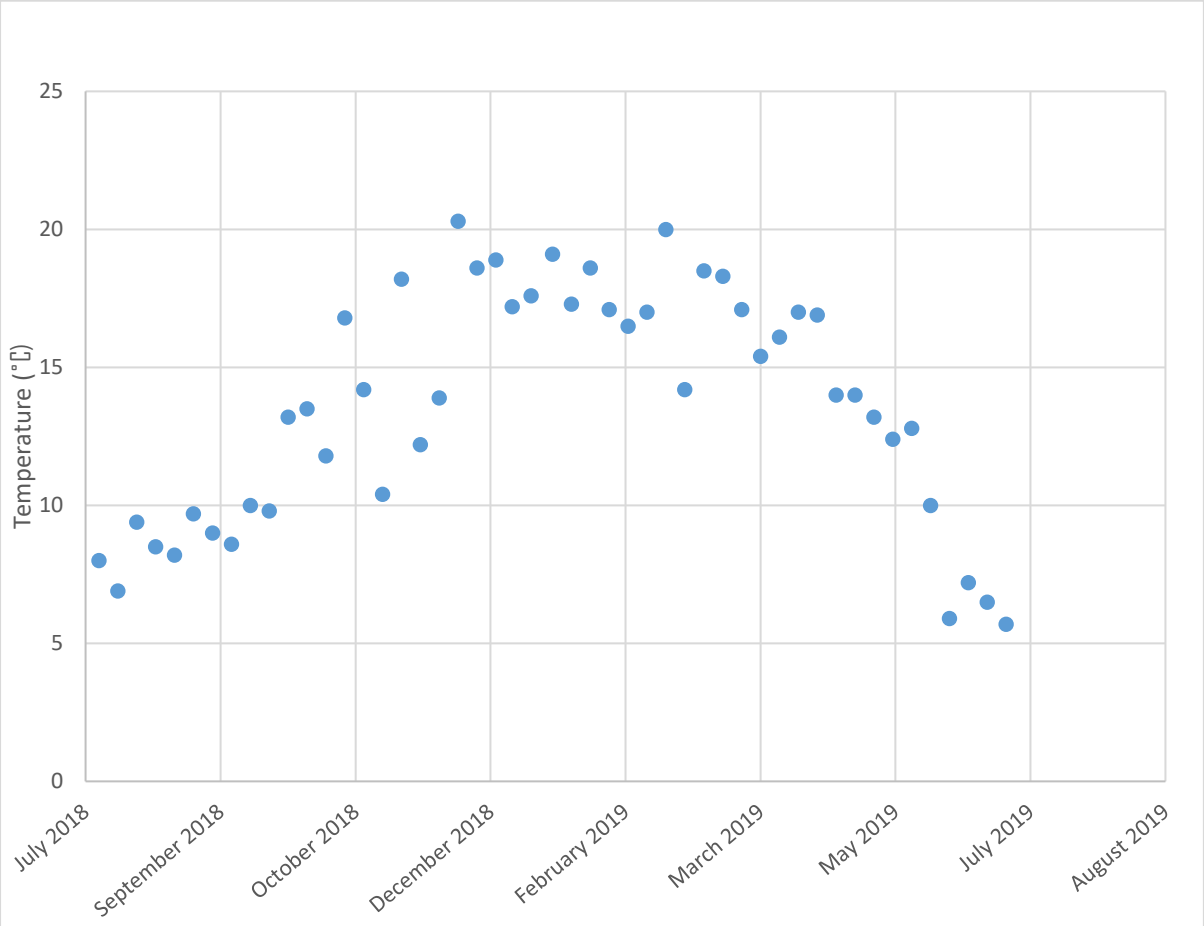

Figure 6. Temperature of the ocean outfall discharge between *July 2018 and June 2019*

Total suspended solids

There was no exceedance of the consent limit for TSS (200 g/m°) over the 2019/18 monitoring period (Figure 7). Therefore, full compliance was achieved for Condition 11 of the resource consent, which allows up to 16 exceedances in each 26-week period of the current monitoring period. In general, TSS concentrations displayed consistent quality compared with the previous monitoring periods. The higher TSS results are related to times of high algal numbers in the treatment ponds.

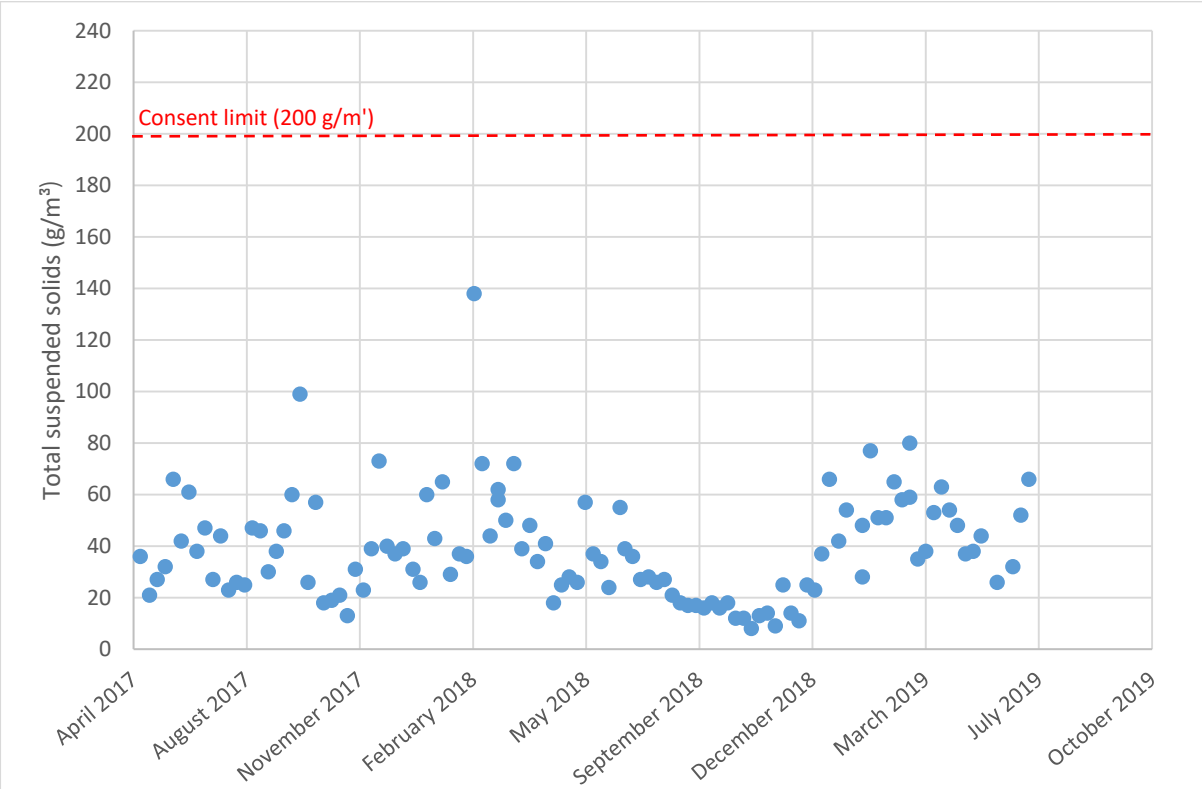

Figure 7. Total *suspended solids in the ocean outfall discharge between May 2017 and June 2019*

2.3.3. Biochemical oxygen demand

BOD_5 results for the 2018/19 were similar to those recorded during the 2017/18 monitoring period (Figure 8), ranging from 5 g O_2/m^3 to 34 g O_2/m^3. Consistent with previous monitoring periods, soluble BODs comprised approximately 10 % to 20 % (interquartile range) of the total BOD_5 during the 2018/19 monitoring period.

The soluble BOD_5 results have improved during the 2018/19 monitoring period. The reduction in soluble BOD_5 is attributed to the new Rangiora Aeration Basin (Figure 9). A summary of the BOD of the ocean outfall discharge is provided in Table 6.

Table 6: Biochemical oxygen demand (g O_2/m^3) in the ocean outfall discharge.

Species	July 2018 to June 2019			May 2017 to June 2018			Consent Limit
	Samples	Median	Range		Median	Range	
BOD (g O2/m)	53	14	5 - 34		27	8 67	
Soluble BOD5 (g O2/m)	53	3	<2 - 10		5	2-18	25

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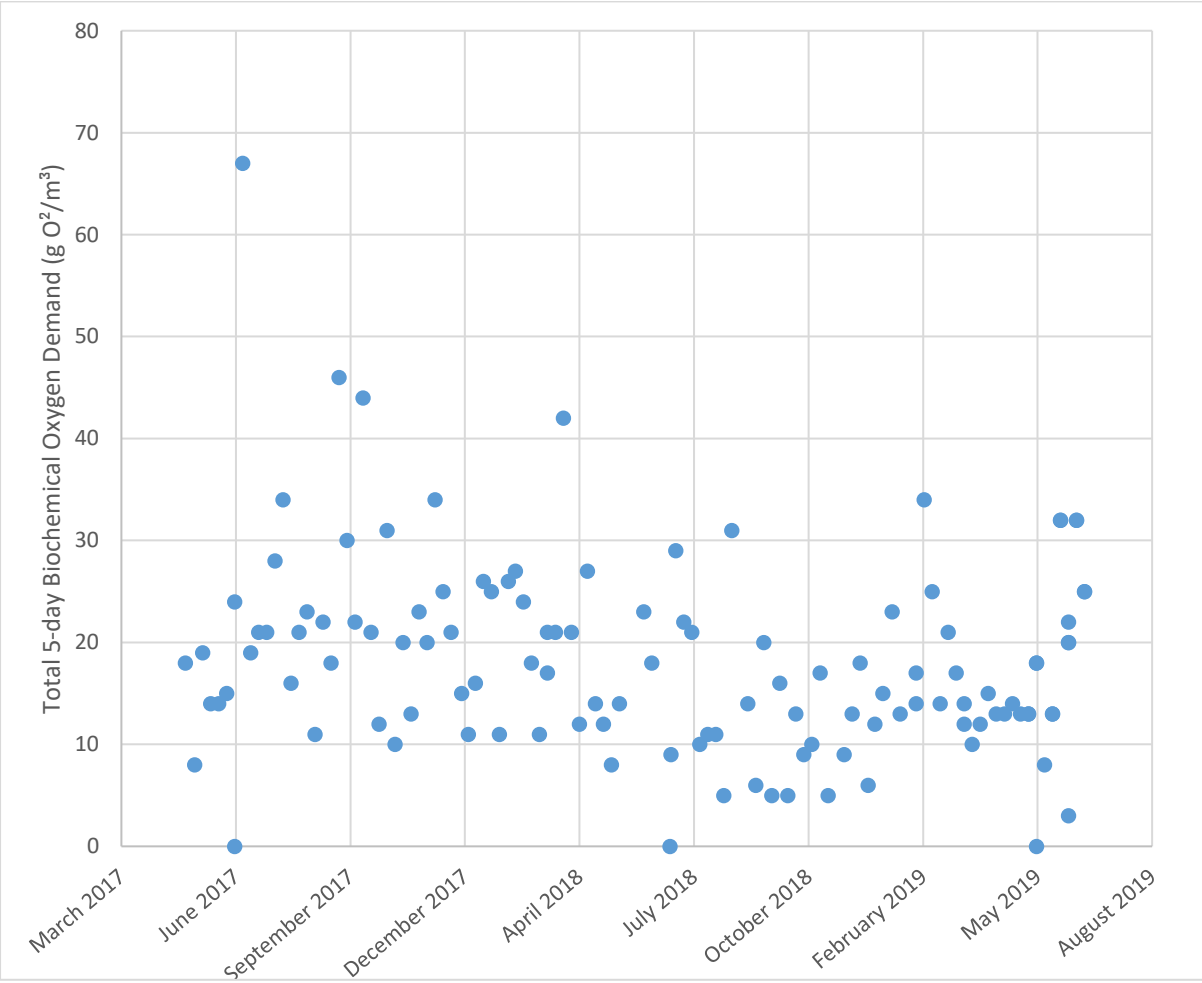


Figure 8: Five-day biochemical oxygen demand of the Ocean Outfall discharge May 2017 - June 2019

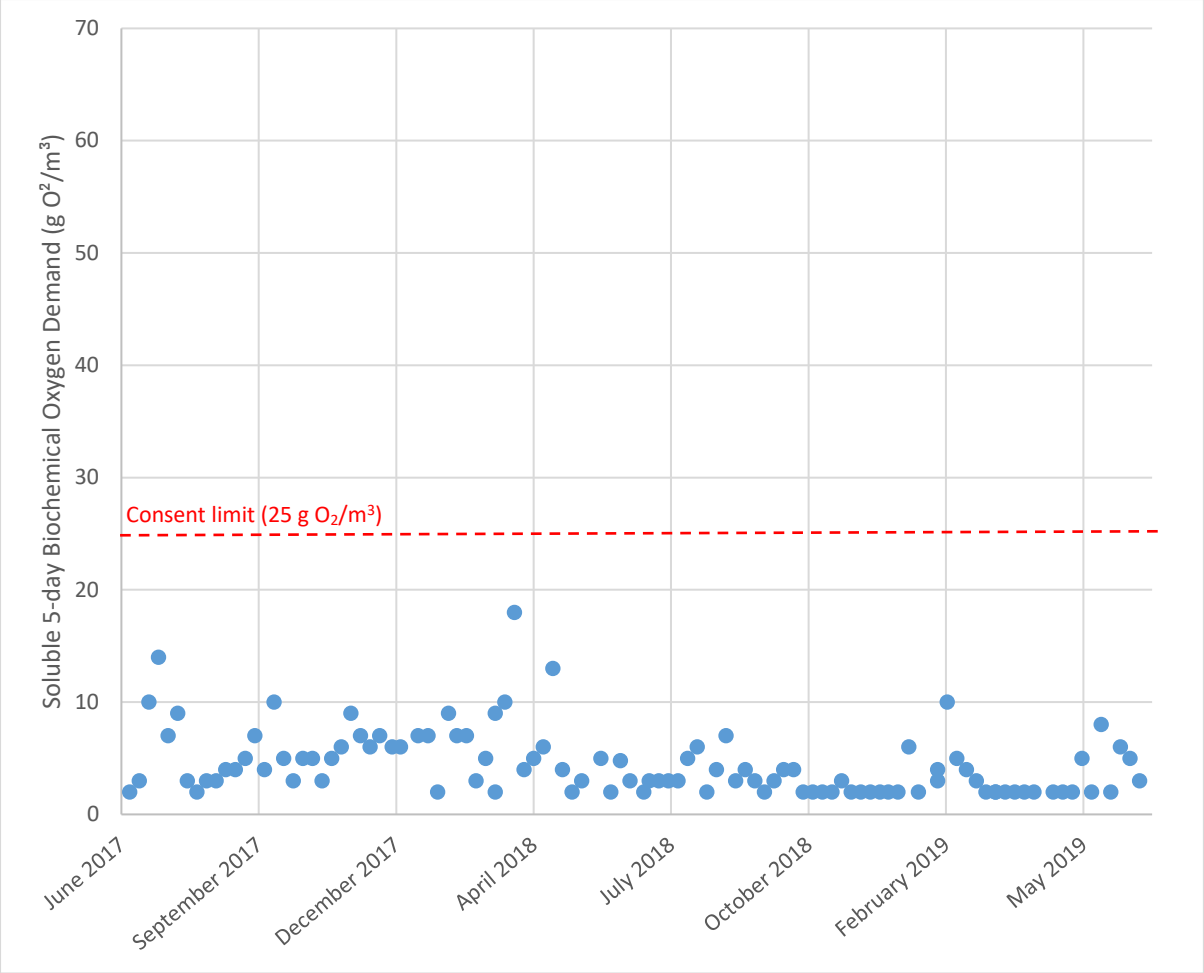


Figure 9. Soluble five-day biochemical oxygen demand of the ocean outfall discharge from June 2017-June 2019

2.3.4. Nutrients

Condition 9 requires dissolved inorganic nitrogen (DIN), ammoniacal-N and dissolved reactive phosphorus (DRP) to be measured weekly. Total nitrogen (TN) and total phosphorus (TP) are required to be measured monthly. The frequency of monitoring prescribed by Condition 9 was met in full for the parameters sampled weekly. For the TN and TP monthly samples there were two samples that the laboratory failed to undertake the correct testing. This was reported to CRC (via email 25/3/2019) with an explanation from the laboratory manager. Additional sampling was undertaken to ensure sufficient representative samples were collected for the monitoring period.

Table 7: Nutrient concentrations (g/m^3) in the ocean outfall discharge.

Parameters	May 2019 to June 2019			May 2019 to June 2019		Consent Limit
	N	Median	Range	Median	Range	
Dissolved inorganic nitrogen	52	10.8	0.3 - 30	11.1	1.23-34	
Ammoniacal-N	53	8.6	0.43 - 29	10.65	1.22 - 34	27
Total nitrogen	12	10.95	4.9- 31	16.85	8.5 - 78	
Dissolved reactive phosphorus	53	4.7	0.54 - 7	4.4	0.91 – 7.9	
Total phosphorus	12	4	0.99 - 7.6	5.2	3.6 – 8.6	

Note: * No more than 16 values to exceed limit in the 26-week period beginning 1 May and 1 November. N: number of samples.

The dissolved inorganic nitrogen results shown in Figure 10 below have shown a slight decrease in throughout the year. There is no consent limit for DIN.

In general Ammoniacal-N (NH_4) has shown decrease particular between January and April. This is most likely due to the nitrification that was occurring in the new aeration basin at the Rangiora WWTP. The NH_4 levels leaving the Rangiora plant dropped to <1gm/m^3 during this time. There were 9 occasions in September and October when concentrations exceeded 25gm/m^3. However, this exceedance did not result in a breach of Condition 11, which allows up to 16 exceedances in each 26-week period of the current monitoring period.

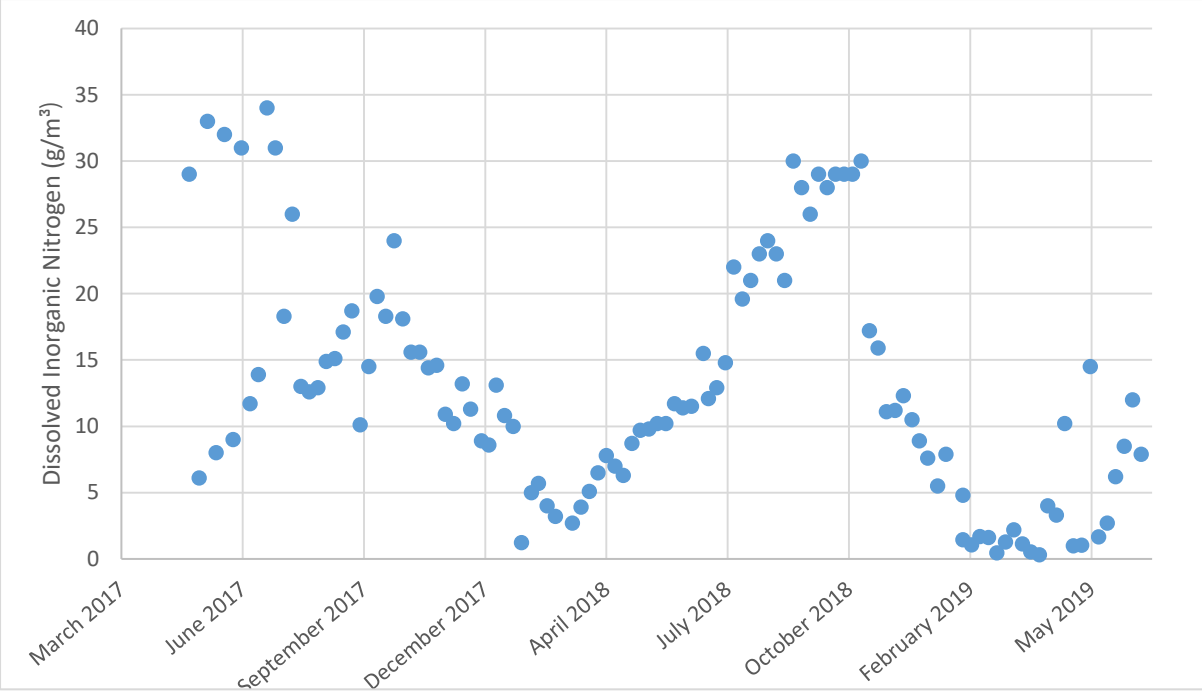


Figure 10. Dissolved inorganic nitrogen concentrations in Ocean Outfall discharge May 2017-June 2019

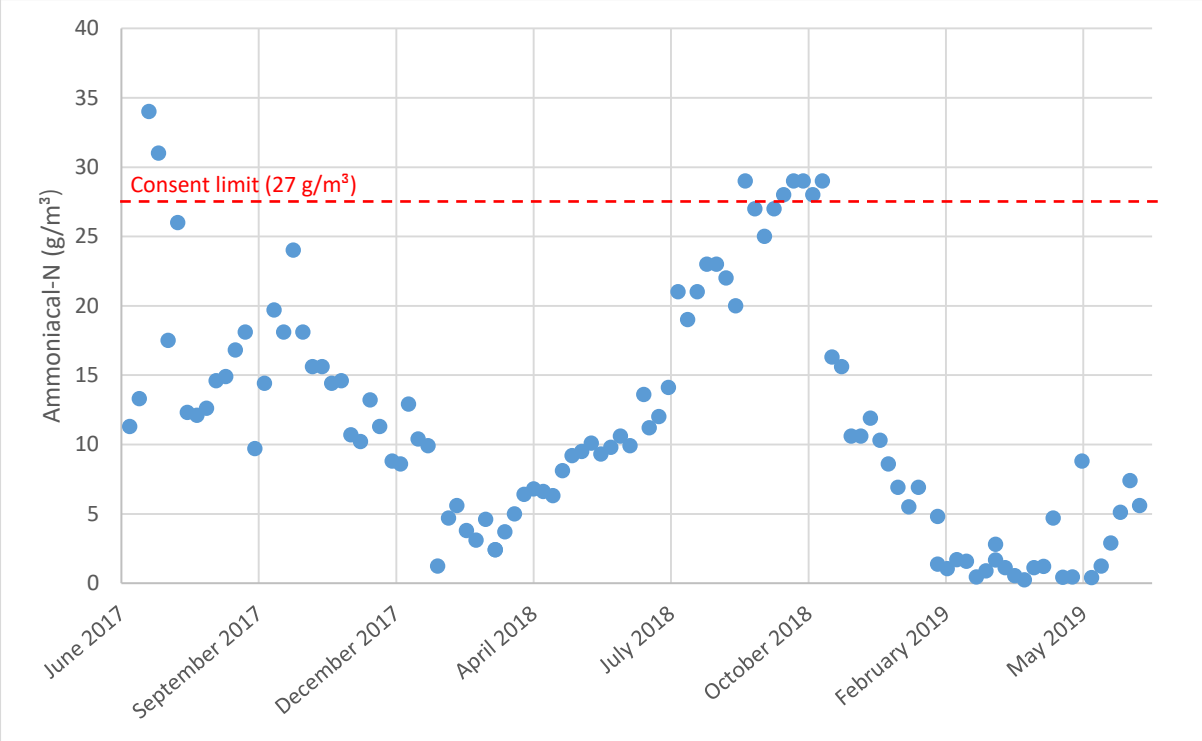


Figure 11. Ammoniacal-N concentrations in the Ocean Outfall discharge between June 2017 and June 2019

TN concentrations over the 2018/19 monitoring period show similar trending to the previous monitoring period (Figure 12). There is a reasonable decrease TN levels which is attributed to the nitrification occurring at the Rangiora WWTP. There is no consent limit for TN.

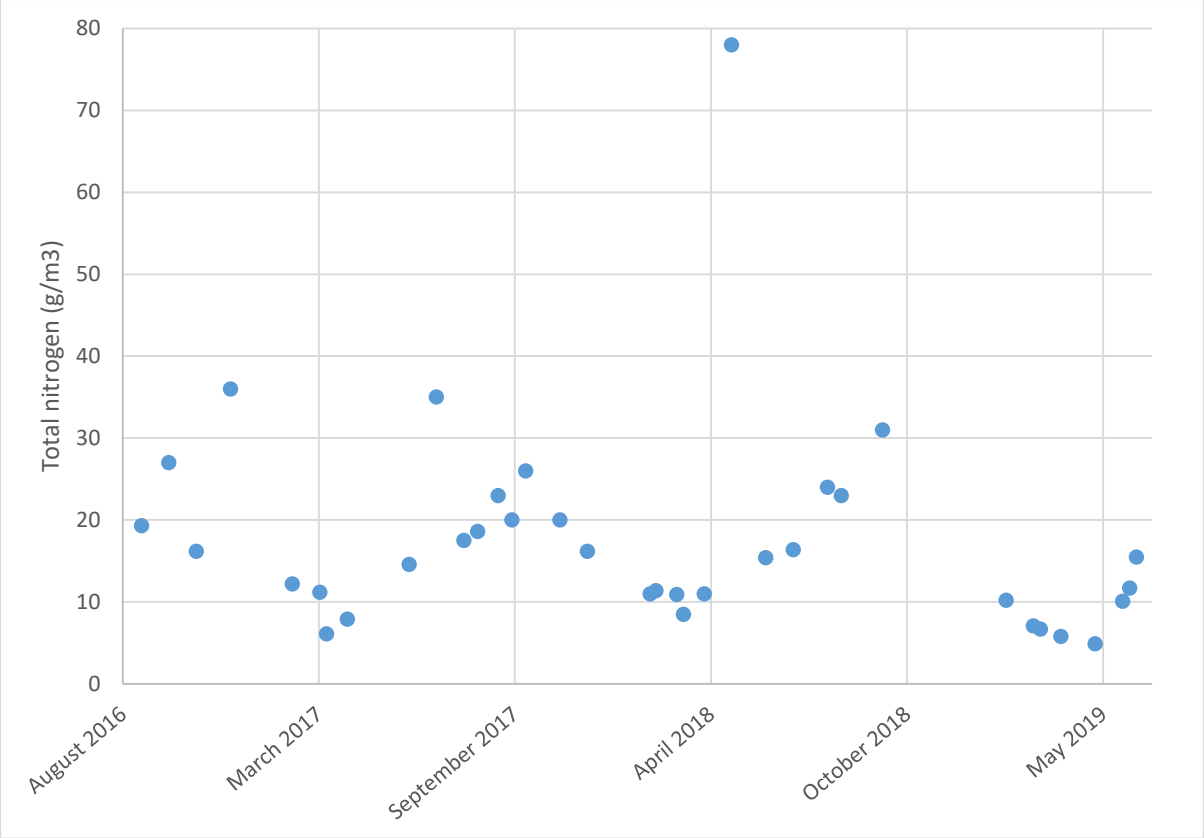


Figure 12. Total nitrogen concentrations in Ocean Outfall discharge between June 2017 and July 2019

The monitoring results for total phosphorus (TP) and dissolved reactive phosphorous (DRP) are shown in Figure 13 and Figure 14. DRP concentrations appear to be influenced by seasonal variations, with somewhat higher concentrations of both parameters occurring during the winter and spring months. Most of the phosphorus was present in the dissolved form (DRP). There are no consent limits for DRP or TP.

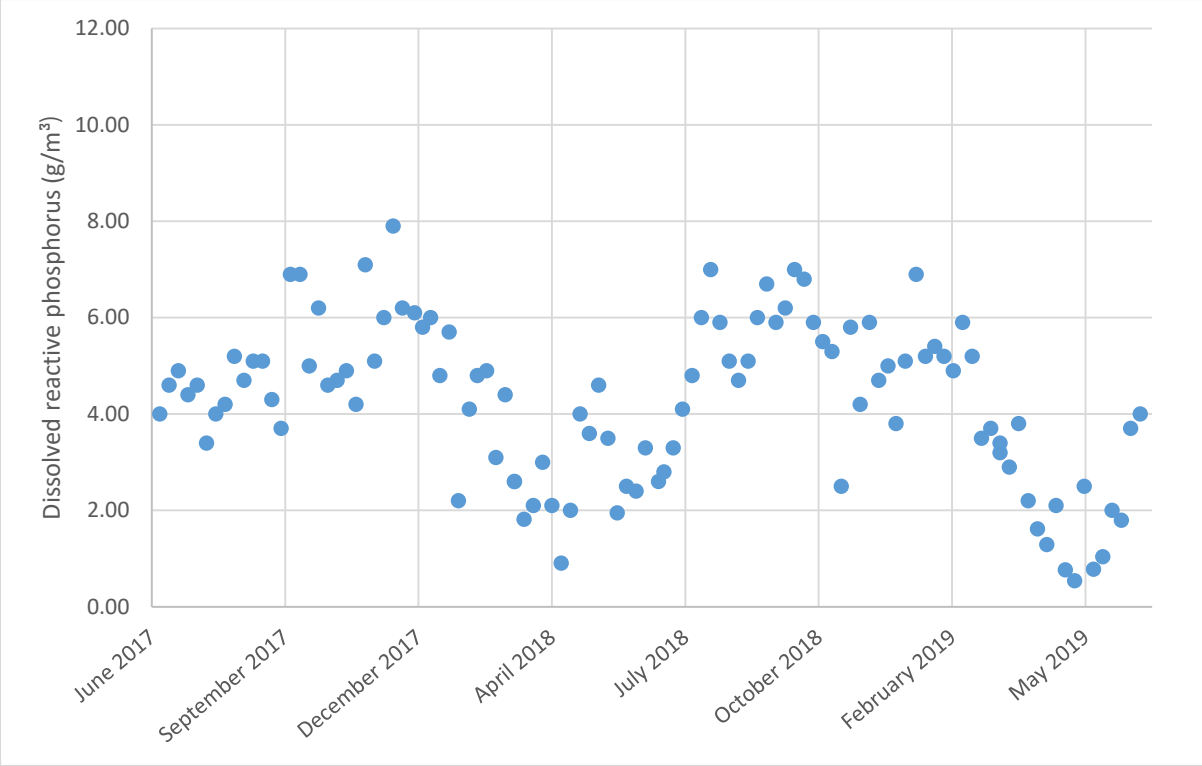


Figure 13. Dissolved reactive phosphorus concentrations in the Ocean Outfall discharge from June 2017 to *June 2019*

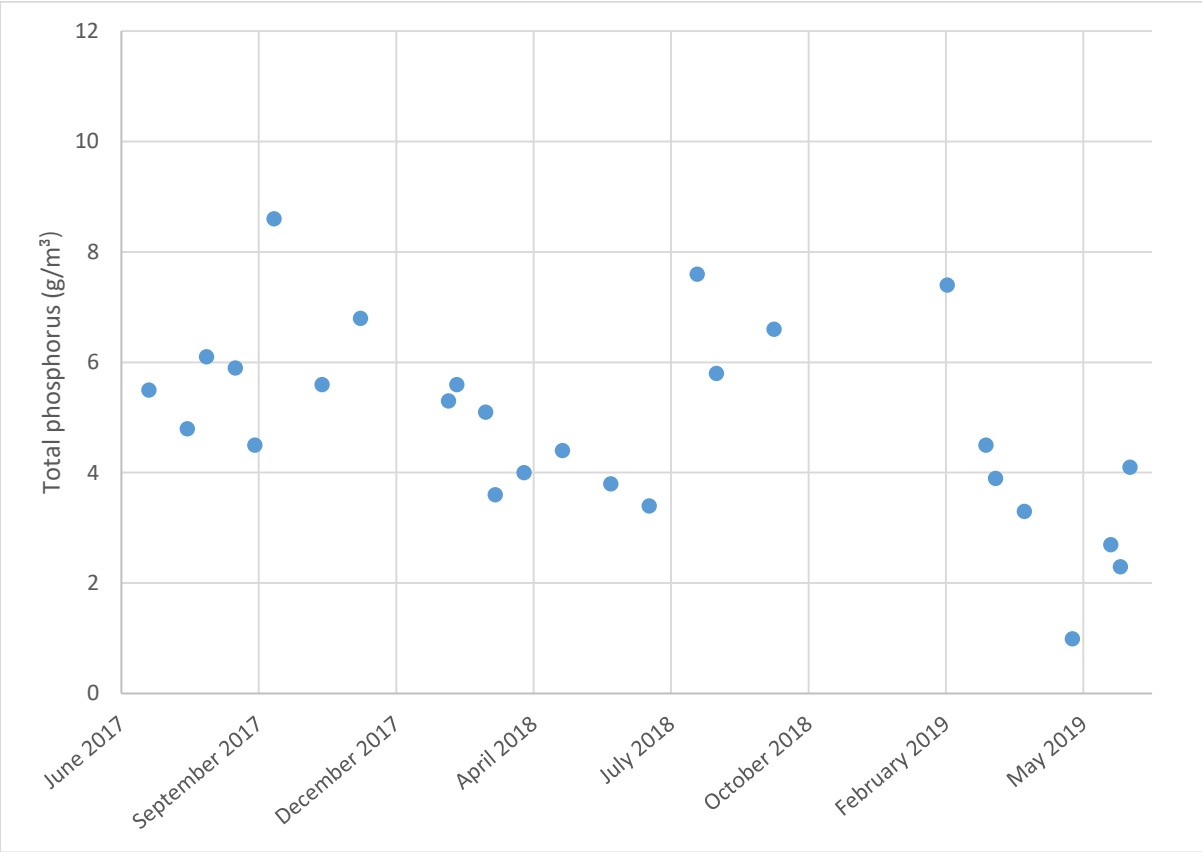


Figure 14. Total phosphorus concentrations in Ocean Outfall discharge between June 2017 and June 2019

2.3.5. Metals and metalloids

Total metal and metalloid concentrations since June 2011 are shown in Figure 15 below. These metals are sampled 6 monthly. Samples were taken on 20th August 2018 and 11th June 2019. Review of the results show Arsenic has increased to 0.0051 g/m3. This is the highest result to date. In 2015 levels were measured at 0.0046 gm/m3. Zinc result was 0.0158 g/m3. All other metals were comparable to previous sampling years. There are no consent limits for any trace metals and metalloids.

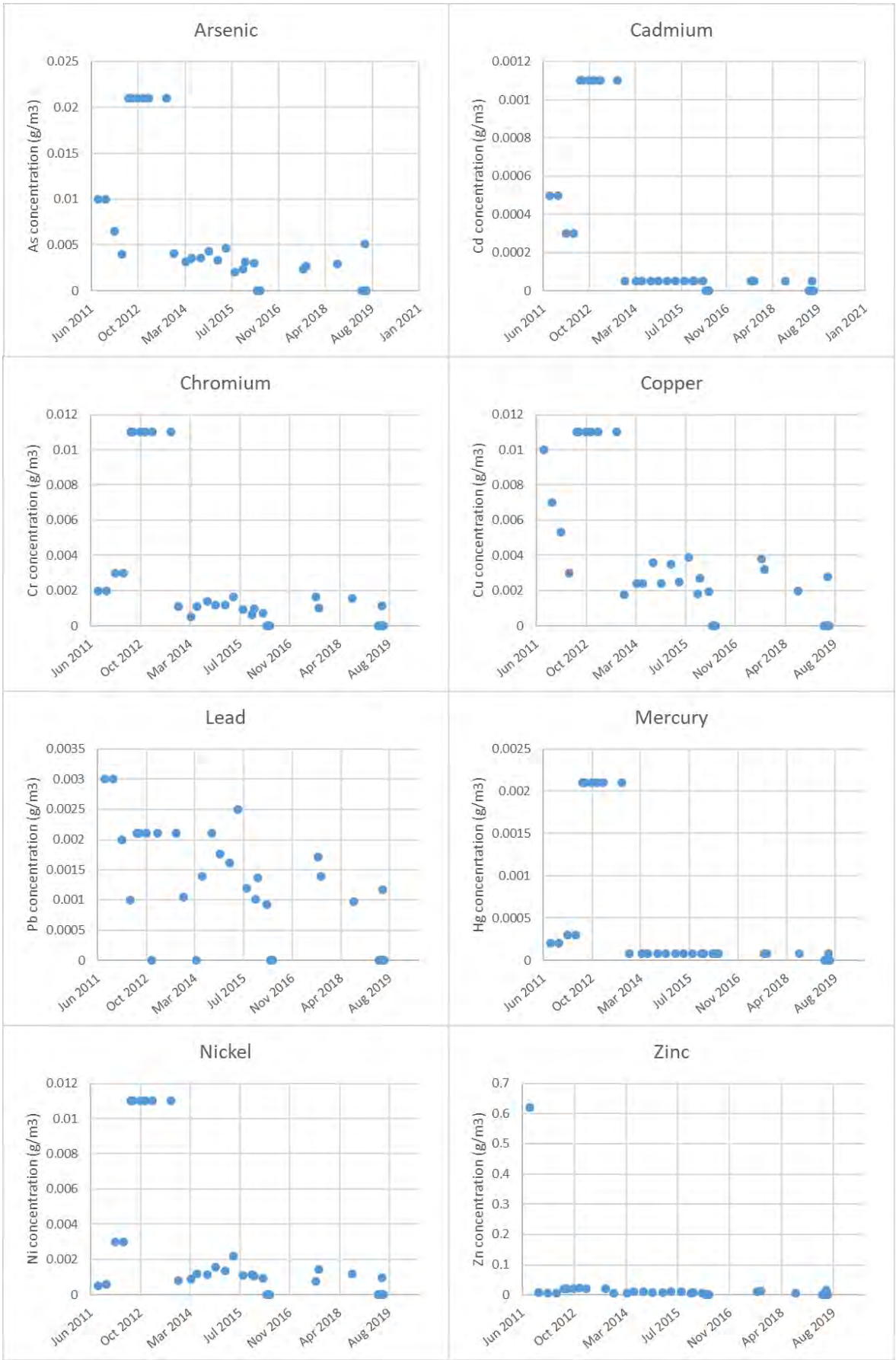


Figure 15: Tract metals and metalloids in ocean outfall discharge between 2011 and 2019.

2.3.6. Microbiological quality

Faecal indicator bacteria

The Woodend and Kaiapoi WWTPs have ultraviolet (UV) disinfection systems to reduce bacterial numbers in the discharge. During the 2018/19 monitoring period the UV system was in continuous operation at both Woodend and Kaiapoi WWTPs.

Consent CRC041162.2 specifies weekly monitoring of three faecal indicator bacteria:

- Faecal coliforms
- Enterococci
- *Escherichia coli (E. coli)*

The faecal indicator monitoring data for 2018/19 are summarised in Table 8. The data is plotted alongside data from the previous monitoring period and relevant consent limits in Figure 15, Figure 16 and Figure 17. The sampling frequency for faecal indicator bacteria during the current monitoring period complied with the requirements of Condition 9.

Faecal coliform numbers were below relevant seasonal consent limits over the entire 2018/19 monitoring period (Figure 15), hence full compliance with Condition 12 was achieved for faecal coliforms.

Table 8: Faecal indicator bacteria in the ocean outfall discharge (cfu/100 mL).

Indicator	July 2018 to June 2019			May 2017 to June 2018			Consent Limit	
	N	Median	Range		Median	Range	Standard	High
Faecal coliforms (summer)	17	30	10 – 1,000	13	140	10-1,100	1,000	5,000
Faecal coliforms (winter)	36	10	1 – 1,030	49	80	5-5,200	9,000	20,000
Enterococci	53	10	10-2,420	62	40	5 – 24,200	500	1,500
E. coli	54	10	1-2,400	75	75	1-5,200	-	-

Note: "For each period (summer: November—February; winter: March—October) no more than six out of eight consecutive samples may exceed the 'standard' value and no more than two out of eight consecutive samples may exceed the 'high' value. N: number of samples.

Enterococci numbers in a wastewater discharge of this type are typically lower than faecal coliform or E. coli numbers, which are more likely to include non-human derived faecal indicator bacteria as well as human- derived sources. Consent limits for enterococci do not vary between seasons as they do for faecal coliforms, although there is still a standard (500 cfu/100 mL) and high (1,500 cfu/100 mL) limit.

One sample collected on 29th January 2019 (1,000 cfu/100mL) exceeded the standard value, and one sample collected on the 5th February 2019 (2,420 cfu/100 mL) exceeded the high limit (1,500 cfu/100 mL) (Figure 16). The resource consent allows for six out of eight consecutive samples to exceed the standard limit, and two out of eight consecutive samples to exceed the high limit. Therefore, full compliance with Condition 12 was achieved for enterococci.

There is no consent limit for E. coli, but numbers recorded show higher than normal results occurred in June 2019.

Any samples that showed results high than normal were checked against the post UV samples taken at the EDS pump stations at Kaiapoi and Woodend. There was no correlation, the post UV results show consistently low results.

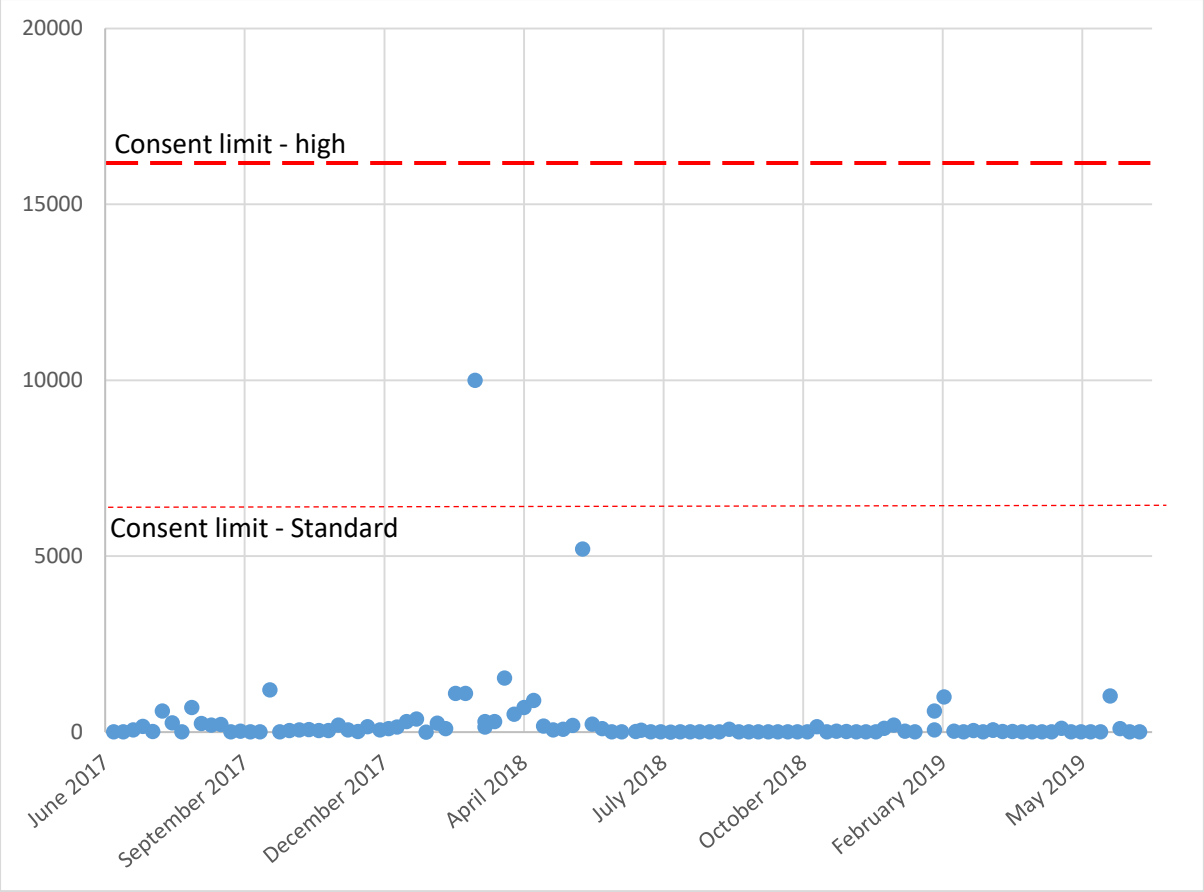


Figure 16. Faecal coliforms in ocean outfall discharge between June 2017 and June 2019

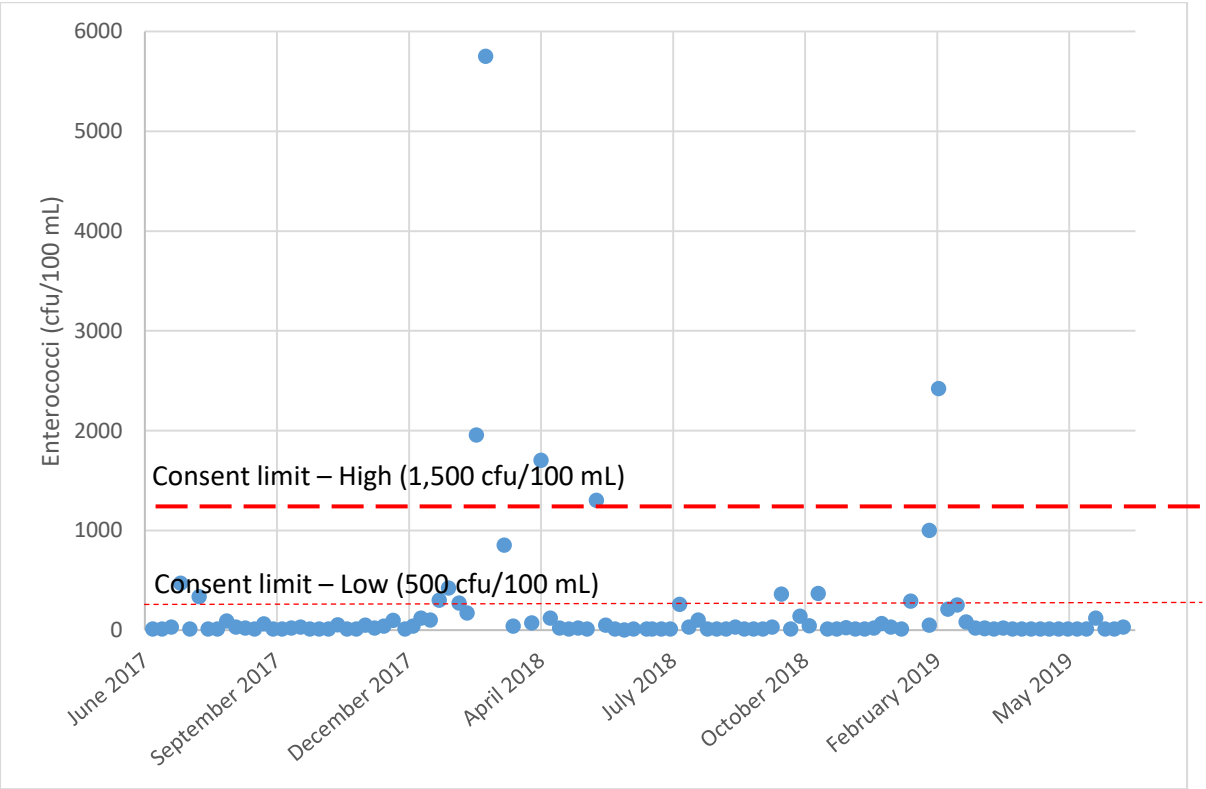


Figure 17. Enterococci in Ocean Outfall discharge between June 2017 and June 2019

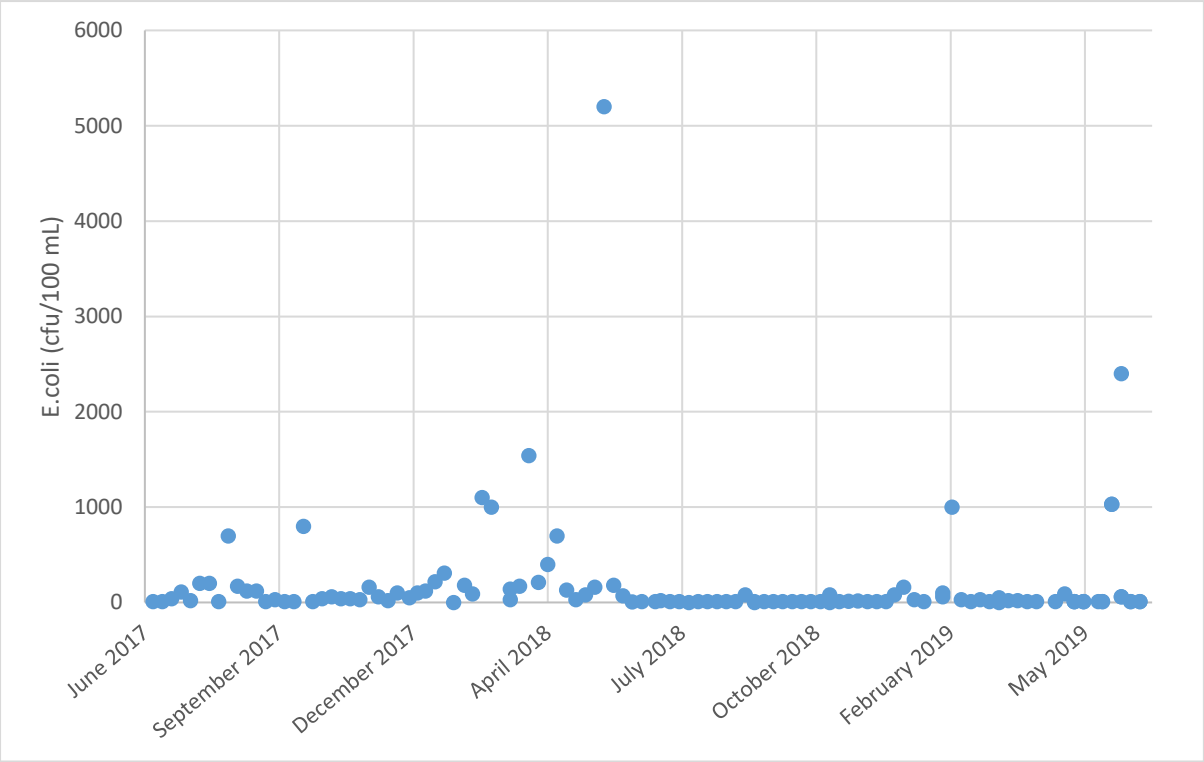


Figure 18. Escherichia coli in ocean outfall discharge between June 2017 and June 2019

Human pathogens

The results for the 2018/19 human pathogen tests are shown in Table 9, alongside results from the previous monitoring periods. Human enterovirus, adenovirus, *Campylobacter* and *Salmonella spp*. are required to be sampled annually, as the three-monthly sampling was only required for the first two years. Two samples were taken for the human enterovirus and adenovirus in the 2018/19 monitoring period.

The human pathogen sampling requirements of Condition 9(d) were met in full. Human enterovirus and adenovirus were below their respective MDL during the 2018/19 monitoring period.

There are no consent limits for human pathogens.

Table 9: Human pathogens in ocean outfall discharge.

Pathogen	March 2019	November 2018	March 2018	March 2017	March 2016	2015*	March 2014
Human enterovirus (pfu/10 L)	<10	<10	Not sampled	<10	<10	Not isolated	Not isolated
Human adenovirus (iu/10 L)	<10	<10	Not sampled	<10	<10	Not isolated	66
Campylobacter	Not detected	No sample taken	Detected	Detected	Not isolated	Not isolated	Not isolated
Salmonella spp. (/500 mL)	Not detected	No sample taken	Not detected	Not detected	Not isolated	Not isolated	Not isolated

Note: Units: pfu = plaque forming units; iu = infectious units. * Pathogen monitoring during 2015 occurred over various dates.

2.3.7. Organochlorine pesticides, PCBs and PAHs

The annual monitoring for organochloride pesticides, polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) was undertaken in March 2019. The full results are presented in Appendix A. All results were below their respective method detection limits, although these detection limits varies between parameters.

There are no limits for organochloride pesticides, PCBs and PAHs, specified in the resource consent.

2.3.8. Summary

Overall, all requirements of conditions 9 — 12 have been met. The following are the main points from the outfall monitoring program:

- Results for BOD, NH_4, nitrates and phosphorus have improved. This is attributed to the new aeration basin at the Rangiora WWTP.
- All sampling was undertaken as required by the consent conditions. There was error at the laboratory were the requested tests for total phosphorus and total nitrogen were not undertaken. Environmental Canterbury were informed and additional sampling undertaken. This has been raised with the laboratory manager who has given assurances this will not occur again. WDC have increased the monitoring of results returned from the laboratory.
- Faecal and enterococci results have greatly improved this monitoring period.
- All organochlorine pesticide, PCB and PAH results were below their respective method detection limits.

2.4. Condition 13 – Woodend Beach, The Pines Beach and Waimakariri River mouth

2.4.1. Monitoring requirements

Condition 13 of CRC041162.2 requires weekly monitoring for faecal coliforms and enterococci at Woodend Beach and The Pines Beach. Woodend Beach is located to the north of the ocean outfall and The Pines Beach to the south. Both locations are north of the Waimakariri River mouth, as shown in Figure 1. The frequency of monitoring during the 2018/19 period at Woodend Beach and the Pines Beach complied with these requirements.

2.4.2. Microbiological monitoring results

In addition to the weekly monitoring at Woodend Beach and The Pines Beach, WDC also sample at the Waimakariri River Mouth. The microbiological data measured at each site are shown in Figure 19 and Figure 20, and summarised in Table 10.

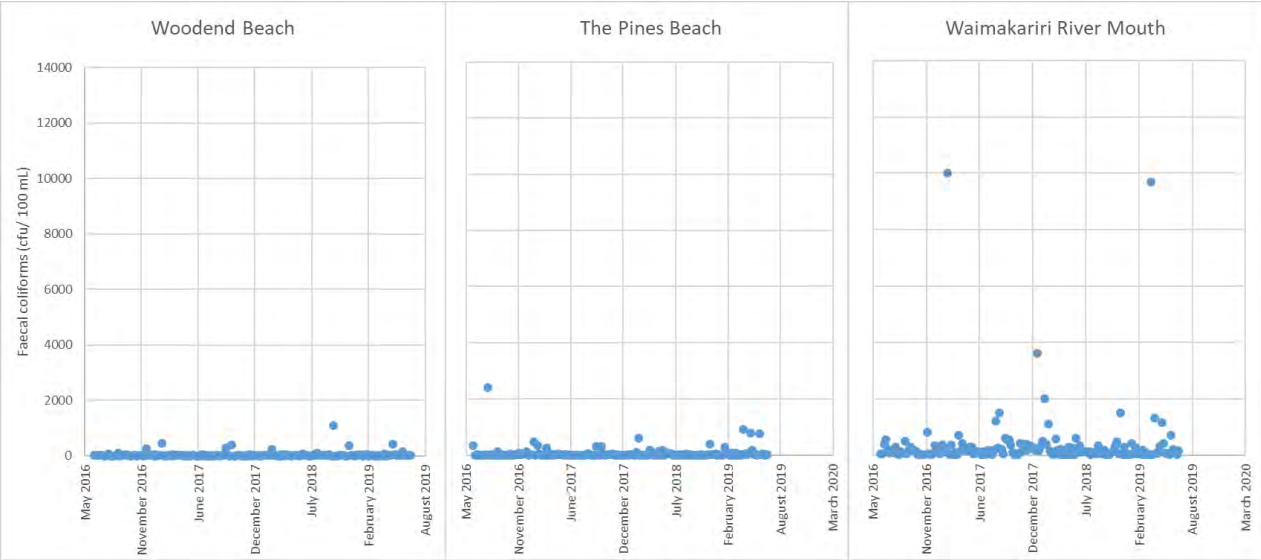


Figure 19: Faecal coliforms at Woodend Beach, The Pines Beach and the Waimakariri River Mouth between June 2016 and July 2019

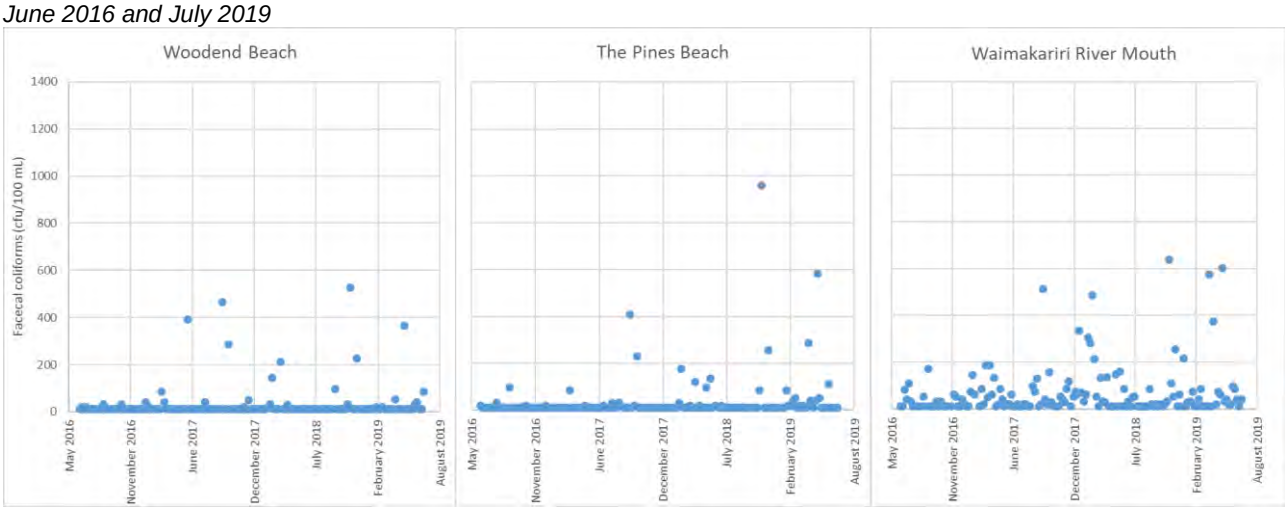


Figure 20: Enterococci at Woodend Beach, Pines Beach and Waimakariri River Mouth between June 2016 and July 2019

Table 10: Microbiological monitoring results for Woodend Beach, The Pines Beach and Waimakariri River Mouth

Indicator	Woodend Beach		The Pines Beach		Waimakariri River Mouth	
	N	Median (range)	N	Median (range)	N	Median (range)
Faecal coliforms (cfu/100ml)	53	10	53	15	53	74
Enterococci (cfu/100 ml)	53	10	53	10	53	20

Note: N: number of samples

Median numbers of faecal coliforms were highest at the Waimakariri River Mouth in all monitoring periods reported to date (Figure 19). These results could be due to a number of factors that differentiate the river mouth from Woodend and The Pines Beach (e.g., lowland tributaries [Styx River and Kaiapoi River] entering near the mouth, birdlife from Brooklands Lagoon and the short survival rate of faecal coliforms in marine waters).

Median numbers of faecal coliforms recorded at Woodend, The Pines Beach and at the Waimakariri River Mouth in 2018/19 were similar to those reported in 2017/18.

Median numbers of enterococci recorded at Woodend, The Pines Beach and at the Waimakariri River Mouth (Figure 20) showed a slight increase from the 2017/18 results.

2.4.3. Compliance summary – Beaches

The monitoring requirements in Condition 13 for sampling at Woodend Beach and The Pines Beach have been met in full during the 2018/19 monitoring period.

2.5. Condition 14 – Visual Observations

As required by Condition 14, WDC make visual observations at each sampling site to assess the presence of conspicuous oil or grease films, scums or foams or floatable materials. Wind speed and direction were also recorded and are available on request.

During the 2018/19 period, no conspicuous oil or grease films, scums or foams, or floatable materials were noted at either Woodend Beach or The Pines Beach on any of the weekly site visits during the monitoring period.

2.6. Conditions 15 to 26 – Water Quality, Surface Sediments and Benthic Infauna

WDC was granted a change of conditions, effective from 12 March 2009, relating to the sampling of mixing zone water quality, sediments and Benthic Infauna. Sampling is required after three years following commissioning of the ocean outfall and at five yearly intervals thereafter.

Water quality, surface sediments and benthic Infauna sampling was undertaken in 2017. The next sampling under conditions 15 – 26 is due in 2022.

2.7. Condition 30 – Complaints

Condition 30 states the following:

> *"The consent holder shall maintain and keep a complaints register for all aspects of all operations in relation to the discharge into the ocean. The register shall detail the date, time and type of complaint, cause of the complaint, and action taken by the Consent Holder in response to the complaint. The register shall be available to the Canterbury Regional Council at all reasonable times."*

WDC maintains a complaints register in accordance with the requirements of Condition 30. There were no complaints received for the 2018/19 monitoring period.

2.8. WWTP Operations, Maintenance and Major Shutdowns

There were no major shutdowns of the Ocean Outfall in the 2018/19 monitoring period. The plants have performed well with no major issues. Upgrades completed at the Rangiora WWTP in 2018 have resulted in nitrification to occur in the warmer months. This is reflected in the low NH-4 and TN results. This was not the design intent but a result in the increased retention times in the new aeration basin. It is expected as growth increases flows into Rangiora the results will return to normal.

2.9. Summary of Compliance – CRC041162.2

A summary of compliance with condition CRC041162.2 is presented in Table 11 below.

Table 11: Summary if compliance for 2018/19 for consent CRC041162.2.

Consent condition	Description	Compliance
Condition 2	Discharge volume and rate	Full compliance
Condition 9	Ocean outfall discharge quality	Full compliance
Condition 11	Discharge BODs, TSS, ammoniacal-N limits	Full compliance
Condition 12	Discharge microbiological limits	Full compliance
Condition 13	Woodend Beach and The Pines Beach	Full compliance
Condition 14	Visual observations	Full compliance
Condition 15 – 26	Water quality, surface sediments and benthic infauna	Full compliance (no testing this monitoring period)
Condition 30	Complaints	Full compliance

3. CRC041049 – DISCHARGE FROM KAIAPOI WWTP

3.1. Condition 2 – Groundwater Quality Monitoring

Condition 2 states the following:

> *"The consent holder shall monitor on-site bores 1, 2, and 3 and two new monitoring bores within 200 metres of the site, on a monthly basis for a period of up to two years after the introduction of*
>
> *Rangiora effluent into the wetland, thereafter at three monthly intervals. Samples from the monitoring shall be analysed for faecal coliforms, E. coli, nitrate-nitrogen and ammoniacal-nitrogen."*

The locations of the groundwater quality monitoring bores are shown in Figure 21. The regional groundwater flow is assumed to be towards the east in the direction of the coast. Bore 1 (labelled as WDC1) and Bore A are considered 'control' bores as they are located up-gradient of the WWTP, whereas bores 2, 3 (labelled as WDC2 and WDC3, respectively) and B are 'effects' bores as they are down-gradient from the WWTP. Effects of the WWTP may be evident in groundwater quality through a comparison of the 'control' bores with the down-gradient bores' water quality.

Figure 21: Location of Kaiapoi monitoring bores

Although the two-year period of monthly sampling required by Condition 2 was met as of February 2008, monthly sampling continued until February 2010 when three-monthly sampling commenced.

Four samples were collected during the 2016/17 monitoring period. Therefore, the three-monthly sampling requirement was met.

3.2. Groundwater Monitoring Results

3.2.1. Nutrients

Nutrient concentrations in the five bores for the 2018/19 monitoring period are shown in Table 12. Nitrate nitrogen (nitrate-N) data are plotted in Figure 22 and ammoniacal-N data are plotted in Figure 23.

Similar to the previous monitoring period, the highest nitrate-N concentration during the 2018/19 monitoring period was recorded in Bore B and WDC 3 (0.02 g/m^3) (Figure 22). Nitrate-N concentrations recorded from the remaining down-gradient bore (WDC2) were either low or below detection limits. All samples collected from Bore A and WDC1 were below detection. There was no clear trend evident in nitrate-N concentrations at any site during the 2018/19 monitoring period.

Ammoniacal-N concentrations were below detection limits or low in the up-gradient bores. Higher concentrations are measured in the down-gradient bores. Ammoniacal-N concentrations were generally highest in Bore WDC2. The results in WDC2 are at similar levels recorded in 2015 and 2012. The results (Figure 23), indicate that the WWTP discharge is influencing groundwater quality down-gradient of the WWTP.

Table 12: Nitrate-N and ammoniacal-N concentrations in Kaiapoi WWTP groundwater monitoring bores.

Bore	Nitrate-nitrogen (g/m^3)				Ammoniacal-nitrogen (g/m^3)			
	Jul 18	Oct 18	Jan 19	April19	Jul 18	Oct 18	Jan 19	April 19
WDC1 (control)	<0.002	<0.002	<0.002	<0.002	<0.010	0.010	<0.01	0.12
A (control)	<0.002	<0.002	<0.002	<0.002	0.078	0.082	0.101	0.086
WDC2 (effect)	0.003	<0.002	<0.002	<0.002	11	11.9	11	14.2
WDC3 (effect)	<0.002	<0.02	<0.02	<0.002	7.2	9.9	12.6	8.2
B (effect)	<0.002	<0.002	<0.02	<0.002	5.6	7.4	4.2	8.7

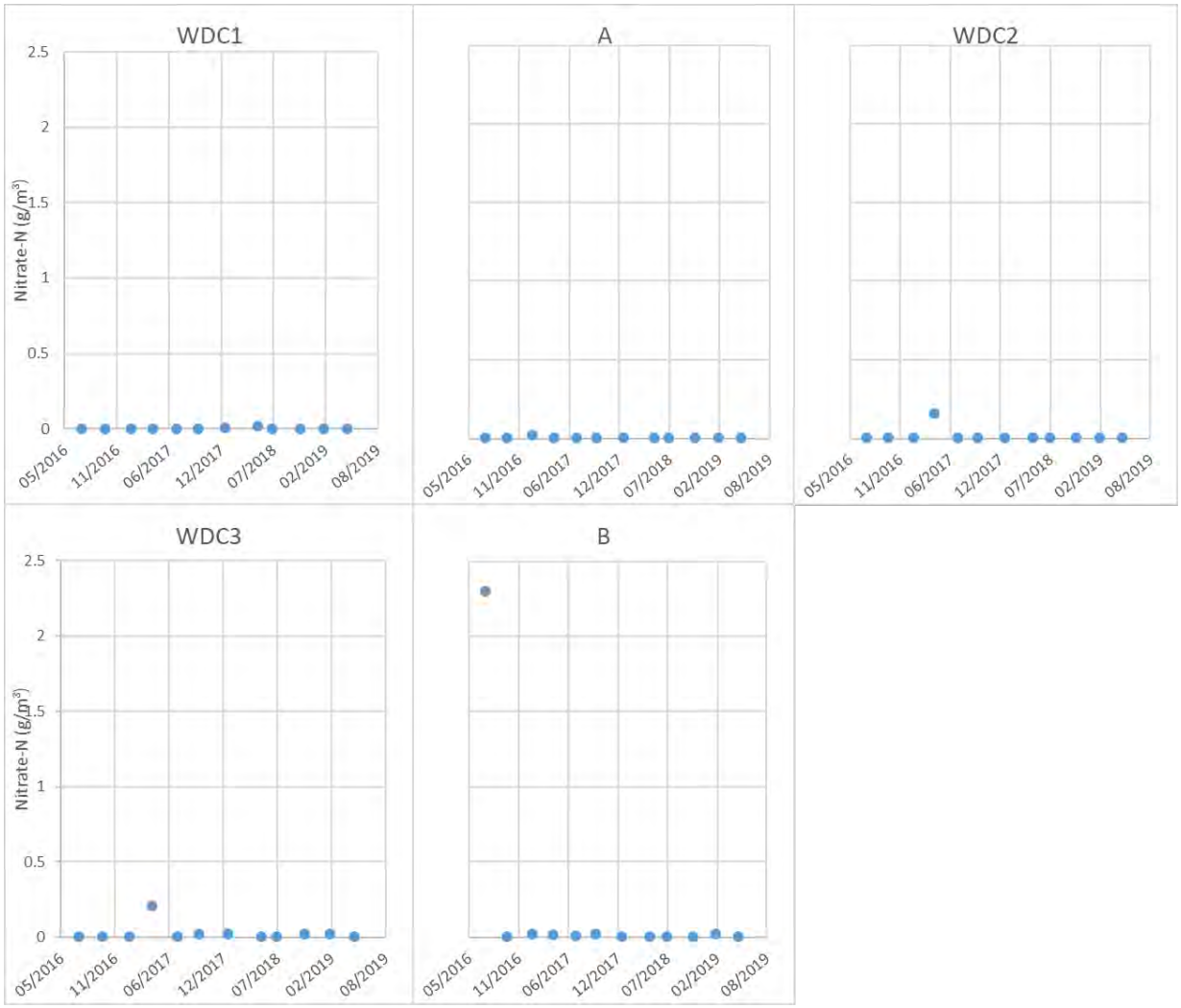


Figure 22: Nitrate-N concentrations in Kaiapoi WWTP monitoring bores between May 2016 and June 2019

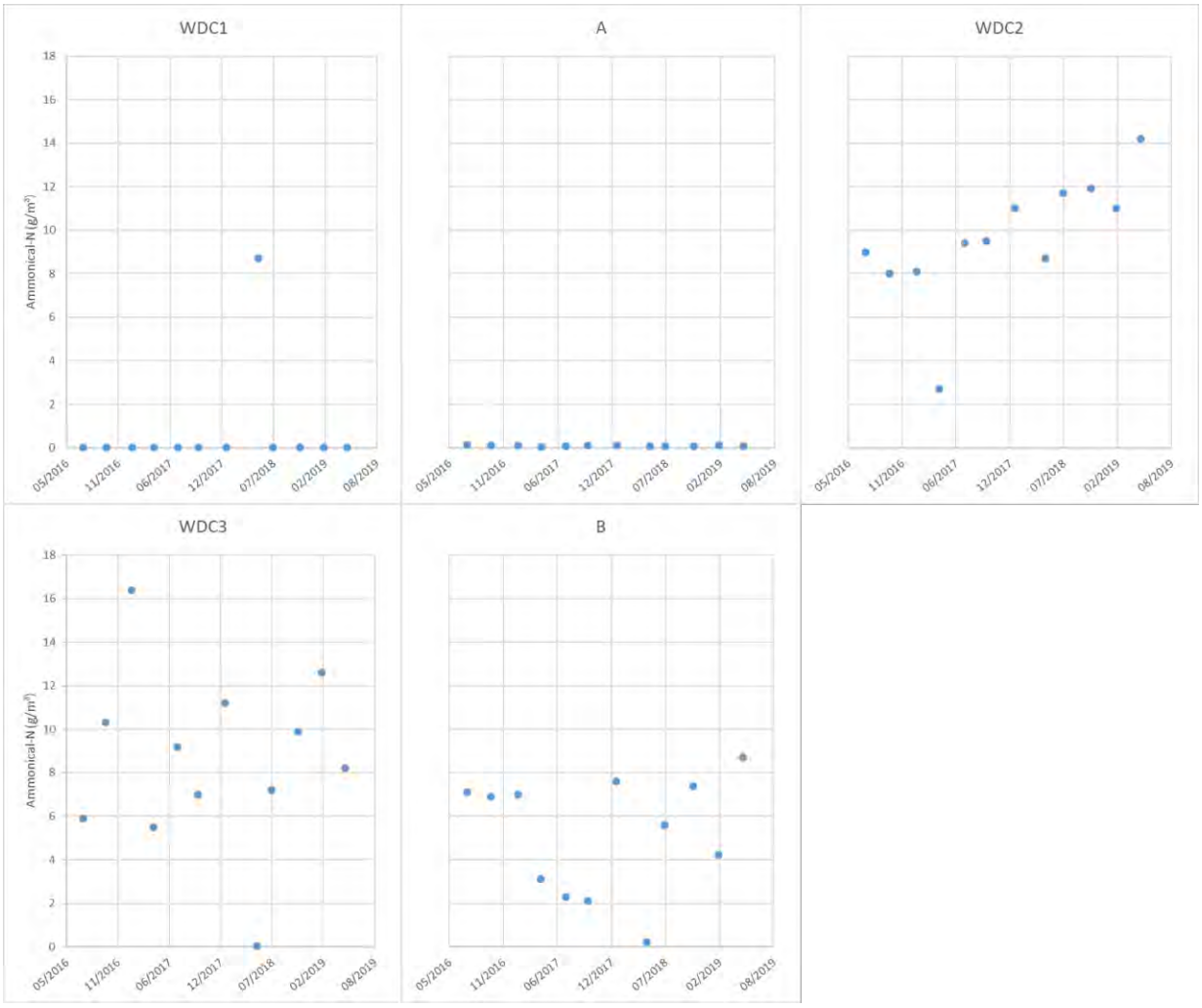


Figure 23: Ammoniacal-N concentration in groundwater monitoring bores from May 2016 - July 2019

3.2.2. Faecal indicator bacteria

E. coli and faecal coliform numbers measured during sampling in 2018/19 are tabulated in Table 13 and shown on Figure 24 and Figure 25, respectively. E. coli and faecal coliform concentrations recorded in 2016/17 are also shown for comparison.

Sampling undertaken in April 2019 showed a spike in E.coli and faecal coliforms from downstream gradient bore WDC3. These levels are similar to those recorded in 2015.

Table 13: Escherichia coli and faecal coliforms in Kaiapoi WWTP groundwater monitoring bores.

Bore	Escherichia coli (cfu/100mL)				Faecal coliforms (cfu/100 mL)			
	Jul 18	Oct 18	Jan 19	April 19	Jul 18	Oct 18	Jan 19	April 19
WDC1 (control)	<1	<1	<1	<1	<1	<1	2	<1
A (control)	<1	1	<1	<1	<1	1	1	<1
WDC2 (effect)	<1	<1	<1	<1	<1	<1	5	<1
WDC3 (effect)	<1	<1	2	2700	<1	<1	5	2700
B (effect)	<1	<1	<1	<1	<1	<1	<1	<1

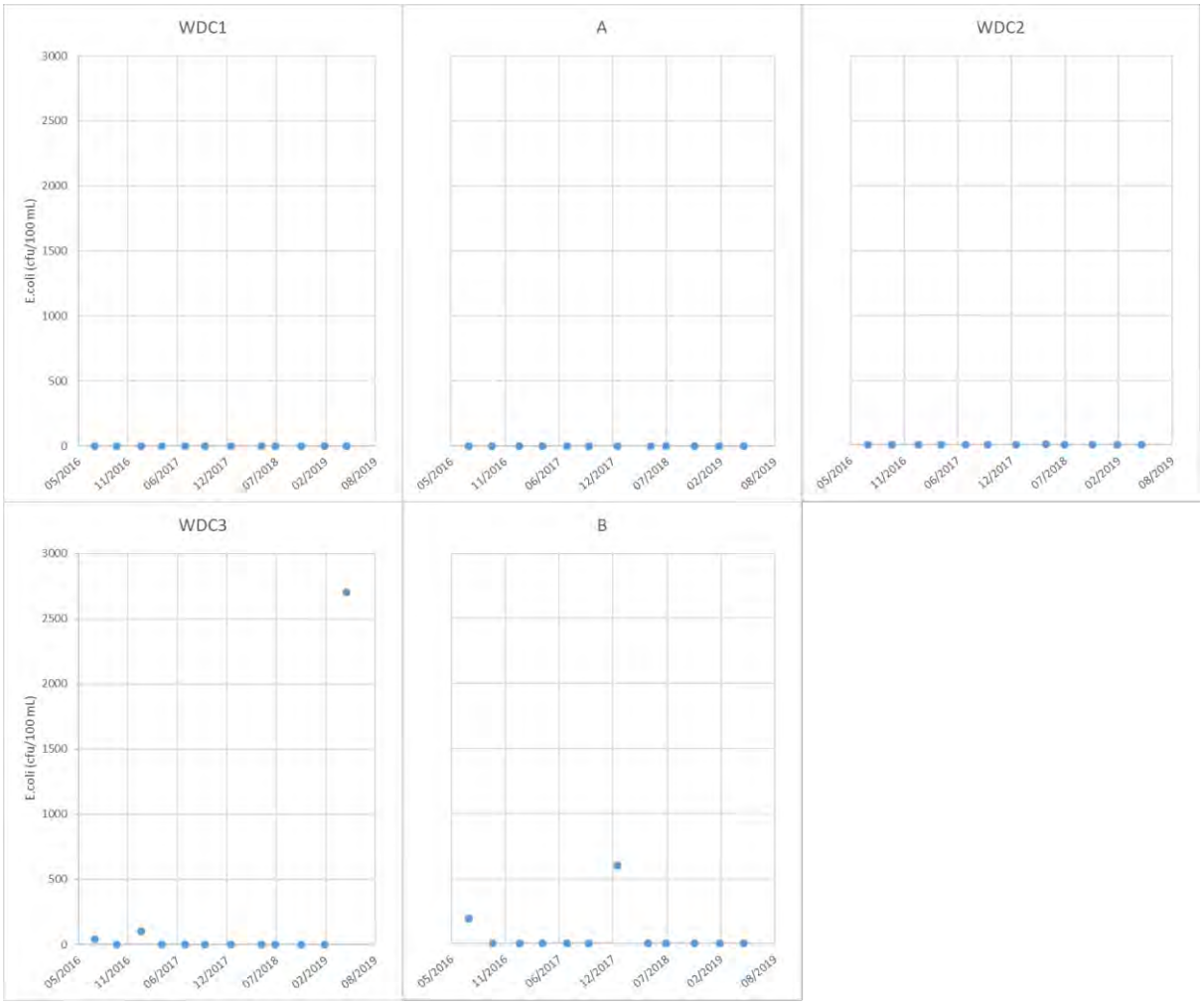


Figure 24: Escherichia coli in Kaiapoi WWTP monitoring bores between May 2016 and June 2019.

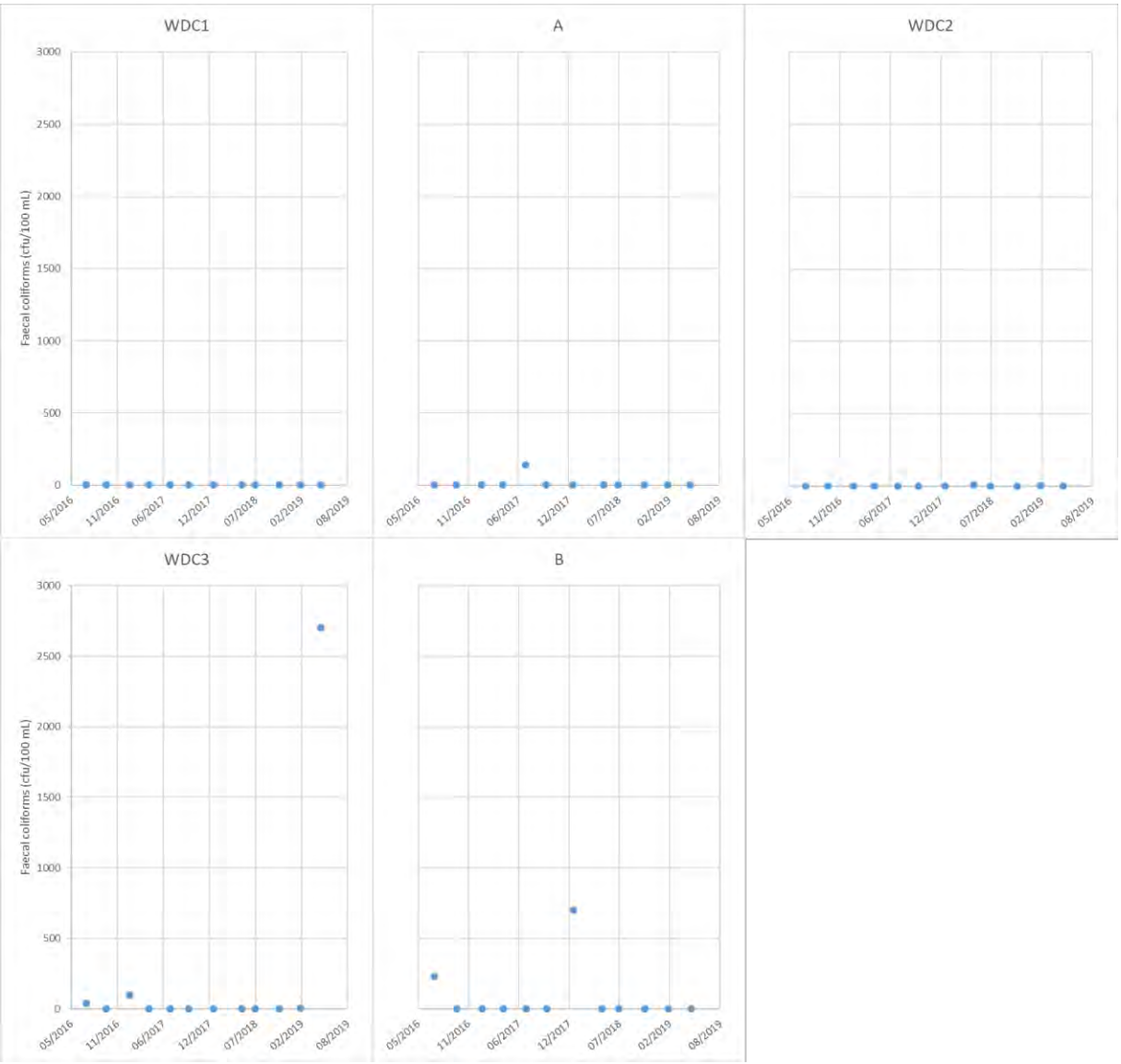


Figure 25: Faecal coliforms in Kaiapoi WWTP monitoring bores between May 2016 and June 2019

3.3. Condition 6 – Operating and Reporting

There were no major works undertaken at the Kaiapoi WWTP in the 2018/19 monitoring period. A screening wall placed on the western boundary is being trialled to limit the effects of midges on neighbouring properties.

3.4. Summary of Compliance – CRC041049

WDC has complied with the monitoring and reporting requirements of resource consent CRC041049 (Table 14). Groundwater monitoring of five bores in the vicinity of Kaiapoi WWTP in 2018/19 indicated that the WWTP influences groundwater quality down gradient, similar to that identified in previous monitoring periods. The exception was the high coliform count from WDC 3 in April 2019.

Table 14: Summary if compliance for 2018/19 for consent CRC041049.

Consent condition	Description	Compliance
Condition 2	Groundwater monitoring	Full compliance
Condition 6	Annual reporting	Full compliance

4. CRC168391 – FROM WOODEND WASTEWATER TREATMENT PLANT

4.1. Overview

The Woodend WWTP is located approximately 23 km north of Christchurch (Figure 27) and receives wastewater from Woodend, Waikuku Beach, Pegasus, Tuahiwi and Woodend Beach. The WWTP consists of an inlet screen, two aeration basins, settling pond and a wetland. Treated wastewater passes through an ultraviolet (UV) disinfection system before being pumped to the ocean outfall between The Pines Beach and Woodend Beach, north of the Waimakariri River mouth.

Figure 27: Location of Woodend WWTP and groundwater monitoring sites.

Resource consent compliance for the period 1 July 2018 to 30 June 2019 (the monitoring period) has been assessed using monitoring data provided by WDC. WDC undertakes additional monitoring at the WWTP which, although not required by the consent, is included in this report where relevant.

4.2. Conditions 5 – 6: Seepage

4.2.1. Record keeping for daily volumes

The resource consent requires WDC to keep records of daily volumes received by the Woodend WWTP and daily volumes discharged to the ocean outfall. As shown in Figure 28, the Woodend WWTP receives influent wastewater from five wastewater pump stations. These are:

- Gladstone Road pump station
- Petries Road pump station
- Woodend Beach pump station
- Waikuku Beach WWTP
- Pegasus Main Street pump station
- Mary Ellen Street pump station

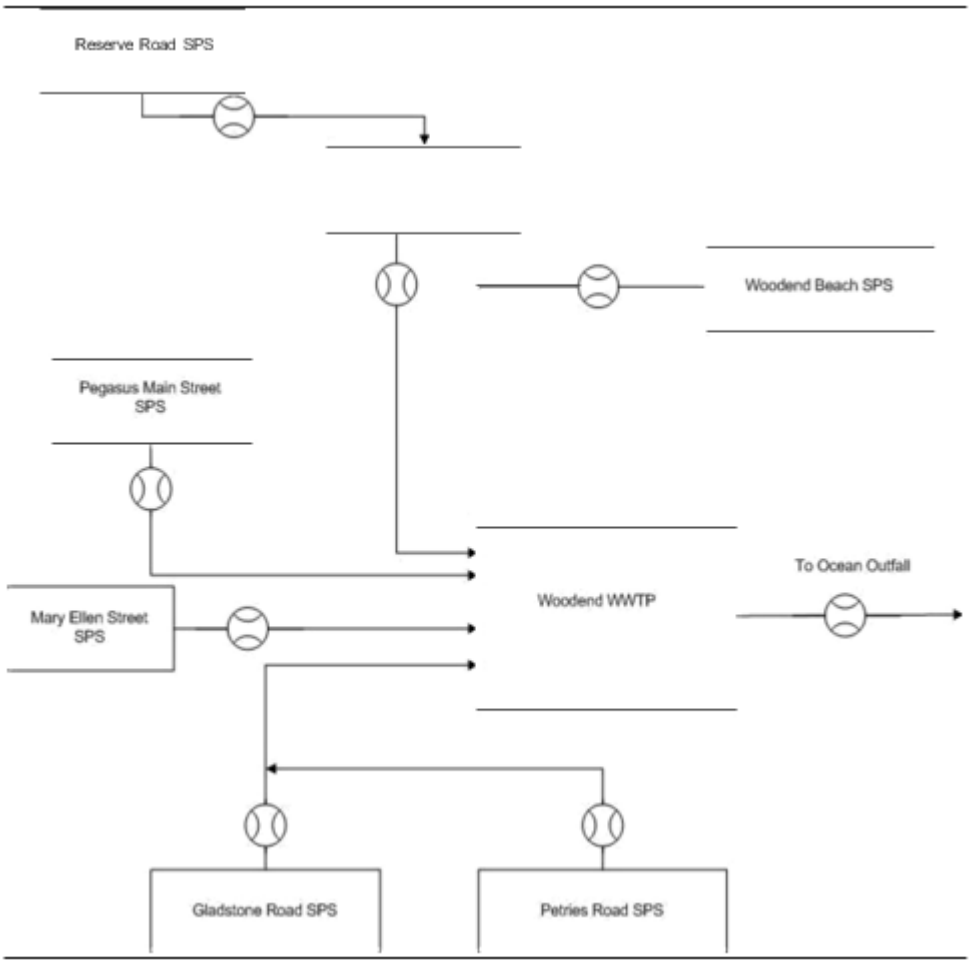


Figure 28: Schematic Woodend sewer network.

Inflow records from the electromagnetic flow meters at Gladstone Road, Woodend Beach, Petries Road PS, Waikuku Beach WWTP and Pegasus Town for the monitoring period were recorded by the WDC SCADA system. These volumes are presented as the combined daily inflow volumes in Figure 29. Rainfall data from the Woodend, Gladstone weather station for the corresponding period is also presented on the same figure for comparison. During the monitoring period, the median daily inflow volume to the Woodend WWTP was 1,374 m3 /day and the median daily outflow was 1,466 m3/day.

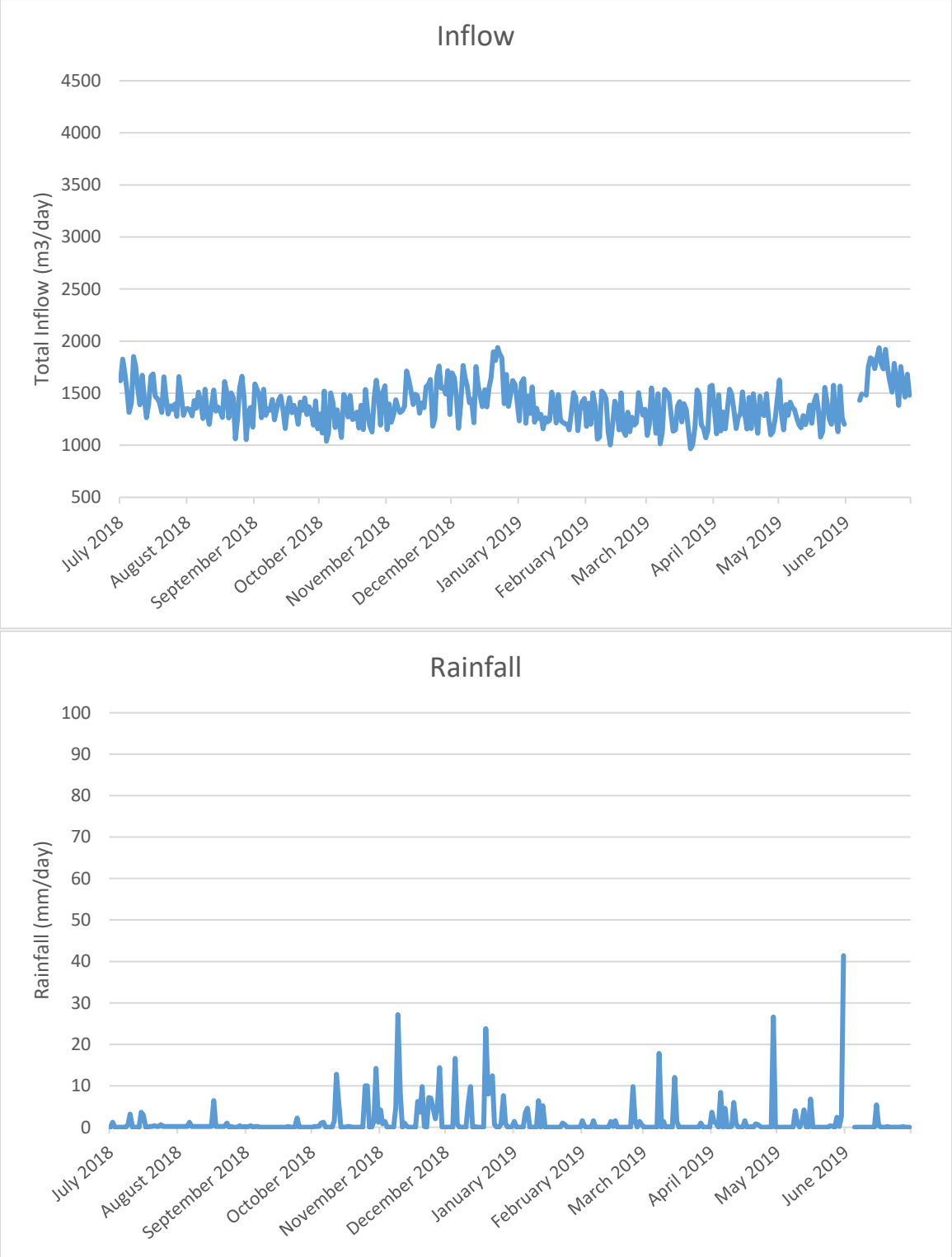


Figure 29: Daily inflow volumes July 2018 – July 2019 plotted with rainfall at Woodend.

Outflow data is measured by an electromagnetic flow meter and logged via a SCADA system. Flows from Woodend WWTP to the ocean outfall for the 2018/19 monitoring period are shown in Figure 30. It should be noted that Woodend WWTP outflow data is missing from 18 July 2019 to 23 July 2019 and the 31/5/2019 to 3/06/2019 due to outages with the SCADA system. Flow data is available upon request.

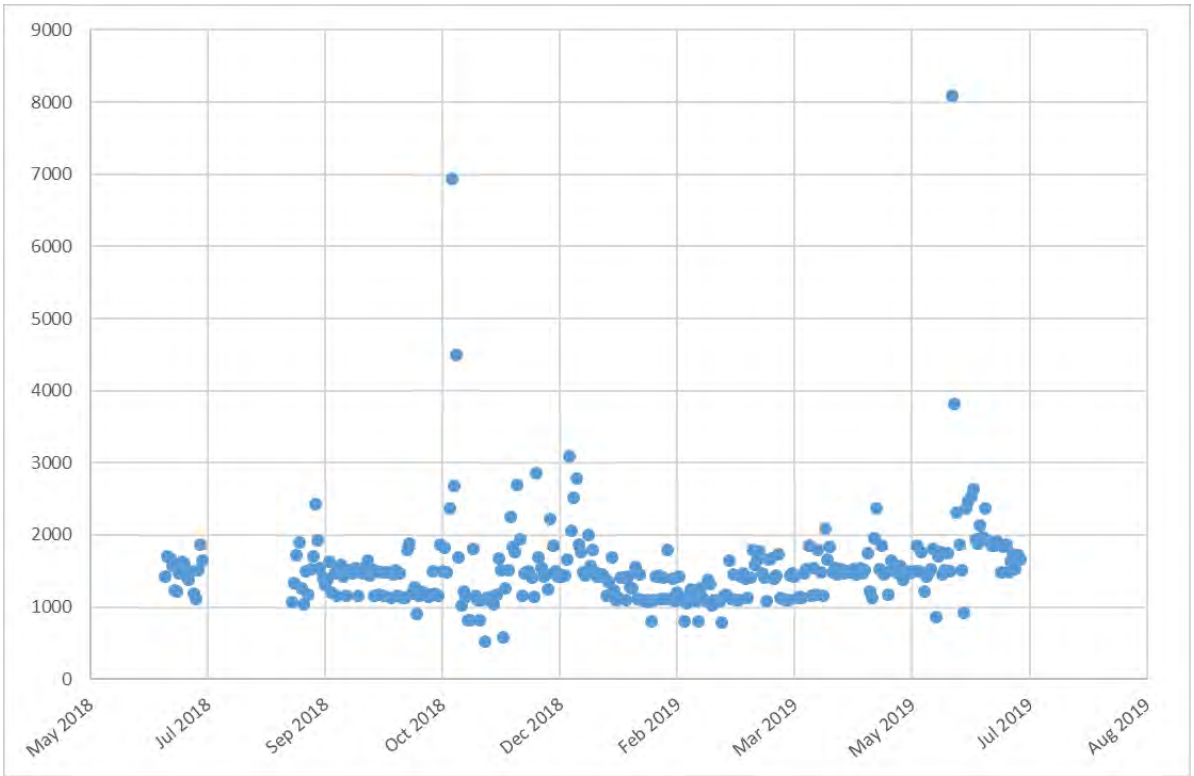


Figure 30: Daily outflow volumes (m^3/day) from Woodend WWTP to ocean outfall June 2018 and June 2019

4.2.2. Daily seepage discharge volumes

The resource consent states that the volume of treated wastewater discharged via seepage should be calculated by subtracting the volume of wastewater discharged to the ocean outfall from the volume of wastewater received at the WWTP. Calculated seepage volumes for the monitoring period are shown in Figure 31. Please note seepage values have not been calculated when either inflow or outflow data are missing. The prescribed method for calculating the discharge via seepage does not account for:

- Pond / Wetland attenuation and fluctuating water levels
- Rainfall
- Evaporation from pond/wetland water surfaces and evapotranspiration from wetland plants
- Pond buffering (this can be significant during changes in plant operation)

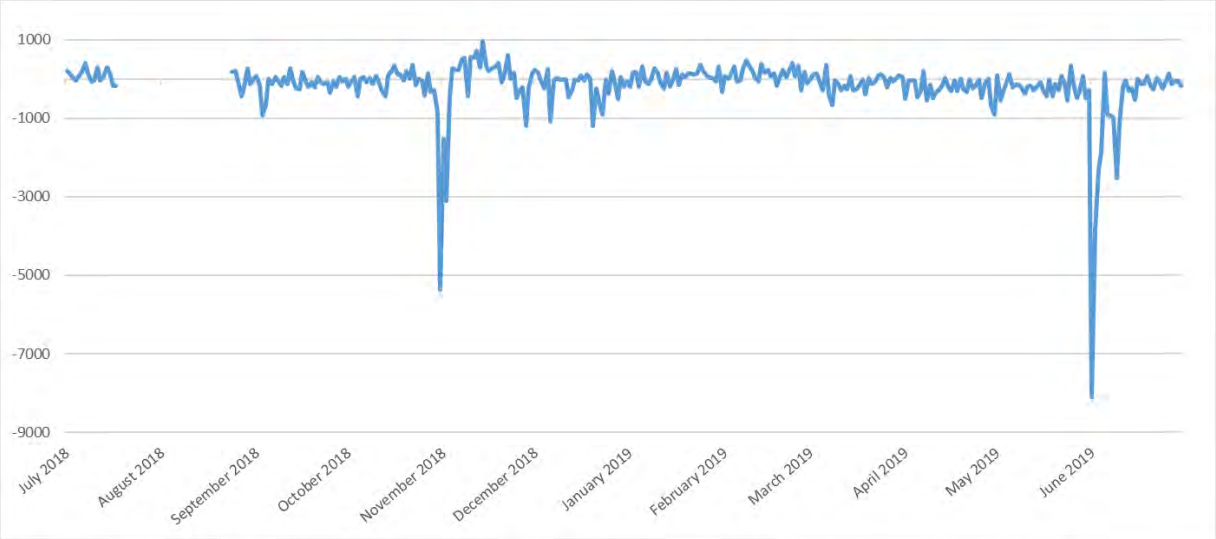


Figure 31: Calculated daily seepage volumes (m^3/day) July 2018 to June 2019

Condition 5 states that

> "the volume of treated effluent discharged to land via seepage shall not exceed 1000 cubic metres per day."

The plant complied for the 2018/19 monitoring period. The maximum variation in inflow vs. outflow was 964m^3 recorded on the 14th November 2018.

4.3. Conditions 9 to 11 – Groundwater Monitoring

4.3.1. Monitoring requirements

Condition 9 of the resource consent requires two monitoring bores (south-east and west) to be sampled at three-monthly intervals. The south-east bore is located down-gradient of the WWTP and the west bore is located up-gradient (Figure 27 above). In the 2018/19 monitoring period WDC sampled the bores in July 2018, October 2018, January 2019 and April 2019.

In accordance with the Groundwater Monitoring Plan (WDC 2008), which is required under Condition 15, WDC began monitoring two domestic bores in February 2007, located on the Robinson and McKenzie properties directly to the west (up-gradient) of the WWTP (shown in Figure 27 above). Although the bores on these properties are consented for domestic water supply, both properties have an alternative water source supplied by WDC where they now receive a restricted water supply (2 m^3/day) from the Woodend water supply.

4.3.2. Depth to groundwater

Depth to groundwater was measured in the south-east and west bores on four occasions, as required, during the 2018/19 monitoring period (Table 15). Therefore, compliance with Condition 10 was met in full.

The median depth to groundwater has increased continually since the 2013/14 monitoring period.

4.3.3. Groundwater quality

Groundwater samples were collected and analysed for nitrate-N, ammoniacal-N and faecal coliforms, as per Condition 11. The results are shown in Figures 31 to 33 and summarised in Table 15 below. There are no consent limits for these parameters.

Median ammoniacal-N concentrations (and the range of values returned) have increased in both the down- gradient (south-east) bore and one up-gradient (west) bore compared with last year's data, however the magnitude of this increase was greatest in the down-gradient bore (Figure 32). Ammoniacal-N concentrations in the up-gradient bores McKenzie and Robinson remained comparable to previous years and much lower than the other two bores. The results suggest the Woodend WWTP is likely to have contributed to an increase in ammoniacal-N concentrations in down-gradient groundwater, although a source other than the WWTP may have caused the high levels of ammoniacal-N in the West bore, which is located up-gradient from the WWTP. The reason for suggesting it may be from is another source is due to the nitrate levels in the west bore are vastly different to the down gradient levels.

Nitrate-N concentrations recorded in the last four years in the down-gradient bore (South-east) displayed a decreasing trend in contrast to that shown by ammoniacal-N concentrations (Figure 33) which has increased slightly. The nitrate-N concentrations in the up-gradient bores have increased but remain low (0.04 g/m^3).

Faecal coliforms were not detected during the 2016/17 monitoring period in any of the monitoring bores (Figure 34). Faecal coliforms have previously been recorded above detection limit in the down-gradient south-east bore.

Table 15: Groundwater quality monitoring at Woodend WWTP from 2018 to 2019.

Sample	Bore	Top Water Level (m)	Ammoniacal-N (g/m^3)	Nitrate-N (g/m^3)	Faecal coliforms (cfu/100ml)
April 2019	McKenzie (up-gradient)	N/A	0.041	<0.02	<1
	Robinsons (up-gradient)	N/A	0.037	<0.002	1
	West (up-gradient)	3.95	1.78	0.005	<1
	South-east (down-gradient)	3.2	0.67	0.035	<1
January 2019	McKenzie (up-gradient)	N/A	<0.01	<0.002	<1
	Robinsons (up-gradient)	N/A	0.012	<0.02	<1
	West (up-gradient)	4.0	0.019	5.2	3
	South-east (down-gradient)	3.2	0.47	0.41	<1
October 2018	McKenzie (up-gradient)	N/A	<0.010	<1	<0.002
	Robinsons (up-gradient)	N/A	0.011	<1	<0.002
	West (up-gradient)	4.0	0.92	<1	0.007
	South-east (down-gradient)	3.0	0.030	<1	<0.002
July 2018	McKenzie (up-gradient)	N/A	0.018	<1	<0.002
	Robinsons (up-gradient)	N/A	0.019	<1	<0.02
	West (up-gradient)	2.8	0.91	<1	0.004
	South-east (down-gradient)	3.7	0.023	<1	9.1

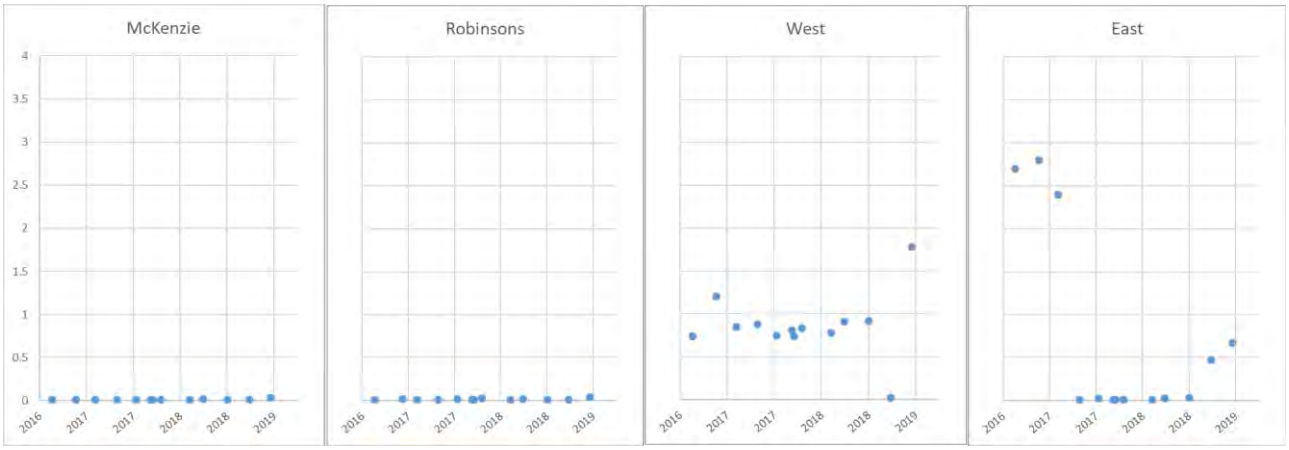


Figure 32: Ammoniacal-N concentration on groundwater monitoring bores from 2016 to 2019

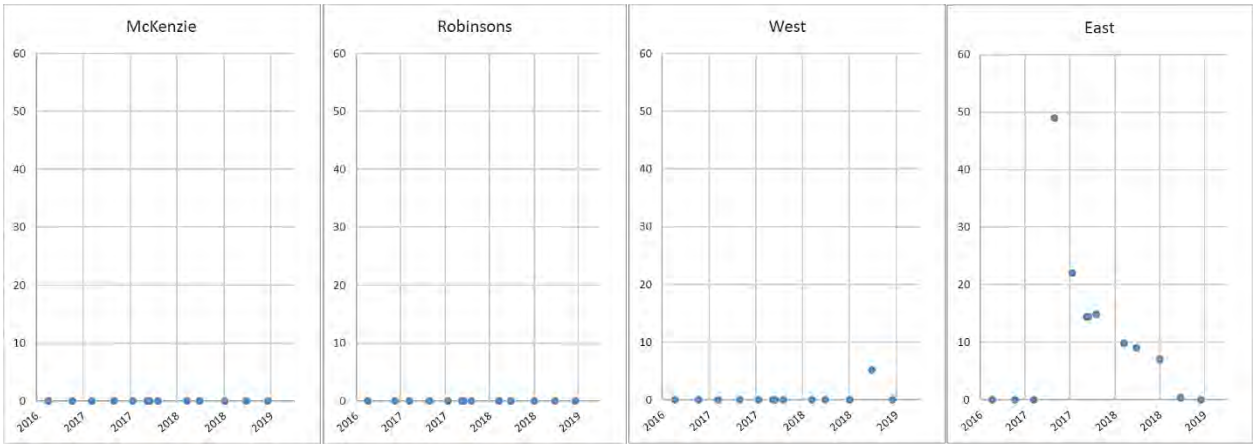


Figure 33: Nitrate-N concentration in groundwater monitoring bores from 2016 to 2019

Nitrate-N concentrations recorded in the five years up to 2017 in the down-gradient bore (south-east) displayed a decreasing trend in contrast to that shown by ammoniacal-N concentrations (Figure 33). Nitrate-N concentrations have decreased in the south-east bore. This is an improvement from previous monitoring.

Faecal coliforms were detected in the West bore (3 cfu/100 mL, January 2019) and the McKenzie bore (1 cfu/100 mL, April 2019). Any results lower than detection are graphed as zero.

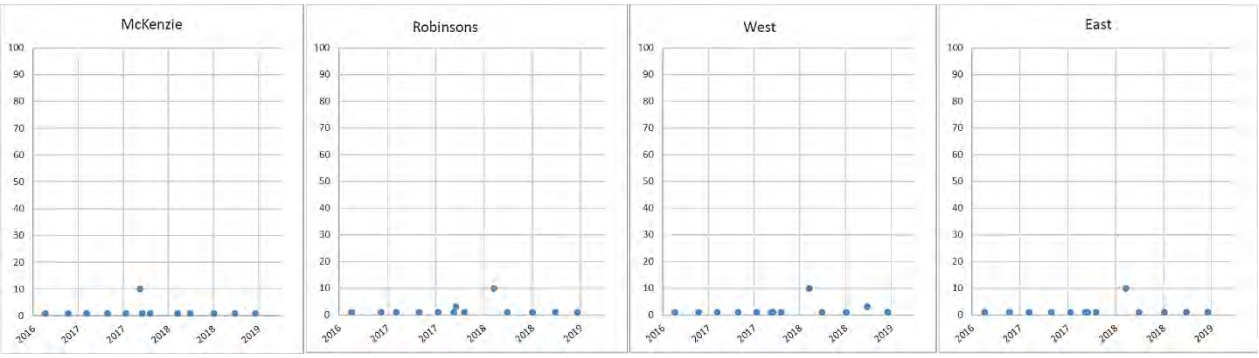


Figure 34: Faecal coliforms numbers in groundwater monitoring bores from 2016 to 2019

4.4. Operations and Maintenance

During the 2018/19 monitoring period there were no major capital works. The plant operation and maintenance has been standard with no significant unplanned maintenance needed to occur.

4.5. Summary of Compliance – CRC168391

Record keeping of wastewater volumes complied with the requirements of the resource consent and enabled seepage volumes to be calculated. Seepage volumes for the 2018/19 monitoring period met the requirements of Conditions 5 and 6.

Groundwater monitoring records for 2018/19 were complete, with groundwater levels (at the two bores where it is possible to take readings; some of the well heads are sealed) and water quality samples being collected on four occasions. Therefore, the requirements of Conditions 9, 10 and 11 were met in full.

The groundwater monitoring undertaken in 2016/17 indicates that:

- Depth to groundwater has continued to increase year-on-year from the two previous monitoring periods.
- Ammoniacal-N concentrations in groundwater down-gradient of the Woodend WWTP was higher than that measured from the up-gradient bores; however. The Woodend WWTP is a likely contributor to elevated ammoniacal-N concentrations in down-gradient groundwater.
- Nitrate-N concentrations in the down-gradient bore (south-east) have reduced which is a continuing trend from the previous monitoring period. Therefore, Woodend WWTP appears to be having a negligible effect on nitrate-N concentrations in groundwater down-gradient of the WWTP.
- There is no detectable evidence of faecal contamination of groundwater attributable to the Woodend WWTP.
  Overall, WDC has achieved compliance with the conditions of resource consent CRC168391.

5. CRC031724 – DISCHARGE TO JOCKEY BAKER CREEK

5.1. Monitoring and Reporting Requirements

Resource consent CRC031724 was granted in 2004 to groundwater from subsoil drains and toe drains around infiltration wetland into the coastal marine area of Jockey Baker Creek,

In the event a discharge occurs into Jockey Creek an alarm is raised in SCADA to inform the operators the event has occurred. If this occurs samples are to be taken as per conditions 5 and 6.

There was no discharge into Jockey Baker Creek during the 2018/19 monitoring period.

6. CRC145027 – DESLUDGING AT RANGIORA WASTEWATER TREATMENT PLANT

6.1. Monitoring and Reporting Requirements

Resource consent CRC145027 was granted in October 2014 to permit the discharge of dewatered sludge removed from wastewater pond 1A at the Rangiora WWTP to land. Sludge is suction dredged, then piped via a closed system to geotextile bags for storage and dewatering.

The monitoring requirements are set out in Conditions 16 and 17:

Condition 16

"On completion of the pond dredging operation and commencement of the dewatering phase, the consent shall either:

a) Sampling the drainage water from the dewatering/dewatered sludge at six monthly intervals for the following parameters:

Arsenic

- Arsenic
- Copper
- Cadmium
- Chromium
- Lead
- Mercury
- Nickel
- Zinc, with all metals in the soluble form; and
- Total Nitrogen
- Ammoniacal Nitrogen
- Dissolved Reactive Phosphorus,or

b) A subsequent sampling regime and timeframe that has received written approval from the Chief Executive of the Canterbury Regional Council or delegate shall be undertaken."

Condition 17

"The consent holder shall either:

a) Monitor the downstream monitoring bore M35/9177 at six monthly intervals (generally September and April) for the following parameters:
- pH
- Total Nitrogen
- Ammoniacal Nitrogen
- Metals (Zinc, Copper and Arsenic in the soluble form); or

b) A subsequent sampling regime and timeframe that has received written approval from the Chief Executive of the Canterbury Regional Council or delegate shall be undertaken."

The reporting requirements are set out in Condition 20 and state that the annual report is to include the following details:

- The discharge point of drainage water.
- Findings of the three monthly inspections of the liner, bund and drainage.
- Results of laboratory analyses undertaken in the previous 12-month period.
- Details of any spills.

6.2. Monitoring Results

6.2.1. Drainage water discharge point

All discharge from the discharge chamber is currently pumped back into pond 1A at the Rangiora WWTP.

6.2.2. Three monthly inspections

Inspections of the sludge pond are done on a weekly basis, which is more regular than the three-monthly frequency required by the resource consent. There have been no reports of any issues associated with the liner, pump, bund or drainage from the sludge pond during the 2018/19 monitoring period.

6.2.3. Laboratory analyses

Samples from the sludge pond pump chamber and M35/9177 were collected on the following dates:

- 20th August 2018
- 8th May 2019

The results shown in Table 16 and compared with the trigger values appended to the resource consent. Condition 16 of the resource consent requires two samples to be collected annually, at six monthly intervals, thus compliance with the monitoring requirements of Condition 16 was met during the 2018/19 monitoring period. Three of the four parameters with associated consent trigger values (i.e., arsenic, nickel and TN) recorded concentrations below their respective trigger values.

The concentration for ammoniacal-N was above the trigger value (30 g/m^3) on one sampling occasions, however the limit did not apply at the time as the pH in monitoring bore M35/9177 was below the trigger application level (pH 8).

Table 16: Dewatering sample results and comparison with trigger values.

Parameter (gm/m^3)	20th August 2018	8th May 2019	Trigger Levels[1]
Arsenic	<0.02	<0.02	0.2
Cadmium	0.0127	0.024	
Chromium	<0.010	0.013	
Copper	0.53	1.06	
Lead	0.005	0.01	
Mercury	<0.002	<0.002	
Nickel	0.122	0.193	1.6
Zinc	9.8	17.5	30
Total Nitrogen	75	72	224
Ammoniacal-N	21	36	30

[1] If monitoring data is below the trigger level drainage from the liner can be discharged direct to ground.

Dissolved Reactive Phosphorus	0.056	0.035	

Condition 17 of the resource consent requires two samples to be collected annually, at six monthly intervals. Therefore, compliance with the requirements of Condition 17 were met in full during the 2018/19 monitoring period.

The results are shown in Table 17, and compared with 80 % of the relevant maximum allowable value reported in the New Zealand Drinking-Water Standards (NZDWS) (MoH 2008). Condition 14 states that should subsequent groundwater monitoring under Condition 17 show an upward trend extending over four consecutive sampling events, or a trigger level reaches 80 % of the relevant MAV, then the discharge of dewatering water to land must cease and be returned to the treatment pond. All parameters recorded concentrations less than their respective 80 % of MAV (where applicable), while pH was within the recommended range (MoH 2008). The only trend evident was the continued decrease in TN concentrations.

It is noted that WDC is not yet discharging to land yet so groundwater quality will not be affected by the sludge pond.

Table 17: Groundwater monitoring results for Bore M35/9177.

Parameter	20th August 2018	8th May 2019	80% of MAV[2]
pH	6.9	7.1	7.0-8.52
Total Nitrogen	1.32	1.04	-
Ammoniacal-N	<0.010	<0.010	1.2
Soluble Arsenic	<0.0010	<0.0010	0.008
Soluble Copper	<0.0005	<0.0005	1.6
Soluble Zinc	<0.0010	<0.0010	1.2

6.2.4. Spills

There were no spills during the 2018/19 monitoring period.

6.3. Operations and Management

There has been no significant operational changes that have an effect on CRC145027.

6.4. Summary Compliance – CRC145027

The monitoring and sampling results completed during the 2018/19 monitoring period fully comply with Conditions 16 and 17.

[2] Maximum Allowable Value as defined in the New Zealand Drinking Water Standards (MoH 2008)

7. CRC173124 – DISCHARGE CONTAMINANTS TO AIR - RANGIORA WASTEWATER TREATMENT PLANT

7.1. Monitoring and Reporting Requirements

The following is an extract from the consent that outlines the sampling requirements.

Condition 2

The wastewater treatment ponds and aeration basin shall be operated so that the dissolved oxygen concentrations of the wastewater in the ponds are maintained at levels of no less than two grams per cubic metre, based on the ten percentile of annual results during the hours of measurement as stated in Condition 3.

Condition 3

Dissolved oxygen levels shall be measured in each pond between the hours of 11am and 2pm on one day in every seven day period.

Condition 4

The consent holder shall maintain a record of dissolved oxygen measurements which shall include the following information:

- The date and time the measurements were taken; and
- Water temperature at the time the measurements were taken; and
- Dissolved oxygen concentrations; and
- Identification of the pond in which the measurements were taken.

Conditions 2, 3 and 4 have been met. The operators visit the sites weekly and record the data that is electronically recorded. This data has been forwarded to CRC electronically and is available upon request.

Note that conditions 9, 10, 11, 12 are no longer applicable. These relate to the using of sprays that were used to remove NH_4. These have been decommissioned. A variation will be sort in the future to update the consent.

7.2. Odour Complaints

There was a single complaint received on the 5/12/2018 (SR1800316) due to odour from the new aeration basin at the Rangiora WWTP. The cause was the dissolved oxygen monitor that controlled the aerators went out of calibration. This turned off all of the aerators causing the aeration basin to become odorous. Following this event the aerators have been run in manual control until the automated control is fully tested and there is confidence this event will not occur again.

7.3. Summary of Compliance

Compliance has been fully met for CRC173124.

APPENDIX A

Ocean Outfall Discharge Monitoring Results – Organochlorine Pesticides, PCBs and PAHs

Hill Laboratories
TRIED, TESTED AND TRUSTED

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Certificate of Analysis

Client:	Waimakariri District Council	**Lab No:**	2140331 SPv1
Contact:	Darryn Williams C/- Waimakariri District Council Private Bag 1005 Rangiora 7440	**Date Received:**	12-Mar-2019
		Date Reported:	20-Mar-2019
		Quote No:	53943
		Order No:	
		Client Reference:	Consent: CRC041162.2
		Submitted By:	Darryn Williams

Sample Type: Aqueous

Sample Name:		BSS19280 - Junction Ocean Outfall - Annual 12-Mar-2019 9:35 am				
Lab Number:		2140331.1				
Individual Tests						
pH	pH Units	8.0	-	-	-	-
Total Suspended Solids	g/m^3	80	-	-	-	-
Total Nitrogen	g/m^3	6.7	-	-	-	-
Total Ammoniacal-N	g/m^3	2.8	-	-	-	-
Nitrate-N + Nitrite-N	g/m^3	1.29	-	-	-	-
Total Kjeldahl Nitrogen (TKN)	g/m^3	5.5	-	-	-	-
Dissolved Reactive Phosphorus	g/m^3	3.2	-	-	-	-
Total Phosphorus	g/m^3	3.9	-	-	-	-
Dissolved Total Biochemical Oxygen Demand ($TBOD_5$)	$g\ O_2/m^3$	< 2	-	-	-	-
Total Biochemical Oxygen Demand ($TBOD_5$)	$g\ O_2/m^3$	14	-	-	-	-
Enterococci	MPN / 100mL	13	-	-	-	-
Campylobacter*	per 500mL	Not Detected	-	-	-	-
Salmonella*	per 500mL	Not Detected	-	-	-	-
Faecal Coliforms and E. coli profile						
Faecal Coliforms	cfu / 100mL	60 #1	-	-	-	-
Escherichia coli	cfu / 100mL	50 #1	-	-	-	-
Organochlorine Pesticides Screening in Water, By Liq/Liq						
Aldrin	g/m^3	< 0.00010	-	-	-	-
alpha-BHC	g/m^3	< 0.0002	-	-	-	-
beta-BHC	g/m^3	< 0.0002	-	-	-	-
delta-BHC	g/m^3	< 0.0002	-	-	-	-
gamma-BHC (Lindane)	g/m^3	< 0.0002	-	-	-	-
cis-Chlordane	g/m^3	< 0.00010	-	-	-	-
trans-Chlordane	g/m^3	< 0.00010	-	-	-	-
2,4'-DDD	g/m^3	< 0.0002	-	-	-	-
4,4'-DDD	g/m^3	< 0.0002	-	-	-	-
2,4'-DDE	g/m^3	< 0.0002	-	-	-	-
4,4'-DDE	g/m^3	< 0.0002	-	-	-	-
2,4'-DDT	g/m^3	< 0.0002	-	-	-	-
4,4'-DDT	g/m^3	< 0.0002	-	-	-	-
Dieldrin	g/m^3	< 0.00010	-	-	-	-
Endosulfan I	g/m^3	< 0.0002	-	-	-	-
Endosulfan II	g/m^3	< 0.0002	-	-	-	-
Endosulfan sulfate	g/m^3	< 0.0002	-	-	-	-

Sample Type: Aqueous						
Sample Name:		BSS19280 - Junction Ocean Outfall - Annual 12-Mar-2019 9:35 am				
Lab Number:		2140331.1				
Organochlorine Pesticides Screening in Water, By Liq/Liq						
Endrin	g/m³	< 0.00010	-	-	-	-
Endrin aldehyde	g/m³	< 0.00010	-	-	-	-
Endrin ketone	g/m³	< 0.0002	-	-	-	-
Heptachlor	g/m³	< 0.00010	-	-	-	-
Heptachlor epoxide	g/m³	< 0.00010	-	-	-	-
Hexachlorobenzene	g/m³	< 0.0008	-	-	-	-
Methoxychlor	g/m³	< 0.00010	-	-	-	-
Total Chlordane [(cis+trans)*100/42]	g/m³	< 0.0004	-	-	-	-
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq						
Acenaphthene	g/m³	< 0.00010	-	-	-	-
Acenaphthylene	g/m³	< 0.00010	-	-	-	-
Anthracene	g/m³	< 0.00010	-	-	-	-
Benzo[a]anthracene	g/m³	< 0.00010	-	-	-	-
Benzo[a]pyrene (BAP)	g/m³	< 0.00010	-	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m³	< 0.00010	-	-	-	-
Benzo[g,h,i]perylene	g/m³	< 0.00010	-	-	-	-
Benzo[k]fluoranthene	g/m³	< 0.00010	-	-	-	-
Chrysene	g/m³	< 0.00010	-	-	-	-
Dibenzo[a,h]anthracene	g/m³	< 0.00010	-	-	-	-
Fluoranthene	g/m³	< 0.00010	-	-	-	-
Fluorene	g/m³	< 0.0002	-	-	-	-
Indeno(1,2,3-c,d)pyrene	g/m³	< 0.00010	-	-	-	-
Naphthalene	g/m³	< 0.0005	-	-	-	-
Phenanthrene	g/m³	< 0.0004	-	-	-	-
Pyrene	g/m³	< 0.0002	-	-	-	-
Polychlorinated Biphenyls Screening in Water, By Liq/Liq						
PCB-18	g/m³	< 0.00010	-	-	-	-
PCB-28	g/m³	< 0.00010	-	-	-	-
PCB-31	g/m³	< 0.00010	-	-	-	-
PCB-44	g/m³	< 0.00010	-	-	-	-
PCB-49	g/m³	< 0.00010	-	-	-	-
PCB-52	g/m³	< 0.00010	-	-	-	-
PCB-60	g/m³	< 0.00010	-	-	-	-
PCB-77	g/m³	< 0.00010	-	-	-	-
PCB-81	g/m³	< 0.00010	-	-	-	-
PCB-86	g/m³	< 0.00010	-	-	-	-
PCB-101	g/m³	< 0.00010	-	-	-	-
PCB-105	g/m³	< 0.00010	-	-	-	-
PCB-110	g/m³	< 0.00010	-	-	-	-
PCB-114	g/m³	< 0.00010	-	-	-	-
PCB-118	g/m³	< 0.00010	-	-	-	-
PCB-121	g/m³	< 0.00010	-	-	-	-
PCB-123	g/m³	< 0.00010	-	-	-	-
PCB-126	g/m³	< 0.00010	-	-	-	-
PCB-128	g/m³	< 0.00010	-	-	-	-
PCB-138	g/m³	< 0.00010	-	-	-	-
PCB-141	g/m³	< 0.00010	-	-	-	-
PCB-149	g/m³	< 0.00010	-	-	-	-
PCB-151	g/m³	< 0.00010	-	-	-	-
PCB-153	g/m³	< 0.00010	-	-	-	-
PCB-156	g/m³	< 0.00010	-	-	-	-
PCB-157	g/m³	< 0.00010	-	-	-	-

Sample Type: Aqueous						
Sample Name:		BSS19280 - Junction Ocean Outfall - Annual 12-Mar-2019 9:35 am				
Lab Number:		2140331.1				
Polychlorinated Biphenyls Screening in Water, By Liq/Liq						
PCB-159	g/m^3	< 0.00010	-	-	-	-
PCB-167	g/m^3	< 0.00010	-	-	-	-
PCB-169	g/m^3	< 0.00010	-	-	-	-
PCB-170	g/m^3	< 0.00010	-	-	-	-
PCB-180	g/m^3	< 0.00010	-	-	-	-
PCB-189	g/m^3	< 0.00010	-	-	-	-
PCB-194	g/m^3	< 0.00010	-	-	-	-
PCB-206	g/m^3	< 0.00010	-	-	-	-
PCB-209	g/m^3	< 0.00010	-	-	-	-
Total PCB (Sum of 35 congeners)	g/m^3	< 0.005	-	-	-	-

Analyst's Comments

#1 Statistically estimated count based on the theoretical countable range for the stated method.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.
Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Individual Tests			
Filtration, Glass Fibre for Soluble BOD	Sample filtration through glass fibre filter.	-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter. Performed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch.	-	1
pH	pH meter. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 4500-H^+ B 23rd ed. 2017. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1
Total Suspended Solids	Filtration using Whatman 934 AH, Advantec GC-50 or equivalent filters (nominal pore size 1.2 - 1.5µm), gravimetric determination. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 2540 D (modified) 23rd ed. 2017.	3 g/m^3	1
Total Nitrogen	Calculation: TKN + Nitrate-N + Nitrite-N. Please note: The Default Detection Limit of 0.05 g/m^3 is only attainable when the TKN has been determined using a trace method utilising duplicate analyses. In cases where the Detection Limit for TKN is 0.10 g/m^3, the Default Detection Limit for Total Nitrogen will be 0.11 g/m^3.	0.05 g/m^3	1
Total Ammoniacal-N	Filtered Sample from Christchurch. Phenol/hypochlorite colourimetry. Flow injection analyser. (NH_4-N = NH_4^+-N + NH_3-N). APHA 4500-NH_3 H (modified) 23rd ed. 2017.	0.010 g/m^3	1
Nitrate-N + Nitrite-N	Filtered sample from Christchurch. Total oxidised nitrogen. Automated cadmium reduction, flow injection analyser. APHA 4500-NO_3^- I (modified) 23rd ed. 2017.	0.002 g/m^3	1
Total Kjeldahl Nitrogen (TKN)	Total Kjeldahl digestion, phenol/hypochlorite colorimetry. Discrete Analyser. APHA 4500-N_{org} D (modified) 4500 NH_3 F (modified) 23rd ed. 2017.	0.10 g/m^3	1
Dissolved Reactive Phosphorus	Filtered sample from Christchurch. Molybdenum blue colourimetry. Flow injection analyser. APHA 4500-P G (modified) 23rd ed. 2017.	0.004 g/m^3	1
Total Phosphorus	Total phosphorus digestion, ascorbic acid colorimetry. Discrete Analyser. APHA 4500-P B & E (modified from manual analysis and also modified to include a reductant to reduce interference from any arsenic present in the sample) 23rd ed. 2017. NWASCO, Water & soil Miscellaneous Publication No. 38, 1982.	0.004 g/m^3	1

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Dissolved Total Biochemical Oxygen Demand ($TBOD_5$)	Filtered sample, Incubation 5 days, DO meter, no nitrification inhibitor added, no dilutions, seeded. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 5210 B (modified) 23rd ed. 2017.	2 g O_2/m^3	1
Total Biochemical Oxygen Demand ($TBOD_5$)	Incubation 5 days, DO meter, no nitrification inhibitor added, seeded. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 5210 B (modified) 23rd ed. 2017.	2 g O_2/m^3	1
Enterococci	MPN count using Enterolert, Incubated at 41°C for 24 hours. Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. MIMM 12.4, APHA 9230 D 23rd ed. 2017.	1 MPN / 100mL	1
Campylobacter*	Presence / Absence. Bolton broth, CCDA agar. Latex confirmation. Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. APHA 30 5th Ed.	-	1
Salmonella*	Detection of Salmonella by qualitative real-time PCR. Analysis performed at Hill Laboratories - Microbiology, 101C Waterloo Road, Christchurch.	-	1
Organochlorine Pesticides Screening in Water, By Liq/Liq	Liquid / liquid extraction, SPE (if required), dual column GC-ECD analysis	0.00010 - 0.0008 g/m^3	1
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, SPE (if required), GC-MS SIM analysis [KBIs:4736,2695]	0.00010 - 0.0005 g/m^3	1
Polychlorinated Biphenyls Screening in Water, By Liq/Liq	Liquid / liquid extraction, SPE (if required), GC-MS analysis	0.00010 - 0.005 g/m^3	1
Faecal Coliforms and E. coli profile			
Faecal Coliforms	Membrane Filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, Confirmation Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. APHA 9222 D 23rd ed. 2017.	1 cfu / 100mL	1
Escherichia coli	Membrane filtration, Count on mFC agar, Incubated at 44.5°C for 22 hours, Confirmation Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. APHA 9222 G 23rd ed. 2017.	1 cfu / 100mL	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

WAIMAKARIRI DISTRICT COUNCIL

REPORT FOR DECISION

FILE NO and TRIM NO:	WAT-05-19-07-02 / 190820116633
REPORT TO:	Oxford-Ohoka Community Board
DATE OF MEETING:	5 September 2019
FROM:	Colin Roxburgh, Water Asset Manager
SUBJECT:	Request for Approval to Proceed with Consultation on Poyntzs Road Joining with West Eyreton and Summerhill Water Supplies

SIGNED BY:
(for Reports to Council, Committees or Boards)

Department Manager | Chief Executive

1. SUMMARY

1.1. This report is to seek the Oxford-Ohoka Community Board's endorsement to consult with the Poyntzs Road, West Eyreton and Summerhill communities on the project to upgrade the Poyntzs Road water supply by joining with the West Eyreton water supply.

1.2. The Poyntzs Road scheme is currently supplied by a single well that does not comply with the protozoal requirements of the Drinking-water Standards for New Zealand (DWSNZ). The Council is bound by the Health (Drinking-water) Amendment Act to ensure that the scheme meets the standards.

West Eyreton and Summerhill Water Supply Advisory Group Consultation

1.3. Meetings and workshops have been held with the West Eyreton and Summerhill Water Supply Advisory Groups in 2017 and 2018 on this project. The key points raised are as follows:

- Concerns were raised around the overall capacity of the West Eyreton source to provide an adequate supply to all three schemes. Staff have since provided evidence to demonstrate that there will be sufficient source capacity for this to occur over the next 50 year horizon.

- The groups strongly advocated for a financial contribution to be made from the Poyntzs Road scheme to the West Eyreton and Summerhill schemes as a condition of joining and sharing the infrastructure at the source. Funding options have been derived to ensure that options involving this contribution are included within the consultation material for consideration by the respective communities.

Implication of Council Review of Funding for UV Upgrades to Poyntzs Road Scheme

1.4. As part of consultation on the Draft 2019-20 Annual Plan, Council considered alternative ways of funding ultra-violet (UV) treatment upgrades across the district. This was in acknowledgement of the difficulty in providing safe and affordable water to small supplies, such as the Poyntzs Road scheme.

1.5. An option was approved in which the costs of UV treatment upgrade costs were aggregated into a single rate across the district's public water supplies. In the case of

Poyntzs Road, the project to join with West Eyreton is proposed as an alternative to UV treatment at the Poyntzs Road site rather than being a project to install UV treatment. The reason that joining the Poyntzs Road scheme to the West Eyreton scheme is considered a preferable alternative to installing UV treatment at Poyntzs Road is that while UV treatment would achieve protozoal compliance, it would not provide treatment for rising nitrates on the scheme which are at risk of exceeding the maximum acceptable value (MAV) in the future if not addressed.

1.6. Therefore, it was resolved that the District Wide UV rate will fund 50% of the Poyntzs Road upgrade project, with the Poyntzs Road community funding the rest (refer to report 190426060012 on the adoption of the UV rate).

1.7. The result of this decision is that while the cost of the upgrade to the Poyntzs Road scheme is still significant, it is not as cost prohibitive as it would have been without this contribution.

Funding Options for Consultation

1.8. Following the determination of the optimum upgrade option, the consultation with the West Eyreton and Summerhill Water Supply Advisory Groups, and the Council's UV treatment funding decision, there is now the required level of certainty to carry out consultation with the affected communities.

1.9. It is proposed that the communities be consulted on how the project should be funded, with three options presented for consideration:

Table 1: Poyntzs Road Funding Options

Funding Option	Description of Share of Costs	Rating Impact
A	Poyntzs Road scheme cover full cost of upgrade, but no contribution towards West Eyreton or Summerhill.	• Significant increase to Poyntzs Road rates. • No change to West Eyreton or Summerhill rates.
B	Poyntzs Road scheme cover full cost of upgrade, plus make contribution towards new backup well at West Eyreton	• Greater increase to Poyntzs Road than Option A. • Moderate decrease in rates to West Eyreton and Summerhill.
C	Poyntzs Road scheme cover full cost of upgrade, plus make contribution towards new backup well at West Eyreton and to existing headworks infrastructure at West Eyreton.	• Greater increase to Poyntzs Road than Option A and Option B. • Greater decrease in rates to West Eyreton and Summerhill than Option B, but still moderate.

1.10. Draft consultation material is attached detailing how it is proposed that this information be communicated to residents on the three affected schemes. It is proposed that the consultation material be distributed, a public meeting held, then the results of consultation collated and reported back to the Oxford-Ohoka and Rangiora-Ashley Community Boards and Council for a final decision on the way forward for the project.

Attachments:

i. Draft Consultation Material (190820116632)
ii. Memo Presented to West Eyreton and Summerhill Water Supply Advisory Groups in November 2018 (181023123561).

2. RECOMMENDATION

THAT the Oxford-Ohoka Community Board recommends:

THAT the Utilities and Roading Committee recommends:

THAT the incoming Council:

(a) **Receives** report No. 190820116633.

(b) **Notes** that an upgrade to the Poyntzs Road scheme is required to achieve compliance with the Drinking-water Standards for New Zealand.

(c) **Notes** that the optimum way to achieve this upgrade is by installation of a pipeline from West Eyreton the Poyntzs Road, and that the optimum pipe route has been determined to be the Main Race Road alignment, following previous consultation with residents on two potential pipe routes.

(d) **Notes** that three funding options have been identified for consideration by the communities for the upgrade, following consultation with the West Eyreton and Summerhill Water Supply Advisory Groups.

(e) **Approves** staff to consult with the affected communities on the proposal and funding options identified, based on the draft consultation material attached, noting that the consultation material is currently in draft format and will be refined prior to distribution to residents.

(f) **Notes** that an identical report is to be presented to the Rangiora-Ashley Community Board prior to progressing with consultation.

3. BACKGROUND

3.1. The Poyntzs Road scheme is currently supplied by a single well that does not comply with the protozoal requirements of the Drinking-water Standards for New Zealand (DWSNZ).The Council is bound by the Health (Drinking-water) Amendment Act to ensure that the scheme meets the standards.

Determination of Optimum Upgrade Option and Pipe Route

3.2. In September 2017 Council endorsed the option of joining the Poyntzs Road scheme with the West Eyreton scheme as the preferred upgrade option. Alternative options that were considered but ruled out were:

- **Drilling a new deep well to find secure groundwater:** The likelihood of striking high quality secure groundwater in the area were deemed to be low, and this would likely require further treatment following new drinking-water standards coming into effect (therefore adding cost to this option and reducing its benefits).

- **Treating the existing source:** Treatment for protozoa is feasible by way of ultra-violet (UV) treatment potentially preceded by filtration. However, the nitrate levels on the Poyntzs Road scheme are at approximately 80 – 90% of the maximum acceptable value (MAV) and these cannot economically be treated for. Also, this option would mean that the scheme would still rely on a single source with no backup which has a risk of a future loss of supply.

- **Connecting to the Oxford Urban scheme:** This would be physically feasible, however there is some limitations on source capacity at the Domain Road source, and the distance is greater than to the distance to connect to West Eyreton.

Therefore, this option would have additional cost over the option of connecting to West Eyreton, with no additional benefit.

3.3. While the option of joining Poyntzs Road to West Eyreton and Summerhill was endorsed as the preferred strategy, there were two potential pipe routes that could be followed to make this connection. Council therefore endorsed staff consulting with residents along both potential pipe routes to connect Poyntzs Road to West Eyreton to determine the level of interest in connecting the schemes, which is a factor in determining the optimum route for the new pipe (refer report 170816088611).

3.4. The two potential routes, and results of the community consultation along both pipe routes is included below:

Figure 1: Potential Pipe Routes for Connection of Poyntzs Road to West Eyreton (exact point at which schemes will join is subject to hydraulic modelling being finalised)

3.5. Table 2 summarises the results of the initial stage of consultation:

Table 2: Responses to Consultation on Pipe Route

Item	Number
Number of letters dispatched to properties along potential alignments	301
Number of responses to letters	67
South Eyre Road Route:	
Number of properties wishing to connect immediately	2
Number of Properties considering connecting within 10 years	9
Main Race Road Route:	
Number of properties wishing to connect immediately (including potential five lot sub-division)	9
Number of Properties considering connecting within 10 years	5

3.6. Two properties in close proximity to the existing West Eyreton reticulation network identified that they might be interested in connecting within the next 10 years. These properties have been excluded from route analysis in Table 2, because the ability of these properties to connect is not dependent upon the new pipeline being installed.

3.7. The Main Race Road route has a greater number of immediate connections, with fewer interested in connecting within the next 10 years. The immediate benefit of this option is significantly greater than the South Eyre Road route because the projected number of new connections would provide more properties to share the cost of the project.

3.8. The South Eyre Road route has fewer total connections within 10 years and a significant proportion of these are not immediate connections, which potentially may not connect. Two of the nine properties considering connecting within 10 years are relatively close to either the Poyntzs Road or West Eyreton Schemes. Therefore, it might be viable to connect these properties by laying rider mains in the berm at a later date regardless of which pipe route is selected.

3.9. One of the immediate connections within the South Eyre Road route is roughly midway between the two routes and would require additional pipe or alterations to alignments. Subject to cost, this might be accommodated by either option.

3.10. Following this process, with the length of pipe similar along both routes, the Main Race Road route was determined to be the optimum route for the new pipe, due to a higher level of interest in residents wishing to connect.

West Eyreton and Summerhill Water Supply Advisory Group Consultation

3.11. Meetings and workshops have been held with the West Eyreton and Summerhill Water Supply Advisory Groups in 2017 and 2018 on this project. The key points raised by the groups through this process, and the way that these were addressed are as follows:

- Concerns were raised around the overall capacity of the West Eyreton source to provide an adequate supply to all three schemes. Staff have since provided evidence to demonstrate that there will be sufficient source capacity for this to occur.

- The groups strongly advocated for a financial contribution to be made from the Poyntzs Road scheme to the West Eyreton and Summerhill schemes as a condition of joining and sharing the infrastructure at the source. Funding options have been derived to ensure that options involving this contribution are included within the consultation material for consideration by the respective communities.

Implication of Council Review of Funding for UV Upgrades to Poyntzs Road Scheme

3.12. As part of consultation on the Draft 2019-20 Annual Plan, Council considered alternative ways of funding ultra-violet (UV) treatment upgrades across the district. This was in acknowledgement of the difficulty in providing safe and affordable water to small supplies, such as the Poyntzs Road scheme.

3.13. An option was approved in which the costs of UV treatment upgrade costs were aggregated into a single rate across the district's public water supplies. In the case of Poyntzs Road, the project to join with West Eyreton is proposed as an alternative to UV treatment at the Poyntzs Road site rather than being a project to install UV treatment. The reason that joining the Poyntzs Road scheme to the West Eyreton scheme is considered a preferable alternative to installing UV treatment at Poyntzs Road is that while UV treatment would achieve protozoal compliance, it would not provide treatment for rising nitrates on the scheme which are at risk of exceeding the maximum acceptable value (MAV) in the future if not addressed. Nitrates are cost prohibitive to treat at the scale required for a public water supply.

3.14. Therefore, it was resolved that the District Wide UV rate will fund 50% of the Poyntzs Road upgrade project, with the Poyntzs Road community funding the rest (refer to report 190426060012 on the adoption of the UV rate).

3.15. The result of this decision is that while the cost of the upgrade to the Poyntzs Road scheme is still significant, it is not as cost prohibitive as it would have been without this contribution.

4. ISSUES AND OPTIONS

4.1. Following the determination of the optimum upgrade option, the consultation with the West Eyreton and Summerhill Water Supply Advisory Groups, and the Council's UV funding decision, the next step is to consult with the affected communities on how to fund the upgrade.

4.2. In the past schemes joining have been funded through a variety of different models, depending on each situation. Some recent examples are listed below:

Table 3: Summary of Cost Sharing Models Used Historically

Schemes Joining	Financially Joined (costs merged into one account)	Key Notes
Summerhill joining with West Eyreton	No	Summerhill paid for all new infrastructure and contribution made from Summerhill to West Eyreton towards existing infrastructure.
Pines-Kairaki joining with Kaiapoi	Yes	The pipe to join the schemes was funded through an earthquake budget (to replace a damaged well) so no capital cost to scheme budgets.
Oxford Rural No.2 joining with Oxford Urban	No	Oxford Rural No.2 funded all new infrastructure required solely to accommodate it joining (new pumpstations), while the cost of a second well was shared as it had a dual benefit.
Fernside joining with Mandeville	Yes	Fernside paid the capital cost of the connection as an extra-over to their rate for the new joined scheme.
Woodend joining with Pegasus	Yes	The schemes were financially joined and all costs shared.

4.3. In deriving funding models for the joining of the schemes, the history of Summerhill and West Eyreton needs to be taken into account as the most relevant scenario. For this reason options that involved financially joining the schemes were not considered, as this would essentially mean West Eyreton and Summerhill helping to fund the project, which is not consistent to how Summerhill funded their joining with West Eyreton.

4.4. Three funding options have been derived for consideration to ensure that under all scenarios existing scheme members on West Eyreton and Summerhill are no worse off than if the project were not to occur, and under two of the three options members of these schemes would be marginally better off.

4.5. In particular, Option C was put forward by the West Eyreton and Summerhill Water Supply Advisory Groups to be more consistent with the model used when the Summerhill scheme joined with West Eyreton with a financial contribution being made from Summerhill towards West Eyreton at the time of connecting.

Table 4: Funding Options Table

Funding Option	Description of Share of Costs	Rating Impact
A	Poyntzs Road scheme cover full cost of upgrade, but no contribution towards West Eyreton or Summerhill.	• Significant increase to Poyntzs Road rates. • No change to West Eyreton or Summerhill rates.
B	Poyntzs Road scheme cover full cost of upgrade, plus make contribution towards new backup well at West Eyreton	• Greater increase to Poyntzs Road than Option A. • Moderate decrease in rates to West Eyreton and Summerhill.
C	Poyntzs Road scheme cover full cost of upgrade, plus make contribution towards new backup well at West Eyreton and to remaining headworks infrastructure at West Eyreton.	• Greater increase to Poyntzs Road than Option A and Option B. • Greater decrease in rates to West Eyreton and Summerhill than Option B, but still moderate.

4.6. Draft consultation material is attached detailing how it is proposed that this information be communicated to residents on the three affected schemes.

4.7. It is proposed that the consultation material be distributed, a public meeting held (or potentially separate public meetings for the Poyntzs Road scheme members relative to the West Eyreton and Summerhill scheme members), then the results of consultation collated and reported back to the Community Boards and Council for a final decision on the way forward for the project.

4.8. Given the proposed timeframes, the upcoming election needs to be considered in terms of the overall project timing. The following timetable is proposed for the consultation stage of the project through to receiving Council approval to proceed.

Table 5: Proposed Project Timeframe

Stage	Date
West Eyreton and Summerhill Advisory Groups Meeting	28 August 2019
Request OOCB Approval to Consult	5 September 2019
Request RACB Approval to Consult	11 September 2019
Request U&R Make Recommendation to Incoming Council to Consult	24 September 2019
Election	12 October 2019
Report from U&R Referred to incoming Council to give Approval to Consult	November 2019
Distribute Consultation Material to Scheme Members	Mid November 2019
Hold Public Meeting or Meetings	Date to be confirmed during consultation period
Period to Make Submissions Ends	Mid December 2019
Report back to Advisory Groups	January 2020
Report back to OOCB and RACB following consultation	February 2020
Report to Council to Request Adopt Funding Option and Proceed with Construction	March 2020

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

5. COMMUNITY VIEWS

5.1. Groups and Organisations

The West Eyreton and Summerhill Water Supply Advisory Groups have been consulted leading up to this stage.

A letter has been sent to the Poyntzs Road scheme members in 2018 informing them that a source upgrade project is required and that Council would be in touch with them to consult in detail on the project at a later stage.

5.2. Wider Community

The proposal for engaging with the wider community is explained in the Issues and Options section, and the draft consultation material attached to this report.

6. IMPLICATIONS AND RISKS

6.1. Financial Implications

There is a total budget currently allowed of $840,000 which is currently split 50/50 between the Poyntzs Road scheme, and the District Wide UV cost centres.

Changes in rates as a result of this project depend on which funding option is adopted. The potential changes are summarised in the figure below:

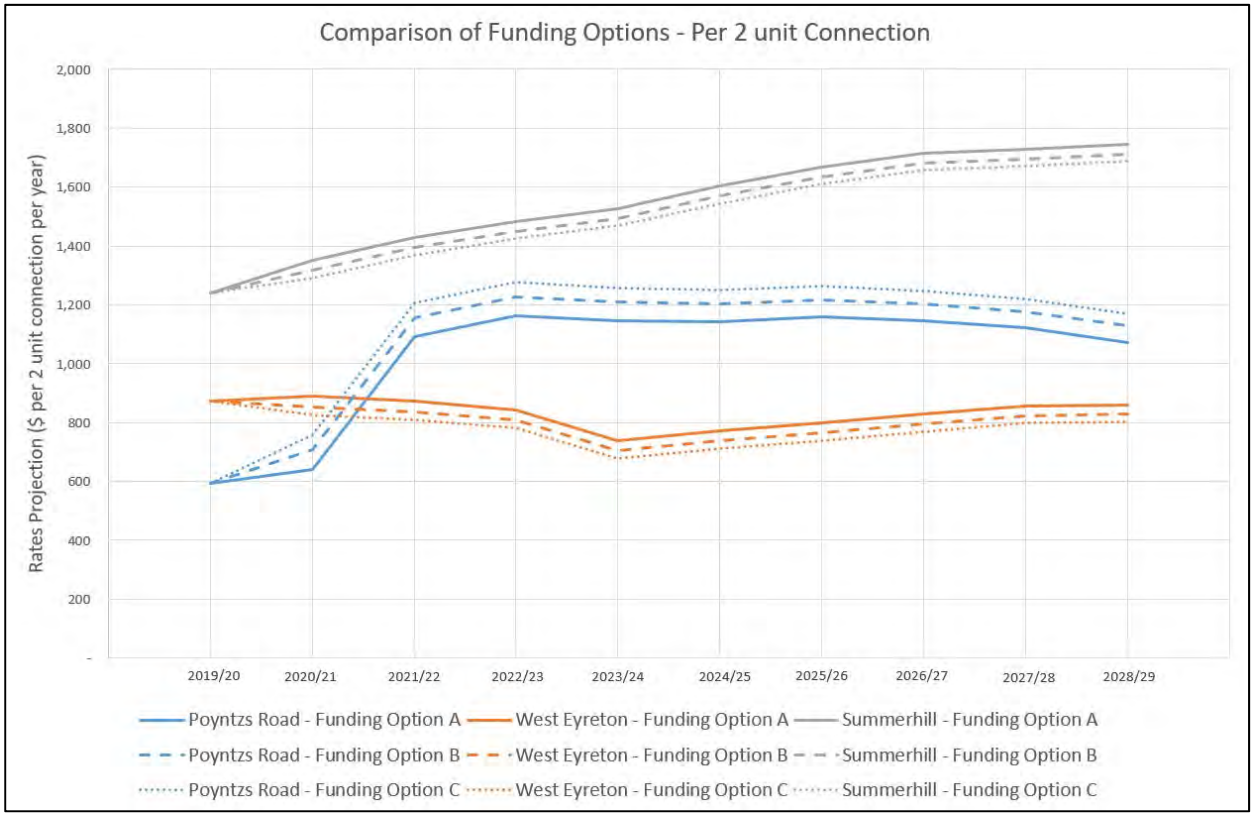


Figure 2: Rating Implication of Project Depending on Funding Option

6.2. Community Implications

The key benefit of this project is to improve the quality and safety of the water supplied to the Poyntzs Road scheme members.

This project will increase the rates to the Poyntzs Road scheme members, but offers the opportunity of modest rate reductions for the West Eyreton and Summerhill scheme members, depending on which funding option is adopted.

6.3. Risk Management

The Poyntzs Road scheme currently does not comply with the protozoal requirements of the Drinking-water Standards for New Zealand (DWSNZ), and as such is deemed to present an unacceptable level of risk, which is to be addressed by this project.

While the scheme is compliant with the chemical requirements of the DWSNZ currently, the increasing nitrate levels mean that there is a risk that the scheme may not comply with these requirements in the future if the current source is retained. The proposed solution of joining with West Eyreton will address this risk.

As has been experienced with Garrymere recently, and as was experienced when Summerhill joined to West Eyreton, consultation on matters such as this can be complex, and can incur delays to the overall project if there are questions of affordability or equity. This risk has been attempted to be mitigated by the prior work being carried out with the West Eyreton and Summerhill advisory groups prior to engaging with the wider community.

The affordability issue has been improved by the new UV rating system, however not eliminated entirely. The project still results in a substantial rating increase to Poyntzs Road scheme members. This is because the project is proposed to be partially funded by the new shared rate, and partially funded by existing scheme members, rather than being completely funded by the new UV treatment rate.

6.4. Health and Safety

This project aims to address the health and safety risk associated with the current Poyntzs Road source that does not meet the DWSNZ.

7. CONTEXT

7.1. Policy

This matter does not strictly meet the requirements to be considered a matter of significance in terms of the Council's Significance and Engagement Policy due to the relatively low number of residents affected. However, the consultation exercise proposed will be similar to the requirements for a Special Consultative Procedure.

7.2. Legislation

The Health (Drinking-water) Amendment Act is relevant in this matter. The Council is legislatively required to comply with the Drinking-water Standards, and this project presents a way to achieve this.

7.3. Community Outcomes

The following community outcomes are relevant in this matter:

- *There are wide ranging opportunities for people to contribute to decision making that effects our district.*
- *Core utility services are provided in a timely and sustainable manner.*

7.4. Delegations

This matter is within the board's delegated authority to consider and provide a recommendation to either the Council or the Utilities and Roading Committee on.

POYNTZS ROAD WATER SUPPLY SOURCE UPGRADE

PROPOSAL TO JOIN WITH WEST EYRETON AND SUMMERHILL SCHEMES

The Poyntzs Road water supply requires an upgrade to comply with the Drinking-water Standards for New Zealand (DWSNZ).

Following an options assessment, it has been identified that the best way to upgrade the scheme is to join it with the West Eyreton supply, which currently supplies water to the West Eyreton and Summerhill communities.

The Council is considering the best way to fund this upgrade and would like to hear your views.

Three funding options have been identified. Information on the project background and the funding options being considered has been included within this information pamphlet to allow you to make an informed submission.

There will be a public meeting to provide an opportunity to talk to staff, elected members, and the relevant advisory groups in more detail, and for the Council to answer any questions you may have.

Location: ***West Eyreton Community Hall***

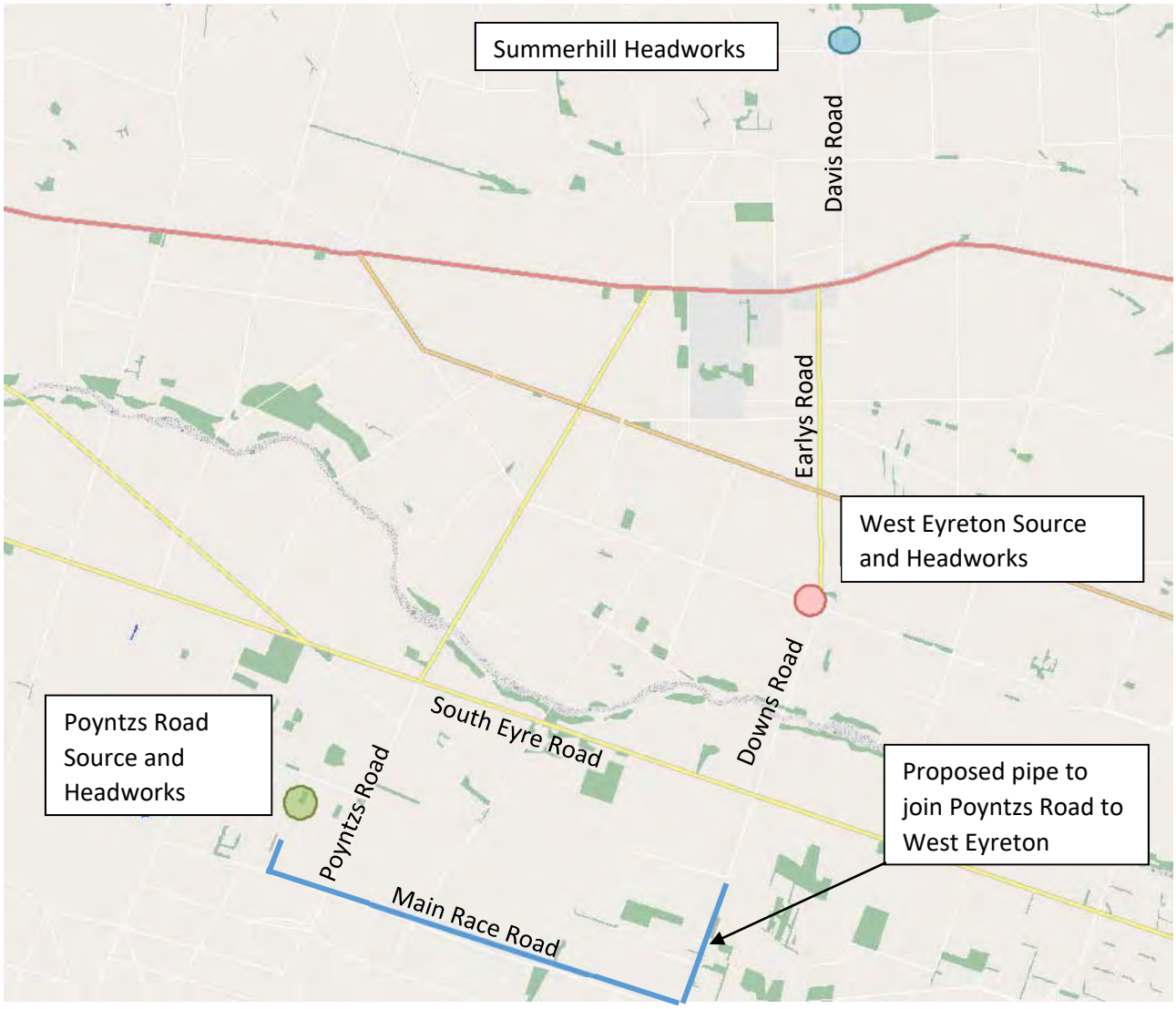
Date / Time: ***7:30pm, DATE***

Introduction

The Poyntzs Road water supply serves about 80 properties. Its source currently consists of a shallow well which is treated with chlorine disinfection prior to distribution to residents. While chlorine is effective at treating bacteria, it does not provide sufficient treatment against protozoa (such as giardia and cryptosporidium). For this reason an upgrade is required in order for it to be compliant with the Drinking-water Standards for New Zealand (DWSNZ).

There are two high quality and secure wells at the West Eyreton water supply headworks. These wells supply water to about 70 properties on the West Eyreton scheme, and a further 170 properties on the Summerhill scheme. The first of these deep wells was drilled in 2005, and the second completed in 2019.

It is proposed that the Poyntzs Road scheme be upgraded by joining with the West Eyreton supply. The map below gives an overview of the three schemes, and outlines the proposed new pipe route.



Why is an Upgrade Needed?

Under the Drinking-water Standards all suppliers must demonstrate compliance with the bacterial, protozoal and chemical requirements to ensure the safety of each supply. Over the last 10 years Council has been working through a series of upgrades from its largest to smallest schemes.

As the Poyntzs Road scheme does not provide treatment for protozoa, the Council is obliged under the Health Act to carry out an upgrade.

Options Assessment

An options assessment has been carried out in which a number of options were considered in order to determine the best way to complete the upgrade:

Option	Description & Cost	Issues / Benefits
Drilling a new deep secure well and connect to existing scheme	Drill new deep well to find secure groundwater near existing source, so that no treatment is required Estimated cost = $730,000* **if well successful, and excluding future UV treatment costs if standards change.*	• No evidence of existing deep wells in close vicinity found. Therefore, high risk that well could be drilled without finding sufficient source of water. • Likelihood that in future standards treatment will be mandatory (so future additional costs likely under this option).
Treatment of Existing Source	Filtration and UV could be installed at the existing headworks to achieve protozoal compliance. Additional treatment (ion exchange or reverse osmosis) would likely be required for nitrate removal. Estimated cost > $1.0M, plus high annual operating costs.	• Filtration and UV would be successful at achieving protozoal compliance. • Nitrate levels on the scheme have increased and will be at risk of exceeding the maximum allowable value going forward. The cost to treat nitrates is very high, and would make this option cost prohibitive. • The scheme would have no backup source, and consideration would be required to drilling a second well under this option in the long term.
Connect to Oxford Urban Scheme	A 12.5 km pipeline could be installed to join the Poyntzs Road scheme to the Oxford Urban scheme. Estimated cost $2.6M.	• The length of pipeline to connect the schemes would make this option cost prohibitive relative to the connection to West Eyreton. • Limited source capacity at Domain Road, may trigger another well.
Connect to West Eyreton scheme	An 8.8 km pipeline could be installed and a small booster pump station constructed to join to the West Eyreton scheme. Estimated cost $850,000	• There is sufficient high quality source capacity to serve all three schemes (Poyntzs Road, West Eyreton and Summerhill), taking into account 50 years' of projected growth.

Following the above options assessment, the option of connecting to the West Eyreton scheme was adopted by Council as the preferred upgrade option.

Summerhill and West Eyreton Background

The Summerhill and West Eyreton schemes have been through a similar process in the past, after it was identified that the Summerhill scheme required upgrading. This led to the Summerhill scheme joining with the West Eyreton scheme in 2012.

A number of funding options were considered for this project. Ultimately it was agreed that the schemes would remain financially separate (i.e. there still be separate rates for Summerhill and West Eyreton), but that Summerhill would make a financial contribution towards the West Eyreton scheme to reflect the infrastructure they would be sharing at the West Eyreton Headworks.

Funding Options

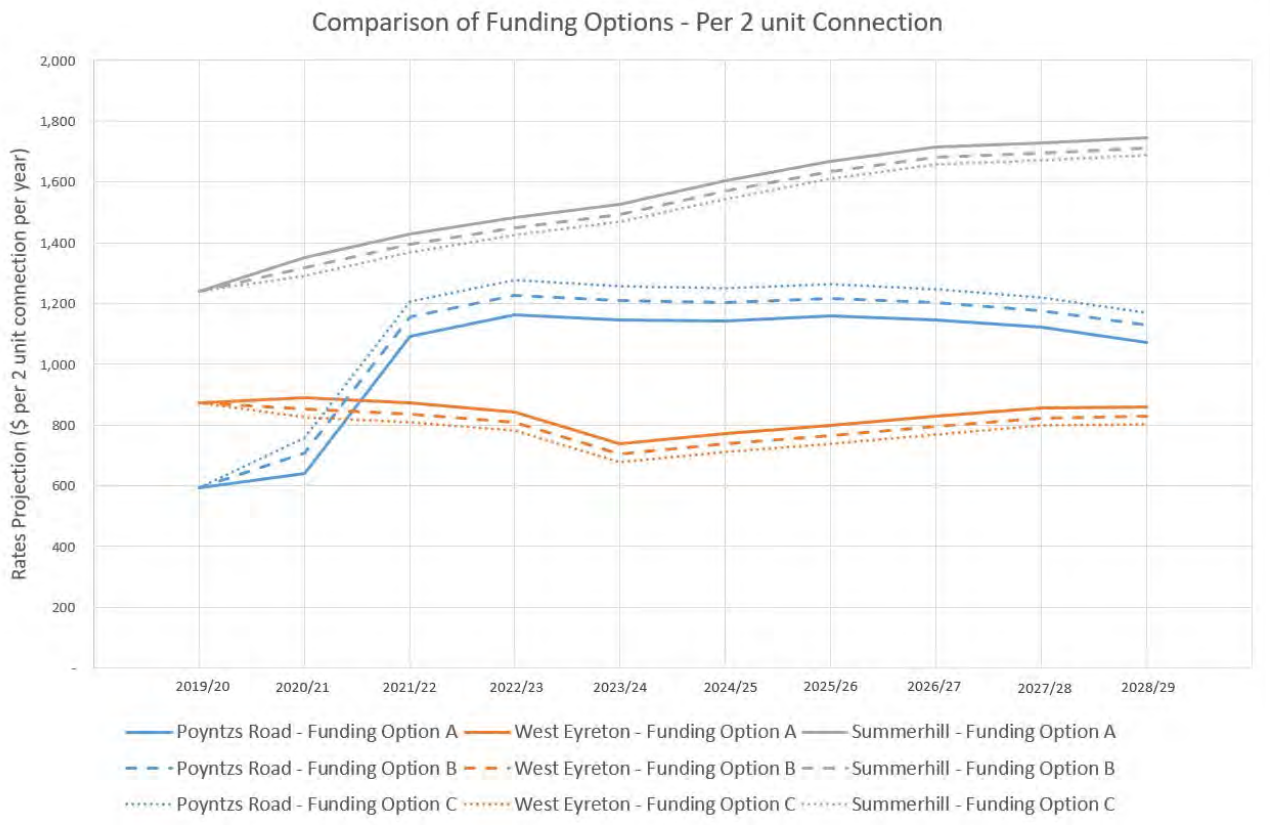
A key part of this project is determining how the work should be funded, and how this will affect rates on the various schemes.

Three funding options have been identified for consideration.

Funding Option Description	Rating Impact Description
Funding Option A • Poyntzs Road and District UV Rate fund costs associated with the joining of the schemes ($850,000) • No financial contribution from Poyntzs Road towards the West Eyreton or Summerhill schemes ($0)	This option would result in: • Poyntzs Road scheme members would see an increase in rates as a result of paying for the new pipeline and pumpstation. • There would be no change to the West Eyreton or Summerhill rates as a result of the project.
Funding Option B • Poyntzs Road and District UV Rate fund costs associated with the joining of the schemes ($850,000) • Financial contribution from Poyntzs Road for proportional share of second well cost at West Eyreton ($112,000)	This option would result in: • The increase in rates to Poyntzs Road would be greater than under Option A • There would be a marginal decrease in rates to the West Eyreton and Summerhill scheme members, as a result of the financial contribution from Poyntzs Road.
Funding Option C • Poyntzs Road and District UV Rate fund costs associated with the joining of the schemes ($850,000) • Financial contribution from Poyntzs Road for proportional share of second well cost at West Eyreton ($112,000) • Financial contribution from Poyntzs Road for proportional share of costs for original headworks site ($87,000)	This option would result in: • The increase in rates to Poyntzs Road would be greater than under Option A and Option B • The decrease in West Eyreton and Summerhill rates would be marginally greater than under Option B, as a result of the financial contribution from Poyntzs Road.

**See following section for explanation of District UV Rate*

The graph below shows how the funding options considered will affect the rates on the three schemes. There are a number of different connection sizes amoung the schemes depending on individual circumstances. The graph presents annual rates for a 2-unit (2,000 litre per day) connection for comparative purposes. Graphs with the same relative difference have been attached for 4 unit and 19 unit connection sizes as examples for other common connection sizes.



Council UV Treatment Rate and Impact on Poyntzs Road Project

Following the Havelock North Drinking-water Contamination event in 2016, there was an inquiry into drinking-water in New Zealand. As a result of this inquiry it is expected that over the coming years, ultra-violet (UV) treatment will be required to be applied to all public drinking-water supplies across the district. Budgets to do this were introduced as part of Council's 2018-28 Long Term Plan.

The Council acknowledged that these UV treatment costs could have a significant rating impact on some small schemes. To address this, a common UV treatment rate has been introduced in which all water supply ratepayers will be charged a uniform annual amount for UV treatment costs. This essentially means that the costs of UV treatment are shared across the district, rather than being targeted on a scheme by scheme basis. Generally this is beneficial to smaller schemes, by spreading costs across the district.

As the proposal of joining the Poyntzs Road scheme to the West Eyreton scheme is being done as an alternative to providing UV treatment at the Poyntzs Road source, the project qualified to be partially funded through the UV rate (based on a 50-50 cost share). This is reflected in the rating impact presented. If the UV treatment rate had not been adopted by the Council, the rating impact to the Poyntzs Road scheme would have been greater than what is currently presented.

What Next?

The Council would like to hear your views on the information presented, and which funding option you prefer.

To help you make an informed submission, a public meeting will be held where staff will present information on the project, and residents will be given the opportunity to ask questions.

The consultation phase will consist of the following key events:

- Public consultation period opens xxxxxx with distribution of information to residents.
- A public meeting will be held on xxxxx at 7:30pm at the West Eyreton Community Hall.
- Submissions will close on xxxxx.
- The West Eyreton and Summerhill water supply advisory groups, the Rangiora-Ashley Community Board, and the Oxford Ohoka Community Board will consider the feedback received before making a recommendation to Council on how to proceed.
- The Council will consider all feedback and submissions, before making a final decision on the way forward for the project.

Following consultation, and once Council has made a decision, the project will move into the detailed design, tendering and and construction phase. It is anticipated that all works will be completed by December 2020 (subject to agreement to funding approach being agreed and adopted by Council in early 2020).

We look forward to seeing you at the public meeting, and receiving your submission. Make sure your submission reaches us by xxxxxx.

Feedback form

Name: _____

Address: _____

Water scheme you are on (pick one):

- ☐ Poyntzs Road
- ☐ Summerhill
- ☐ West Eyreton

Your feedback is important to us. We want to hear which funding option you prefer for the proposal to join the Poyntzs Road scheme to the West Eyreton scheme:

- ☐ I support Funding Option A (no contribution from Poyntzs Road to West Eyreton and Summerhill schemes).
- ☐ I support Funding Option B (contribution from Poyntzs Road towards second well at West Eyreton headworks)
- ☐ I support Funding Option C (contribution from Poyntzs Road towards second well at West Eyreton headworks and towards original headworks infrastructure)

Comments:

_____

_____

_____

_____

_____

**ADD MORE COMMENTS ON REVERSE IF REQUIRED*

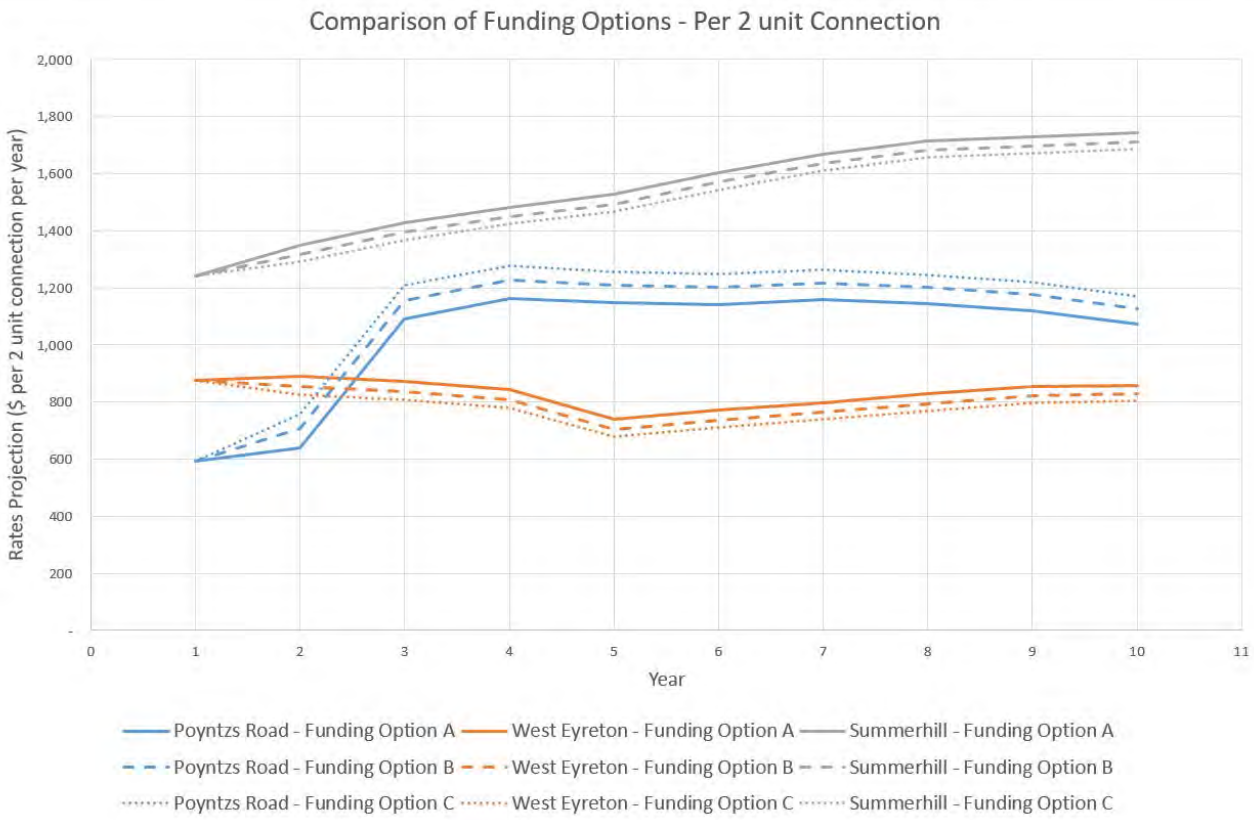
If you have any comments or questions regarding this proposal, come and see us at the Public meeting on DATE, or please contact:

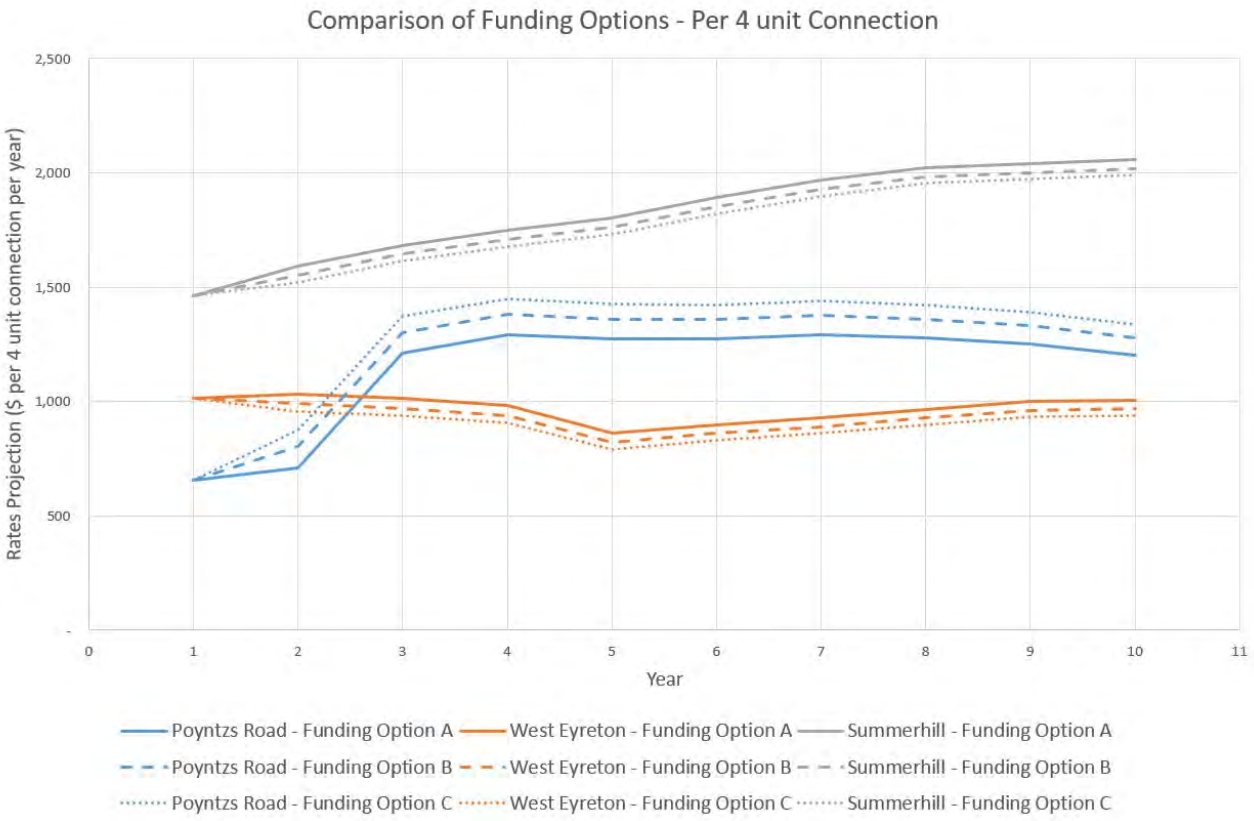
Colin Roxburgh, Water Asset Manager 0800 965 468 colin.roxburgh@wmk.govt.nz

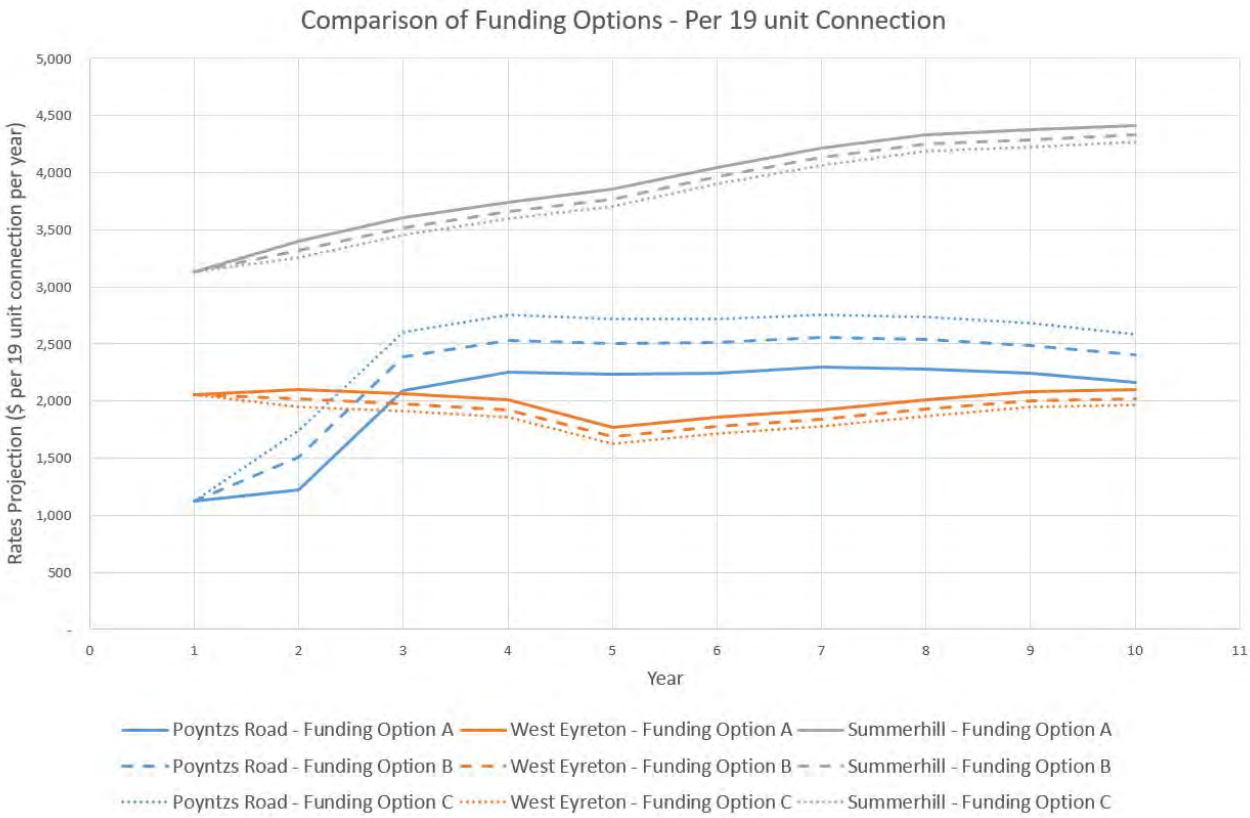
Please return this feedback from (no stamp required) back to us by DATE. You can also give us your feedback online at waimakariri.govt.nz/letstalk

Attachments:

Summary of rating impact depending on connection size:







Insert table showing cost estimate summary

WAIMAKARIRI DISTRICT COUNCIL

MEMO

FILE NO AND TRIM NO:	WAT-05-19-07-02 / 181023123561
DATE:	26 October 2018
MEMO TO:	West Eyreton and Summerhill Water Supply Advisory Groups
FROM:	Colin Roxburgh, Water Asset Manager
SUBJECT:	Questions from Water Advisory Group Meeting 07/02/18 with Council responses

At the meeting with the West Eyreton and Summerhill Water Supply Advisory Groups, held on 7 February 2018 at the Rangiora Service Centre, a number of queries were raised. This memorandum has been prepared to document responses to these queries to allow discussions with the groups to progress.

Although the discussion was primarily regarding the potential for Poyntzs Road scheme to physically join the West Eyreton and Summerhill schemes, initial queries related to system operation and the back-up well currently being constructed near the West Eyreton Headworks were also discussed.

1. High level description of existing water supply

The primary supply for the West Eyreton and Summerhill water supplies is a circa 100m deep well at West Eyreton headworks. The well pump in this well conveys water to two plastic tanks at the headworks, where chlorine is added before surface pumps convey water for West Eyreton into the distribution network and water for Summerhill to the Hunters Glen tanks, via the Davis Road pumping station. Council's chlorination strategy requires that all restricted schemes (where water is conveyed to private tanks within private property) use chlorine to provide residual disinfection.

Prior to the drilling of the deep well, water was sourced from a shallow well (circa 15m deep) which did not comply with Drinking Water Standards for New Zealand (DWSNZ). Following construction of the deep well the shallow well was retained for an emergency back-up only.

2. Second Deep Well

2.1. Description

A second deep well (circa 100m deep) has been drilled and consented at the headworks site, approximately 80m west of the original deep well. The intention of this well was primarily to provide redundancy such that if there are any issues with either of the deep sources the other can be used rather than relying on the shallow well to provide backup. The well head is to be constructed in November, and it is expected that this well will come online either later November or early December.

2.2. Capacity

The capacity of the two deep wells is summarised below. The capacity has been split into the capacity of the well (based on the aquifer parameters and the size of pump that could be installed within the well casing), the capacity of the existing well pump, and the resource consent limit.

Table 1: Well capacity summary

Site	Well Capacity	Current Pump Capacity	Resource Consent Limit*		Notes
			Inst.	Volume	
Original Deep Well (M35/9566) 200mm diameter	23 L/s[3]	15 L/s	25 L/s	- 15,120m^3 per 7 days (25 L/s) - 311,040m^3 per 150 days (24 L/s) - 445,000m^3 per year (14 L/s)	This well is limited by the size of the pump that can fit within the 200mm diameter casing (23 L/s)
New Deep Well (BW23/0480) 300mm diameter	> 40 L/s[2]	27 L/s	37 L/s		This well capacity is limited by the amount that could be justified in the resource consent application, taking into account effects on neighbouring well owners (37 L/s).

1. refer consent CRC186214 for consent conditions.

2. this is the maximum flow rate that this well was tested to, but it may have been able to produce a higher yield with a larger test pump.

3. if pump size increased to SP77-7 26kW (diameter 186mm which would fit in 200mm casing)

2.3. Costs

The budget set to provide the backup well was $590,000. All costs for the project have now been confirmed, with the total costs summarised below:

Table 2: Summary of Actual Costs for West Eyreton Second Deep Well

Item	Costs
Well drilling and development	$ 112,400
Resource consent	$ 11,500
Well head construction	$ 93,800
Electrical	$ 72,900
Pipe connection	$ 34,000
Site works (entranceway / fencing)	$ 25,300
Professional fees	$ 51,600
Total Actual Costs	$ 401,500
Total Budget	$ 590,000

The split of costs between schemes is summarised below. The split of costs was originally split approximately 33% West Eyreton 67% Summerhill.

The question was raised by the advisory groups at the February 2018 meeting as to why it was not proposed that the Poyntzs Road scheme pay a contribution towards the Summerhill and West Eyreton schemes to offset the recent investment in the new well. It was agreed that an option would be presented to show a potential contribution by the Poyntzs Road scheme to this well.

Table 3: Cost sharing options for new well

	Second Deep Well Budget	Actual (current)	Actual (if Poyntzs contributes)	Connections
West Eyreton Share	$ 190,000	$ 132,500	$100,400	72 (22%)
Summerhill Share	$ 400,000	$ 269,000	$ 200,700	173 (53%)
Poyntzs Road Potential Share	$ -		$100,400	83 (25%)
Total	$ 590,000	$ 401,500	$ 401,500	328

**cost split rounded to 25% West Eyreton, 50% Summerhill, 25% Poyntzs Road)*

3. Funding Approach for Poyntzs Road Connection

Based on the feedback received, 3 potential options have been derived to show the way in which the proposed combined scheme could be rated:

Option A: Poyntzs Road scheme covers all costs associated with the upgrade such that West Eyreton and Summerhill rates do not change as a result of Poyntzs Road joining. This will result in an increase in the Poyntzs Road rates, and no change in the West Eyreton or Summerhill rates relative to the schemes staying separate.

Option B: Poyntzs Road scheme covers all costs associated with the upgrade, plus pay a contribution to the new backup well. This would result in:

- An increase in Poyntzs Road rates over and above Option A
- Moderate reduction in West Eyreton and Summerhill rates relative to Option A (due to contribution received from Poyntzs Road).

The contribution to be made by Poyntzs Road towards West Eyreton and Summerhill under this option would be $100,400 (as per Table 3).

Option C: Poyntzs Road scheme covers all costs associated with the upgrade, a contribution towards the new back-up well, and a contribution towards the existing headworks. This would result in:

- An increase in Poyntzs Road rates over and above Option A and Option B
- Moderate reduction in West Eyreton and Summerhill rates relative to Option A and Option B (due to increased contribution received from Poyntzs Road).

In 2009 Summerhill contributed $141,000 for 137 connections to join the scheme. This sum was agreed by the two advisory groups based on Summerhill sharing the existing well, land, building and associated infrastructure at the West Eyreton headworks (refer 090429011832 for copy of agreement). In order to calculate the contribution for Poyntzs Road as per Option C, the same rate per property was assumed ($1,030 per property contribution to give combined scheme contribution of $86,500, over and above contribution for Option B).

These rating options are presented below. It is noted that projecting future rates carries some uncertainty, however the projections are suitable for demonstrating the relative impact of the various options considered.

Table 4: Projected Rating Impact of Funding Options

			Estimated Rates for Year 2021/22 (after schemes joined)		
	Current Rates 2018/19	Future 2021/22 Rates (if no Poyntzs Road source upgrade)	**A** – Poyntzs Road covers all costs of upgrade	**B** – Poyntzs Road covers all costs of the Upgrade and contributes to back-up well	**C** – Poyntzs Road covers all costs of the Upgrade and contributes the back-up well and existing infrastructure
West Eyreton					
Per Connection	$ 734	$ 809	$ 809	$ 782	$ 759
Per Unit	$ 71	$ 79	$ 79	$ 76	$ 74
2 unit property	$ 876	$ 967	$ 967	$ 935	$ 907
4 unit property	$ 1,018	$ 1,125	$ 1,125	$ 1,088	$ 1,056
Summerhill					
Per Connection	$ 921	$ 1,211	$ 1,211	$ 1,188	$ 1,167
Per Unit	$ 104	$ 137	$ 137	$ 135	$ 132
2 unit property	$ 1,129	$ 1,486	$ 1,486	$ 1,457	$ 1,432
4 unit property	$ 1,337	$ 1,760	$ 1,760	$ 1,726	$ 1,696
Poyntzs Road					
Per Connection	$ 544	$ 691	$ 1,493	$ 1,561	$ 1,620
Per Unit	$ 32	$ 43	$ 93	$ 97	$ 101
2 unit property	$ 608	$ 777	$ 1,679	$ 1,756	$ 1,822
4 unit property	$ 672	$ 863	$ 1,865	$ 1,950	$ 2,024
19 unit property	$ 1,152	$ 1,508	$ 3,260	$ 3,409	$ 3,538

The following graph shows the relative rates between schemes for the options considered:

Figure 1: Comparison of Rates for 2-unit Properties

4. Capacity Assessment if Poyntzs Road Joins

Questions were raised by the advisory groups as to whether there would be sufficient source capacity, should the Poyntzs Road scheme join the West Eyreton and Summerhill schemes. There were also questions about how many new connections were allowed for on each scheme, and also what the allocation of water between schemes is.

An explanation of the process for determining the number of connections, projected flow, and the required source capacity for the scheme is presented below.

4.1. Current and Future Demand

The amount of source capacity required depends on the amount of connections to the scheme, the demand per connection, and the storage provided.

4.1.1. Projections for number of connections and units

The process for predicting future flows is outlined in the 50 Year Water and Sewer Growth Forecast Report (171108121120). The following factors were considered when projecting future connections and therefore flow numbers throughout the district:

- Waimakariri Interim Growth population projections (scenario 3)
- Existing connections & rating charges
- Consents and plans for development areas
- WDC staff knowledge of development areas
- Statistics New Zealand 2013 census population projections
- Draft Waimakariri 2048 District Development Strategy
- Past connections & rating charges
- Infill investigation figures

Specifically in the case of the future growth projections for Summerhill, West Eyreton and Poyntzs Road the following number of new connections were assumed over 50 years:

Table 5: Summary of expected increases in connection numbers and units

Scheme	Current		50 Year		Increase	
	Conn.s	Units	Conn.s	Units	Conn.s	Units
Summerhill	173	511	290	857	117	346
West Eyreton	70	249	116	341	46	92
Poyntzs	84	467	140	467	56	40

**Growth Forecast Report assumed no new units on Poyntzs Road, as it was assumed new connections achieved by subdividing existing 19 unit connections. However, 40 new units (20 connections) have been assumed in table over and above this).*

It can be seen that it has been assumed there will be 117, 46 and 56 new connections over 50 years on the Summerhill, West Eyreton and Poyntzs Road schemes respectively.

On Summerhill the existing number of units per connection of approximately 3 was assumed to remain constant as growth occurs, based on an expected mixture of farming activities and lifestyle blocks (with lifestyle blocks typically requiring 2 units, and farming activities sometimes more than this depending on use). For West Eyreton it was assumed that the majority of new connections would be 2 unit ‘lifestyle block’ connections.

In the case of Poyntzs Road it was assumed that development would generally occur by existing 19 unit connections subdividing down to 2 unit properties. Therefore in the Growth Forecast Report (171108121120) for Poyntzs Road the number of connections is projected to increase, but not the total number of units allocated. This however does not allow for any new connections outside the existing scheme extents. Therefore, to ensure that this is accounted for, an additional 40 units have been assumed over and above that in the Growth Forecast Report.

4.1.2. Calculation of required source capacity

The following current and future flows are expected for the schemes based on the current and future numbers of connections. This is represented in terms of Average Daily Flow (ADF), Peak Daily Flow (PDF) and Peak Hourly Flow (PHF):

Table 6: Summary of flow projections

Scheme	Current (L/s)			50 year (L/s)		
	ADF	PDF	PHF	ADF	PDF	PHF
Poyntzs Rd*	1.5	2.7	3.1	1.8	3.2	3.6
West Eyreton	1.2	2.1	2.3	1.8	3.3	3.3
Summerhill	3.3	5.5	7.1	5.9	10.1	10.1
Total Demand	6.0	10.3	12.5	9.5	16.6	17.0

**Poyntzs Road future flows scaled up to allow for additional 40 units over and above those in the Growth Forecast Report.*

The required source capacity is somewhere between the peak daily flow and the peak hourly flow, depending on the amount of storage provided. If there is ample storage, the required source capacity is equivalent to the peak daily flow, while if there is no storage the required source capacity is equal to the peak hourly flow.

In the case of restricted schemes which have a relatively flat daily flow profile, providing additional storage does not tend to significantly reduce the amount of source capacity required. Therefore, in the case of the potential combined Poyntzs Road, West Eyreton and Summerhill scheme it can be concluded that the required source capacity shall be equivalent to the projected peak hourly flow for the scheme.

Therefore, presently the source capacity would be required to be 12.5 L/s, and in the future it is projected to be 17.0 L/s.

4.2. Comparison of Demand versus Source Capacity

The required source capacity versus actual source capacity is compared below:

- Current scenario: The required source capacity requirement of 12.5 L/s can be provided by either the current deep well (capacity of 15 L/s) or the new deep well (capacity of approximately 27 L/s)
- Future scenario: The projected future source capacity requirement of 17.0 L/s could be provided by the current deep well if the well pump is upgraded to achieve a capacity of 23 L/s or by the new deep well with a capacity of approximately 27 L/s).

Based on the above, it is concluded that there is adequate source capacity to accommodate the Poyntzs Road water supply scheme to the wider West Eyreton – Summerhill scheme.

4.3. Allocation of water between schemes

A question was raised regarding the allocation of water between schemes. It is noted that historically it was agreed between the West Eyreton and Summerhill Water Supply Advisory Groups that the water allocation would be 51% West Eyreton to 49% Summerhill (record number 090429011832). Ultimately this recommendation from the advisory groups to Council was not adopted by Council, as there is no official owner of unallocated capacity at any given water source. However, in this instance assessments into future growth capacity have indicated that source capacity will not be a limitation on growth on either the Summerhill or the West Eyreton schemes up to and beyond the 50 year horizon.

4.4. 19 unit Connections on Poyntzs Road Scheme

Concerns were raised about the 14 properties currently connected to the Poyntzs Road water supply scheme that have 19 unit connections, and the impact that they could have on the source capacity. In order to compare the volume of water consumed per connection on the three schemes considered, the following table was produced:

Table 7: Comparison of Average Daily Flow and Peak Daily Flow for Respective Schemes

Scheme	Average Daily Flow (m^3/connection/day)	Peak Daily Flow (m^3/connection/day)
Poyntzs Road	1.6	2.8
West Eyreton	1.5	2.6
Summerhill	1.6	2.5

As is demonstrated above, the Poyntzs Road scheme has very comparable water consumption per connection statistics to both West Eyreton and Summerhill, despite the 19 unit connections. The reason is that these 19 unit connections were installed initially to allow properties to connect without private tanks, rather than due to high demand per property.