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AGENDA

Meeting of the
Infrastructure Strategy Committee

Wednesday 11 May 2022
commencing at **1:00pm**

To be held at the
Clocktower Chambers
Palmerston Street
Westport

Infrastructure Strategy Committee

Reports To: The Council

Chairperson: Jamie Cleine

Membership: The Mayor, all Councillors and Maori Representative

Meeting Frequency: Quarterly

Quorum: A majority of members (including vacancies)

Purpose

The Infrastructure Strategy Committee is responsible for:

1. Guiding sustainable physical development and growth of Buller to meet current and future needs, and aligned provision of fit-for-purpose network infrastructure.
2. Governance of efficient, safe and sustainable roading and transport, three waters, and waste management that enables Buller's economy and adds to the liveability of the district.

In addition to the common delegations on page 9, the Infrastructure Strategy Committee is delegated the following Terms of Reference and powers:

Terms of Reference:

1. To provide direction on strategic priorities for core district infrastructure aligned to district development, and oversight of strategic projects associated with those activities.
2. To provide direction and monitor Council's approach to development contributions.
3. To provide advice on the development and implementation of the Infrastructure Strategy Plan.
4. To provide direction regarding Council's involvement in regional alliances, plans, initiatives and forums for spatial planning, joint infrastructure and shared services (for example, Future Proof, Regional Transport Committee).
5. To provide clear direction on Council's strategic priorities to organisations and groups, for which Council facilitates funding, aligned with these Terms of Reference, and to oversee those funding arrangements and receive their strategic and business plans and annual performance reports.
6. To monitor and oversee the delivery of Council's non-financial performance and non-financial key projects, against the Long Term Plan, excluding key performance indicator reporting which is the responsibility of the Finance Risk & Audit Committee.

The Committee is delegated the following powers to act:

- Approval of purchase or disposal of land for network infrastructure, or parks and reserves for works and other purposes within this Committee's area of responsibility that exceeds the Chief Executive Officer's delegation, and is in accordance with the Annual Plan and Long Term Plan.
- Approval of any proposal of creation and/or closure of any road, including hearing and considering any written objections on such matters.

The Committee is delegated the following recommendatory powers:

- Adoption of the Infrastructure Strategy Plan to Council
- Recommend approval of additional borrowing to Finance Risk & Audit
- The Committee may make recommendations to Council and other Committees

Special Notes:

- The Chief Executive Officer and Manager Infrastructure Delivery, are required to attend all meetings but are not members and have no voting rights. Other Council officers may attend the committee meetings, as required.
- Written updates may be requested to be provided to Council Meetings from the Chair and Group Manager Infrastructure Services from time to time.

Oversight of Policies:

- *Road Naming*
- *Weedspraying*
- *Old Sewer Connections*
- *Common Drains*
- *Water Supplies – Metering of Long Lines*
- *Road Reserve Planting*

Infrastructure Strategy Committee

11 May 2022 09:00 AM - 05:00 PM

Agenda Topic Page

INFRASTRUCTURE STRATEGY COMMIITTEE

11 MAY 2022

AGENDA ITEM 1

Prepared by Michael Duff
Group Manager Infrastructure Services

APOLOGIES

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1. REPORT SUMMARY

That the Infrastructure Strategy Committee receive any apologies or requests for leave of absence from elected members.

2. DRAFT RECOMMENDATION

That there are no apologies to be received and no requests for leave of absence.

OR

That the Infrastructure Strategy Committee receives apologies from (insert Councillor name) and accepts Councillor (insert name) request for leave of absence.

INFRASTRUCTURE STRATEGY COMMIITTEE

11 MAY 2022

AGENDA ITEM 2

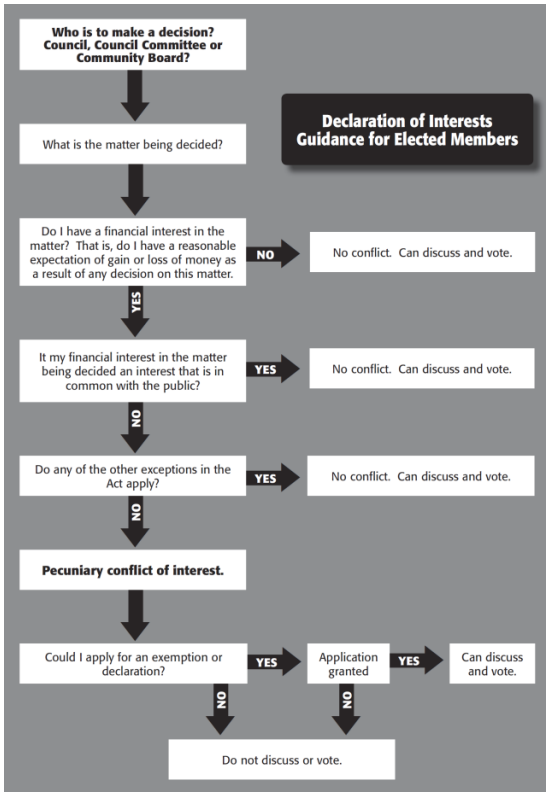
Prepared by Michael Duff
Group Manager Infrastructure Services

MEMBERS INTEREST

Members are encouraged to consider the items on the agenda and disclose whether they believe they have a financial or non-financial interest in any of the items in terms of Council's Code of Conduct.

Councillors are encouraged to advise the Governance Assistant, of any changes required to their declared Members Interest Register.

The attached flowchart may assist members in making that determination (Appendix A from Code of Conduct).



DRAFT RECOMMENDATION:

That Councillors disclose any financial or non-financial interest in any of the agenda items.

INFRASTRUCTURE STRATEGY COMMIITTEE

11 MAY 2022

AGENDA ITEM 3

Prepared by Michael Duff
Group Manager Infrastructure Services

CONFIRMATION OF MINUTES

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1. DRAFT RECOMMENDATION

That the Infrastructure Strategy Committee receive and confirm minutes from the meeting of 1 December 2021.

MEETING OF THE INFRASTRUCTURE STRATEGY COMMITTEE, COMMENCING AT 3.00PM 1 DECEMBER 2021, AT CLOCKTOWER CHAMBERS, PALMERSTON STREET, WESTPORT

PRESENT: Mayor J Cleine, Deputy Mayor S Roche, Councillors J Bougen, D Hawes, J Howard, R Nahr, P Rutherford, R Sampson,

APOLOGIES: Councillors M Montgomery, M Hill, G Weston, Iwi Representative N Tauwhare

IN ATTENDANCE: S Mason (Chief Executive Officer), M Duff (Group Manager Infrastructure Services), M Williams (Manager Infrastructure Planning), E de Boer (Manager Infrastructure Delivery), I Hunter (Contractor, Three Waters)

Media Ellen Curnow (Westport News)

Meeting opened at 3.18pm

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1. APOLOGIES (p5)

Discussion

Cr D Hawes noted work commitments prevented some councillors attending meetings and a solution was needed to assist. Cr Hawes suggested Local Government NZ or the Minister of Local Government could be approached as this situation was essentially interfering with democracy.

Mayor J Cleine agreed there was an issue with councillor availability and confirmed he had a conversation with Cr M Hill regarding his work commitments.

Following the meeting with Cr Hill regarding availability, Mayor Cleine would be recommending that Council not accept apologies from Cr Hill in future and possibly apologies from another councillor as well.

Apologies from Cr Hill would no longer be accepted and leave of absence was not granted from the meeting for Cr Hill.

Cr P Rutherford supported the line of thinking and suggested the same approach be taken with other councillors with consistent apologies.

Mayor Cleine stated another councillor had indicated a similar situation.

Records of attendance, the consequences of not accepting apologies, non attendance and due process were discussed.

Cr D Hawes pointed out the requirement under the Local Government Act that meeting times were set after the election to facilitate attendance of the elected Council. The decision then may have been made that every councillor is also a member of all committees as well as Council.

Meeting times and schedules then had to be accommodated by councillors once elected.

Cr Hawes indicated he would subsequently be voting against this motion.

There was discussion around when the system of all councillors attending all meetings was implemented, in relation to when councillors were inducted and associated expectations.

DM S Roche reminded councillors that Mayor Cleine had emailed and met with Cr Hill on several occasions to discuss this matter.

The minutes were to note that Cr M Hill's apology had not been accepted.

Mayor Cleine reiterated that he would be speaking with any councillors who build a pattern of no attendance consistently.

RESOLVED that the Infrastructure Strategy Committee receives apologies from Councillors M Montgomery, G Weston and Iwi Representative N Tauwhare and that the Infrastructure Strategy Committee would not receive an apology from Cr M Hill.

DM S Roche/Cr J Howard
7/1
CARRIED
Cr D Hawes Against

2. MEMBERS INTEREST (p7)

Discussion:

Cr R Nahr would exclude herself from the meeting during Item 9 Utilities Contract Review as she was an employee of WestReef Services Ltd.

RESOLVED That Councillors disclose any financial or non-financial interest in any of the agenda items, noting Cr R Nahr's exclusion from Item 9 Utilities Contract Review.

Mayor J Cleine/DM S Roche
8/8
CARRIED UNANIMOUSLY

3. CONFIRMATION OF MINUTES (p8)

Discussion:

Nil.

RESOLVED that the Infrastructure Strategy Committee receive and confirm minutes from the meeting of 8 September 2021.

Cr P Rutherford/Cr R Sampson
8/8
CARRIED UNANIMOUSLY

4. ACTION POINT LIST - UPDATE (p13)

Discussion:

M Duff (GM Infrastructure Services) noted the strategic addition of Item 2.1 - Develop Three Waters Reform feedback letter to Minister Mahuta, DIA and LGNZ

RESOLVED that the Infrastructure Strategy Committee receive the Action Point List for information.

Cr J Bougen/DM S Roche
8/8
CARRIED UNANIMOUSLY

5. MARUIA SPRINGS TO REEFTON SPEED REVIEW – WAKA KOTAHI (NZTA) (p116)

Discussion:

M Duff (GM Infrastructure Services) took the opportunity to recognise the work of Infrastructure Services staff and invited E de Boer (Manager Infrastructure Delivery) to provide an overview of the paper.

Mr de Boer explained that essentially NZTA (Waka Kotahi) were looking at a speed review of a section of the state highway between Maruia and Reefton as part of an overarching national programme.

This area was chosen as an initial location because of feedback received from Blacks Point residents and the entire corridor was investigated.

Buller District Council's submission was attached to the paper.

Regional consistency around speed settings was discussed, along with how data was collated as part of the consultation process.

Cr J Bougen thanked Infrastructure Services for advocating on behalf of residents and putting forward concerns in a considered and appropriate manner.

RESOLVED that the Infrastructure Strategy Committee notes the content of the Maruia Springs to Reefton Speed Review – Waka Kotahi (NZTA) report and attachments.

Mayor J Cleine/Cr D Hawes
8/8
CARRIED UNANIMOUSLY

6. STRATEGIC INFRASTRUCTURE OPPORTUNITIES FOR "BETTER OFF" FUNDING (p34)

Discussion:

M Duff asked that the report be taken as read and noted it was a sideline to the following paper on Three Waters Reform.

So that Buller District Council (BDC) was in a position to take advantage of external funding opportunities, now was a good time to start a conversation regarding infrastructure opportunities for better off funding. Notwithstanding there may be other opportunities for non-infrastructure, it was prudent to start thinking about it.

Following discussion on the matter and a proposed workshop early in 2022, Mayor Cleine reminded councillors that funding would come to the whole of Council and the Community, Environment & Services Committee etc could also be involved.

RESOLVED that the Committee:

1. Notes the content of this report.

2. Hold a workshop in March 2022 to identify, evaluate and prioritise infrastructure opportunities to consider for the $14.01M "better off" Government funding.

Mayor J Cleine/Cr D Hawes
8/8
CARRIED UNANIMOUSLY

7. THREE WATERS REFORM UPDATE (p40)

Discussion:

M Williams (Manager Infrastructure Planning) provided a brief overview of the report. This was a summary update of what had occurred since the last Infrastructure Strategy Committee meeting.

A letter had been sent to Local Government Minister Mahuta, however no formal report or reply had been received from the Department of Internal Affairs or the minister.

One of the key things to note since the last meeting was that Minister Mahuta had indicated the reforms process would be mandated.

Mayor Cleine commented that the intention was to put on record where Council are positioned in terms of water reforms and to start addressing the implications for Council under the assumption of a mandated process.

There was discussion regarding the likely local government legal challenge of the mandate and the gap between compliance and where the district is now in terms of infrastructure.

Implications of the reforms for smaller local water supplies and the associated impact on rates was also an issue.

Ownership of assets and transference of debt was discussed.

RESOLVED:

1. That the Committee note the content of the Three Waters Reform Update report and attachments.

2. That the Committee note staff Memo Attachment A.

Cr P Rutherford/Cr J Howard
8/8
CARRIED UNANIMOUSLY

8. PUBLIC EXCLUDED (p58)
Discussion:

Nil.

RESOLVED that the public be excluded from the following parts of the proceedings of this meeting

Item No.	Minutes/Report of:	General subject	Reason for passing resolution Section 7 LGOIMA 1987
9	Eric de Boer, Manager Infrastructure Delivery	Utilities Contract Review	Section 7(2)(i) - Enable any local authority holding the information to carry on, without prejudice or disadvantage, negotiations, including commercial and industrial negotiations.
10	Eric de Boer, Manager Infrastructure Delivery	Construction and Demolition Waste Project	Section 7(2)(i) - Enable any local authority holding the information to carry on, without prejudice or disadvantage, negotiations, including commercial and industrial negotiations.

Cr J Bougen/Cr D Hawes
8/8
CARRIED UNANIMOUSLY

E Curnow (Westport News) left meeting 4.08pm
Cr R Nahr left the meeting at 4.10pm

RESOLVED that the Infrastructure Strategy Committee move out of Public Excluded.

Cr R Nahr/Cr J Bougen
8/8
CARRIED UNANIMOUSLY

- There being no further business the meeting concluded at 4.39pm
- **Next meeting:** 3pm, Wednesday 11 May 2022, *Council Chambers, Palmerston Street, Westport.*

Confirmed: ……..……**Date**: ……..

Name: ……..…….

INFRASTRUCTURE STRATEGY COMMITTEE

11 MAY 2022

AGENDA ITEM: 4

Prepared By:	Mike Duff Group Manager Infrastructure Services
Reviewed By:	Mike Williams Manager Infrastructure Planning
Attachments:	A. Action Point List

ACTION POINT LIST

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1. REPORT PURPOSE

The purpose of this report is to endorse the Infrastructure Strategy Committee Action Point List.

2. REPORT SUMMARY

The Action Point List is updated for Committee meetings and grouped into the following categories of Governance, Strategic, Tactical, Independent and General.

3. RECOMMENDATION

That the Committee notes and endorses the Infrastructure Strategy Committee Action Point List.

4. UPDATE

The following items have been updated in the attached Action Point List:

- Added: Item 2.1 – Workshop for “Better Off” Funding

5. CONSIDERATIONS

5.1 Strategic Alignment

The successful completion of the Infrastructure Strategy and Asset Management Plans is in accordance with our LTP and is critical to the success of our district.

5.2 Significance Assessment

Infrastructure Strategy and Asset Management Plans are considered significant in terms of capital and operating expenditure, complexity, impact to levels of service and community benefit.

5.3 Tangata Whenua Considerations

Council works in partnership with Ngāti Waewae to provide governance. The LTP has high importance in relation to Tangata Whenua matters.

5.4 Risk Management Implications

Major risks are managed in accordance with Council's risk management processes including a "what could go wrong?" approach to ensure all practicable steps are being taken to assess, control and monitor identified risks.

5.5 Policy Framework Implications

Council must comply with the relevant policy and legal requirements including the Local Government Act 2002.

5.6 Legal Implications

There is no legal context, issue or implication relevant to this decision.

5.7 Financial / Budget Implications

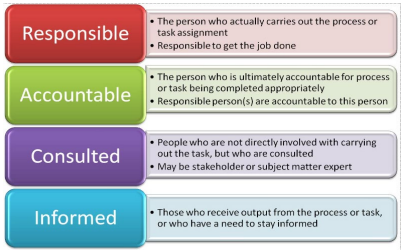
Costs for delivering services are expended against approved control baseline budgets established in the LTP and Annual Plans and are reported to Council accordingly.

5.8 Media/Publicity

Publicity is expected with levels of service, not all of which will be positive. However, this should not deter from the reasons for delivering important assets and infrastructure for the community.

5.9 Consultation Considerations

Affected parties and stakeholders including community members, private sector, government ministries, agencies and authorities are consulted throughout the service delivery process.



INFRASTRUCTURE STRATEGY COMMITTEE - ACTION POINT LIST

Revision: 0
Version: 5
Date: 11/05/2022

ITEM	DESCRIPTION	RESPONSIBILITY	ACCOUNTABILITY	CONSULTED	INFORMED	TIMING	PROGRESS COMMENTS	RISK RANKING
1	GOVERNANCE							
2	STRATEGIC							
2.1	Hold a workshop in March 2022 for "Better Off" funding	M.Williams	M.Duff	SLT	S.Mason, ISC	Workshop in March 2022	Workshop deferred, now proposed for May 2022	
3	TACTICAL							
~~3.1~~	~~Develop forward work program format based on LTP budget~~	~~E.de Boer~~	~~M.Duff~~	~~D.Phibbs~~	~~S.Mason, ISC~~	~~11/12/2019~~	~~Completed~~	
3.2	Develop Karamea SPR Transition Plan	M.Duff	M.Duff	SLT	S.Mason, ISC	Resolved by 2024	Draft LTP assumes 100% NZTA funding	
4	INTERDEPENDENT							
~~4.1~~	~~Develop draft Climate Change plan~~	~~TBC~~	~~S.Judd~~	~~SLT~~	~~ISC, CESC, FRAC~~	~~TBC~~	~~Regulatory Services will now lead~~	
5	GENERAL							

INFRASTRUCTURE STRATEGY COMMITTEE

11 MAY 2022

AGENDA ITEM: 5

Prepared By: Mike Williams
Manager Infrastructure Planning

Reviewed By: Mike Duff
Group Manager Infrastructure Services

Attachments: A – Better Off Support Package Guidance
B – SLT Workshop Notes
C – Multi Criterial Analysis SLT Draft

BETTER OFF FUNDING OPTIONS

1. REPORT PURPOSE

The purpose of this report is to outline the process adopted by the Senior Leadership Team (SLT) to identify, evaluate and prioritise options which will best satisfy the "Three Waters – Better Off Fund" criteria as defined in the Department of Internal Affairs (DIA) support package guidance.

This same SLT process is recommended to be adopted for a full Council workshop proposed to be held in May 2022 so that a final recommendation report can be brought forward for resolution no later than 30 June 2022.

2. REPORT SUMMARY

Through the Governments Three Waters Reform Programme the Buller District has been allocated $14.01M through the "Better Off Fund", this has been allocated in two tranches. Tranche 1, with a value of $3.5M, is available for draw down from May 2022 through to 30 September 2022. With Tranche 2 becoming available for draw down in 2024, with a value of $10.51M.

A separate $500M "no worse off" provision will help support Councils to address the costs and financial impacts incurred through the reform, such as the transfer of water assets, liabilities, revenue and staffing.

A guidance document for the Better Off funding package has been provided by DIA, refer to Attachment A.

The key criteria which all opportunities must satisfy are:

- Supporting communities to transition to a sustainable and low-emissions economy, including by building resilience to climate change and natural hazards.

- Delivery of infrastructure and/or services that enable housing development and growth, with a focus on brownfield and infill development opportunities where those are available.

- Delivery of infrastructure and/or services that support local place-making and improvements in community well-being.

SLT have identified an initial 'long list' of opportunities for consideration to Tranche 1 funding, based on a workshop session held 2 May 2022, refer to Attachment B for the relevant notes.

A Multi Criteria Analysis (MCA) has been developed which creates a formal process to assess and subsequently rank the opportunities. The criteria for assessment used have been sourced via DIA's requirements for proposals.

	CORE CRITERIA DIA			DIA PRIORITISATION					WELLBEING INDICATORS			
	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Criteria 6	Criteria 7	Criteria 8	Criteria 9	Criteria 10	Criteria 11	Criteria 12
CRITERIA DESCRIPTION	**Resilience to climate change & natural hazards** Transition to sustainable economy	**Enable housing development & growth** Infrastructure or services that enable brownfield development	**Place-making and improvements in community well-being** Infrastructure or services that support	**Value for Money** Do the identified wellbeing outcomes justify the cost?	**Strategic Plans** Is there existing strategic planning documentation to support this initiative?	**Iwi/Māori Support** Has the council engaged with Iwi/Māori on the intended use of the funding?	**Community Support** Does the initiative have rate-payer and local community support?	**Risk Analysis** Does your risk analysis show any undue concerns in completing the project - for example, are the resources required readily available?	**Social** Does the project have a mesurable outcome?	**Environmental** Does the project have a mesurable outcome?	**Economic** Does the project have a mesurable outcome?	**Cultural** Does the project have a mesurable outcome?
WEIGHT	10	10	10	10	10	10	10	10	5	5	5	5
	10%	10%	10%	10%	10%	10%	10%	10%	5%	5%	5%	5%

SLT have applied the MCA criteria and consensus scoring to conclude an initial draft ranking and prioritisation of the long-list opportunities.

Refer to Attachment C for the SLT initial draft ranking. It is proposed that this be used as basis for a full Council workshop in May to guide SLT and staff on what opportunities to bring forward for formal resolution before deadline of 30 June 2022.

3. RECOMMENDATIONS

That the Committee:

1. **Notes the content of this report and attachments.**

2. **Request a full Council workshop in May 2022 to identify the governance-preferred opportunities to Better Off Funding**

3. **Request a report to full Council no later than 30 June 2022 to resolve selected opportunities to Better Off Funding based on outcome of the Council workshop.**

4. NEXT STEPS

In context of the Better Off Funding options to consider, the following timeline is proposed:

- May 2022:
    - Hold full Council workshop to identify governance-preferred Tranche 1 opportunities
    - Identified opportunities assessed and developed in partnership with DIA
- June 2022: Report to full Council no later than 30 June 2022 to resolve selected Tranche 1 opportunities
- July 2022: Council-approved Tranche 1 opportunities submitted to DIA
- Approved works undertaken
- July 2024: Remaining 75% of Better Off Funding available ($10.5M)
- Note: Annual Plan and Long Term Plan (LTP) will be incorporated into decision making process

5. CONSIDERATIONS

5.1 Strategic Alignment

Community benefit and well-being is in accordance with our LTP and is critical to the success of our district.

5.2 Significance Assessment

Infrastructure strategy is considered significant in terms of fit for future levels of service and community benefit.

5.3 Tangata Whenua Considerations

Council works in partnership with Ngāti Waewae to provide governance. Infrastructure planning has high importance in relation to Tangata Whenua matters.

5.4 Risk Management Implications

Major risks are managed in accordance with Council's risk management processes including a "what could go wrong?" approach to ensure all practicable steps are being taken to assess, control and monitor identified risks.

5.5 Policy Framework Implications

Council must comply with the relevant policy and legal requirements including the Local Government Act 2002.

5.6 Legal Implications

There is no legal context, issue or implication relevant to this decision.

5.7 Financial / Budget Implications

Costs for delivering services are expended against approved control baseline budgets established in the LTP and Annual Plans and are reported to Council accordingly.

5.8 Media/Publicity

Publicity is expected with levels of service, not all of which will be positive. However, this should not deter from the reasons for delivering important assets and infrastructure for the community.

5.9 Consultation Considerations

Affected parties and stakeholders including community members, private sector, government ministries, agencies and authorities are consulted throughout the service delivery process.

Three Waters
Better Off Support Package

Guide to the better off funding package for local authorities

Te Tari Taiwhenua
Internal Affairs

Table of Contents

Headline Information

Key Dates

- Funding Proposal submission portal opens online **Monday 11 April 2022** and close **Friday 30 September 2022**
- Tranche 1 funding is available for use from **1 July 2022**

Applying for Funds

- There are **two** key **documents** to apply for and access the funding:
  - The Funding Proposal, outlining your council's intentions
  - The Funding Agreement
- You can only submit **one** Funding Proposal, but may include multiple projects or initiatives.
- You can use funding to cover projects up to **five years** in duration (through to 30 June 2027)
- You have a **relationship manager** assigned to your council to help you complete your proposal and access the funds *(see **Appendix D** for details)*

Funding Release

- An **initial instalment** of 10% of your funds will be released on approval of your Funding Proposal
- Subsequent instalments will be released in **arrears of costs** incurred, on receipt of:
  - A payment request (up to **one a month** can be submitted); and
  - Proof of **progress** on your expenditure programme

About the better off package

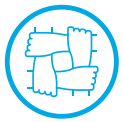
The better off package is:

- An investment by the Crown into the future for local government and community wellbeing; and
- In recognition of the significance to the local government sector (and the communities they serve) of the transfer of responsibility for water service delivery.

The use of this funding supports councils to transition to their new role post-reform through meeting some or all of the following criteria, as laid out in the Heads of Agreement:

Supporting communities to transition to a sustainable and low-emissions economy, including **by building resilience to climate change and natural hazards.**

Delivery of infrastructure and/or services that **enable housing development and growth**, with a focus on brownfield and infill development opportunities where those are available.



Delivery of infrastructure and/or services that **support local place-making** and **improvements in community well-being.**

About the application and funding process

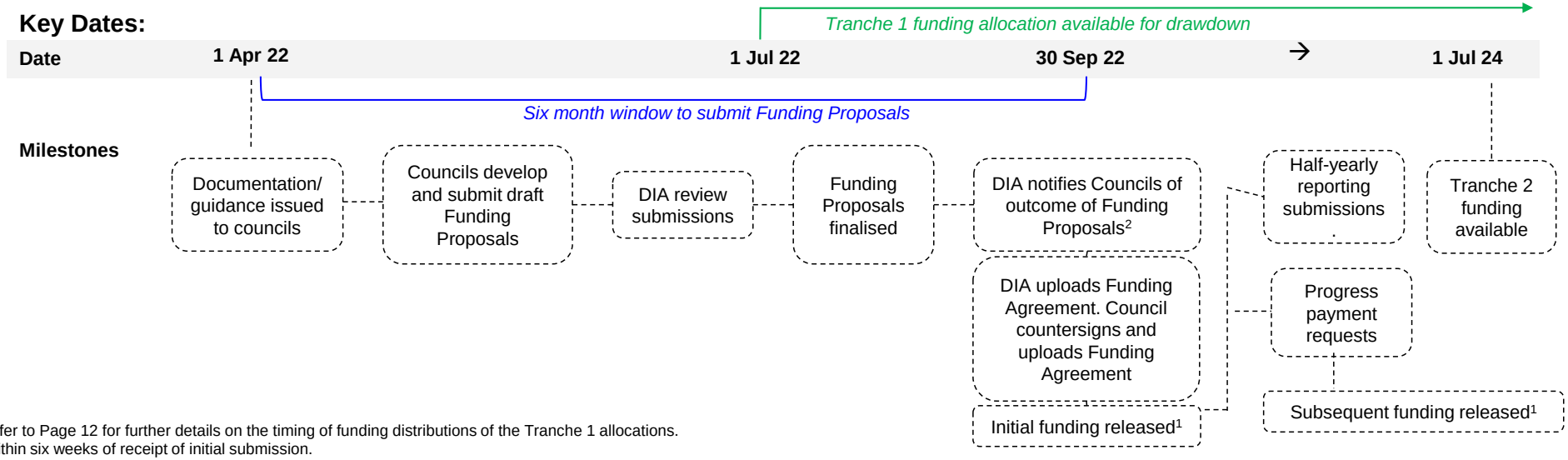
The better off package is one of the financial support packages to be provided to Local Authorities under the Three Waters Reform, as outlined in the Heads of Agreement.

The $2 billion package has been pre-allocated to councils based on a nationally consistent formula, and is available in two tranches. The first $500 million of Crown Funding is available from 1 July 2022 and the remaining $1.5 billion is available from 1 July 2024. This guide is specific to the first tranche of funding, however it is expected that access to Tranche 2 funding will follow a similar process.

This guide sets out the information needed for Local Authorities to engage with the Funding Agreement and Funding Proposal templates.
These are available on the Three Waters Reform webpage at: https://www.dia.govt.nz/three-waters-reform-programme-reform-support-package:

- Funding Proposal template available **01/04/2022** *(NB: template for review only, proposals must be submitted online via the Grants Management System)*
- Funding Agreement available **01/04/2022**

Key Dates:



[1] Refer to Page 12 for further details on the timing of funding distributions of the Tranche 1 allocations.
[2] Within six weeks of receipt of initial submission.

Relationship managers

To streamline the funding application and approval process, each council will be assigned a Relationship Manager to support them in developing their Funding Proposals. They will be available to provide additional guidance on an as-required basis.

Crown Infrastructure Partners have been appointed to fill this role.

The Relationship Manager's Role

Relationship managers are in place to work with, and support local authorities through the end-to-end Funding Proposal process. They also provide a liaison point between the councils and the DIA throughout the approval process.

Identify and **Prioritise**

Assist councils to **identify** and **prioritise** initiatives that:

- Meet the funding criteria & conditions
- Provide value for money
- Demonstrate wellbeing outcomes

Prepare

Help local authorities to **prepare** funding proposals, including:

- Preparing the schedule of expenditure
- Identifying milestones linked to project delivery
- Advising on contingency requirements
- Completing the wellbeing assessments

Submit

Support Councils to **submit** funding proposals to DIA:

- Navigate the online Grants Management System
- Liaise with the DIA and the Cross Government Evaluation team to resolve any queries on the Funding Proposal

Funding application documentation

Funding Agreement

Local Authorities are required to sign the **Funding Agreement** to access the better off funding package.

DIA will provide a completed Funding Agreement following its review of the funding proposal. A pro-forma copy of the Funding Agreement is available here.

The Agreement sets out the **purpose** of the funding, and the **requirements and conditions** that local authorities agree to meet to access the funding. The Agreements includes detail on the following:

- Funding conditions and criteria
- Overview of what the funding stimulus may be spent on
- Conditions attached to the funding
- Engaging with and supporting transition activities
- Reporting and other requirements

Funding Proposal

The Funding Proposal is the document Local Authorities will use to access funding, and specifies the Programme of Expenditure they wish to apply funding to. It will be submitted to DIA for review to ensure that it meets the following criteria:

Funding criteria

- The Programme must support one or more of the better off package criteria *(refer page 4)*
- Funding proposals must be for:
  - new initiatives/projects; and/or
  - to accelerate, scale-up and/or enhance the quality of planned investment
- The duration of the Programme of Expenditure must be 5 years or less (completion date on or before 30 June 2027)
- The Total Maximum Amount Payable must be equal to or less than the funding allocation (refer page 13)

Local Authorities have flexibility to apply better off funding as they deem appropriate, provided it is consistent with these funding conditions and the Funding Agreement, and approved via the Funding Proposal.

The Funding Proposal will cover the following elements:

- Programme overview (including work to be undertaken, summary of costs, relevant milestones and dates.)
- Demonstration that engagement was undertaken with iwi/Māori on the use of funding.
- How the Programme meets one or more of the better off package funding criteria and conditions
- A brief wellbeing assessment setting out the expected benefits of the Programme

Administration of the better off package will be managed through the DIA online Grant Management System. **To apply you will need access to this system.**
See **Appendix C** for more information

How to Identify and Prioritise Initiatives

The funding criteria provides flexibility for Councils to identify a potentially wide range of funding proposals.

Where a council has existing strategic plans and documentation that meet the funding criteria, these may inform your project selection, including proposals to accelerate, scale up or enhance current and planned initiatives.

To assist in identifying and prioritising your initiatives, below are examples of projects that may be eligible based on the criteria, along with key considerations when prioritising a list of initiatives. Judgement is required when making these decisions, and councils may choose to assign different weighting to these prioritisation factors based on the needs of your community.

	Initiative Examples
1	**Public Transport Improvement Programme*** • Replace bus fleet with electric buses • Upgrade public transport hubs to make them more user-friendly and safe • Increase frequency of services in busy times, and identify and provide public transport options to under-serviced areas
2	**Street Lighting Project** • Replace street lights with energy efficient bulbs • Increase street lighting in underlit and unsafe areas
3	**Coastal Placemaking Initiative** • New coastal public space and open air water park
4	**Community Connectivity Initiative*** • Assist communities in need with affordable wifi connections and wifi-enabled devices
5	**Digital Automation Programme*** • Transform resource consent application system
6	**Supporting people living with disabilities to participate fully in society*** • Improve accessibility to community facilities including ramp access and handrails • Installation of high specification bathrooms for people with complex disabilities

Initial Eligibility Check	
Does the initiative meet the funding conditions listed on page 4?	
Prioritisation Factors	
Value for Money	Do the identified wellbeing outcomes justify the cost?
Strategic Plans	Is there existing strategic planning documentation to support this initiative?
Iwi/Māori Support	Has the council engaged with iwi/Māori on the intended use of the funding?
Risk Analysis	Does your risk analysis show any undue concerns in completing the project - for example, are the resources required readily available?
Community Support	Does the initiative have rate-payer and local community support?

*See Appendix B for examples of wellbeing assessments for these initiatives

Funding Proposal – Key areas of consideration

Key areas of consideration to be aware of when developing the Funding Proposal:

Relationship between funding tranches

The first tranche ($500m available in July 2022 as per this guidance document) is distinct from the second, but councils are expected to **consider how the first tranche could support funding proposals for the second tranche**.

Local authorities do not have to apply for the full Tranche 1 amount upfront, funds not applied for in Tranche 1 will be made available in Tranche 2.

The second tranche will be subject to future guidance and application processes, however the same funding criteria and conditions are expected to apply.

Output-based milestones

Milestones must be linked to **specific and measurable outputs**.
Milestones should reflect progress of project delivery.
For example:

- In relation to project stages (e.g. procurement, design, construction); or
- Based on project progress (e.g. percentage of works completed)

Contingency

When preparing your schedule of expenditure, consider whether a contingency allowance is appropriate to allow for cost increases outside your control.

A process will be developed in the coming months to enable you to utilise unspent contingency.

Prior funding applications

If you have a project that meets the better off funding criteria, and has previously been submitted and reviewed through **another contestable funding source**, speak to your Relationship Manager.

You may be able to re-use your prior application details to streamline your Funding Proposal application.

Examples of funding that may fit this criteria are:

- Infrastructure Acceleration Fund (IAF)
- National Land Transport Programme (NLTP)
- IRG Shovel Ready

Other areas of consideration

Iwi/Māori: Pathway to target state of partnership *Refer to Page 10*

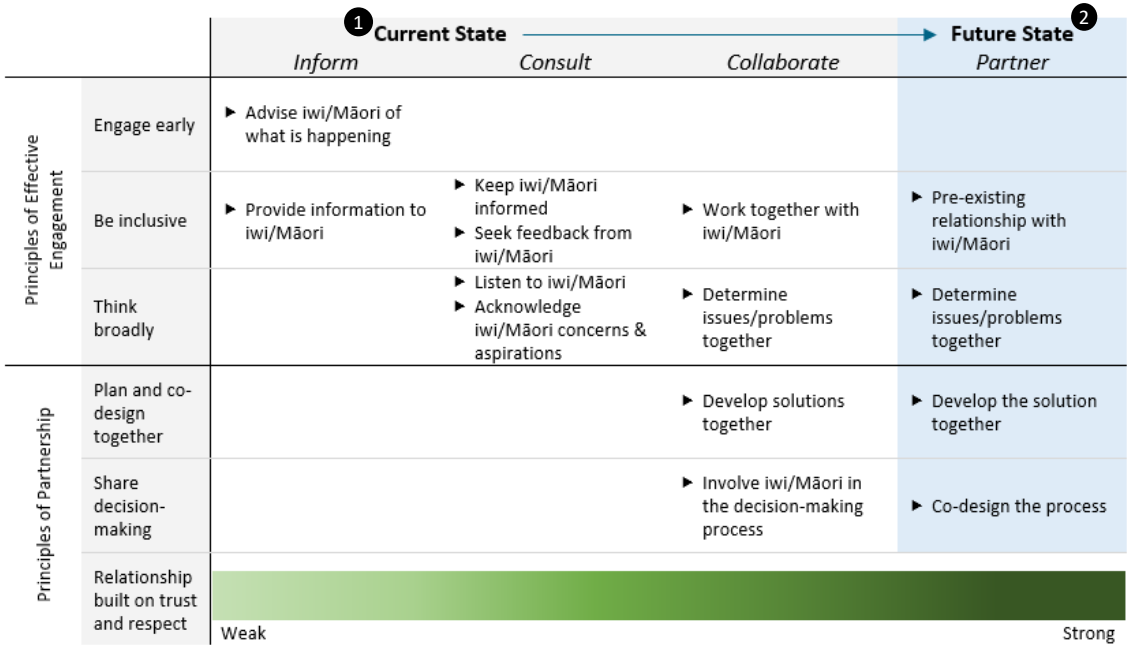
Wellbeing assessment *Refer to Page 11*

Relationship Managers will work with Local Authorities to finalise their Funding Proposals. They will be able to assist with specific questions around these considerations.

Iwi/Māori engagement

The criteria for the Better off funding package recognises that local authorities are expected to engage with iwi/Māori in determining how it will use its funding allocation. For tranche one, it is expected that the Funding Proposal demonstrates genuine engagement, extending beyond standing committees (see below).

The diagram below illustrates a continuum of engagement to partnership between Local Authorities and iwi/Māori. The funding tranches have been designed in a way that understands that most councils sit on the continuum at or near the current state. Investment in time and resources is required by both parties in order to build a relationship that is closely aligned to partnership. In recognition of this, the **minimum** expectations for Tranche 1 are set around the current state. However, the expectation with respect to accessing Tranche 2 funding is that the target state is achieved, or that there is a demonstrated pathway as to how it will be achieved.



Tranche 1 Minimum Expectations (Current State): 1

- Identify Māori impacted by the kaupapa (purpose) of the work, with a focus on hapū, iwi, post-settlement government entities, other mana whenua
- Evidence of genuine engagement, extending beyond standing committees
- Identify issues/concerns arising from the engagement, and steps taken to accommodate and support these interests.

Tranche 2 Minimum Expectations (Target State): 2

- Relationships built on trust and mutual respect
- Funding Proposals have been co-designed and co-implemented from inception
- Decision-making on initiatives to fund and prioritise have been made jointly.

Wellbeing assessments

Councils are expected to provide a wellbeing assessment setting out the expected benefits and wellbeing outcomes for each Programme.

The assessment should outline how the programme will deliver on:

- The broader "wellbeing mandates" under the framework of the Local Government Act 2002 (LGA), and
- The specific wellbeing criteria for the better off package shown on page 3

LGA areas of wellbeing	Considerations for completing the Wellbeing Assessment
 Social wellbeing	• **Define** the expected wellbeing outcomes from the Programme. • **Describe** how the Programme outcomes will promote the better off package outcomes and wellbeing objectives for your community. • **Decide** how you will measure, monitor and report on your stated wellbeing outcomes, preferably using your existing processes. (e.g. indicators of change/key performance indicators)
 Economic wellbeing	
 Environmental wellbeing	
 Cultural wellbeing	

 See **Appendix B** for examples of Wellbeing Assessments based on the initiatives shown on page 8.

Administration Process - Key areas of consideration

Key administration principles to be aware of when planning and applying for the better off funding package:

Release of funding	Following approval of a Funding Proposal and an executed Funding Agreement, an initial disbursement of **10% of the Total Maximum Payable** amount will be released. The remainder will be disbursed on receipt of a progress payment request from Councils: • Councils may submit a progress payment request, along with a progress report, up to once a month. This will be reviewed and approved by Crown Infrastructure Partners (CIP). • The review will focus on evidence that payments are linked to progress on the Programme. • On confirmation the review is satisfactory, funds will be released in arrears of costs incurred.
Monitoring and reporting	The Funding Agreement will outline the reporting requirements for councils. • Reporting is half-yearly (periods ending 30 June and 31 December), and a template will be provided to submit online. • CIP will monitor local authorities' progress against the Funding Proposal to provide assurance that Crown funding is being spent as intended and that projects are progressing within a reasonable timeframe. • The half-yearly reporting will also include monitoring of the achievement of outcomes as specified per the Funding Proposal. • There will be a process to address any material under-delivery or deviation from scope.
Project Substitution	There may be circumstances in which a council wishes to substitute or re-allocate funds allocated to another project in the Funding Proposal. These decisions will be considered by CIP, and made on a case-by-case basis. It may be prudent to consider having a "back-up" list of projects you have discussed with your relationship manager that can be used as a substitute in the event an approved initiative is unable to proceed.
Funding shortfalls	Funding allocations will not be 'topped up' to meet any shortfalls experienced by councils.

Funding allocations - methodology

A funding allocation framework has been developed, which is based on a nationally consistent formula.

The Government and Local Government New Zealand have agreed to this formula as it recognises the relative needs of local communities, the unique challenges facing local authorities in meeting those needs and the relative differences across the country in the ability to pay for those needs.

General approach to determining notional funding allocations

The **population** in the relevant council area.
(75% weighting)

The NZ **deprivation index*** adjustment to recognise the relative distribution of need across the country
(20% weighting)

The **land area** covered by a council, excluding national parks
(5% weighting)

*The New Zealand index of deprivation is an area-based measure of socioeconomic deprivation in New Zealand that combines nine variables from the Census, including income levels, educational qualifications, home ownership, employment, family structure, housing and access to transport and communications. It has been introduced in the formula for allocating the better off component of the support package to recognise the relative distribution of need across the country. It enables a balanced distribution of funding across territorial authorities that complements the remaining two criteria that recognise needs associated with a larger population base and land area.

APPENDICES

APPENDIX A: Notional funding allocations

Council	Allocation ($m)		
	Tranche 1	Tranche 2	Total
Auckland	127.14	381.43	508.57
Ashburton	4.19	12.57	16.76
Buller	3.50	10.51	14.01
Carterton	1.70	5.10	6.80
Central Hawke's Bay	2.83	8.50	11.34
Central Otago	3.21	9.63	12.84
Chatham Islands	2.21	6.62	8.82
Christchurch	30.61	91.82	122.42
Clutha	3.27	9.82	13.09
Dunedin	11.54	34.63	46.17
Far North	8.79	26.38	35.18
Gisborne	7.21	21.62	28.83
Gore	2.29	6.86	9.15
Greater Wellington	5.08	15.23	20.31
Grey	2.98	8.95	11.94
Hamilton	14.65	43.95	58.61
Hastings	8.72	26.16	34.89
Hauraki	3.78	11.34	15.12
Horowhenua	4.99	14.96	19.95
Hurunui	2.67	8.01	10.68
Invercargill	5.78	17.33	23.11
Kaikoura	1.55	4.66	6.21
Kaipara	4.04	12.11	16.14
Kapiti Coast	5.26	15.79	21.05
Kawerau	4.32	12.95	17.27
Lower Hutt	8.36	25.07	33.43
Mackenzie	1.55	4.65	6.20
Manawatu	3.76	11.29	15.05
Marlborough	5.76	17.28	23.04
Masterton	3.88	11.65	15.53
Matamata-Piako	4.32	12.95	17.27
Napier	6.46	19.37	25.82
Nelson	5.18	15.54	20.72
New Plymouth	7.90	23.69	31.59
Opotiki	4.68	14.04	18.72
Otorohanga	2.66	7.99	10.65
Palmerston North	8.16	24.47	32.63
Porirua	5.41	16.22	21.63
Queenstown Lakes	4.03	12.09	16.13
Rangitikei	3.33	9.99	13.32
Rotorua Lakes	8.05	24.15	32.19
Ruapehu	4.12	12.35	16.46
Selwyn	5.59	16.77	22.35
South Taranaki	4.55	13.65	18.20
South Waikato	4.64	13.92	18.56
South Wairarapa	1.88	5.63	7.50
Southland	4.80	14.41	19.21
Stratford	2.57	7.70	10.27
Tararua	3.80	11.39	15.19
Tasman	5.64	16.91	22.54
Taupo	4.93	14.80	19.74
Tauranga	12.10	36.30	48.41
Thames-Coromandel	4.05	12.15	16.20
Timaru	4.97	14.92	19.90
Upper Hutt	3.90	11.69	15.59
Waikato	7.88	23.65	31.53
Waimakariri	5.54	16.63	22.18
Waimate	2.42	7.26	9.68
Waipa	5.24	15.73	20.98
Wairoa	4.66	13.97	18.62
Waitaki	3.71	11.13	14.84
Waitomo	3.55	10.64	14.18
Wellington	14.42	43.27	57.69
Western Bay of Plenty	5.34	16.03	21.38
Westland	2.79	8.36	11.15
Whakatane	5.66	16.99	22.66
Whanganui	5.98	17.94	23.92
Whangarei	9.48	28.45	37.93
Total	500.00	1,500.00	2,000.00

APPENDIX B: Wellbeing assessment examples

Example 1

Initiative Description:	**Public Transport Improvement Programme**	
Better off funding criteria met:		**Wellbeing areas met:**
1. Supporting communities to transition to a sustainable and low-emissions economy 2. Delivery of infrastructure and/or services that support local place-making and improvements in community well-being.		1. Social 2. Environmental
Wellbeing Outcomes	**How Outcome is Measured**	**How Outcome is Reported**
Lower carbon emissions	Reduction in carbon emissions	Annual Report
Increase in use of public transport	Increase in # people using buses and trains Increase in % people that feel safe using public transport	Annual Report

Example 2

Initiative Description:	**Community Connectivity Initiative**	
Better off funding criteria met:		**Wellbeing areas met:**
1. Delivery of infrastructure and/or services that support local place-making and improvements in community well-being.		1. Social 2. Economic
Wellbeing Outcomes	**How Outcome is Measured**	**How Outcome is Reported**
Increase in access to reliable at home wifi service	Increase in # people with access to reliable wifi connections	Annual Report
Increase in access to wifi enabled devices to support work and study from home	Increase in % people with the ability to work and/or study from home	Annual Report

APPENDIX B: Wellbeing assessment examples

Example 3

Initiative Description:	**Digital Automation Programme**	
Better off funding criteria met:		**Wellbeing areas met:**
1. Delivery of infrastructure and/or services that enable housing development and growth		1. Economic
Wellbeing Outcomes	**How Outcome is Measured**	**How Outcome is Reported**
Faster processing of resource consents	Decrease in time taken to process a consent Increase in customer satisfaction on consent process	Annual Report

Example 4

Initiative Description:	**Supporting people living with disabilities to participate fully in society**	
Better off funding criteria met:		**Wellbeing areas met:**
1. Delivery of infrastructure and/or services that support local place-making and improvements in community well-being.		1. Social 2. Cultural
Wellbeing Outcomes	**How Outcome is Measured**	**How Outcome is Reported**
Community facilities are inclusive and accessible to those living with disabilities	Increase in # community facilities with disability friendly access Increase in % people with disabilities that feel community spaces are accessible	Annual Report
Those with complex disabilities can access and use public bathroom facilities	# Public high specification bathrooms installed	6 Monthly Better Off Report Submission

Appendix C: How to access the DIA's Grants Management System

STEP 1: Create the Better Off organisation profile

- Your relationship manager will provide DIA staff with the following information on behalf of your council:
  - Council name
  - Contact name *(this person will become the "Profile Secretary")*
  - Contact phone number
  - email address *(this will be used for payment advice and other correspondence)*
- DIA staff will create the Better Off organisation

STEP 2: Linking an individual to administer the profile

- A RealMe invitation link will be emailed to the nominated contact, connecting them to the Better Off council profile. RealMe credentials are required for logging in, but can be created if need be.
- The contact person will fill out the organisation profile, including:
  - Bank account for payment
  - Upload of bank account verification document (bank deposit slip, statement confirming bank account name and number)
- Once logged in, the named contact can invite other individuals to join the organisation profile (to act as signatories for example).

STEP 3: Submit the Funding Proposal

- Nominated individuals linked to the Better Off organisation can create, edit and submit the Funding Proposal for the Council they represent.
- Once submitted, the Funding Proposal will be reviewed and the DIA will issue a decision within 6 weeks.

email ► community.matters@dia.govt.nz **phone ►** 0800 824 824 **login: ►** https://communityadviceandgrants.dia.govt.nz

Appendix D: Relationship manager details

Below are the contact details for the Relationship Managers assigned to each region.

Region	Name	email contact
Auckland & Northland	Martin Smith	martin.smith@crowninfrastructure.govt.nz
Bay of Plenty & Waikato	John Mackie	john.mackie@crowninfrastructure.govt.nz
Taranaki	Anthony Wilson	anthony.wilson@crowninfrastructure.govt.nz
Manawatu/Rangatikei & Top of the South	Ian Garside	ian.garside@crowninfrastructure.govt.nz
Hawkes Bay	Geof Stewart	geof.stewart@crowninfrastructure.govt.nz
Wellington	Brent Manning	brent.manning@crowninfrastructure.govt.nz
Canterbury	Paul Utting	paul.utting@crowninfrastructure.govt.nz
Otago/Southland and West Coast	Steve Apeldoorn	steve.apeldoorn@crowninfrastructure.govt.nz

THREE WATERS – BETTER OFF FUNDING

SLT Meeting – Monday 2 May 2022

STRATEGIC APPROACH – IDENTIFYING AND PRIORITISING INITIATIVES

OVERVIEW

Buller District Council has been allocated 3.5 million in Tranche 1 of the Three Waters Better Off Fund. Tranche 1 funding applications are now open and will close September 30th, 2022.
Tranche 2 fund has an allocation of 10.51 million and will be available in 2024 and will use a similar process in respect to applications as Tranche 1.
Senior Leadership Team (SLT) has allocated a Project Lead working under the Manager Infrastructure Planning on behalf of BDC, a Relationship Manager has been appointed via DIA to work alongside BDC's Project Lead to assist in the detailed development of the projects and the subsequent application process.

PROPOSED APPROACH

The following process has been established by the Project Lead and is being placed forward to the Senior Leadership Team for approval/amendment.

A 'long list' of Initiatives has been progressed through this strategic approach (further initiatives are expected to be considered via Elected Members in a May Council meeting), which will in turn create a short list of options to further consider and develop.

DIA has articulated the required criteria, outcomes, and process via the guidance document - *Better Off Funding Package for Local Authorities*. Staff at BDC have ensured that the proposed process aligns with, and adds value/local context to the process as directed by DIA.

SLT members have been interviewed by the appointed Project Lead to ensure that the process meets SLT's expectations and to ensure that a 'long list' of project ideas has been generated for consideration and assessment.

All projects in the 'long list' will be assessed against DIA's three core criteria as an initial eligibility check. A project must meet at least one of the three criteria, the criteria are;

1. *Supporting communities to transition to a sustainable and low-emissions economy, including by building resilience to climate change and natural hazards.*
2. *Delivery of infrastructure and/or services that enable housing development and growth, with a focus on brownfield and infill development opportunities where those are available.*
3. *Delivery of infrastructure and/or services that support local place-making and improvements in community well-being.*

SLT has considered and approved the use of a Multi Criteria Analysis (MCA) approach to test, assess and rank the 'long list' of options. The criteria align with DIA's guidance documents and expectations of outcomes.

The criteria and draft weightings for the MCA are; *(further detail on MCA can be found below)*

	CORE CRITERIA DIA			DIA PRIORITISATION					WELLBEING INDICATORS			
	Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Criteria 6	Criteria 7	Criteria 8	Criteria 9	Criteria 10	Criteria 11	Criteria 12
CRITERIA DESCRIPTION	**Resilience to climate change & natural hazards** Transition to sustainable economy	**Enable housing development & growth** Infrastructure or services that enable brownfield development	**Place-making and improvements in community well-being** Infrastructure or services that support	**Value for Money** Do the identified wellbeing outcomes justify the cost?	**Strategic Plans** Is there existing strategic planning documentation to support this initiative?	**Iwi/Māori Support** Has the council engaged with iwi/Māori on the intended use of the funding?	**Community Support** Does the initiative have rate-payer and local community support?	**Risk Analysis** Does your risk analysis show any undue concerns in completing the project - for example, are the resources required readily available?	**Social** Does the project have a mesurable outcome?	**Environmental** Does the project have a mesurable outcome?	**Economic** Does the project have a mesurable outcome?	**Cultural** Does the project have a mesurable outcome?
WEIGHT	10	10	10	10	10	10	10	10	5	5	5	5
	10%	10%	10%	10%	10%	10%	10%	10%	5%	5%	5%	5%

The MCA will highlight the known initiatives that best match the criteria as set out by DIA, and will rank/prioritise them accordingly.

Indicative costings allocated to each initiative are at a high level and will require verification whilst developing the initiatives respective business cases/detailed designs.

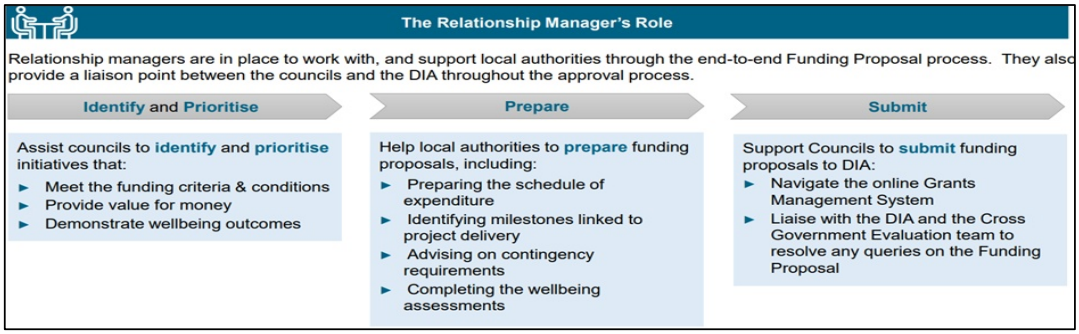
Pending a Council meeting in May – and subsequent approval/alteration of initiatives, staff will further develop the project scopes/briefs. This will inform budget decisions and ensure adequate quantum of resourcing is available.

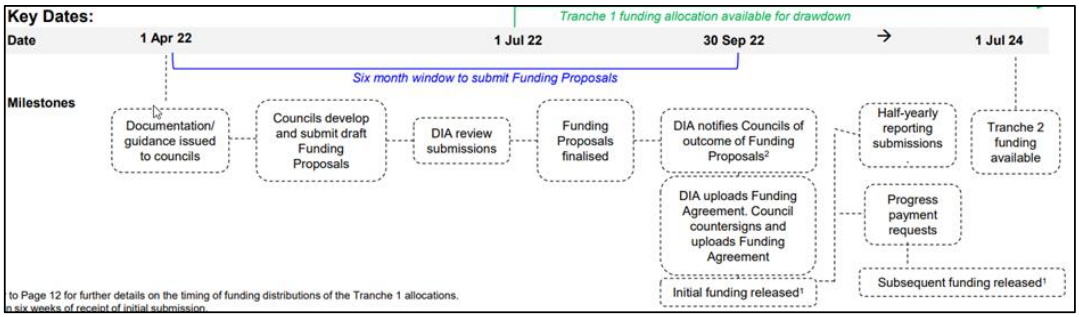
Developing the scope & brief for each project will require a close working relationship with the relationship manager appointed by DIA and will require staff hours allocated at BDC.

PROCESS – IN PARTNERSHIP WITH DIA

DIA's relationships manager will work alongside the project lead appointed by BDC to develop the concept ideas into a submittable proposal.

The process will be as per the guidance documents provided.





IWI AND RELATIONSHIPS

It is envisaged by DIA that BDC will work closely with Iwi in the development of concepts and ideas. In Tranche 1 the expectation is that we will consult with Iwi on the projects/proposals and ensure there is relationships and buy in.

However, expectations are that Iwi will be more heavily engaged as we move from Tranche 1 through to Tranche 2. Tranche 2 funding will require that we 'partner' with Iwi from concept stage forward.

The table below articulates DIA's expectations in developing Tranche 2 funding applications in partnership with Iwi.

		Current State → Future State			
		Inform	*Consult*	*Collaborate*	*Partner*
Principles of Effective Engagement	Engage early	▸ Advise iwi/Māori of what is happening			
	Be inclusive	▸ Provide information to iwi/Māori	▸ Keep iwi/Māori informed ▸ Seek feedback from iwi/Māori	▸ Work together with iwi/Māori	▸ Pre-existing relationship with iwi/Māori
	Think broadly		▸ Listen to iwi/Māori ▸ Acknowledge iwi/Māori concerns & aspirations	▸ Determine issues/problems together	▸ Determine issues/problems together
Principles of Partnership	Plan and co-design together			▸ Develop solutions together	▸ Develop the solution together
	Share decision-making			▸ Involve iwi/Māori in the decision-making process	▸ Co-design the process
	Relationship built on trust and respect	Weak → Strong			

Three Waters/infrastructure and other clarification on funding opportunities

- SLT has indicated that the Better Off Funding should not be used for any three waters infrastructure work – the project lead has engaged with the relationship manager seeking clarification on usage of the funding in this respect.

  The DIA relationship manager has indicated that the wishes of DIA are that funding is NOT used for three waters work and has indicated that BDC engage with the **National Transition Unit (NTU)** to ascertain availability of funding to address urgent or required work/projects.

- The funding can be used in an 'acceleration' form for any projects that are budgeted in the LTP but required urgent works or validation for expediency.

- DIA has expectations that BDC has 'back up projects' or substitution projects that we can use if our 1st tranche of projects, the project lead and relationship manager will ensure initiatives that rank below chosen initiatives will progress through preliminary costings and initial scoping.

- Initiatives have been proposed that do not meet the three core criteria (as per DIA's requirements) – these initiatives will be noted and other funding opportunities may be more applicable.

Multi Criteria Analysis (MCA)

BDC is using an MCA approach to ascertain the best fit initiatives for the Better Off Funding.

Using the DIA requirements/criteria to inform the relevant criteria for assessment, these are;

*Three core criteria – **must meet at least one to proceed from long list** (at 10% per criteria).*

1. *Supporting communities to transition to a sustainable and low-emissions economy, including by building resilience to climate change and natural hazards.*
2. *Delivery of infrastructure and/or services that enable housing development and growth, with a focus on brownfield and infill development opportunities where those are available.*
3. *Delivery of infrastructure and/or services that support local place-making and improvements in community well-being.*

Five prioritisation criteria – (at 10% per criteria).

1. **Value for Money** - Do the identified wellbeing outcomes justify the cost?
2. **Strategic Plans** - Is there existing strategic planning documentation to support this initiative?
3. **Iwi/Māori Support** - Has the council engaged with iwi/Māori on the intended use of the funding?
4. **Risk Analysis** - Does your risk analysis show any undue concerns in completing the project - for example, are the resources required readily available?
5. **Community Support** - Does the initiative have ratepayer and local community support?

Wellbeing index – (at 5% per criteria)

1. **Social –** Can the initiative prove/have a measurable a social outcome?
2. **Economic -** Can the initiative prove/have a measurable an economic outcome?
3. **Cultural -** Can the initiative prove/have a measurable a cultural outcome?
4. **Environmental -** Can the initiative prove/have a measurable an environmental outcome?

The MCA and long list for ranking/prioritisation has been provided as an attachment.

RECOMMENDATIONS

That SLT score each of the initiatives on the MCA for ranking, an aggregate score will be allocated to each initiative.

That SLT approve the process to date, inclusive of the long list of options and progress these into a formal paper for Council meeting in May 2022, for approval/amendment and additional projects via Elected Members.

Upon approval to proceed the highest-ranking projects will proceed through to an initial scope/business case, this will be in partnership with DIA's relationship manager to ensure buy in and early stakeholder engagement.

Detailed proposals will be developed and re-issued to elected members prior to formal submission of the projects for DIA's approval.

FURTHER INFORMATION

Further information on the Better Off Funding can be found here and here;

APPENDIX

MCA with long list options

BULLER DISTRICT COUNCIL

					CORE CRITERIA DIA			DIA PRIORITISATION					WELLBEING INDICATORS					
		CRITERIA DESCRIPTION			Criteria 1	Criteria 2	Criteria 3	Criteria 4	Criteria 5	Criteria 6	Criteria 7	Criteria 8	Criteria 9	Criteria 10	Criteria 11	Criteria 12		
					Resilience to climate change & natural hazards Transition to sustainable economy	**Enable housing development & growth** Infrastructure or services that enable brownfield development	**Place-making and improvements in community well-being** Infrastructure or services that support	**Value for Money** Do the identified wellbeing outcomes justify the cost?	**Strategic Plans** Is there existing strategic planning documentation to support this initiative?	**Iwi/Māori Support** Has the council engaged with Iwi/Māori on the intended use of the funding?	**Community Support** Does the initiative have rate-payer and local community support?	**Risk Analysis** Does your risk analysis show any undue concerns in completing the project - ranking = 0 High risk, 10 No risk	**Social** Does the project have a measurable outcome?	**Environmental** Does the project have a measurable outcome?	**Economic** Does the project have a measurable outcome?	**Cultural** Does the project have a measurable outcome?		
		WEIGHT			10	10	10	10	10	10	10	10	5	5	5	5	WEIGHTED SCORE	
					10%	10%	10%	10%	10%	10%	10%	10%	5%	5%	5%	5%	100%	
					Score Each Criteria out of 100 Below													
#	Project	Description	Indicative Costings	Indicative $ for Tranche 1														Ranking
1	**Wastewater/stormwater ingress solution**	Address historical issues with stormwater ingress to wastewater - region wide	2 Million	2 Million	8	10	8	9	10	9	9	4	5	5	5	5	87	1
2	**Climate change preparedness/Planning**	'Blue sky' thinking/urban design. Look to Alma Road – Master Planning to align with IAF funding (requires Housing	500K	500K	9	9	7	9	9	9	7	9	5	4	4	4	85	2
3	**Solid waste regional infrastructure**	Collaboration with neighbouring councils - explore future options	Unknown	350K	6	5	6	9	10	8	7	9	5	5	4	4	78	3
4	**Airport relocation**	Strategic assesments for relocation of vital lifeline Westport Airport	350 - 500K	500K	9	7	8	7	7	7	7	9	4	4	5	4	78	3
5	**Remediation of old Landfills**	Assesment and options analysis of historic landfills	800K	800K	7	1	6	9	9	9	8	9	3	5	3	4	73	4
6	**Civil defence spend**	Look at ways to upgrade equipment, upskill/train staff, permanent location, alternative opportunities for EOC and evac points	1 Million	333.333K pa for 3 years	9	2	7	9	7	8	7	7	4	4	4	4	72	5
7	**Flagship Ecological Restoration Project - Di Rossitor**	A flagship restoration project that works collaboratively with partner agencies	Unknown	200K scope	7	1	8	8	9	9	6	9	3	5	2	4	71	6
8	**Council-led Land development & subdivision for housing (outside hazard zone - Westport)**	Purchase & development of properties to encourage and enhance residential housing growth (district wide)	1 - 10 Million	1.5 Milion	8	10	7	7	7	3	5	6	4	3	4	3	67	7
9	**Elderly housing improvements**	Purchase or development of housing stock (e.g purchase of temporary village via MBIE)	Unknown	Unknown	6	8	7	8	6	5	7	7	5	3	2	3	67	7
10	**Town Precinct – Pedestrian Plaza – Westport**	Placemaking initiative - part of the revitalisation of Westport project	1.2 Million	1.2 Million	2	4	8	6	8	8	5	8	3	3	4	3	62	8
11	**The Riverbank – Placemaking - Westport**	Placemaking initiative - part of the revitalisation of Westport project	1.3 Million	1.3 Million	2	4	8	6	8	8	5	8	3	3	4	3	62	8
12	**Regional - town beautification, placemaking (with resilience leanse on works)**	General street scape enhancements and small scale placemaking initiatives across the district	1.5 - 2 Million	1.5 - 2 Million	5	2	7	4	8	5	6	8	4	4	4	4	61	9
13	**Historical buildings - maintanence and upgrade**	Carnelge, Courthouse, Seddonville	3 Million	3 Million	3	3	8	7	8	8	6	4	3	3	3	4	60	10
14	**Council-led Industrial Land & Business development for job growth**	Purchase and development of commercial/industrial holdings to stimulate economic development (e.g. Holcim site)	1 - 10 Million	1.5 Million	8	7	6	7	5	3	3	4	3	3	4	2	55	11
15	**Swing bridge - Reefton**	A new swing bridge at Blacks point	500K	500K	2	1	5	4	6	5	6	7	3	3	2	2	46	12
16	**Solar power grant**	In the form of a subsidy e.g. 50/50 split. To assist homeowners to instal solar	Unknown	500K	7	2	7	5	2	5	3	3	3	3	3	3	46	12
17	**Council & community hub**	Development of Council facilities, and subsequent sale of unused/amalgamated	5 - 7 Million	1.5 Million	5	2	7	4	5	5	2	3	3	3	3	3	45	13

Funding out of Tranche 1 - 3.5 Million

Discontinued initiatives

				Rational for dis-continuation
Tourism opportunities	Examples include – new front country huts in partnership with DOC, enhancements of regional points of interest, advertising drives to enhance visitation.			Other funding opportunities
Bridge building - see Neil Healy	More appropriate funding opportunities available?			Other funding opportunities
Native plant nursery	Provision of a reliable source of plants to service carbon-driven and ecological retoration needs across	1 - 2 Million	1 Million	Other funding opportunities
Appointment of an Economic Development Manager (full time)	A three-year employment offer to bring in a specialist economic development manager to stimulate business sector growth in the region, partner with private sector and other govt agencies	500K	500K	Other funding opportunities/BAU
Dredge and port improvements	Enhancements of the port and associated infrastructure (dredge) to re-activate port usage and provide a economic driver.	Unknown	Unknown	Other funding opportunities
Horticulture industry start up	Development of new locally based industry creating X jobs	1 – 2 Million	1 Million	Other funding opportunities
Removal of heavy traffic from Buller River frontage – partners with waterfront enhancements, Inki bridge, etc.	Look to re-align traffic movements with other strategic partners	Unknown	Unknown	Other funding opportunities
Removal of old wharfs and activation of river frontage	Partners in with Inki Bridge revitalisation	Unknown	Unknown	Other funding opportunities
Partner with proposed flood defence	Assist in picking up part of the costing or add value to the project by implementing subsidiary works	Unknown	Unknown	Other funding opportunities

INFRASTRUCTURE STRATEGY COMMITTEE

11 MAY 2022

AGENDA ITEM: 6

Prepared By:	Mike Duff Group Manager Infrastructure Services
Reviewed By:	Mike Williams Manager Infrastructure Planning
Attachments:	A – Infrastructure Services Staff Memo – Preface B – ERPRO Report – Drinking Water Gap Analysis

DRINKING WATER SUPPLIES – GAP ANALYSIS & ROUGH ORDER COSTS FOR COMPLIANCE

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1. REPORT PURPOSE

The purpose of this report is to provide an update for the Infrastructure Strategy Committee (ISC) regarding the status of Three Waters Reform in Buller.

In particular, it provides a Gap Analysis and Rough Order Costs for Council's existing drinking water supplies in order to meet compliance. The Drinking Water Standards New Zealand (DWSNZ) are mandatory for all drinking water supplies under the new Water Services Act 2021 legislation.

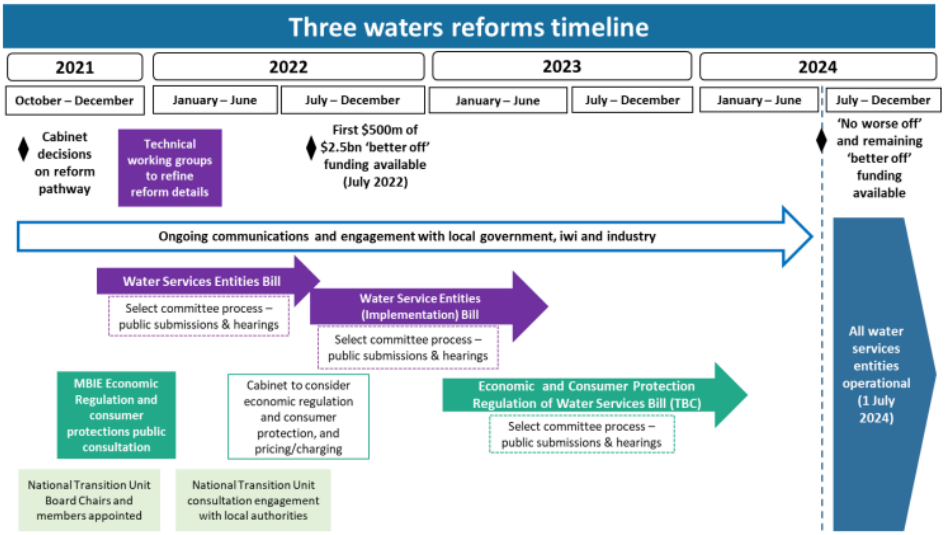
The next step is to assess the financial, organisational and corporate implications of council becoming fully compliant across all drinking water supplies, to be considered in context and in comparison with the Government's proposed Three Waters Reform. This would include a clearer understanding of the impact to ratepayers and the wider changes resulting from such a significant change to Council business.

2. REPORT SUMMARY

A staff memo preface (refer Attachment A) was provided to ISC in December 2021 outlining the Government's planned Three Waters Reform and the potential implications for Council. The first phase is a high-level gap analysis of Council's eight drinking water supplies which has now been completed to assess the size and scale of compliance improvements.

This will inform the corresponding investment required (both opex and capex) and ultimately the overall financial implications, including the forecast impact on ratepayers in order for Council to meet the new mandatory standards, policies and fit for future infrastructure.

The second phase of wastewater and stormwater is a much larger scope of work and has been set aside due to current uncertainty and nature of compliance for key inputs including RMA reform, NPS for Freshwater Management, Te Mana o te Wai and Climate Change considerations. A separate gap analysis is required once compliance and regulatory settings are clearer.



3. RECOMMENDATIONS

That the Committee:

1. **Notes the content of this report and attachments.**

2. **Request a report on the financial implications including impact to ratepayers to meet compliance across Council's drinking water supplies based on gap analysis rough order costs (capex and opex) for the following scenarios:**

   a. **Individual targeted rate schemes as per the status quo**
   b. **Aggregated district-wide single targeted rate**

3. **Request a report on the organisational and corporate implications including annual planning, budgets and staffing of Council delivering compliant drinking water in comparison with transfer to a government entity as proposed, considering the expected opportunities and risks.**

4. BACKGROUND

Government Proposal

The Government has recently confirmed their intention to proceed with Three Waters Reform and plan to establish publicly-owned entities to take responsibility of drinking water, wastewater and stormwater infrastructure across New Zealand.

The Government has identified the proposed boundaries of four water providers and additional details including governance arrangements and how they would be regulated.

The Government considers that four water entities will create an affordable system that ensures secure delivery of safe drinking water and resilient wastewater and stormwater systems.

Compliance

The Water Services Act 2021 requires all drinking water supplies to meet the relevant and current standards and the new regulator Taumata Arowai will have powers under legislation to ensure network supplies meet compliance.

Reform Implications

The financial implications of compliance across Council's drinking water supplies, including impact to ratepayers, requires assessment. This can now be completed based on the estimated gap analysis rough order costs (capex and opex).

It is recommended that a comparison be included between the eight individual targeted rate schemes (as per the status quo) versus an aggregated district-wide single targeted rate scenario.

If the proposed Three Waters Reforms proceed and drinking water supplies are transferred new entities, this will have significant implications to current Council business in context of annual planning, budgets and staffing. An initial assessment of these implications, considering expected opportunities and risks is recommended. Organisational and corporate aspects may include, but not be limited to:

- Risks – impact to ratepayers to meet compliance:
    - Nett equity position (difference between resources owned providing current service level versus debt, claims and obligations to provide a new service level)
    - Affordability for each of the current Council schemes (8 drinking water supplies)
    - Consequences if compliance improvements are not completed before proposed transfer date
    - Alternative funding scenarios or financial options

- Opportunities – removing responsibility from Council:
  - Organisational implications (balance sheet, borrowing capacity, financial strategy, resourcing changes)
  - No Worse Off funding (share of $500M to meet stranded overheads and address adverse impacts on financial sustainability)

5. GAP ANALYSIS & ROUGH ORDER COSTS

The following table summarises the Rough Order Costs to meet compliance across Council's eight drinking water supplies including capital expenditure (capex) and per annum operational expenditure (opex). These are high-level estimates only, but considered indicative enough to forecast financial and rating implications.

Full details of the Gap Analysis including methodology, assumptions, limitations and detailed workings of the scope and costing basis of estimates can be found in the ERPRO Report, refer to Attachment B.

Owner: Buller District Council
Task: Rough Order Cost Assessment for Drinking Water Compliance

Asset	Location	CAPEX	General	Renewals Retic	OPEX
1	Inangahua	$ 524,750.00	$ 125,000.00	$ -	$ 49,810.18
2	Little Wanganui	$ 2,187,250.00	$ 105,000.00	$ -	$ 61,211.39
3	Mokihinui	$ 1,777,250.00	$ 105,000.00	$ -	$ 101,620.39
4	Ngakawau Hector	$ 3,186,000.00	$ 132,000.00	$ -	$ 121,979.81
5	Punakaiki	$ 9,056,000.00	$ 95,000.00	$ -	$ 151,906.19
6	Reefton	$ 1,291,000.00	$ 95,000.00	$ 67,793.18	$ 231,384.19
7	Waimangaroa	$ 4,214,050.00	$ 112,000.00	$ 6,000.00	$ 119,436.64
8	Westport	$ 13,350,000.00	$ 380,000.00	$ 77,090.91	$ 616,400.22
	Total	$ 35,586,300.00	$ 1,149,000.00	$ 150,884.09	$ 1,453,749.02

Key

CAPEX	Capital Expenditure for Asset Construction
General	Quality plans, audits, assessments
Renewals Retic	Annual expenses of reticulation renewals, post backlog construction (included in CAPEX)
OPEX	Annual costs for operation using new assets, excluding finance

6. CONSIDERATIONS

6.1 Strategic Alignment

Community benefit and well-being is in accordance with our LTP and is critical to the success of our district.

6.2 Significance Assessment

Infrastructure strategy is considered significant in terms of fit for future levels of service and community benefit.

6.3 Tangata Whenua Considerations

Council works in partnership with Ngāti Waewae to provide governance. Infrastructure planning has high importance in relation to Tangata Whenua matters.

6.4 Risk Management Implications

Major risks are managed in accordance with Council's risk management processes including a "what could go wrong?" approach to ensure all practicable steps are being taken to assess, control and monitor identified risks.

6.5 Policy Framework Implications

Council must comply with the relevant policy and legal requirements including the Local Government Act 2002.

6.6 Legal Implications

There is no legal context, issue or implication relevant to this decision.

6.7 Financial / Budget Implications

Costs for delivering services are expended against approved budgets established in the LTP and Annual Plans and are rated by Council accordingly.

6.8 Media/Publicity

Publicity is expected with levels of service, not all of which will be positive. However, this should not deter from the reasons for delivering important assets and infrastructure for the community.

6.9 Consultation Considerations

Affected parties and stakeholders including community members, private sector, government ministries, agencies and authorities are consulted throughout the service delivery process.

INFRASTUCTURE SERVICES STAFF MEMO

MEMO DETAILS	
DATE:	25 NOVEMBER 2021
TO:	INFRASTRUCTURE STRATEGY COMMITTEE
FROM:	MIKE DUFF, GROUP MANAGER INFRASTRUCTURE SERVICES

THREE WATERS REFORM IN BULLER – PREFACE

PREFACE → GAP ANALYSIS → ROUGH ORDER COSTS → FINANCIAL IMPLICATIONS

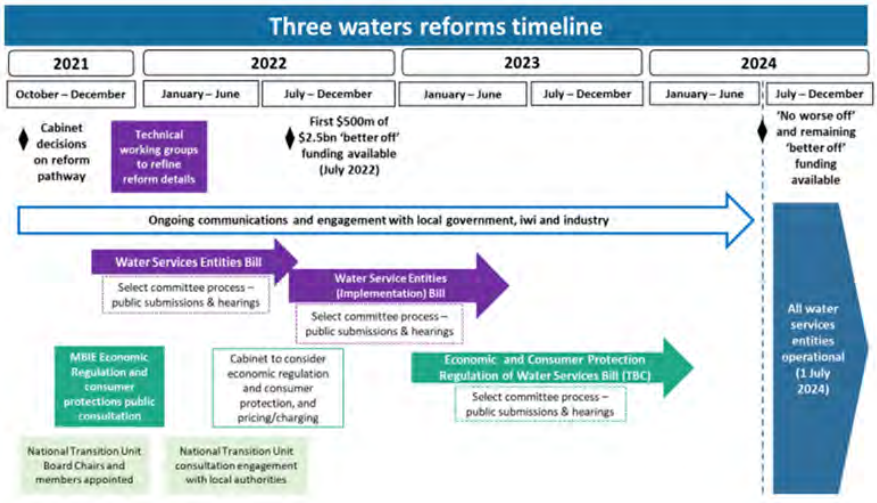
1. Context

This is the first of a series of staff memos intended to update the Infrastructure Strategy Committee (ISC) over the coming months regarding the status of Three Waters infrastructure in Buller.

Central Government (the Government) recently legislated the Water Services Act 2021 to ensure safe drinking water for consumers and established Taumata Arowai as the new dedicated water services regulator. The Government has also signalled their intent to legislate the transfer of all Three Waters assets from councils and water suppliers to four new regional entities via the Water Services Entity Bill, expected to be introduced to Parliament in December this year.

Infrastructure staff have taken these changes as an opportunity to consider the state of play for Three Waters in our district, commencing with this broad overview, to be followed by a high-level gap analysis to better understand the size and scale of compliance improvements. This will inform the corresponding investment required (both opex and capex) and ultimately the overall financial implications, including the forecast impact on ratepayers in order for Council to meet the new mandatory standards, policies and fit for future infrastructure.

The new water entities proposed by the Government would not commence before July 2024. Until this time at least (and possibly longer subject to future central government decisions) Council remains responsible to (i) deliver safe drinking water and to (ii) comply with relevant consent conditions for wastewater and stormwater discharge, whilst also meeting service level outcomes and asset management best practice.



2. Purpose

The purpose of this preface document is to introduce discussion and raise awareness on the status of Buller's Three Waters infrastructure considering the Governments proposed reforms, which are expected to have wide ranging implications for Council and our communities should they proceed.

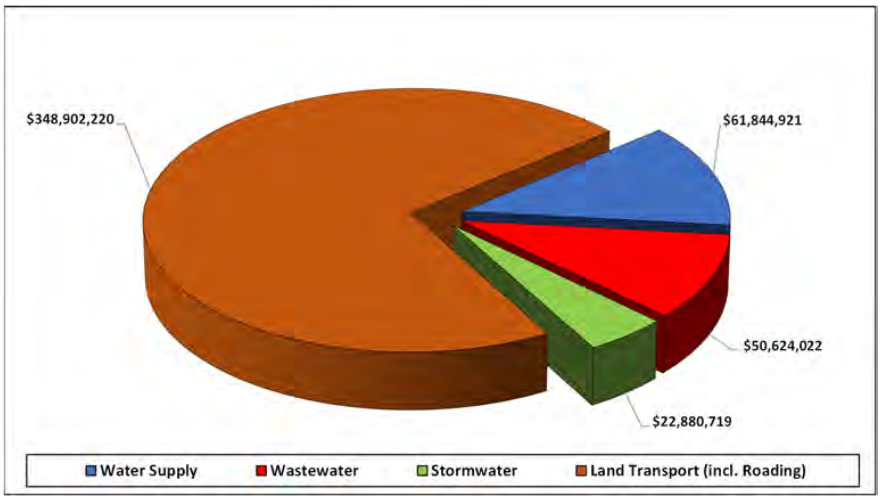
In terms of Council risks and opportunities, items to consider may include, but not be limited to:

- Risks – impact to ratepayers to meet Three Waters compliance:
  - Nett equity position (difference between resources owned providing current service level versus debt, claims and obligations to provide a new service level)
  - Affordability for each of the council owned schemes (8 drinking water supplies, 3 wastewater systems, district-wide stormwater)
  - Consequences if compliance improvements are not completed before handover (and what are the alternative investment scenarios for the future)
- Opportunities – removing the Three Waters responsibility from Council:
  - Organisational implications (balance sheet, borrowing capacity, financial strategy, resourcing changes)
  - Better Off funding ($14.01M for Buller, not strategic to invest in Three Waters)
  - No Worse Off funding (share of $500M to meet stranded overheads and address adverse impacts on financial sustainability)

3. Background

Council's Three Waters infrastructure comprises the following asset categories and corresponding valuations totalling $135.35M. For comparison, Council has $348.90M of Land Transport assets.

- Water Supplies = $61.84M
- Wastewater Systems = $50.63M
- Stormwater = $22.88M



As set out in Council's 2021 Long Term Plan (LTP) and the corresponding Infrastructure Strategy (the Strategy), our vision for Buller is based on achieving the following outcomes:

- Vibrant, healthy, safe, and inclusive communities, that are:
    - supported by affordable, quality infrastructure, facilities, and services, that enable
- An innovative and diverse economy, where:
    - Our lifestyle is treasured, and our strong community spirit is nurtured, and where
    - Our natural environment is healthy and valued

Our district faces several infrastructure challenges over the coming years. These include managing the effects of natural hazards and climate change, maintaining safe and secure three waters networks, and replacing and upgrading our infrastructure to ensure it is efficient, cost effective and fulfils our legislative requirements.

Addressing all of these challenges such that the risks are eliminated is simply unaffordable for the community, given Council's significant rates reliance and our small population base. This is particularly the case in Three Waters which are currently targeted rates and structured into separated closed accounts aligned to a beneficiary (user) pays model.

Based on current climate change information, much of Buller is going to get warmer and wetter. Over the coming decades, NIWA's likely scenario includes greater frequency of storm events, including higher intensity rainfall, leading to changes in storm surge and wave height and thus more frequent or higher magnitude coastal flooding outcomes, as well as changes in fluvial flooding.

Intense rainfall events will put pressure onto water catchments and associated Three Waters networks and infrastructure. Additionally, sea levels are expected to rise posing increased challenges for existing reticulation flow and drainage and discharging for the coastal communities.

Building, operating, and maintaining Council's infrastructure assets in an affordable manner considering the above assumptions and risks is becoming increasingly difficult. Additional strategic considerations come from Three Waters reforms and regulation via Taumata Arowai, mitigating and adapting to climate change, zero carbon, RMA reform and freshwater management including national policy statement and essential commitments such as Te Mana o te Wai.

There are other uncertainties which overlay, including legislative changes, environmental impacts and sustainability, infrastructure condition and resilience, economic factors and affordability, changes in technologies, local hazardscape, potential district growth and future responses to COVID.

Specific issues for Three Waters include how to maintain the affordability of the infrastructure for ratepayers whilst achieving asset renewal and compliance under any future legislative reform, and how to prepare for and protect our communities for the future. Following the core principles of sustainability, decisions made by Council should consider the costs and benefits for future generations as well as the current generation.

4. Three Waters Strategy

Council's LTP Significant Strategic Issues report from October 2020 provided a closer examination of the issues relating to infrastructure, affordability and reform. The key questions from a Three Waters perspective included:

- Is the district's infrastructure sized correctly, fit-for-purpose, reliable and affordable?
- What are the climate change implications for the district's infrastructure?
- What savings can be made whilst still maintaining assets in a sustainable manner?
- What are we doing about central government's Three Waters reform?

The Strategy has also identified the following priorities, principles and result areas:

- Reduce infrastructure backlog i.e. the deficit of renewal works required to meet Level of Service outcomes
- Introduce asset intervention methods i.e. "bring to satisfactory" based on evidence-based data
- Develop new Key Performance Indicators (KPIs) i.e. Infrastructure Backlog Ratio, Asset Maintenance Ratio, Asset Renewal Ratio to measure performance

Three Waters is now recognised as a national issue, and Buller has many of the same systemic issues to address as the rest of New Zealand. This includes meeting mandatory compliance, significant backlog of renewals and increased regulation.

Whilst the need for change is well understood and considered essential for the future well-being of our district, Council maintained a "business as usual" Three Waters approach in the 2021 LTP consistent with Audit NZ advice at the time.

This included presenting the community with a clear set of information about the likely financial requirements of providing water services under the present delivery arrangements and current/expected future regulatory settings and ensuring that the base of underpinning information and the systems that manage the information are as robust and up-to-date as possible. In other words, able to provide any new service provider with all of the information and systems that are needed to manage the services from day one.

In summary, the current Strategy for Three Waters has considered the essential requirements for level of service delivery and asset management planning, whilst contemplating legislation changes, national reforms and aspirational initiatives to guide our "fit for future" investment.

The overall strategic position is one of "affordable asset preservation and compliance", mindful of known infrastructure condition, remaining useful life and mandatory priorities; constrained only by district ratepayers' ability to afford the costs.

5. Three Waters Budgets

In the preparation of the financial budgets to support the Strategy and LTP, the following matters were raised as key issues regarding compliance and the proposed Three Waters reforms:

- Capital investments have been "smoothed" over the LTP period
- Since the preferred asset investment programme was reduced due to affordability constraints, Council has accepted residual risk of asset failure
- Consequences of asset failure include non-compliance, loss of service level and unplanned expenditure
- The preferred renewal programme has been reduced in accordance with financial depreciation modelling to achieve lower rates

As a result, Three Waters is facing a perfect storm in terms of budgets and affordability, noting the following critical issues:

- Meeting mandatory compliance while keeping expenditure low
- Addressing historic backlog of scope inclusions and deferred renewals
- Facing increased regulation of which the implications are currently unknown
- Progressive rollout of backflow preventors and water safety plans

In summary, deferring renewals and "smoothing" level of service improvements over multi-year timeframes has resulted in lower rates but has increased the risk to Council over the LTP period.

The driving factors considered across Three Waters investment are based on the LTP financial strategy settings, budget constraints and ratepayer affordability.

6. Next Steps

A summary of the next steps is shown below and will progress through early 2022, reporting through to ISC or full Council as appropriate.

PREFACE → GAP ANALYSIS → ROUGH ORDER COSTS → FINANCIAL IMPLICATIONS

Infrastructure staff are currently working on a high level gap analysis to better understand the size and scale of the compliance improvements required across each of the Council operated schemes, including 8 water supplies, 3 wastewater systems and district-wide stormwater and drainage.

Once this is gap analysis is completed, rough order costs (ROC) for both opex and capex can then be estimated to determine the levels of funding required for each individual scheme.

This will then be aggregated together by programme (drinking water, wastewater, stormwater) and then summarised to the overall investment required for Three Waters across the Buller district.

As well as being itemised by scheme, the ROC estimates will be categorised as follows:

- Opex for compliance (mandatory improvements), per annum
- Capex for renewals programme, per annum
- Capex for compliance (mandatory improvements), completed by July 2024
- Capex for fit for future (aspirational improvements), completed beyond 2024

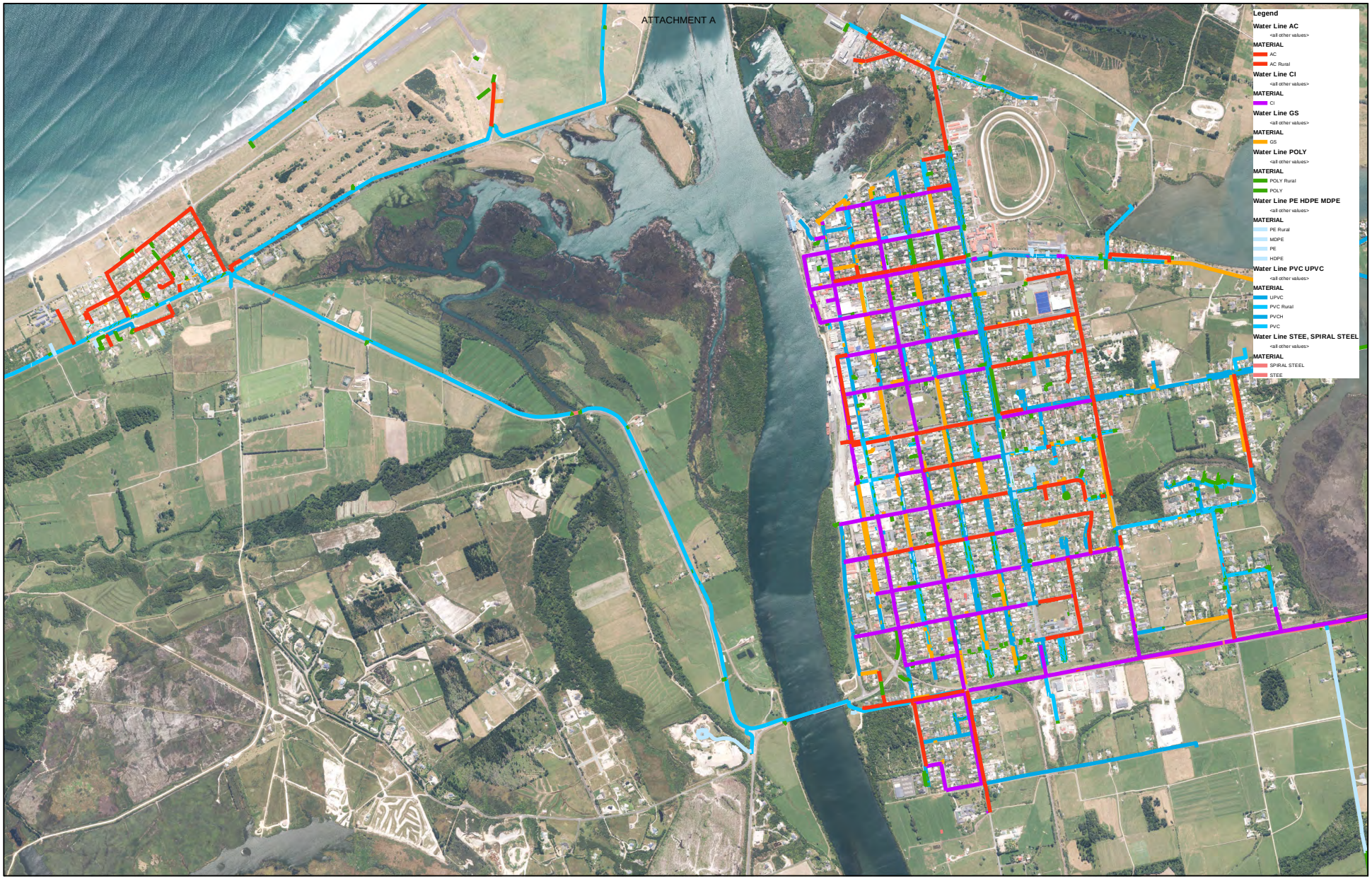
An example of how the individual schemes will be presented is shown below (for Westport Water):

BDC Three Waters - Compliance Costs & Rates Estimate				Code:	IS		CCS		Auto		
Programme	Drinking Water Supplies			Prepared:		Revision:		Doc. ID:			
Facility	DW Scheme 1 - Westport			Checked:		Verison:		Date:			
	10 year forecast from start of Entity D on 1 July 2024										
Estimated Costs	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	Average
Debt Servicing											$0
Depreciation											$0
Operations											$0
Repairs & Maintenance											$0
Estimated Rates (excl. GST)	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	Average
No. of Connections	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990	1,990
Estimated Costs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Estimated Rates	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operational Expenditure for Compliance i.e. Mandatory Improvements (per annum estimates excl. inflation)									Total	$0	$/annum
Item	Description							Qty	Rate	Extended	Units
O1	Operations							1		$0	$/annum
O2	Repairs & Maintenance							1		$0	$/annum
Capital Expenditure for Renewals Programme (per annum estimates excl. inflation)									Total	$0	$/annum
Item	Description							Qty	Rate	Extended	Units
R1	Network							1		$0	$/annum
R2	Plant & Equipment							1		$0	$/annum
Capital Expenditure for Compliance i.e. Mandatory Improvements (completed by June 30 20[illegible]									Total	$0	$
Item	Description							Qty	Rate	Extended	Units
M1	Source Water Risk Management Plan							1		$0	$
M2	Coagulation / Flocculation Tank, Mech & ECI							1		$0	$
M3	Chlorine Dosing Automation							1		$0	$
M4	Water Outlook, Audits, Water Safety Plan Rev							1		$0	$
M5	Dedicated Sampling Points Program							1		$0	$
M6	Back Flow Prevention Programme							1		$0	$
M7	Consents Required							1		$0	$
Capital Expenditure for Fit for Future i.e. Aspir[illegible]ional Im[illegible]rovements (completed beyond June 30 2024)									Total	$0	$
Item	Description							Qty	Rate	Extended	Units
F1	Treated Water Storage Capacity						*Indicative costings if known	1		$0	$
F2	Reticulation Survey						*Indicative costings if known	1		$0	$
F3	Reticulation Repairs & Renewals						*Indicative costings if known	1		$0	$
F4	Trunk Main Completion						*Indicative costings if known	1		$0	$
F5	Tunnel No.1 Lining						*Indicative costings if known	1		$0	$
F6	Inlet Improvements						*Indicative costings if known	1		$0	$
F7	Northern Branch Flume						*Indicative costings if known	1		$0	$
F8	Mawhera Land Diversion						*Indicative costings if known	1		$0	$
F9	Reticulation Expansion						*Indicative costings if known	1		$0	$
F10	Fluoridation						*Indicative costings if known	1		$0	$
F11	Easements						*Indicative costings if known	1		$0	$
F12	Flow Metering Scheme						*Indicative costings if known	1		$0	$
F13	Flow Metering Household						*Indicative costings if known	1		$0	$

The above information will allow Council's Finance staff to calculate the corresponding rates estimates and other financial implications on the basis that Council remains as the responsible service provider, instead of the new entities taking over as proposed in the Three Waters reforms.

Asset information has been well captured by infrastructure planning over the past ten years, with both technical and valuation details entered in the Council's utilities (AssetFinda) database. This information includes location, lengths, quantities, age, materials and estimated replacement costs. Condition of subterranean reticulation is not easy to quantify without extensive and ongoing inspections and CCTV programmes. This creates much of the uncertainty and risk for both drinking water and wastewater.

Examples of our urban networks are illustrated in the following thematic maps for both Westport and Reefton.



BULLER DISTRICT COUNCIL

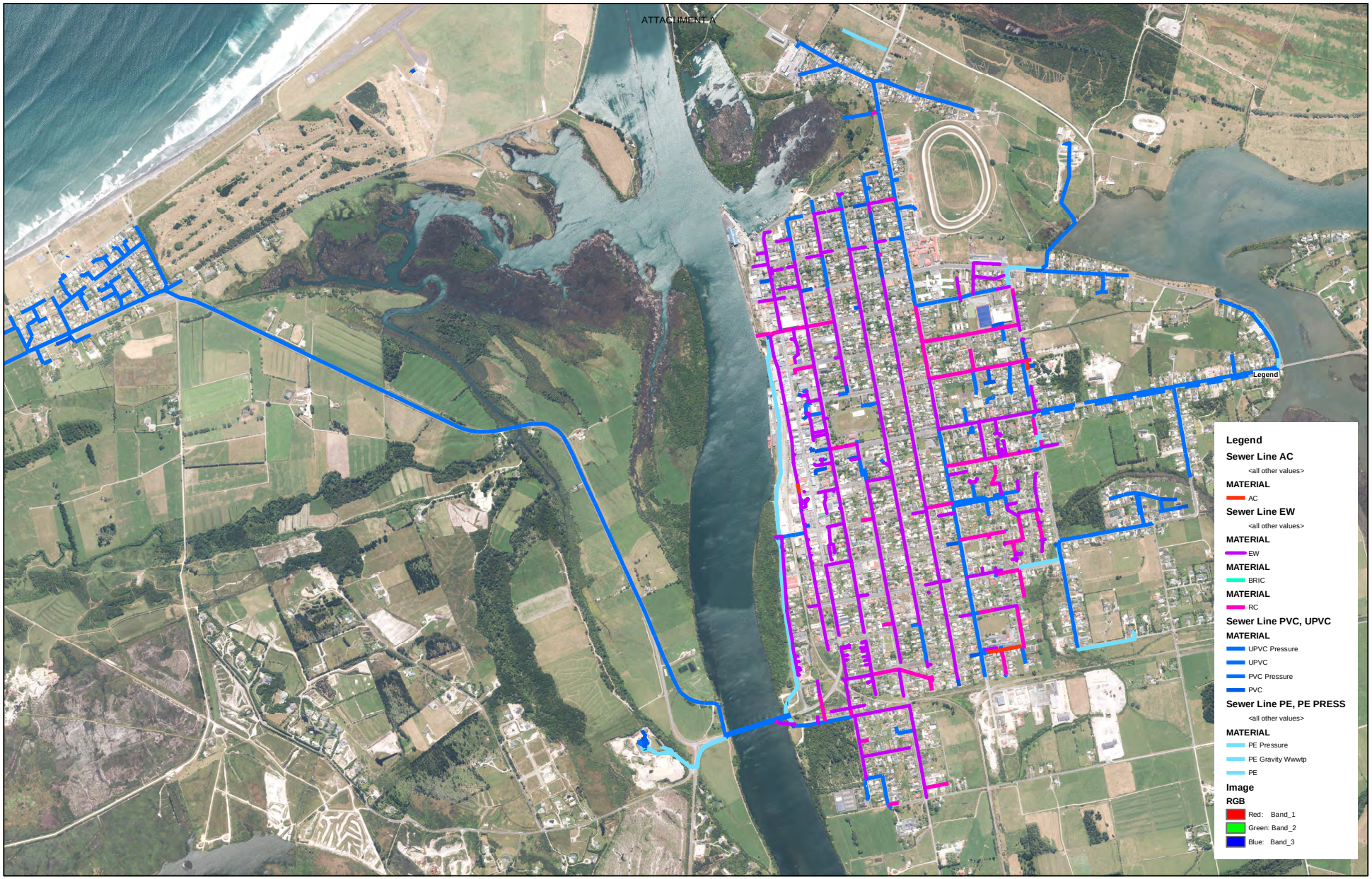
DRINKING WATERTHEMATIC MAP - BY MATERIAL TYPE

Print Date: 24/02/2021

Scale: **1:15,000** When printed on A3

1 centimeter equals 150.00 meters

N W E S



BULLER DISTRICT COUNCIL

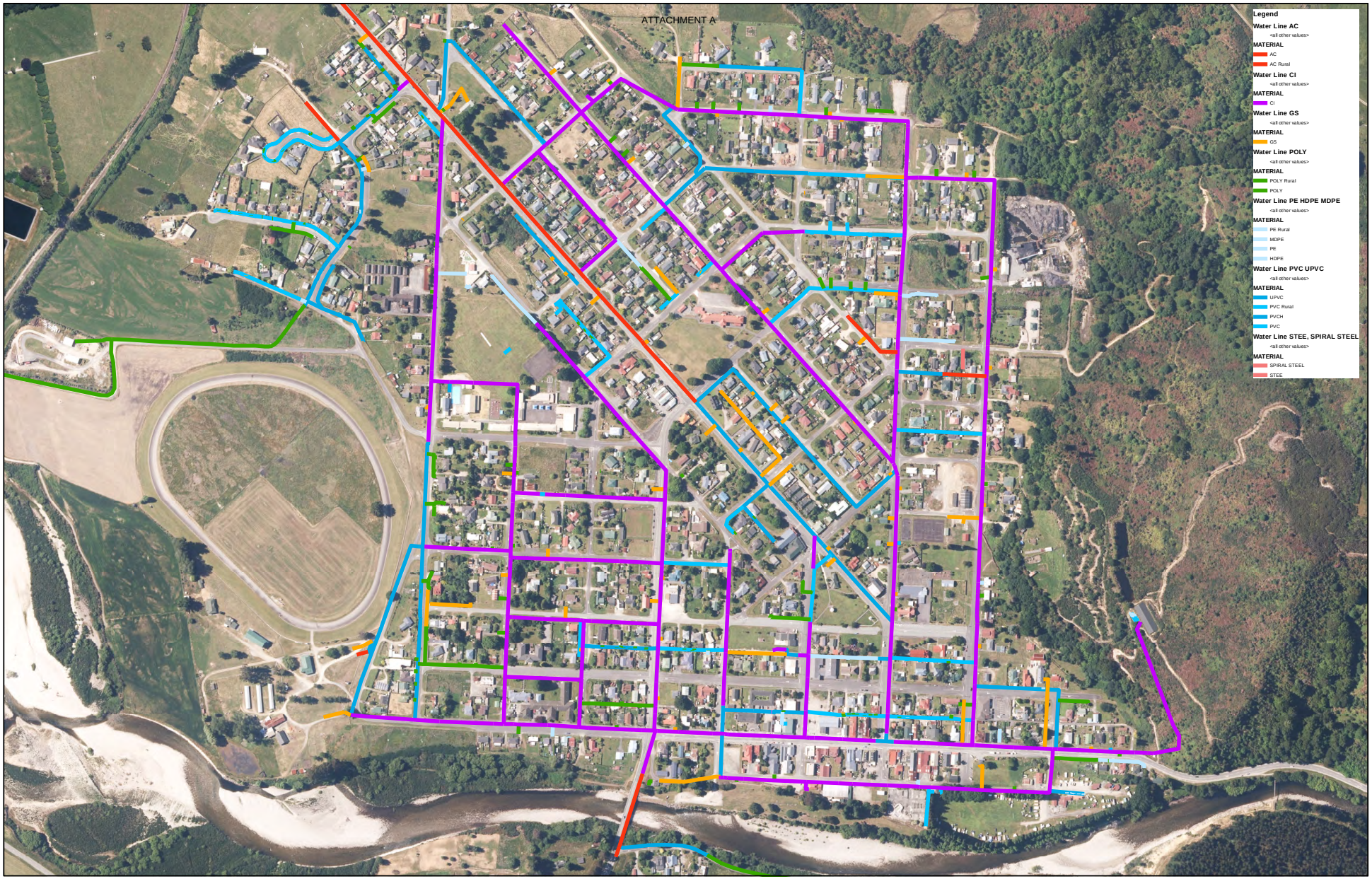
WASTE WATER THEMATIC MAP - BY MATERIAL TYPE

Print Date: 24/02/2021

Scale: **1:15,000** When printed on A3

1 centimeter equals 150.00 meters

N W E S



BULLER DISTRICT COUNCIL

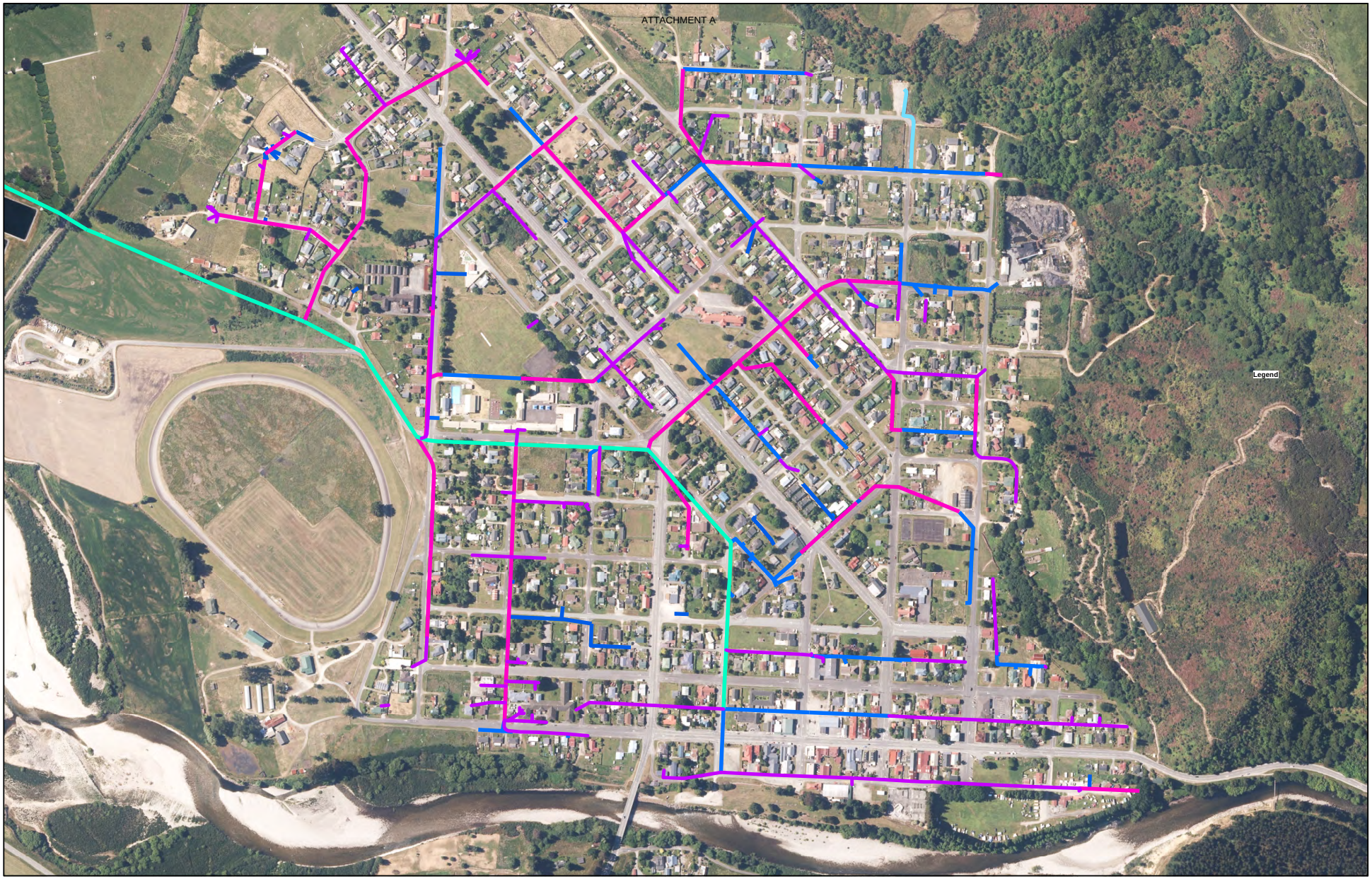
DRINKING WATERTHEMATIC MAP - BY MATERIAL TYPE

Print Date: 24/02/2021

Scale: **1:5,000** When printed on A3

1 centimeter equals 50.00 meters

N W E S



BULLER DISTRICT COUNCIL

WASTE WATER THEMATIC MAP - BY MATERIAL TYPE

Print Date: 24/02/2021

Scale: **1:5,000** When printed on A3

1 centimeter equals 50.00 meters

N W E S

ERPRO
Assess + Optimise Performance

4/29/2022

Gap Analysis

Drinking Water

Table of Contents

1. BDC ASSET GAP ANALYIS BACKGROUND AND PRINCIPLES

1.1. Context

Council have engaged ERPRO Environmental Ltd to provide advice and guidance on best practice methodology of gap analysis for the three waters sector and to undertake – together with BDC staff- a high level asset gap analysis for drinking water.

The Infrastructure Committee (**ISC**) has been provided with the context and rationale for a series of staff memos that will be submitted to the ISC. This context being the Water Services Act 2021, Taumata Arowai as the new regulator and the strengthening of Drinking-water Standards NZ.

To recap briefly, Buller District Council (**BDC**) staff have embarked on exploring what investment will be required (both OPEX and CAPEX) to meet all new legislative requirements while also improving Council's three waters infrastructure to meet current and future expectations for levels of service.

It is well understood that the necessary investment to achieve compliance and 'fit for future' will not be able to be met within the Council's current financial arrangements (closed accounts, low-rate payer base). Inevitably there will be a gap between what the Council can afford and what necessary investment will need to be made to meet statutory obligations.

The document at hand provides a brief overview of the structure and methodology of the attached gap analysis which presents an overview of Rough Order Costs (**ROC**) for necessary investment and subsequent necessary rate rises.

1.2. Purpose

This document, which constitutes the background to the attached gap analysis documents (drinking water), is aimed at providing a very brief overview of the key principles and purpose of gap analysis to provide introductory context for and better understanding of the process steps that have been followed over the last months.

The attachments provide a description of each Council supply, compliance criteria and necessary CAPEX and OPEX costs to achieve compliance.

1.3. Introduction

Gap analysis is a key element of core asset management practices. A three-step approach has been taken for what could be called a 101 of gap analysis.

The first step is to describe the principles of asset management, the second step is a definition of gap analysis, and the third step is to explain how all of this has been applied for the BDC.

1.4.Principles

What are Assets in the context of Water Services?

Assets are all elements that serve to deliver safe water, to discharge it safely once it is waste, and to deal with it when it is introduced into our environment from outside for example as rain.

In this sense assets are equipment, buildings, land, componentry but also people who know how to deal with the tools to make the system work. Assets come in various shapes, be it a huge pump, a piece of land or the right to use it, or a tiny solenoid valve. Each one of them is important to create the desired outcome.

What do we need to know about the assets?

There are several components which are important when we talk about assets:

- ⇒ What assets do we have: this means we need to make an inventory of all pipes, pumps, buildings etc.
- ⇒ In what condition are these assets: assets need to be assessed to understand if they work, how well they work and when they will stop working.
- ⇒ Assets do not exist infinitely, so we need to maintain, operate, repair, and renew them. In a nutshell this is called life cycle of assets which is important to understand as that influences expenditure the most.

What is Asset Management?

A simple definition of asset management as day-to-day principle is:

A process for maintaining the desired level of customer service at the best appropriate cost.

It is important to understand that assets and service for the customer are intertwined.

In parallel to levels of service the utility owner needs to keep in line with legal obligations. The assets – as they are built and operated- need to comply with these statutory responsibilities. Operation needs to report back so that the owner can be assured all is running according to these requirements.

The asset manager understands the services to be delivered, the legal and financial requirements to be followed in order to be able to build and operate. The manager reports back to the owner, so the right amount of money is set aside to invest, re-invest, operate, and repair.

If the money which is set aside does not stack up with the requirements, a gap is opened between demand and supply. If this practice keeps on going for several decades, the gap gets huge. Worldwide this gap is estimated to exceed several trillion US dollars. McKinsey Global estimates that the world needs to invest about US$ 3.3 trillion a year to keep up with growth and provide the levels of service required.

For this project the task at hand is to find out how big this funding gap is for the Buller District Council with regards to providing the 3 waters services.

Gap Analysis

The methodology of analysing gaps in service delivery follows the principles below (from the American Society of Civil Engineers -ASCE's report card for infrastructure):

CAPACITY

Does the infrastructure's capacity meet current and future demands[1]?

CONDITION

What is the infrastructure's existing and near-future physical condition?

FUNDING

What is the current level of funding from all levels of government for the infrastructure category as compared to the estimated funding need?

FUTURE NEED

What is the cost to improve the infrastructure? Will future funding prospects address the need?[2]

OPERATION AND MAINTENANCE

What is the owners' ability to operate and maintain the infrastructure properly? Is the infrastructure in compliance with government regulations?

PUBLIC SAFETY

To what extent is the public's safety jeopardized by the condition of the infrastructure and what could be the consequences of failure?

RESILIENCE

What is the infrastructure system's capability to prevent or protect against significant multi-hazard threats and incidents? How able is it to quickly recover and reconstitute critical services with minimum consequences for public safety and health, the economy, and national security?[3]

1.5.Gap analysis principles as applied for the attached documents

Limitations

In an 'ideal world' the principles that are explained in the previous sections are used on a consistent, on-going basis in an adaptive manner (changing legislation, population growth, change of customer expectations).

The 'gap analysis' that was able to be undertaken within the context described in the first Memo to the ISC will be a snap-shot in time, a high level desk-top assessment based on existing data and current or clearly foreseeable legislation without accommodating for growth and resilience.

No physical assessment of the state and performance of assets has been undertaken.

Available Data to inform gap analysis

⇒ Piping information is available on GIS, this includes length, diameter, material, year of construction, and some information on condition

[1] The client advised that future demand should at this stage of the process not be considered for this task.
[2] The client advised that future demand should at this stage of the process not be considered for this task.
[3] This task does not include any risk assessment, it does include notes but no monetary cost comparison.

⇒ Asset Management Plans as received via email from the client

⇒ Resource Consents as received via email from the client

⇒ Operation and Maintenance information about Reefton, Punakaiki and Inangahua

Sequence of gap analysis

The work was undertaken in the following sequence:

⇒ Check inventory

⇒ Check supply area

⇒ Check levels of service

⇒ Identify the asset shortfall for each system

⇒ Identify general infrastructure requirements such as land, easements, buildings, provision of resources

⇒ Understand compliance requirements for each system (source and source protection, resource consents, treatment system, transmission system, reticulation - new, reticulation -repairs, backflow prevention)

The work package described above helped estimate the funding demand with regards to investment as a first step.

The second step was to estimate the running costs, also called operation and maintenance or O&M.

LIMITATIONS

There are some limitations as to what the Council can expect in terms of the deliverables.

This gap analysis does not deliver:

- An asset management system in accordance with the ISO 55000
- An operation and maintenance management system
- Detailed asset condition assessments
- A review of the operations contract of Westreef Services Ltd (**WSL**)
- A detailed asset inventory
- A cost comparison (demand/resilience/risk/benefit/environmental and cultural impacts)

DISCLAIMER

ERPRO Environmental Ltd has prepared this gap analysis on an agreed scope of work and acts in all professional matters as an advisor to the Council and exercises all reasonable skill and care in the

provision of its professional services in a manner consistent with the level of care and expertise exercised by members of the engineering profession.

The information provided has been prepared for the exclusive use of the Council for the sole purpose of enabling the Council to calculate ROC estimates of potential rate rises that would be necessary to meet compliance costs.

Other parties should not rely upon the information or the accuracy or completeness of any conclusions and estimates and should make their own inquiries and obtain independent advice in relation to such matters.

ERPRO Environmental Ltd has not verified the validity, accuracy or comprehensiveness of any information supplied to ERPRO Environmental Ltd that was used to compile the attached information.

Since the nature of the gap analysis work is 'Rough Order Costs' the attached information in whole or in part cannot be peer reviewed without the prior written agreement of ERPRO Environmental Ltd.

2. Summary, Gap Analysis and Costs

2.1.Cost Summary

Owner: Buller District Council
Task: Rough Order Cost Assessment for Drinking Water Compliance

Asset	Location	CAPEX	General	Renewals Retic	OPEX
1	Inangahua	$ 524,750.00	$ 125,000.00	$ -	$ 49,810.18
2	Little Wanganui	$ 2,187,250.00	$ 105,000.00	$ -	$ 61,211.39
3	Mokihinui	$ 1,777,250.00	$ 105,000.00	$ -	$ 101,620.39
4	Ngakawau Hector	$ 3,186,000.00	$ 132,000.00	$ -	$ 121,979.81
5	Punakaiki	$ 9,056,000.00	$ 95,000.00	$ -	$ 151,906.19
6	Reefton	$ 1,291,000.00	$ 95,000.00	$ 67,793.18	$ 231,384.19
7	Waimangaroa	$ 4,214,050.00	$ 112,000.00	$ 6,000.00	$ 119,436.64
8	Westport	$ 13,350,000.00	$ 380,000.00	$ 77,090.91	$ 616,400.22
	Total	$ 35,586,300.00	$ 1,149,000.00	$ 150,884.09	$ 1,453,749.02

Key

CAPEX	Capital Expenditure for Asset Construction
General	Quality plans, audits, assessments
Renewals Retic	Annual expenses of reticulation renewals, post backlog construction (included in CAPEX)
OPEX	Annual costs for operation using new assets, excluding finance

2.2.Inangahua

Plant: Inangahua

Funding requirement	CAPEX	General	Renewals Retic	OPEX
Compliance with DW standards Treatment	$ 93,750.00			
General and WSA2021 activities Treatment		$ 75,000.00		
Compliance with DW standards Distribution	$ 95,000.00			
Capex activities Distribution Improvement	$ 336,000.00			
General and WSA2021 activities Distribution		$ 50,000.00		
Renewal for Distribution backlog	$ -			
Renewals for Distribution to 2045 (incl. backlog)			$ -	
Renewals for Distribution to 2045 (excl. backlog)			$ -	
Operations Costs Treatment				$ 43,242.68
Operations Costs Distribution				$ 6,567.50
Totals	$ 524,750.00	$ 125,000.00	$ -	$ 49,810.18

WTP and Reticulation O&M Sheet

Client	Buller District Council		Plant load	70	PE
Plant	Inangahua		Plant flow pract	14	m^3/d
$ O&M per connection	$ 1,660.34	$/year		5,256	m^3/yr
$ O&M per m^3	$ 9.48	$/m^3$	Connections	30	

											hrs	$/hr	$/pos	$/totals
01.00	General													
	Council Overhead Costs												$ 5,000.00	
	Electricity												$ 2,628.00	
	Insurance												$ 2,500.00	
	Others..												$ -	
01.00	Total General													$ 10,128.00
02.00	Operation WTP													
02.10	General													
	Grounds	150	m2	3.00 h/1000m2.month	0.02	hr/d	0.11	hr/w	5.48	hr/y				
	Housekeeping	45	m3	0.50 h/100m3.month	0.01	hr/d	0.05	hr/w	2.74	hr/y				
	Sampling	40	conditions per month	7.00 min/cond.month	0.16	hr/d	1.09	hr/w	56.78	hr/y				
	Data gathering	25	locations	5.00 min/location.month	0.07	hr/d	0.49	hr/w	25.35	hr/y	90.34	$ 78.00	$ 7,046.33	
02.20	Water Treatment Plant operation													
	Plant operation as per worksheet						2.29	hr/w	119.00	hr/y	119.00	$ 90.00	$ 10,710.00	
	Small materials and consumables												$ 2,500.00	
02.30	Non productive													
	Training				0.01	hr/d	0.07	hr/w	3.65	hr/y				
	Administration				0.05	hr/d	0.35	hr/w	18.25	hr/y				
	Driving				0.15	hr/d	1.05	hr/w	54.75	hr/y	76.65	$ 78.00	$ 5,978.70	
02.00	Total Operation										285.99			$ 26,235.03
03.00	Maintenance WTP													
	Plant maintenance as per worksheet						1.04	hr/w	54.22	hr/y	54.22	$ 90.00	$ 4,879.65	
	Small materials and consumables												$ 2,000.00	
03.00	Total maintenance						1.04		54.22		54.22			$ 6,879.65
	Total Operation and Maintenance WTP													$ 43,242.68
04.00	Operation and Maintenance Reticulation													
	Plant maintenance as per worksheet						0.98	hr/w	50.75	hr/y	50.75	$ 90.00	$ 4,567.50	
	Small materials and consumables												$ 2,000.00	
04.00	Total maintenance						0.98		50.75		50.75			$ 6,567.50
	Total Operation and Maintenance Reticulation													$ 6,567.50
	Total Operation and Maintenance WTP & Reticulation													$ 49,810.18

Source Specifications				
			Reference	Comment
Type		**Drinking Water**		
Supply Code		INA002	TA	
Supply Name		Inangahua	TA	
Source Code		G00957	TA	
Source Name		Bore, Inangahua Junction Res.	TA	
Resource Consent		NA		permitted activity under the Regional Land and Water Plan
Expiry				
Allowable Take		50	m^3/day	0.58 l/s - max to be discussed
Supply type		On Demand		
Supply Category		Small		
Water Demand Estimates				
Supply Population avg	P+PE	70	TA	
People per property	P/con	2.3	assumption	less than average
Supply Population peak	P+PE	200	assumption	
People per property	P/con	4	assumption	
Commercial and Industry		0		
Connections current	#	30	assumption	
Connections max		50	assumption	
Specific water demand avg	l/P.d	120	assumption	no garden watering, very low specifc demand
Specific water demand peak	l/P.d	120	assumption	
Unaccounted water	l/conn.d	200	assumption	less than average for BDC
Supply Volume Accounted AVG	m^3/d	8.4	calculated	
Supply Volume Accounted Peak	m^3/d	24.0	calculated	
Supply Volume Unaccounted AVG	m^3/d	6	calculated	
Supply Volume Unaccounted Peak	m^3/d	10	calculated	
Supply demand avg	**m^3/d**	**14.4**	calculated	
Supply demand peak	**m^3/d**	**34.0**	calculated	
Raw Water quanityt and quality - NIWA NZRiverMaps - estimates				
Land use		indigenous forest,low producing grassland		
Catchment area	km^2	-		
1 in 5 yr low flow	m^3/s	-		
Median flow	m^3/s	-		
Nitrate 95%	g/m^3	-		
Ammoniacal N	g/m^3	-		
Dissolved Reactive P	g/m^3	-		
Total Suspended Solids	g/m^3	-		
Turbidity	NTU	-		
Temperature	°C	-		
E.coli 95%	#/100ml	-		

Comment for use as drinking water

The Inangahua intake feeds from a bore, water chemistry is assumed to be ok, most likely very similar to the Inangahua catchment in Reefton (bore) further upstream.

Parameters of concern:

Alkalinity, E.coli.

It is unknown if there is a high concentration of dissolved organic carbon in the water ; similar groundwater systems in the area (Reefton) show low DOC concentrations typically at 0.6 -0.7 g DOC/m^3.

Assumptions for treatment train:

Filtration: 2 step - coarse and fine

UV treatment

Chlorination

Drinking Water Quality Assurance Rules				
Population served	appr. 70 avg, 200 peak			
Set of rules	G + S2 + T2 + D2			
Existing system				
Intake structure	bore - wellhead			
Raw water storage	0 m^3 tank			
Treated water storage	18 m^3 tank			
Relevant Rules in accordance with the 'DRAFT Drinking Water Quality Assurance Rules 20 December 2021'				
Rule set 'G' is covered under overhead				

S2. Source Water Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
S2.1	Surface water sources must be monitored for the determinands/parameters and at the frequency set out in Table 9.	No online monitor required, sampling by operator		
S2.4	Additional monitoring of source water must be undertaken for any contaminants which exceed 50% of the MAVs set out in the New Zealand Drinking Water Standards 202X (to be determined).	No MAV related warnings known		
S2.5	Water sources must be categorised as either low-risk, medium-risk or high-risk for the presence of cyanobacteria.	cyano bacteria risk can be excluded due to being a bore.		

T2. Treatment Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
T2.1	Water leaving the treatment plant must be monitored for the determinands/parameters and at the frequencies set out in Table 12.	As the plant is not visited daily all parameters as requested per table 12. T2 are to be set up using monitors	UVT meter, (UVI as part of UV set)	$ 20,000.00
T2.4	All water must be filtered by a media, membrane or cartridge filter system	2 stage catridge filtration installed, 20 µm + 1 µm	nil	
T2.5	If cartridge filters are used, the downstream cartridge must have a pore size of 1 micron (absolute)	achieved		
T2.7	All water must be disinfected with UV light.	achieved, Trojan UVMAX Pro30, set at 40mJ/cm^2		
General requirement to build and set up a water treatment plant				
	Chlorine dosing for residual chlorination	Bore water is safe wrt DOC		$ 25,000.00
	Fluoridation plus monitoring			$ 25,000.00
	Design, supervision, experts, survey, procurement, commissioning	25%		$ 5,000.00
	Contingency	25%		$ 18,750.00
Costs water treatment plant				**$ 93,750.00**

Funding activities in accordance with the Water Services Act 2021 and General				
Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.01			Water Safety Plan update	$ 15,000.00
WSA/G.02			Source Water Management Plan	$ 10,000.00
WSA/G.03			Consent Renewal	$ -
WSA/G.04			Easements	$ 40,000.00
WSA/G.05			Set up of auditing program	$ 10,000.00
WSA/G.06			nil	
WSA/G.07			nil	
WSA/G.08			nil	
WSA/G.09			nil	
WSA/G.10			nil	
Costs General Activities, One Off and Initial				**$ 75,000.00**

Drinking Water Quality Assurance Rules				
Population served	appr. 70 avg, 200 peak			
Set of rules	G + S2 + T2 + D2			

Existing system

A big portion of the reticulation was built 1969 and is made of polyethylene (84%). PE from that time is not of the same quality as modern PE and life expectancy is less than is now (rule of thumb: 50 years vs 80+ years). We recommend to test a piece of pipe and investigate in the residual asset life. For this assessment we have used 80 years of life expectancy as for new PE pipes.

The system provides water only to 51 sections and is non expandable. Water for firefighting is left to the systems of Rural-Fire.
No renewals are planned for the next 20 years.

D2 Distribution System rules

Item	Rule	Comment - Action	Cost Item	Estimate
D2.1	Water in the distribution system must be monitored for the determinands/parameters and at the frequencies set out in Table 13	FAC and pH to be tsted on line additional to sampling as site is not visited daily	FAC/pH monitor plus cabinet, weatherproof plus power connection	$ 20,000.00

Levels of Service (Water Asset Management Plan 2015) - relevant items only

LTP Water Services	Key Service Criteria	Target Level Of Service	Measurement	Comment
Provide an adequate quality of water	Is the water safe to drink?	No potential for illness due to unwholesome water	No E.Coli confirmed by second sample	ok
Provide an adequate quantity of water	There is an adequate flow of water for domestic activities, such as taking a shower?	To be able to fill a 10 litre bucket three times within a minute	Residual pressure > 200kpa at the dwelling, while drawing 30 L/min	unknown, to be tested, no complaints received
Provide an adequate quantity of water	There is an adequate flow of water for fire fighting?	All fire hydrants to be operational	All existing Fire Hydrants to remain operative All new subdivisions within Westport and Reefton to be designed to comply with hydrant requirements in SNZ PAS 4509:2003	Measurement not applicable. Fireservices to use own water or pump from Buller
Provide a reliable supply of water	Can you rely on the water supply to be available?	To provide water into the system virtually all of the time	Water supplied 99% of the time	ok
Provide a reliable supply of water		To minimise disruption caused by unplanned shutdowns	No more than 3 shutdowns per km At least 90% compliance with response times stated in service request	ok
Provide a reliable supply of water	Is the use of water restricted?	To permit gardens to be maintained in a healthy state all year	No more than 5 days water restrictions per year	ok
Provide water with the minimum environmental impact	Is the environment being harmed?	To comply with resource consent conditions	100% compliance with RC conditions	ok

Funding activities in accordance with the Water Services Act 2021 and General

Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.11			Flow metering households	$ 25,000.00
WSA/G.12			Dedicated sampling spots	$ 3,000.00
WSA/G.13			Backflow prevention program	$ 15,000.00
WSA/G.14			nil	
WSA/G.15			nil	
Costs Compliance				**$ 38,000.00**
CAPEX Distribution improvement				**$ 25,000.00**
General Activities, One Off and Initial				**$ -**

Material	Length	Meter Pipe per Diameter																					
	[m]	762	716	600	525	500	375	300	250	200	175	150	125	100	90	80	75	50	40	32	25	20	15	12
POLY	1,832	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1,532	0	0	127	171	0	0
PE	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	0	0	18	28	0	0
GS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALK	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
PVC	136	0	0	0	0	0	0	0	0	0	0	23	0	113	0	0	0	0	0	0	0	0	0	0
STEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2,211.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.8	0.0	115.0	0.0	0.0	0.0	1,619.5	0.0	0.0	145.1	204.2	0.0	0.0
%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%	5.2%	0.0%	0.0%	0.0%	73.2%	0.0%	0.0%	6.6%	9.2%	0.0%	0.0%

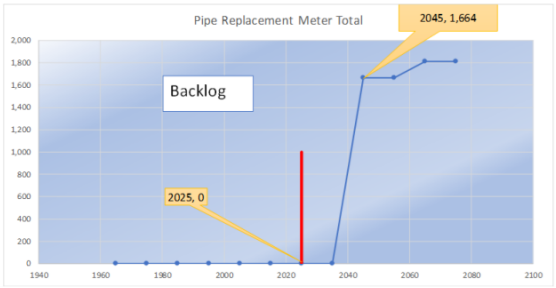
Material	Meter Pipe per Condition						Meter Pipe Installed within Period											
							>=1900	>=1910	>=1920	>=1930	>=1940	>=1950	>=1960	>=1970	>=1980	>=1990	>=2000	>=2010	>=2020
	Excellent	Good	Average	Poor	Very Poor	N/A	<1910	<1920	<1930	<1940	<1950	<1960	<1970	<1980	<1990	<2000	<2010	<2020	<2030
POLY	144	9	1,663	0	0	17	0	0	0	0	0	0	1,663	0	9	0	0	160	0
PE	83	29	0	0	0	21	0	0	0	0	0	0	0	0	32	0	0	102	0
GS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALK	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
PVC	0	0	0	0	0	136	0	0	0	0	0	0	0	0	0	0	0	136	0
STEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	105	0	0	0	0	0	0	0	0	0	0	0	0	1	0	104	0	0
Total	231.8	143.5	1,663.0	0.0	0.0	173.5	0.0	0.0	0.0	0.0	0.0	0.0	1,663.0	0.0	41.7	0.0	104.3	402.9	0.0
%	10.5%	6.5%	75.2%	0.0%	0.0%	7.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	75.2%	0.0%	1.9%	0.0%	4.7%	18.2%	0.0%

Key

POLY	Polyethylene (PE)	STEE	Steel
GS	Galvanised Steel	AC	Asbestos Cement
PE	Polyethylene	CI	Cast Iron
ALK	Alkathene, low Density Polyethylene (LDPE)	PVC	Poly Vinyl Chloride

Material	BaseLife	Residual Life											Replacement period for built pipe during decade xx/xx										
	[years]	1905	1915	1925	1935	1945	1955	1965	1975	1985	1995	2005	2015	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0							2045		2065			2095
PE	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065			2095
GS	40	-77.0	-67.0	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0												
ALK	70	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0												2085
PVC	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0												2095
STEE	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Spiral Steel	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
CI	90	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0												
AC	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Timber	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Conc	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Copper	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Unknown	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0									2045		2065	

Material	Replacement length per period built										
	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY							1,663		9			
PE									32			
GS												
ALK												
PVC												
Spiral Steel												
ABS												
CI												
AC												
Timber												
Conc												
Copper												
Unknown									1		104	
TOTAL	1,809											



2.3.Little Wanganui

Plant: Little Wanganui

Funding requirement	CAPEX	General	Renewals Retic	OPEX
Compliance with DW standards Treatment	$ 1,756,250.00			
General and WSA2021 activities Treatment		$ 55,000.00		
Compliance with DW standards Distribution	$ 95,000.00			
Capex activities Distribution Improvement	$ 336,000.00			
General and WSA2021 activities Distribution		$ 50,000.00		
Renewal for Distribution backlog	$ -			
Renewals for Distribution to 2045 (incl. backlog)			$ -	
Renewals for Distribution to 2045 (excl. backlog)			$ -	
Operations Costs Treatment				$ 51,531.39
Operations Costs Distribution				$ 9,680.00
Totals	$ 2,187,250.00	$ 105,000.00	$ -	$ 61,211.39

WTP and Reticulation O&M Sheet

Client	Buller District Council		Plant load	200	PE	
Plant	Little Wanganui		Plant flow pract.	35	m^3/d	
$ O&M per connection	$ 728.71	$/year		12,775	m^3/yr	
$ O&M per m^3	$ 4.79	$/$m^3$	Connections	84.00		

												hrs	$/hr	$/pos	$/totals
01.00	**General**														
	Council Overhead Costs													$ 5,000.00	
	Electricity													$ 1,971.00	
	Insurance													$ 2,500.00	
	Others													$ -	
01.00	**Total General**														$ 9,471.00
02.00	**Operation WTP**														
02.10	**General**														
	Grounds	250	m^2	3.00	h/1000m^2.month	0.03	hr/d	0.18	hr/w	9.13	hr/y				
	Housekeeping	50	m^3	0.50	h/100m3.month	0.01	hr/d	0.06	hr/w	3.04	hr/y				
	Sampling	40	conditions per month	7.00	min/cond.month	0.16	hr/d	1.09	hr/w	56.78	hr/y				
	Data gathering	25	locations	5.00	min/location.month	0.07	hr/d	0.49	hr/w	25.35	hr/y	94.29	$ 78.00	$ 7,354.75	
02.20	**Water Treatment Plant operation**														
	Plant operation as per worksheet							3.13	hr/w	162.50	hr/y	162.50	$ 90.00	$ 14,625.00	
	Small materials and consumables													$ 2,500.00	
02.30	**Non productive**														
	Training					0.01	hr/d	0.07	hr/w	3.65	hr/y				
	Administration					0.05	hr/d	0.35	hr/w	18.25	hr/y				
	Driving					0.15	hr/d	1.05	hr/w	54.75	hr/y	76.65	$ 78.00	$ 5,978.70	
02.00	**Total Operation**											333.44			$ 30,458.45
03.00	**Maintenance WTP**														
	Plant maintenance as per worksheet							84.64	hr/w	73.35	hr/y	73.35	$ 90.00	$ 6,601.94	
	Small materials and consumables													$ 5,000.00	
03.00	**Total maintenance**							**84.64**		**73.35**		73.35			$ 11,601.94
	Total Operation and Maintenance WTP														**$ 51,531.39**
04.00	**Operation and Maintenance Reticulation**														
	Plant maintenance as per worksheet							1.00	hr/w	52.00	hr/y	52.00	$ 90.00	$ 4,680.00	
	Small materials and consumables													$ 5,000.00	
04.00	**Total maintenance**							**1.00**		**52.00**		52.00			$ 9,680.00
	Total Operation and Maintenance Reticulation														**$ 9,680.00**
	Total Operation and Maintenance WTP & Reticulation														**$ 61,211.39**

Source Specifications				
			Reference	Comment
Type		**Drinking Water**		
Supply Code		LIT003	ESR	
Supply Name		Little Wanganui	ESR	
Source Code		S00884	ESR	
Source Name		Little Wanganui Intake	ESR	Water take for public water supply from unnamed tributary of the Little Wanganui River
Resource Consent		RC96046V		
Expiry		5/01/2039		
Allowable Take		57	m^3/day	
Supply type		On Demand		
Supply Category		Small		
Water Demand Estimates				
Supply Population avg	P+PE	150	ESR	
People per property	P/con	2.0	assumption	less than average
Supply Population peak	P+PE	336	assumption	
People per property	P/con	4	assumption	
Commercial and Industry		0		
Connections current	#	76	AMP	
Connections max		84	AMP	
Specific water demand avg	l/P.d	120	assumption	no garden watering, very low specifc demand
Specific water demand peak	l/P.d	120	assumption	
Unaccounted water	l/conn.d	200	assumption	less than average for BDC
Supply Volume Accounted AVG	m^3/d	18.0	calculated	
Supply Volume Accounted Peak	m^3/d	40.3	calculated	
Supply Volume Unaccounted AVG	m^3/d	15.2	calculated	
Supply Volume Unaccounted Peak	m^3/d	16.8	calculated	
Supply demand avg	**m^3/d**	**33.2**	calculated	
Supply demand peak	**m^3/d**	**57.1**	calculated	
Raw Water quanityt and quality - NIWA NZRiverMaps - estimates				
Land use		indigenous forest		
Catchment area	km^2	0.67		67 ha
1 in 5 yr low flow	m^3/s	0.0030		260 m^3/d
Median flow	m^3/s	0.015		
Nitrate 95%	g/m^3	0.19		
Ammoniacal N	g/m^3	0.01		
Dissolved Reactive P	g/m^3	0.005		
Total Suspended Solids	g/m^3	2.6		
Turbidity	NTU	2.3		
Temperature	°C	12.1		
E.coli 95%	#/100ml	1470		

Comment for use as drinking water

The little Wanganui intake feeds from a catchment that runs on very low flows during summer (March), however, the supply is deemed to be safe. The chemical water quality seems satisfactory. The microbiological water quality is bad. The catchment is characterised mostly by indigenous forest.

Parameters of concern:

Turbidity, total suspended solids, E.coli

It is unknown if there is a high concentration of dissolved organic carbon in the water ; similar streams on the Westcoast show concentrations up to 4.0 g DOC/m^3. We expect that to be the case for this intake based on the very high E.coli load.

Assumptions for treatment train:

Filtration: 2 step - coarse and fine

DOC removal (membrane)

UV treatment

Chlorination

A full set of water analysis is required during the course over dry and wet weather periods to determine the exact treatment requirements. If high DOC/TOC results are obtained a batch test for residual chlorination processing should be conducted to estimate the level of Disinfection By-Products (DBPs) produced. Based on that the final layout of the

Drinking Water Quality Assurance Rules				
Population served	appr 150			
Set of rules	G + S2 + T2 + D2			
Existing system				
Intake structure	dam, weir			
Raw water storage	50 m^3 2 x tanks 22.7 m^3 each			
Relevant Rules in accordance with the 'DRAFT Drinking Water Quality Assurance Rules 20 December 2021'				
Rule set 'G' is covered under overhead				
S2. Source Water Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
S2.1	Surface water sources must be monitored for the determinands/parameters and at the frequency set out in Table 9.	No online monitor required, sampling by operator		
S2.5	Water sources must be categorised as either low-risk, medium-risk or high-risk for the presence of cyanobacteria.	To be assessed. The water is dammed consequently the risk for cyano bacteria proliferation is high, conversely the concentration of DRP is extremely low which reduces the chances of strong growth.	Assessment of cyano bacteria prevalence. The working theory for this analysis is that probability is low causing no CAPEX item.	
T2. Treatment Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
T2.1	Water leaving the treatment plant must be monitored for the determinands/parameters and at the frequencies set out in Table 12.	As the plant is not visited daily all parameters as requested per table 12. T2 are to be set up using monitors	included in lumpsum below	
T2.4	All water must be filtered by a media, membrane or cartridge filter system	2 stage filtration to be installed	included in lumpsum below	
T2.7	All water must be disinfected with UV light.	UV system to be installed	included in lumpsum below	
General requirement to build and set up a water treatment plant				
	Land, right of way			$ 100,000.00
	Intake, sedimentation and raw water tanks			$ 125,000.00
	Transmission lines			
	Water Treatment Plant (electrical, mechanical, controls)			$ 600,000.00
	WTP Building and Services			$ 150,000.00
	Rising/falling/drainage lines			$ 50,000.00
	Treated Water Storage Tanks			$ 150,000.00
	Fluoridation plus monitoring			$ 25,000.00
	Design, supervision, experts, survey, procurement, commissioning	20%		$ 205,000.00
	Contingency	25%		$ 351,250.00
Costs water treatment plant				**$ 1,756,250.00**
Funding activities in accordance with the Water Services Act 2021 and General				
Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.01			Water Safety Plan update	$ 15,000.00
WSA/G.02			Source Water Management Plan	$ 10,000.00
WSA/G.03			Consent Renewal	$ -
WSA/G.04			Easements	$ 20,000.00
WSA/G.05			Set up of auditing program	$ 10,000.00
WSA/G.06			nil	
WSA/G.07			nil	
WSA/G.08			nil	
WSA/G.09			nil	
WSA/G.10			nil	
Costs General Activities, One Off and Initial				**$ 55,000.00**

Drinking Water Quality Assurance Rules				
Population served	appr 150			
Set of rules	G + S2 + T2 + D2			

Existing system

The existing system was built in 1980 and consists of 50 mm supply and distribution pipes and 32/25/15/12 mm laterals. The pipes are made of PE except for a few connection pipes. Apart from singular repairs and small renewals (e.g. galvanised pipes) the system is designed to be in service till at least 2060.
The system provides water only to 84 sections and is non expandable. Water for firefighting is left to the systems of Rural-Fire.
The majority of the system is NB 50 mm (94.9%), is in average condition (94.9%), was installed in 1980 (89.8%), has a residual life of 38 years (89.8%), and has a planned replacement date at 2060 (89.8%) (see Table 1).
No renewals are planned for the next 3 decades.

D2 Distribution System rules

Item	Rule	Comment - Action	Cost Item	Estimate
D2.1	Water in the distribution system must be monitored for the determinands/parameters and at the frequencies set out in Table 13	FAC and pH to be tsted on line additional to sampling as site is not visited daily	FAC/pH monitor plus cabinet, weatherproof plus power connection	$ 20,000.00

Levels of Service (Water Asset Management Plan 2015) - relevant items only

LTP Water Services	Key Service Criteria	Target Level Of Service	Measurement	Comment
Provide an adequate quality of water	Is the water safe to drink?	No potential for illness due to unwholesome water	No E.Coli confirmed by second sample	not possible yet
Provide an adequate quantity of water	There is an adequate flow of water for domestic activities, such as taking a shower?	To be able to fill a 10 litre bucket three times within a minute	Residual pressure > 200kpa at the dwelling, while drawing 30 L/min	unknown, to be tested
Provide an adequate quantity of water	There is an adequate flow of water for fire fighting?	All fire hydrants to be operational	All existing Fire Hydrants to remain operative All new subdivisions within Westport and Reefton to be designed to comply with hydrant requirements in SNZ PAS 4509:2003	Measurement not applicable. Fireservices to use own water or pump from Little Wanganui River
Provide a reliable supply of water	Can you rely on the water supply to be available?	To provide water into the system virtually all of the time	Water supplied 99% of the time	ok
Provide a reliable supply of water		To minimise disruption caused by unplanned shutdowns	No more than 3 shutdowns per km At least 90% compliance with response times stated in service request	ok
Provide a reliable supply of water	Is the use of water restricted?	To permit gardens to be maintained in a healthy state all year	No more than 5 days water restrictions per year	ok
Provide water with the minimum environmental impact	Is the environment being harmed?	To comply with resource consent conditions	100% compliance with RC conditions	not possible yet

Funding activities in accordance with the Water Services Act 2021 and General

Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.11			Flow metering households	$ 42,000.00
WSA/G.12			Dedicated sampling spots	$ 3,000.00
WSA/G.13			Backflow prevention program	$ 12,000.00
WSA/G.14			nil	
WSA/G.15			nil	
Costs Compliance				**$ 35,000.00**
CAPEX Distribution improvement				**$ 42,000.00**
General Activities, One Off and Initial				**$ -**

Material	Length	Meter Pipe per Diameter																						
	[m]	762	716	600	525	500	375	300	250	200	175	150	125	100	90	80	75	50	40	32	25	20	15	12
POLY	2,081	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,007	0	39	0	0	35	0
PE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GS	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
ALK	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
PVC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total	2,088.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,007.3	0.0	39.2	0.0	0.0	38.9	3.3
%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	96.1%	0.0%	1.9%	0.0%	0.0%	1.9%	0.2%

Material	Meter Pipe per Condition						Meter Pipe Installed within Period											
							>=1900	>=1910	>=1920	>=1930	>=1940	>=1950	>=1960	>=1970	>=1980	>=1990	>=2000	>=2010	>=2020
	Excellent	Good	Average	Poor	Very Poor	N/A	<1910	<1920	<1930	<1940	<1950	<1960	<1970	<1980	<1990	<2000	<2010	<2020	<2030
POLY	0	74	2,007	0	0	0	0	0	0	0	0	0	0	0	1,893	189	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GS	2	3	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
ALK	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
PVC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total	2.1	79.3	2,007.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,899.7	188.9	0.0	0.0	0.0
%	0.1%	3.8%	96.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	91.0%	9.0%	0.0%	0.0%	0.0%

Key

POLY	Polyethylene (PE)	STEE	Steel
GS	Galvanised Steel	AC	Asbestos Cement
PE	Polyethylene	CI	Cast Iron
ALK	Alkathene, low Density Polyethylene (LDPE)	PVC	Poly Vinyl Chloride

Material	BaseLife	Residual Life												Replacement period for built pipe during decade xx/xx										
	[years]	1905	1915	1925	1935	1945	1955	1965	1975	1985	1995	2005	2015	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065	2075		
PE	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									**2025**			
GS	40	-77.0	-67.0	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0									2055			
ALK	70	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0												
PVC	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0												
STEE	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
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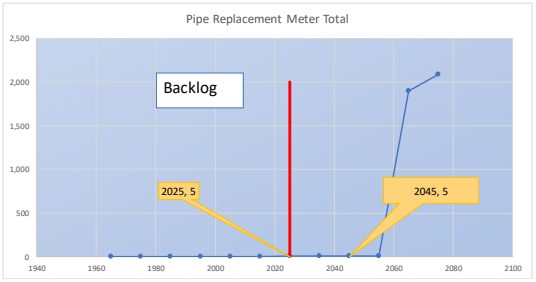
CI	90	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0												
AC	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Timber	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Conc	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Copper	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Unknown	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												

Material	Replacement length per period built											
	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY									**1,893**	**189**		
PE												
GS									**5**			
ALK									**2**			
PVC												
Spiral Steel												
ABS												
CI												
AC												
Timber												
Conc												
Copper												
Unknown												
TOTAL	2,089											



2.4.Mokihinui

Plant: Mokihinui

Funding requirement	CAPEX	General	Renewals Retic	OPEX
Compliance with DW standards Treatment	$ 1,346,250.00			
General and WSA2021 activities Treatment		$ 55,000.00		
Compliance with DW standards Distribution	$ 95,000.00			
Capex activities Distribution Improvement	$ 336,000.00			
General and WSA2021 activities Distribution		$ 50,000.00		
Renewal for Distribution backlog	$ -			
Renewals for Distribution to 2045 (incl. backlog)			$ -	
Renewals for Distribution to 2045 (excl. backlog)			$ -	
Operations Costs Treatment				$ 91,052.89
Operations Costs Distribution				$ 10,567.50
Totals	$ 1,777,250.00	$ 105,000.00	$ -	$ 101,620.39

WTP and Reticulation O&M Sheet

Client	Buller District Council		Plant load	100	PE
Plant	Mokihinui		Plant flow pract.	21	m^3/d
$ O&M per connection	$ 2,162.14	$/year		7,811	m^3/yr
$ O&M per m^3	$ 13.01	$/$m^3$	Connections	47.00	

without capital financing

												hrs	$/hr	$/pos	$/totals
01.00	**General**														
	Council Overhead Costs													$ 5,000.00	
	Electricity													$ 14,782.50	
	Insurance													$ 2,500.00	
	Others													$ -	
01.00	**Total General**														$ 22,282.50
02.00	**Operation WTP**														
02.10	**General**														
	Grounds	250	m2	3.00	h/1000m2.month	0.03	hr/d	0.18	hr/w	9.13	hr/y				
	Housekeeping	50	m3	0.50	h/100m3.month	0.01	hr/d	0.06	hr/w	3.04	hr/y				
	Sampling	40	conditions per month	7.00	min/cond.month	0.16	hr/d	1.09	hr/w	56.78	hr/y				
	Data gathering	25	locations	5.00	min/location.month	0.07	hr/d	0.49	hr/w	25.35	hr/y	94.29	$ 78.00	$ 7,354.75	
02.20	**Water Treatment Plant operation**														
	Plant operation as per worksheet							5.55	hr/w	288.50	hr/y	288.50	$ 90.00	$ 25,965.00	
	Small materials and consumables													$ 7,500.00	
02.30	**Non productive**														
	Training					0.01	hr/d	0.07	hr/w	3.65	hr/y				
	Administration					0.05	hr/d	0.35	hr/w	18.25	hr/y				
	Driving					0.15	hr/d	1.05	hr/w	54.75	hr/y	76.65	$ 78.00	$ 5,978.70	
02.00	**Total Operation**											459.44			$ 46,798.45
03.00	**Maintenance WTP**														
	Plant maintenance as per worksheet							191.95	hr/w	166.35	hr/y	166.35	$ 90.00	$ 14,971.94	
	Small materials and consumables													$ 7,000.00	
03.00	**Total maintenance**							**191.95**		**166.35**		166.35			$ 21,971.94
	Total Operation and Maintenance WTP														**$ 91,052.89**
04.00	**Operation and Maintenance Reticulation**														
	Plant maintenance as per worksheet							0.98	hr/w	50.75	hr/y	50.75	$ 90.00	$ 4,567.50	
	Small materials and consumables													$ 6,000.00	
04.00	**Total maintenance**							**0.98**		**50.75**		50.75			$ 10,567.50
	Total Operation and Maintenance Reticulation														**$ 10,567.50**
	Total Operation and Maintenance WTP & Reticulation														**$ 101,620.39**

Source Specifications				
			Reference	Comment
Type		**Drinking Water**		
Supply Code		MOK001	TA	
Supply Name		Mokihinui	TA	
Source Code		S00010	TA	
Source Name		Mokihinui, Creek	TA	Water take for public water supply from unnamed tributary of the Little Wanganui River
Resource Consent		RC01283/5		Brewery Creek (/5)
Expiry		26/06/2037		
Allowable Take		216	m^3/day	(2.5 l/s)
Supply type		On Demand		
Supply Category		Small		
Water Demand Estimates				
Supply Population avg	P+PE	100	TA	
People per property	P/con	2.1	assumption	less than average
Supply Population peak	P+PE	204	assumption	
People per property	P/con	4	assumption	
Commercial and Industry		0		
Connections current	#	47	AMP	
Connections max		51	AMP	
Specific water demand avg	l/P.d	120	assumption	no garden watering, very low specifc demand
Specific water demand peak	l/P.d	120	assumption	
Unaccounted water	l/conn.d	200	assumption	less than average for BDC
Supply Volume Accounted AVG	m^3/d	12.0	calculated	
Supply Volume Accounted Peak	m^3/d	24.5	calculated	
Supply Volume Unaccounted AVG	m^3/d	9.4	calculated	
Supply Volume Unaccounted Peak	m^3/d	10.2	calculated	
Supply demand avg	**m^3/d**	**21.4**	calculated	
Supply demand peak	**m^3/d**	**34.7**	calculated	
Raw Water quanityt and quality - NIWA NZRiverMaps - estimates				
Land use		indigenous forest, broadleaved indigenous hardwood, Manuka/Kanuka		
Catchment area	km^2	1.25		125 ha
1 in 5 yr low flow	m^3/s	0.0133		1147 m3/d
Median flow	m^3/s	0.0518		4474 m3/d
Nitrate 95%	g/m^3	125		
Ammoniacal N	g/m^3	9.53		
Dissolved Reactive P	g/m^3	5.74		
Total Suspended Solids	g/m^3	3.81		
Turbidity	NTU	2.38		
Temperature	°C	12.3		
E.coli 95%	#/100ml	1394		

Comment for use as drinking water

The Mokihinui intake feeds from a safe catchment whihc provides a good safety factor the local supply with regards to flowsthat. The chemical water quality seems satisfactory. The microbiological water quality is bad. The catchment is characterised mostly by indigenous forest and shrubland.

Parameters of concern:

Turbidity, total suspended solids, E.coli

It is unknown if there is a high concentration of dissolved organic carbon in the water ; similar streams on the Westcoast show concentrations up to 4.0 g DOC/m^3. . We expect that to be the case for this intake based on the very high E.coli load.

Assumptions for treatment train:

Filtration: 2 step - coarse and fine

DOC removal (membrane)

UV treatment

Chlorination

A full set of water analysis is required during the course over dry and wet weather periods to determine the exact treatment requirements. If high DOC/TOC results are obtained a batch test for residual chlorination processing should be conducted to estimate the level of Disinfection By-Products (DBPs) produced. Based on that the final layout of the

Drinking Water Quality Assurance Rules				
Population served	appr. 100 avg, 204 peak			
Set of rules	G + S2 + T2 + D2			
Existing system				
Intake structure	dam, weir			
Raw water storage	50 m^3 open tank			
Relevant Rules in accordance with the 'DRAFT Drinking Water Quality Assurance Rules 20 December 2021'				
Rule set 'G' is covered under overhead				
S2. Source Water Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
S2.1	Surface water sources must be monitored for the determinands/parameters and at the frequency set out in Table 9.	No online monitor required, sampling by operator		
S2.5	Water sources must be categorised as either low-risk, medium-risk or high-risk for the presence of cyanobacteria.	To be assessed. The water is dammed consequently the risk for cyano bacteria proliferation is high, conversely the concentration of DRP is extremely low which reduces the chances of strong growth.	Assessment of cyano bacteria prevalence. The working theory for this analysis is that probability is low causing no CAPEX item.	
T2. Treatment Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
T2.1	Water leaving the treatment plant must be monitored for the determinands/parameters and at the frequencies set out in Table 12.	As the plant is not visited daily all parameters as requested per table 12. T2 are to be set up using monitors	included in lumpsum below	
T2.4	All water must be filtered by a media, membrane or cartridge filter system	2 stage filtration to be installed	included in lumpsum below	
T2.7	All water must be disinfected with UV light.	UV system to be installed	included in lumpsum below	
General requirement to build and set up a water treatment plant				
	Land, right of way			$ 100,000.00
	Intake, sedimentation and raw water tanks			$ 75,000.00
	Transmission lines			
	Water Treatment Plant (electrical, mechanical, controls)			$ 450,000.00
	WTP Building and Services			$ 125,000.00
	Rising/falling/drainage lines			$ 35,000.00
	Treated Water Storage Tanks			$ 110,000.00
	Fluoridation plus monitoring			$ 25,000.00
	Design, supervision, experts, survey, procurement, commissioning	20%		$ 157,000.00
	Contingency	25%		$ 269,250.00
Costs water treatment plant				**$ 1,346,250.00**
Funding activities in accordance with the Water Services Act 2021 and General				
Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.01			Water Safety Plan update	$ 15,000.00
WSA/G.02			Source Water Management Plan	$ 10,000.00
WSA/G.03			Consent Renewal	$ -
WSA/G.04			Easements	$ 20,000.00
WSA/G.05			Set up of auditing program	$ 10,000.00
WSA/G.06			nil	
WSA/G.07			nil	
WSA/G.08			nil	
WSA/G.09			nil	
WSA/G.10			nil	
Costs General Activities, One Off and Initial				**$ 55,000.00**

Drinking Water Quality Assurance Rules				
Population served	appr. 100 avg, 204 peak			
Set of rules	G + S2 + T2 + D2			

Existing system

The existing system was built in 1990 and consists of 75 mm and 50 mm supply and distribution pipes and 25/20/15 mm laterals. The pipes are made of PE except for a few connection pipes. Apart from singular repairs and small renewals (e.g. galvanised pipes) the system is designed to be in service till at least 2060.
The system provides water only to 51 sections and is non expandable. Water for firefighting is left to the systems of Rural Fire.
The majority of the system is NB 75 mm (53.0%) and NB 50 mm (36.6%), is in excellent condition (98.9%), was installed in 1990 (98.2%), has a residual life of 48 years (98.2%), and has a planned replacement date at 2070 (98.2%) (see Table 1).
Apart from a few meter of galavnsied steel lines there are no renewables planned for the next 3 decades.

D2 Distribution System rules

Item	Rule	Comment - Action	Cost Item	Estimate
D2.1	Water in the distribution system must be monitored for the determinands/parameters and at the frequencies set out in Table 13	FAC and pH to be tsted on line additional to sampling as site is not visited daily	FAC/pH monitor plus cabinet, weatherproof plus power connection	$ 20,000.00

Levels of Service (Water Asset Management Plan 2015) - relevant items only

LTP Water Services	Key Service Criteria	Target Level Of Service	Measurement	Comment
Provide an adequate quality of water	Is the water safe to drink?	No potential for illness due to unwholesome water	No E.Coli confirmed by second sample	not possible yet
Provide an adequate quantity of water	There is an adequate flow of water for domestic activities, such as taking a shower?	To be able to fill a 10 litre bucket three times within a minute	Residual pressure > 200kpa at the dwelling, while drawing 30 L/min	unknown, to be tested
Provide an adequate quantity of water	There is an adequate flow of water for fire fighting?	All fire hydrants to be operational	All existing Fire Hydrants to remain operative All new subdivisions within Westport and Reefton to be designed to comply with hydrant requirements in SNZ PAS 4509:2003	Measurement not applicable. Fireservices to use own water or pump from Little Wanganui River
Provide a reliable supply of water	Can you rely on the water supply to be available?	To provide water into the system virtually all of the time	Water supplied 99% of the time	ok
Provide a reliable supply of water		To minimise disruption caused by unplanned shutdowns	No more than 3 shutdowns per km At least 90% compliance with response times stated in service request	ok
Provide a reliable supply of water	Is the use of water restricted?	To permit gardens to be maintained in a healthy state all year	No more than 5 days water restrictions per year	ok
Provide water with the minimum environmental impact	Is the environment being harmed?	To comply with resource consent conditions	100% compliance with RC conditions	ok

Funding activities in accordance with the Water Services Act 2021 and General

Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.11			Flow metering households	$ 25,500.00
WSA/G.12			Dedicated sampling spots	$ 3,000.00
WSA/G.13			Backflow prevention program	$ 8,000.00
WSA/G.14			nil	
WSA/G.15			nil	
Costs Compliance				**$ 31,000.00**
CAPEX Distribution improvement				**$ 25,500.00**
General Activities, One Off and Initial				**$ -**

Material	Length	Meter Pipe per Diameter																					
	[m]	762	716	600	525	500	375	300	250	200	175	150	125	100	90	80	75	50	40	32	25	20	15	12
POLY	2,242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,205	801	0	0	171	56	8	0
PE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GS	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
ALK	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
PVC	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	0
STEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total	2,265.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,205.1	823.4	0.0	0.0	171.3	56.0	10.1	0.0
%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	53.2%	36.3%	0.0%	0.0%	7.6%	2.5%	0.4%	0.0%

Material	Meter Pipe per Condition						Meter Pipe Installed within Period											
							>=1900	>=1910	>=1920	>=1930	>=1940	>=1950	>=1960	>=1970	>=1980	>=1990	>=2000	>=2010	>=2020
	Excellent	Good	Average	Poor	Very Poor	N/A	<1910	<1920	<1930	<1940	<1950	<1960	<1970	<1980	<1990	<2000	<2010	<2020	<2030
POLY	2,242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,234	0	8	0
PE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GS	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
ALK	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
PVC	0	0	21	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0
STEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

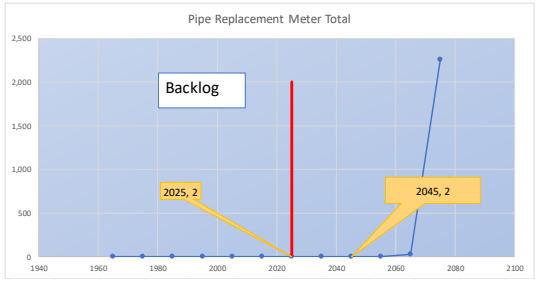
Total	2,241.8	3.1	21.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.2	2,233.7	0.0	8.0	0.0
%	98.9%	0.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	98.6%	0.0%	0.4%	0.0%

Key

POLY	Polyethylene (PE)	STEE	Steel
GS	Galvanised Steel	AC	Asbestos Cement
PE	Polyethylene	CI	Cast Iron
ALK	Alkathene, low Density Polyethylene (LDPE)	PVC	Poly Vinyl Chloride

Material	BaseLife	Residual Life												Replacement period for built pipe during decade xx/xx										
	[years]	1905	1915	1925	1935	1945	1955	1965	1975	1985	1995	2005	2015	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0										2075		2095
PE	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0												
GS	40	-77.0	-67.0	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0									**2025**			
ALK	70	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0									2055			
PVC	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065			
STEE	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Spiral Steel	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
CI	90	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0												
AC	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Timber	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Conc	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Copper	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Unknown	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												

Material	Replacement length per period built											
	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY										2,234		
PE												
GS									2			
ALK									1			
PVC									21			
Spiral Steel												
ABS												
CI												
AC												
Timber												
Conc												
Copper												
Unknown												
TOTAL	2,258											



2.5.Ngakawau Hector

Plant: Ngakawau Hector

Funding requirement	CAPEX	General	Renewals Retic	OPEX
Compliance with DW standards Treatment	$ 2,750,000.00			
General and WSA2021 activities Treatment		$ 82,000.00		
Compliance with DW standards Distribution	$ 95,000.00			
Capex activities Distribution Improvement	$ 336,000.00			
General and WSA2021 activities Distribution		$ 50,000.00		
Renewal for Distribution backlog	$ 5,000.00			
Renewals for Distribution to 2045 (incl. backlog)			$ -	
Renewals for Distribution to 2045 (excl. backlog)			$ -	
Operations Costs Treatment				$ 104,844.81
Operations Costs Distribution				$ 17,135.00
Totals	$ 3,186,000.00	$ 132,000.00	$ -	$ 121,979.81

WTP and Reticulation O&M Sheet

Client	Buller District Council		Plant load	435	PE
Plant	Ngakawau Hector		Plant flow pract.	92	m^3/d
$ O&M per connection	$ 609.90	$/year		33,653	m^3/yr
$ O&M per m^3	$ 3.62	$/$m^3$	Connections	200.00	

01.00	**General**											**hrs**	**$/hr**	**$/pos**	**$/totals**
	Council Overhead Costs													$ 5,000.00	
	Electricity													$ 32,028.75	
	Insurance													$ 2,500.00	
	Others..													$ -	
01.00	**Total General**														$ 39,528.75
02.00	**Operation WTP**														
02.10	**General**														
	Grounds	400	m2	3.00	h/1000m2.month	0.04	hr/d	0.28	hr/w	14.60	hr/y				
	Housekeeping	75	m3	0.50	h/100m3.month	0.01	hr/d	0.09	hr/w	4.56	hr/y				
	Sampling	40	conditions per month	7.00	min/cond.month	0.16	hr/d	1.09	hr/w	56.78	hr/y				
	Data gathering	25	locations	5.00	min/location.month	0.07	hr/d	0.49	hr/w	25.35	hr/y	101.29	$ 78.00	$ 7,900.43	
02.20	**Water Treatment Plant operation**														
	Plant operation as per worksheet							5.55	hr/w	288.50	hr/y	288.50	$ 90.00	$ 25,965.00	
	Small materials and consumables													$ 2,500.00	
02.30	**Non productive**														
	Training					0.01	hr/d	0.07	hr/w	3.65	hr/y				
	Administration					0.05	hr/d	0.35	hr/w	18.25	hr/y				
	Driving					0.15	hr/d	1.05	hr/w	54.75	hr/y	76.65	$ 78.00	$ 5,978.70	
02.00	**Total Operation**											466.44			$ 42,344.13
03.00	**Maintenance WTP**														
	Plant maintenance as per worksheet							191.95	hr/w	166.35	hr/y	166.35	$ 90.00	$ 14,971.94	
	Small materials and consumables													$ 8,000.00	
03.00	**Total maintenance**							**191.95**		**166.35**		166.35			$ 22,971.94
	Total Operation and Maintenance WTP														**$ 104,844.81**
04.00	**Operation and Maintenance Reticulation**														
	Plant maintenance as per worksheet							1.95	hr/w	101.50	hr/y	101.50	$ 90.00	$ 9,135.00	
	Small materials and consumables													$ 8,000.00	
04.00	**Total maintenance**							**1.95**		**101.50**		101.50			$ 17,135.00
	Total Operation and Maintenance Reticulation														**$ 17,135.00**
	Total Operation and Maintenance WTP & Reticulation														**$ 121,979.81**

Source Specifications				
			Reference	Comment
Type		**Drinking Water**		
Supply Code				
Supply Name		Ngakawau Hector	BDC	
Source Code				
Source Name		Dean Stream	WRC	
Resource Consent		RC01284		"/1 water take, /2 discharge return, /3 land use for maitenance
Expiry		26/06/2037		
Allowable Take		3,240	m^3/day	(37.5 l/s)
Supply type		On Demand		
Supply Category		Small		
Water Demand Estimates				
Supply Population avg	P+PE	435	BDC	
People per property	P/con	2.2	assumption	less than average
Supply Population peak	P+PE	1,000	assumption	
People per property	P/con	4	assumption	
Commercial and Industry		0		
Connections current	#	200	assumption	
Connections max		250	assumption	
Specific water demand avg	l/P.d	120	assumption	no garden watering, very low specifc demand
Specific water demand peak	l/P.d	120	assumption	
Unaccounted water	l/conn.d	200	assumption	less than average for BDC
Supply Volume Accounted AVG	m^3/d	52.2	calculated	
Supply Volume Accounted Peak	m^3/d	120.0	calculated	
Supply Volume Unaccounted AVG	m^3/d	40	calculated	
Supply Volume Unaccounted Peak	m^3/d	50	calculated	
Supply demand avg	**m^3/d**	**92.2**	calculated	
Supply demand peak	**m^3/d**	**170.0**	calculated	
Raw Water quanityt and quality - NIWA NZRiverMaps - estimates				
Land use		indigenous forest, broadleaved indigenous hardwood		
Catchment area	km^2	0.665		66 ha
1 in 5 yr low flow	m^3/s	0.0065		560 m3/d
Median flow	m^3/s	0.0329		2847 m3/d
Nitrate 95%	mg/m^3	110		
Ammoniacal N	mg/m^3	4.33		
Dissolved Reactive P	mg/m^3	5.40		
Total Suspended Solids	g/m^3	1.27		
Turbidity	NTU	1.29		
Temperature	°C	11.6		
E.coli 95%	#/100ml	766		

Comment for use as drinking water

The Ngakawau-Hector intake feeds from a safe catchment which provides a good safety factor to the local supply with regards to flows. The chemical water quality seems satisfactory and is comparatively good with other small supplies. The microbiological water quality is bad. The catchment is characterised mostly by indigenous forest and shrubland.

Parameters of concern:

Turbidity, total suspended solids, E.coli. The average turbidity is already close to 1.0 NTU.

It is unknown if there is a high concentration of dissolved organic carbon in the water ; similar streams on the Westcoast show concentrations up to 4.0 g DOC/m^3. We expect that to be the case for this intake based on the very high E.coli load.

Assumptions for treatment train:

Filtration: 2 step - coarse and fine

DOC removal (membrane)

UV treatment

Chlorination

A full set of water analysis is required during the course over dry and wet weather periods to determine the exact treatment requirements. If high DOC/TOC results are obtained a batch test for residual chlorination processing should be conducted to estimate the level of Disinfection By-Products (DBPs) produced. Based on that the final layout of the treatment train can be designed.

Drinking Water Quality Assurance Rules				
Population served	appr. 435 avg, 1000 peak			
Set of rules	G + S2 + T2 + D2			
Existing system				
Intake structure	dam, weir			
Raw water storage	110 m^3 open tank			
Relevant Rules in accordance with the 'DRAFT Drinking Water Quality Assurance Rules 20 December 2021'				
Rule set 'G' is covered under overhead				
S2. Source Water Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
S2.1	Surface water sources must be monitored for the determinands/parameters and at the frequency set out in Table 9.	No online monitor required, sampling by operator		
S2.5	Water sources must be categorised as either low-risk, medium-risk or high-risk for the presence of cyanobacteria.	To be assessed. The water is dammed consequently the risk for cyano bacteria proliferation is high, conversely the concentration of DRP is extremely low which reduces the chances of strong growth.	Assessment of cyano bacteria prevalence. The working theory for this analysis is that probability is low causing no CAPEX item.	
T2. Treatment Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
T2.1	Water leaving the treatment plant must be monitored for the determinands/parameters and at the frequencies set out in Table 12.	As the plant is not visited daily all parameters as requested per table 12. T2 are to be set up using monitors	included in lumpsum below	
T2.4	All water must be filtered by a media, membrane or cartridge filter system	2 stage filtration to be installed	included in lumpsum below	
T2.7	All water must be disinfected with UV light.	UV system to be installed	included in lumpsum below	
General requirement to build and set up a water treatment plant				
	Land, right of way			$ 100,000.00
	Intake, sedimentation and raw water tanks			$ 350,000.00
	Transmission lines			
	Water Treatment Plant (electrical, mechanical, controls)			$ 800,000.00
	WTP Building and Services			$ 250,000.00
	Rising/falling/drainage lines			$ 50,000.00
	Treated Water Storage Tanks			$ 300,000.00
	Fluoridation plus monitoring			$ 40,000.00
	Design, supervision, experts, survey, procurement, commissioning	20%		$ 310,000.00
	Contingency	25%		$ 550,000.00
Costs water treatment plant				**$ 2,750,000.00**
Funding activities in accordance with the Water Services Act 2021 and General				
Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.01			Water Safety Plan update	$ 20,000.00
WSA/G.02			Source Water Management Plan	$ 10,000.00
WSA/G.03			Consent Renewal	$ -
WSA/G.04			Easements	$ 40,000.00
WSA/G.05			Set up of auditing program	$ 12,000.00
WSA/G.06			nil	
WSA/G.07			nil	
WSA/G.08			nil	
WSA/G.09			nil	
WSA/G.10			nil	
Costs General Activities, One Off and Initial				**$ 82,000.00**

Drinking Water Quality Assurance Rules				
Population served	appr. 435 avg, 1000 peak			
Set of rules	G + S2 + T2 + D2			

Existing system

The system was built in the eighties and provides a lot of residual asset life. the only weak point of galavnised smal bore pipes for house conenctions whihc shoud be replaced. The backlog for that is approximately 20 m or $ 5,000.

D2 Distribution System rules

Item	Rule	Comment - Action	Cost Item	Estimate
D2.1	Water in the distribution system must be monitored for the determinands/parameters and at the frequencies set out in Table 13	FAC and pH to be tsted on line additional to sampling as site is not visited daily	FAC/pH monitor plus cabinet, weatherproof plus power connection	$ 20,000.00

Levels of Service (Water Asset Management Plan 2015) - relevant items only

LTP Water Services	Key Service Criteria	Target Level Of Service	Measurement	Comment
Provide an adequate quality of water	Is the water safe to drink?	No potential for illness due to unwholesome water	No E.Coli confirmed by second sample	not possible yet
Provide an adequate quantity of water	There is an adequate flow of water for domestic activities, such as taking a shower?	To be able to fill a 10 litre bucket three times within a minute	Residual pressure > 200kpa at the dwelling, while drawing 30 L/min	unknown, to be tested
Provide an adequate quantity of water	There is an adequate flow of water for fire fighting?	All fire hydrants to be operational	All existing Fire Hydrants to remain operative All new subdivisions within Westport and Reefton to be designed to comply with hydrant requirements in SNZ PAS 4509:2003	Measurement not applicable. Fireservices to use own water or pump from Little Wanganui River
Provide a reliable supply of water	Can you rely on the water supply to be available?	To provide water into the system virtually all of the time	Water supplied 99% of the time	ok
Provide a reliable supply of water		To minimise disruption caused by unplanned shutdowns	No more than 3 shutdowns per km At least 90% compliance with response times stated in service request	ok
Provide a reliable supply of water	Is the use of water restricted?	To permit gardens to be maintained in a healthy state all year	No more than 5 days water restrictions per year	ok
Provide water with the minimum environmental impact	Is the environment being harmed?	To comply with resource consent conditions	100% compliance with RC conditions	ok

Funding activities in accordance with the Water Services Act 2021 and General

Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.11			Flow metering households	$ 125,000.00
WSA/G.12			Dedicated sampling spots	$ 6,000.00
WSA/G.13			Backflow prevention program	$ 15,000.00
WSA/G.14			nil	
WSA/G.15			nil	
Costs Compliance				**$ 41,000.00**
CAPEX Distribution improvement				**$ 125,000.00**
General Activities, One Off and Initial				**$ -**

Material	Length	Meter Pipe per Diameter																					
	[m]	762	716	600	525	500	375	300	250	200	175	150	125	100	90	80	75	50	40	32	25	20	15	12
POLY	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	7	0
PE	460	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	433	0	0	0	27	0	0
GS	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
ALK	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0
PVC	6,122	0	0	0	0	0	0	0	0	0	0	1,620	0	2,485	0	0	0	1,666	0	0	0	0	351	0
STEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6,625.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,620.0	0.0	2,485.4	0.0	0.0	0.0	2,098.8	1.6	0.0	0.0	28.3	391.5	0.0
%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.5%	0.0%	37.5%	0.0%	0.0%	0.0%	31.7%	0.0%	0.0%	0.0%	0.4%	5.9%	0.0%

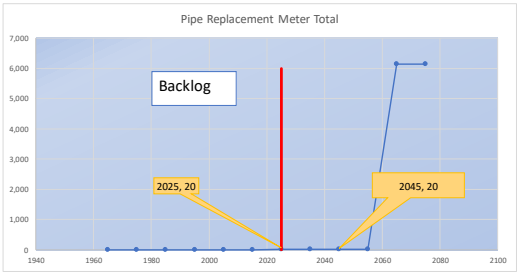
Material	Meter Pipe per Condition						Meter Pipe Installed within Period											
							>=1900	>=1910	>=1920	>=1930	>=1940	>=1950	>=1960	>=1970	>=1980	>=1990	>=2000	>=2010	>=2020
	Excellent	Good	Average	Poor	Very Poor	N/A	<1910	<1920	<1930	<1940	<1950	<1960	<1970	<1980	<1990	<2000	<2010	<2020	<2030
POLY	7	2	0	0	0	1	0	0	0	0	0	0	0	0	2	0	7	1	0
PE	449	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	16	443	0
GS	0	20	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0
ALK	12	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	12	0
PVC	6	6,117	0	0	0	0	0	0	0	0	0	0	0	0	6,117	0	0	6	0
STEE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	474.1	6,139.6	0.0	0.0	0.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6,139.6	0.0	23.6	462.4	0.0
%	7.2%	92.7%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	92.7%	0.0%	0.4%	7.0%	0.0%

Key

POLY	Polyethylene (PE)	STEE	Steel
GS	Galvanised Steel	AC	Asbestos Cement
PE	Polyethylene	CI	Cast Iron
ALK	Alkathene, low Density Polyethylene (LDPE)	PVC	Poly Vinyl Chloride

Material	BaseLife	Residual Life											Replacement period for built pipe during decade xx/xx										
	[years]	1905	1915	1925	1935	1945	1955	1965	1975	1985	1995	2005	2015	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065		2085	2095
PE	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0											2085	2095
GS	40	-77.0	-67.0	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0									**2025**			
ALK	70	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0									2055			2085
PVC	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065			2095
STEE	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Spiral Steel	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
CI	90	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0												
AC	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Timber	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Conc	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Copper	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Unknown	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												

Material	Replacement length per period built											
	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY									2			
PE												
GS									20			
ALK									2			
PVC									6,117			
Spiral Steel												
ABS												
CI												
AC												
Timber												
Conc												
Copper												
Unknown												
TOTAL	6,140											



2.6.Punakaiki

Plant: Punakaiki

Funding requirement	CAPEX	General	Renewals Retic	OPEX
Compliance with DW standards Treatment	$ 8,625,000.00			
General and WSA2021 activities Treatment		$ 45,000.00		
Compliance with DW standards Distribution	$ 95,000.00			
Capex activities Distribution Improvement	$ 336,000.00			
General and WSA2021 activities Distribution		$ 50,000.00		
Renewal for Distribution backlog	$ -			
Renewals for Distribution to 2045 (incl. backlog)			$ -	
Renewals for Distribution to 2045 (excl. backlog)			$ -	
Operations Costs Treatment				$ 123,636.19
Operations Costs Distribution				$ 28,270.00
Totals	$ 9,056,000.00	$ 95,000.00	$ -	$ 151,906.19

WTP and Reticulation O&M Sheet

Client	Buller District Council		Plant load avg	383	PE
Plant	Punakaiki		Plant flow pract. avg	82	m^3/d
$ O&M per connection	$ 1,651.15	$/year		57,488	m^3/yr
$ O&M per m^3	$ 2.64	$/m3	Connections	92.00	

											hrs	$/hr	$/pos	$/totals
01.00	**General**													
	Council Overhead Costs												$ 5,000.00	
	Electricity												$ 19,710.00	
	Insurance												$ 3,000.00	
	Others												$ -	
01.00	**Total General**													$ 27,710.00
02.00	**Operation WTP**													
02.10	**General**													
	Grounds	500	m2	3.00	h/1000m2.month	0.05	hr/d	0.35	hr/w	18.25	hr/y			
	Housekeeping	200	m3	0.50	h/100m3.month	0.03	hr/d	0.23	hr/w	12.17	hr/y			
	Sampling	40	conditions per month	7.00	min/cond.month	0.16	hr/d	1.09	hr/w	56.78	hr/y			
	Data gathering	25	locations	5.00	min/location.month	0.07	hr/d	0.49	hr/w	25.35	hr/y	112.54	$ 78.00	$ 8,778.25
02.20	**Water Treatment Plant operation**													
	Plant operation as per worksheet							4.82	hr/w	250.50	hr/y	250.50	$ 90.00	$ 22,545.00
	Small materials and consumables													$ 20,000.00
02.30	**Non productive**													
	Training					0.10	hr/d	0.70	hr/w	36.50	hr/y			
	Administration					0.10	hr/d	0.70	hr/w	36.50	hr/y			
	Driving					0.30	hr/d	2.10	hr/w	109.50	hr/y	182.50	$ 78.00	$ 14,235.00
02.00	**Total Operation**											545.54		$ 65,558.25
03.00	**Maintenance WTP**													
	Plant maintenance as per worksheet							3.28	hr/w	170.75	hr/y	170.75	$ 90.00	$ 15,367.94
	Small materials and consumables													$ 15,000.00
03.00	**Total maintenance**							**3.28**		**170.75**		170.75		$ 30,367.94
	Total Operation and Maintenance WTP													**$ 123,636.19**
04.00	**Operation and Maintenance Reticulation**													
	Plant maintenance as per worksheet							3.90	hr/w	203.00	hr/y	203.00	$ 90.00	$ 18,270.00
	Small materials and consumables													$ 10,000.00
04.00	**Total maintenance**							**3.90**		**203.00**		203.00		$ 28,270.00
	Total Operation and Maintenance Reticulation													**$ 28,270.00**
	Total Operation and Maintenance WTP & Reticulation													**$ 151,906.19**

Source Specifications				
			Reference	Comment
Type		**Drinking Water**		
Supply Code		PUN001	TA	
Supply Name		Punakaiki	TA	
Source Code		S00013	TA	
Source Name		Smith Creek, Punakaiki	TA	
Resource Consent		RC06183		
Expiry		1/07/2045		
Allowable Take		216	m^3/day	(2.5 l/s)
Supply type		On Demand		
Supply Category		Small		
Water Demand Estimates				
Supply Population avg	P+PE	180	BDC	
People per property	P/con	2.0	calculation	less than average
Supply Population peak	P+PE	788	pdp	tech. memo 27.05.2020
People per property	P/con	8.6	calculation	
Commercial and Industry		0		
Connections current	#	92	assumption	
Connections max		92	assumption	
Specific water demand avg	l/P.d	145	assessment	flow meter campaign June 2018, ERPRO/BDC
Specific water demand peak	l/P.d	145	assumption	
Unaccounted water	l/conn.d	290	assessment	flow meter campaign June 2018, ERPRO/BDC
Supply Volume Accounted AVG	m^3/d	26.1	calculated	
Supply Volume Accounted Peak	m^3/d	114.3	calculated	
Supply Volume Unaccounted AVG	m^3/d	26.68	calculated	
Supply Volume Unaccounted Peak	m^3/d	26.68	calculated	
Supply demand avg	**m^3/d**	**52.8**	calculated	
Supply demand peak	**m^3/d**	**140.9**	calculated	matches perfectly with pdp 138 m^3/d
Raw Water quanityt and quality - NIWA NZRiverMaps - estimates				
Land use		indigenous forest; the data below is approximative only as from a nearby unnamed catchment further north (NZ_segment 12055335) as Smith creek is not on NZRiverMaps		
Catchment area	km^2	0.3562		36 ha
1 in 5 yr low flow	m^3/s	0.0040		348 m3/d
Median flow	m^3/s	0.0198		1,709 m3/d
Nitrate 95%	mg/m^3	147		
Ammoniacal N	mg/m^3	6.70		
Dissolved Reactive P	mg/m^3	5.86		
Total Suspended Solids	g/m^3	1.92		
Turbidity	NTU	1.67		
Temperature	°C	11.4		
E.coli 95%	#/100ml	378		

Comment for use as drinking water

The Smith Creek intake is not safe for operation mainly due to slips in the catchment. Water quality is good with reliable turbidity and UVT data as long as rainfall stays moderate. During and post higher rainfalls the plant suffers from capacity shortage due to shut downs.
The exisitng Punakiki WTP would not be upgraded for compliance achievment due to the nature of the catchment. Instead, a new WTP with sufficient capacity for the whole area is planned at the Punakaiki River, using an infiltration gallery as source.
Parameters of concern of Smith Creek:
Turbidity, total suspended solids, E.coli
DOC levels are unknown, due to the nature of the catchment levels > 2.0 g DOC/m^3 are assumed.
Assumptions for treatment train Punakaiki River:
Filtration
UV treatment
Chlorination

Drinking Water Quality Assurance Rules				
Population served	appr. 180 avg, 788 peak			
Set of rules	G + S2 + T2 + D2			
Existing system				
Intake structure	dam, weir			
Raw water storage	0 m^3			
Treated Water Storage	460 m^3			
Relevant Rules in accordance with the 'DRAFT Drinking Water Quality Assurance Rules 20 December 2021'				
Rule set 'G' is covered under overhead				
S2. Source Water Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
S2.1	Surface water sources must be monitored for the determinands/parameters and at the frequency set out in Table 9.	No online monitor required, sampling by operator		
S2.5	Water sources must be categorised as either low-risk, medium-risk or high-risk for the presence of cyanobacteria.	To be assessed. The water is free flowing out fo a bush catchment which leads to a first assumption of a low risk environment.	Assessment of cyano bacteria prevalence. The working theory for this analysis is that probability is low causing no CAPEX item.	
T2. Treatment Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
T2.1	Water leaving the treatment plant must be monitored for the determinands/parameters and at the frequencies set out in Table 12.	As the plant is not visited daily all parameters as requested per table 12. T2 are to be set up using monitors	included in lumpsum below	
T2.4	All water must be filtered by a media, membrane or cartridge filter system	2 stage filtration to be installed	included in lumpsum below	
T2.7	All water must be disinfected with UV light.	UV system to be installed	included in lumpsum below	
General requirement to build and set up a water treatment plant				
	Land, right of way			$ 100,000.00
	Upgrade project PDP, Punakaiki Water Supply Scheme, Indicative Business Case, May 2021			$ 5,375,000.00
	Chlorination system			$ 200,000.00
	Fluoridation plus monitoring			$ 75,000.00
	Design, supervision, experts, survey, procurement, commissioning	20%		$ 1,150,000.00
	Contingency	25%		$ 1,725,000.00
Costs water treatment plant				**$ 8,625,000.00**
Funding activities in accordance with the Water Services Act 2021 and General				
Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.01			Water Safety Plan update	$ 20,000.00
WSA/G.02			Source Water Management Plan	$ 10,000.00
WSA/G.03			Consent Renewal	$ -
WSA/G.04			Easements	$ -
WSA/G.05			Set up of auditing program	$ 15,000.00
WSA/G.06			nil	
WSA/G.07			nil	
WSA/G.08			nil	
WSA/G.09			nil	
WSA/G.10			nil	
Costs General Activities, One Off and Initial				**$ 45,000.00**

Drinking Water Quality Assurance Rules				
Population served	appr. 180 avg, 788 peak			
Set of rules	G + S2 + T2 + D2			

Existing system

The Punakaiki reticulation is relatively new and in good condition. There are no renewals to be expected over the next 3 decades.

D2 Distribution System rules

Item	Rule	Comment - Action	Cost Item	Estimate
D2.1	Water in the distribution system must be monitored for the determinands/parameters and at the frequencies set out in Table 13	FAC and pH to be tsted on line additional to sampling as site is not visited daily	FAC/pH monitor plus cabinet, weatherproof plus power connection	$ 20,000.00

Levels of Service (Water Asset Management Plan 2015) - relevant items only

LTP Water Services	Key Service Criteria	Target Level Of Service	Measurement	Comment
Provide an adequate quality of water	Is the water safe to drink?	No potential for illness due to unwholesome water	No E.Coli confirmed by second sample	ok
Provide an adequate quantity of water	There is an adequate flow of water for domestic activities, such as taking a shower?	To be able to fill a 10 litre bucket three times within a minute	Residual pressure > 200kpa at the dwelling, while drawing 30 L/min	ok
Provide an adequate quantity of water	There is an adequate flow of water for fire fighting?	All fire hydrants to be operational	All existing Fire Hydrants to remain operative All new subdivisions within Westport and Reefton to be designed to comply with hydrant requirements in SNZ PAS 4509:2003	no fireservice available
Provide a reliable supply of water	Can you rely on the water supply to be available?	To provide water into the system virtually all of the time	Water supplied 99% of the time	ok
Provide a reliable supply of water		To minimise disruption caused by unplanned shutdowns	No more than 3 shutdowns per km At least 90% compliance with response times stated in service request	ok
Provide a reliable supply of water	Is the use of water restricted?	To permit gardens to be maintained in a healthy state all year	No more than 5 days water restrictions per year	ok
Provide water with the minimum environmental impact	Is the environment being harmed?	To comply with resource consent conditions	100% compliance with RC conditions	ok

Funding activities in accordance with the Water Services Act 2021 and General

Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.11			Flow metering households	$ 46,000.00
WSA/G.12		achieved	Dedicated sampling spots	$ -
WSA/G.13			Backflow prevention program	$ 15,000.00
WSA/G.14			nil	
WSA/G.15			nil	
Costs Compliance				**$ 35,000.00**
CAPEX Distribution improvement				**$ 46,000.00**
General Activities, One Off and Initial				**$ -**

Material	Length	Meter Pipe per Diameter																						
	[m]	762	716	600	525	500	375	300	250	200	175	150	125	100	90	80	75	50	40	32	25	20	15	12
POLY	871	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	745	72	0	0	54	0	0
PE	227	0	0	0	0	0	0	0	0	0	0	0	0	4	0	121	0	83	0	0	0	18	0	0
GS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALK	724	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	92	427	0	0
PVC	3,525	0	0	0	0	0	0	0	0	0	0	14	0	1,519	0	1,792	0	195	0	0	0	0	6	0
STEE	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,348.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	0.0	1,523.1	0.0	1,913.3	0.0	1,039.3	71.6	0.0	92.3	499.1	5.6	0.0
%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	28.5%	0.0%	35.8%	0.0%	19.4%	1.3%	0.0%	1.7%	9.3%	0.1%	0.0%

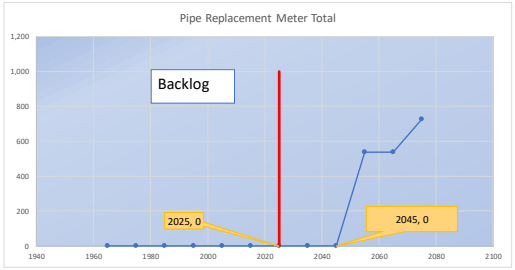
Material	Meter Pipe per Condition					Meter Pipe Installed within Period												
						>=1900	>=1910	>=1920	>=1930	>=1940	>=1950	>=1960	>=1970	>=1980	>=1990	>=2000	>=2010	>=2020
	Excellent	Good	Average	Poor	Very Poor	N/A	<1910	<1920	<1930	<1940	<1950	<1960	<1970	<1980	<1990	<2000	<2010	<2020	<2030
POLY	107	763	0	0	0	1	0	0	0	0	0	0	0	0	754	0	42	75	0
PE	146	0	0	0	0	80	0	0	0	0	0	0	0	0	0	0	18	209	0
GS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALK	192	532	0	0	0	0	0	0	0	0	0	0	0	0	538	0	186	0	0
PVC	122	3,403	0	0	0	0	0	0	0	0	0	0	0	0	3,457	0	1	67	0
STEE	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	569.2	4,697.8	0.0	0.0	0.0	81.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4,748.3	0.0	247.3	353.0	0.0
%	10.6%	87.8%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	88.8%	0.0%	4.6%	6.6%	0.0%

Key

POLY	Polyethylene (PE)	STEE	Steel
GS	Galvanised Steel	AC	Asbestos Cement
PE	Polyethylene	CI	Cast Iron
ALK	Alkathene, low Density Polyethylene (LDPE)	PVC	Poly Vinyl Chloride

Material	BaseLife	Residual Life												Replacement period for built pipe during decade xx/xx										
	[years]	1905	1915	1925	1935	1945	1955	1965	1975	1985	1995	2005	2015	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065		2085	2095
PE	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0											2085	2095
GS	40	-77.0	-67.0	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0												
ALK	70	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0									2055		2075	
PVC	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065		2085	2095
STEE	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												2075
Spiral Steel	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
CI	90	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0												
AC	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Timber	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Conc	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Copper	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Unknown	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												

Material	Replacement length per period built											
	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY									754			
PE												
GS												
ALK									538		186	
PVC									3,457			
Spiral Steel												2
ABS												
CI												
AC												
Timber												
Conc												
Copper												
Unknown												
TOTAL	4,937											



2.7.Reefton

Plant: Reefton

Funding requirement	CAPEX	General	Renewals Retic	OPEX
Compliance with DW standards Treatment	$ 360,000.00			
General and WSA2021 activities Treatment		$ 45,000.00		
Compliance with DW standards Distribution	$ 95,000.00			
Capex activities Distribution Improvement	$ 336,000.00			
General and WSA2021 activities Distribution		$ 50,000.00		
Renewal for Distribution backlog	$ 500,000.00			
Renewals for Distribution to 2045 (incl. backlog)			*$ 99,649.09*	
Renewals for Distribution to 2045 (excl. backlog)			$ 67,793.18	
Operations Costs Treatment				$ 174,814.19
Operations Costs Distribution				$ 56,570.00
Totals	$ 1,291,000.00	$ 95,000.00	$ 67,793.18	$ 231,384.19

WTP and Reticulation O&M Sheet

Client	Buller District Council		Plant load avg	1,952	PE	
Plant	Reefton		Plant flow pract. avg	1,197	m3/d	
$ O&M per connection	$ 608.91	$/year		57,488	m3/yr	
$ O&M per m³	$ 4.02	$/m3	Connections	380.00		

01.00	**General**												**hrs**	**$/hr**	**$/pos**	**$/totals**
	Council Overhead Costs														$ 7,808.00	
	Electricity														$ 52,560.00	
	Insurance														$ 5,856.00	
	Others														$ -	
01.00	**Total General**															$ 66,224.00
02.00	**Operation WTP**															
02.10	**General**															
	Grounds	1,000	m2	3.00	h/1000m2.month	0.10	hr/d	0.70	hr/w	36.50	hr/y				
	Housekeeping	300	m3	0.50	h/100m3.month	0.05	hr/d	0.35	hr/w	18.25	hr/y				
	Sampling	40	conditions per month	7.00	min/cond.month	0.16	hr/d	1.09	hr/w	56.78	hr/y				
	Data gathering	25	locations	5.00	min/location.month	0.07	hr/d	0.49	hr/w	25.35	hr/y	136.88	$ 78.00	$ 10,676.25	
02.20	**Water Treatment Plant operation**															
	Plant operation as per worksheet							4.13	hr/w	214.50	hr/y	214.50	$ 90.00	$ 19,305.00	
	Small materials and consumables													$ 30,000.00	
02.30	**Non productive**															
	Training					0.10	hr/d	0.70	hr/w	36.50	hr/y				
	Administration					0.10	hr/d	0.70	hr/w	36.50	hr/y				
	Driving					0.30	hr/d	2.10	hr/w	109.50	hr/y	182.50	$ 78.00	$ 14,235.00	
02.00	**Total Operation**											533.88			$ 74,216.25
03.00	**Maintenance WTP**															
	Plant maintenance as per worksheet							2.00	hr/w	104.15	hr/y	104.15	$ 90.00	$ 9,373.94	
	Small materials and consumables													$ 25,000.00	
03.00	**Total maintenance**							**2.00**		**104.15**		104.15			$ 34,373.94
	Total Operation and Maintenance WTP															**$ 174,814.19**
04.00	**Operation and Maintenance Reticulation**															
	Plant maintenance as per worksheet							7.81	hr/w	406.33	hr/y	406.33	$ 90.00	$ 36,570.00	
	Small materials and consumables													$ 20,000.00	
04.00	**Total maintenance**							**7.81**		**406.33**		406.33			$ 56,570.00
	Total Operation and Maintenance Reticulation															**$ 56,570.00**
	Total Operation and Maintenance WTP & Reticulation															**$ 231,384.19**

Source Specifications				
			Reference	Comment
Type		**Drinking Water**		
Supply Code		REE001	TA	
Supply Name		Reefton	TA	
Source Code		G00023	TA	
Source Name		Inangahua River Flat Bore	TA	
Resource Consent		RC01282		
Expiry		5/12/1936		
Allowable Take		1,728	m^3/day	= 20 l/s
Supply type		On Demand		
Supply Category		Large		
Water Demand Estimates				
Supply Population avg	P+PE	928	BDC	
People per property	P/con	1.4	calculation	less than average
Supply Population peak	P+PE	4,000	assumption	
People per property	P/con	6.0	calculation	
Commercial and Industry		0		
Connections current	#	672	AMP	AMP 05/2021
Connections max		672	assumption	
Specific water demand avg	l/P.d	200	assumption	
Specific water demand peak	l/P.d	200	assumption	
Unaccounted water	l/conn.d	1,200	assessment	
Supply Volume Accounted AVG	m^3/d	185.6	calculated	
Supply Volume Accounted Peak	m^3/d	800.0	calculated	
Supply Volume Unaccounted AVG	m^3/d	806.4	calculated	
Supply Volume Unaccounted Peak	m^3/d	806.4	calculated	
Supply demand avg	**m^3/d**	**992.0**	calculated	
Supply demand peak	**m^3/d**	**1,606.4**	calculated	
Raw Water quanityt and quality - NIWA NZRiverMaps - estimates				
Land use		indigenous forest; the data below is approximative only as from a nearby unnamed catchment further north (NZ_segment 12055335) as Smith creek is not on NZRiverMaps		
Catchment area	km^2	233.77		23377 ha
1 in 5 yr low flow	m^3/s	2.64		228096 m3/d
Median flow	m^3/s	10.10		872640 m3/d
Nitrate 95%	g/m^3	0.4300		
Ammoniacal N	mg/m^3	3.30		
Dissolved Reactive P	mg/m^3	4.50		
Total Suspended Solids	g/m^3	1.24		
Turbidity	NTU	0.30		
Temperature	°C	10.4		
E.coli 95%	#/100ml	1		

Comment for use as drinking water

The bore in Reefton is mainly fed from the Inangahua whihc dictates the raw water quality. Only antimony and lead are substances of concern, although currently at or below the 50% MAV threshold only.
DOC is of no cocnern as it si constantly below 1.0 (typically 0.6 g/m^3). Nitrate is very low and E.coli is typcially <1.
The well seems to be mixed to a mior part with groundwater which originates from rural areas and crosses the township.
Elevated numbers of protozoa in the raw water cold be expected.
Cyano bacteria are practically excllued.
Parameters of concern:
Potentially protozoa.
Exisiting treatment train:
Filtration
UV treatment
Chlorination

Drinking Water Quality Assurance Rules				
Population served	appr. 928 avg, 4000 peak			
Set of rules	G + S3 + T3 + D3			
Existing system				
Intake structure	dam, weir			
Raw water storage	0 m^3			
Treated water storage	1,250 m^3	Ref: AMP 05/2021		
Relevant Rules in accordance with the 'DRAFT Drinking Water Quality Assurance Rules 20 December 2021'				
Rule set 'G' is covered under overhead				
S3. Source Water Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
S3.3	Source water must be monitored for the determinands/parameters and at the frequency set out in Table 14 and Table 15	Monitoring	Analyser for conductivity, pH	$ 20,000.00
S3.6	Water sources must be categorised as either low-risk, medium-risk or high-risk for the presence of cyanobacteria.	To be assessed. The water is free flowing out fo a bush catchment which leads to a first assumption of a low risk environment.	Assessment of cyano bacteria prevalence. The working theory for this analysis is that probability is low causing no CAPEX item.	
T3. Treatment Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
T3.14	All water must pass through the UV reactor(s) and must be monitored in accordance with Table 19	compliant UV reactor installed	UVT analyser	$ 20,000.00
T3.17	Turbidity does not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	existing filter satisifies this criteria		
T3.63	All water must pass through the cartridge filtration process	installed, only required if Xylem UV unit cannot supply 4 log credits		
T3.66	Turbidity does not exceed 0.5 NTU (or 1.0 NTU if a 1-micron cartridge is used) for more than 5 percent of the day.	Additional turbidity meter for inlet to cartridge filter		$ 15,000.00
T3.69	The equipment is operated within the flow range for which it was certified at all times.	continous monitoring of every cartrige (3x)	3 times flow measurement	$ 20,000.00
T3.70	Differential pressure is kept within the manufacturer's recommendations at all times.	continous monitoring of every cartrige (3x)	3 times differential pressure sensors	$ 15,000.00
General requirement to build and set up a water treatment plant				
	Land, right of way			$ -
	Chlorination system			$ -
	Fluoridation plus monitoring			$ 150,000.00
	Design, supervision, experts, survey, procurement, commissioning	20%		$ 48,000.00
	Contingency	25%		$ 72,000.00
Costs water treatment plant				**$ 360,000.00**
Funding activities in accordance with the Water Services Act 2021 and General				
Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.01			Water Safety Plan update	$ 20,000.00
WSA/G.02			Source Water Management Plan	$ 10,000.00
WSA/G.03			Consent Renewal	$ -
WSA/G.04			Easements	$ -
WSA/G.05			Set up of auditing program	$ 15,000.00
WSA/G.06			nil	
WSA/G.07			nil	
WSA/G.08			nil	
WSA/G.09			nil	
WSA/G.10			nil	
Costs General Activities, One Off and Initial				**$ 45,000.00**

Drinking Water Quality Assurance Rules				
Population served	appr. 928 avg, 4000 peak			
Set of rules	G + S3 + T3 + D3			

Existing system

The network in Reefton dates back to the 1940 is. These old pipes are mainly made of galvanised steel, cast iron and Alkathere. Galvanised steel is generally not preferred with the Reefton water quality, Alkathene is a rural low quality material not built for long service life and dd cast iron pipes are found to promote pathogen survival despite residual chlorine concentrations. All these pipes need to be replaced as soon as funding isavailable.

One element to unsuitable pipe material is creating of leaks. Occurrence of leaks and gradually blocking of cast iron and steel pipes are in a feedback loop with high pressure. More leaks and smaller diameter result in more pressure to sustain the same amount of flow, more pressure results in more leaks.
There is a very urgent backlog repair requirement for approx. 2.3 km or 0.5 Mio $.
Renewing overdue pipes could help fixing the supply issue in Reefton without installing big new infrastructure.

D2 Distribution System rules

Item	Rule	Comment - Action	Cost Item	Estimate
D2.1	Water in the distribution system must be monitored for the determinands/parameters and at the frequencies set out in Table 13	FAC and pH to be tested on line additional to sampling as site is not visited daily	FAC/pH monitor plus cabinet, weatherproof plus power connection	$ 20,000.00

Levels of Service (Water Asset Management Plan 2015) - relevant items only

LTP Water Services	Key Service Criteria	Target Level Of Service	Measurement	Comment
Provide an adequate quality of water	Is the water safe to drink?	No potential for illness due to unwholesome water	No E.coli confirmed by second sample	ok
Provide an adequate quantity of water	There is an adequate flow of water for domestic activities, such as taking a shower?	To be able to fill a 10 litre bucket three times within a minute	Residual pressure > 200kpa at the dwelling, while drawing 30 L/min	ok
Provide an adequate quantity of water	There is an adequate flow of water for fire fighting?	All fire hydrants to be operational	All existing Fire Hydrants to remain operative All new subdivisions within Westport and Reefton to be designed to comply with hydrant requirements in SNZ PAS 4509:2003	firefighting possible with 1 hydrant at periphery and 2 hydrants in township
Provide a reliable supply of water	Can you rely on the water supply to be available?	To provide water into the system virtually all of the time	Water supplied 99% of the time	ok
Provide a reliable supply of water		To minimise disruption caused by unplanned shutdowns	No more than 3 shutdowns per km At least 90% compliance with response times stated in service request	ok
Provide a reliable supply of water	Is the use of water restricted?	To permit gardens to be maintained in a healthy state all year	No more than 5 days water restrictions per year	ok
Provide water with the minimum environmental impact	Is the environment being harmed?	To comply with resource consent conditions	100% compliance with RC conditions	ok

Funding activities in accordance with the Water Services Act 2021 and General

Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.11			Flow metering households	$ 336,000.00
WSA/G.12		achieved	Dedicated sampling spots	-
WSA/G.13			Backflow prevention program	$ 75,000.00
WSA/G.14			Reticulation assessment field	$ 50,000.00
WSA/G.15			nil	
Costs Compliance				**$ 95,000.00**
CAPEX Distribution improvement				**$ 336,000.00**
General Activities, One Off and Initial				**$ 50,000.00**

Material	Length	Meter Pipe per Diameter																					
	[m]	762	716	600	525	500	375	300	250	200	175	150	125	100	90	80	75	50	40	32	25	20	15	12
POLY	3,955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,366	15	0	153	1,349	66	0
PE	779	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	504	0	0	44	130	101	0
GS	1,809	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	421	54	0	526	235	335	142
ALK	1,849	0	0	0	0	0	0	0	0	0	0	14	0	7	0	0	0	143	0	0	577	197	633	0
PVC	9,030	0	0	0	0	0	0	0	0	0	0	839	0	5,588	0	0	0	2,200	0	0	215	136	53	0
STEE	33	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	30	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	9,189	0	0	0	0	0	0	0	0	328	0	1,173	0	7,688	0	0	0	0	0	0	0	0	0	0
AC	1,448	0	0	0	0	0	0	0	0	0	0	348	0	1,100	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total	28,154.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	327.7	0.0	2,375.7	0.0	14,389.9	0.0	0.0	0.0	5,634.1	69.1	0.0	1,576.9	2,046.8	1,218.7	141.7
%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%	0.0%	8.4%	0.0%	51.1%	0.0%	0.0%	0.0%	20.0%	0.2%	0.0%	5.6%	7.3%	4.3%	0.5%

Material		Meter Pipe per Condition					Meter Pipe Installed within Period											
							>=1900	>=1910	>=1920	>=1930	>=1940	>=1950	>=1960	>=1970	>=1980	>=1990	>=2000	>=2010	>=2020
	Excellent	Good	Average	Poor	Very Poor	N/A	<1910	<1920	<1930	<1940	<1950	<1960	<1970	<1980	<1990	<2000	<2010	<2020	<2030
POLY	3,024	104	732	19	0	76	0	0	0	0	0	0	13	554	158	0	1,510	1,705	15
PE	222	35	0	10	0	512	0	0	0	0	0	10	0	0	36	0	0	697	36
GS	106	260	1,213	225	0	5	0	0	0	0	42	153	50	59	521	0	26	5	0
ALK	173	1,424	126	93	0	34	0	0	0	0	70	113	29	929	338	0	284	86	0
PVC	5,099	1,873	1,328	0	0	730	0	0	0	0	0	13	0	0	3,117	106	2,086	3,708	0
STEE	30	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	30	2	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	8,393	334	461	0	0	0	0	0	0	9,189	0	0	0	0	0	0	0
AC	0	0	1,433	16	0	0	0	0	0	0	0	0	0	1,383	65	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

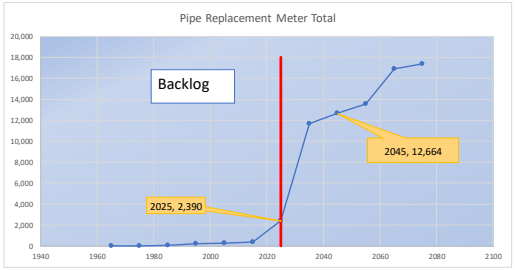
Total	8,715.8	3,696.3	13,225.6	697.3	460.8	1,358.8	0.0	0.0	0.0	0.0	9,300.3	288.7	1,474.9	1,607.6	4,169.6	105.9	3,936.6	6,266.5	50.9					
%	31.0%	13.1%	47.0%	2.5%	1.6%	4.8%	0.0%	0.0%	0.0%	0.0%	33.0%	1.0%	5.2%	5.7%	14.8%	0.4%	14.0%	22.3%	0.2%					

Key

POLY	Polyethylene (PE)	STEE	Steel
GS	Galvanised Steel	AC	Asbestos Cement
PE	Polyethylene	CI	Cast Iron
ALK	Alkathene, low Density Polyethylene (LDPE)	PVC	Poly Vinyl Chloride

Material	BaseLife	Residual Life												Replacement period for built pipe during decade xx/xx										
	[years]	1905	1915	1925	1935	1945	1955	1965	1975	1985	1995	2005	2015	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0							**2045**	2055	2065		2085	2095
PE	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0						**2035**			2065			2095
GS	40	-77.0	-67.0	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0					**1985**	**1995**	**2005**	**2015**	**2025**		**2045**	2055
ALK	70	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0					**2015**	**2025**	**2035**	**2045**	2055		2075	2085
PVC	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0						**2035**			2065	2075	2085	2095
STEE	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0											2065	2075
Spiral Steel	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
CI	90	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0					**2035**							
AC	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0							**2025**	**2035**				
Timber	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Conc	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Copper	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												2075
Unknown	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												

Material	Replacement length per period built											
	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY							13	554	158			
PE						10			36			
GS					42	153	50	59	521		26	5
ALK					70	113	29	929	338		284	
PVC						13			3,117	106		
Spiral Steel											30	2
ABS												
CI					9,189							
AC							1,383	65				
Timber												
Conc												
Copper												62
Unknown												
TOTAL	17,357											



2.8.Waimangaroa

Plant: Waimangaroa				
Funding requirement	CAPEX	General	Renewals Retic	OPEX
Compliance with DW standards Treatment	$ 3,683,046.84			
General and WSA2021 activities Treatment		$ 62,000.00		
Compliance with DW standards Distribution	$ 95,000.00			
Capex activities Distribution Improvement	$ 336,000.00			
General and WSA2021 activities Distribution		$ 50,000.00		
Renewal for Distribution backlog	$ 100,000.00			
Renewals for Distribution to 2045 (incl. backlog)			$ -	
Renewals for Distribution to 2045 (excl. backlog)			$ 6,000.00	
Operations Costs Treatment				$ 102,301.64
Operations Costs Distribution				$ 17,135.00
Totals	$ 4,214,046.84	$ 112,000.00	$ 6,000.00	$ 119,436.64

WTP and Reticulation O&M Sheet

Client	Buller District Council			Plant load	350	PE
Plant	Waimangaroa			Plant flow pract.	158	m^3/d
$ O&M per connection	$ 853.12	$/year			57,488	m^3/yr
$ O&M per m^3	$ 2.08	$/$m^3$		Connections	140.00	

												hrs	$/hr	$/pos	$/totals
01.00	**General**														
	Council Overhead Costs													$ 5,000.00	
	Electricity													$ 20,531.25	
	Insurance													$ 2,500.00	
	Others													$ -	
01.00	**Total General**														$ 28,031.25
02.00	**Operation WTP**														
02.10	**General**														
	Grounds	250	m^2	3.00	$h/1000m^2.month$	0.03	hr/d	0.18	hr/w	9.13	hr/y				
	Housekeeping	50	m^3	0.50	h/100m3.month	0.01	hr/d	0.06	hr/w	3.04	hr/y				
	Sampling	40	conditions per month	7.00	min/cond.month	0.16	hr/d	1.09	hr/w	56.78	hr/y				
	Data gathering	25	locations	5.00	min/location.month	0.07	hr/d	0.49	hr/w	25.35	hr/y	94.29	$ 78.00	$ 7,354.75	
02.20	**Water Treatment Plant operation**														
	Plant operation as per worksheet							5.55	hr/w	288.50	hr/y	288.50	$ 90.00	$ 25,965.00	
	Small materials and consumables													$ 10,000.00	
02.30	**Non productive**														
	Training					0.01	hr/d	0.07	hr/w	3.65	hr/y				
	Administration					0.05	hr/d	0.35	hr/w	18.25	hr/y				
	Driving					0.15	hr/d	1.05	hr/w	54.75	hr/y	76.65	$ 78.00	$ 5,978.70	
02.00	**Total Operation**											459.44			$ 49,298.45
03.00	**Maintenance WTP**														
	Plant maintenance as per worksheet							3.20	hr/w	166.35	hr/y	166.35	$ 90.00	$ 14,971.94	
	Small materials and consumables													$ 10,000.00	
03.00	**Total maintenance**							3.20		166.35		166.35			$ 24,971.94
	Total Operation and Maintenance WTP														**$ 102,301.64**
04.00	**Operation and Maintenance Reticulation**														
	Plant maintenance as per worksheet							1.95	hr/w	101.50	hr/y	101.50	$ 90.00	$ 9,135.00	
	Small materials and consumables													$ 8,000.00	
04.00	**Total maintenance**							1.95		101.50		101.50			$ 17,135.00
	Total Operation and Maintenance Reticulation														**$ 17,135.00**
	Total Operation and Maintenance WTP & Reticulation														**$ 119,436.64**

Source Specifications				
			Reference	Comment
Type		**Drinking Water**		
Supply Code		WAI001	TA	
Supply Name		Waimangaroa	TA	
Source Code		S00011	TA	
Source Name		Conns Creek, Waimangaroa	TA	
Resource Consent		RC01283/5		Brewery Creek (/5)
Expiry		26/06/2037		
Allowable Take		216	m^3/day	(2.5 l/s)
Supply type		On Demand		
Supply Category		Small		
Water Demand Estimates				
Supply Population avg	P+PE	350	TA	
People per property	P/con	2.5	assumption	less than average
Supply Population peak	P+PE	720	assumption	
People per property	P/con	4	assumption	
Commercial and Industry		0		
Connections current	#	140	AMP	
Connections max		180	AMP	
Specific water demand avg	l/P.d	250	assumption	no garden watering, very low specifc demand
Specific water demand peak	l/P.d	250	assumption	
Unaccounted water	l/conn.d	500	assumption	less than average for BDC
Supply Volume Accounted AVG	m^3/d	87.5	calculated	
Supply Volume Accounted Peak	m^3/d	180.0	calculated	
Supply Volume Unaccounted AVG	m^3/d	70	calculated	
Supply Volume Unaccounted Peak	m^3/d	90	calculated	
Supply demand avg	**m^3/d**	**157.5**	calculated	
Supply demand peak	**m^3/d**	**270.0**	calculated	
Raw Water quanityt and quality - NIWA NZRiverMaps - estimates				
Land use		indigenous forest, broadleaved indigenous hardwood, low producing grassland, mining		
Catchment area	km^2	2.22		222 ha
1 in 5 yr low flow	m^3/s	0.0314		2,713 m3/d
Median flow	m^3/s	0.1440		12,442 m3/d
Nitrate 95%	mg/m^3	125		
Ammoniacal N	mg/m^3	9.53		
Dissolved Reactive P	mg/m^3	5.74		
Total Suspended Solids	g/m^3	3.81		
Turbidity	NTU	2.38		
Temperature	°C	12.3		
E.coli 95%	#/100ml	1394		

Comment for use as drinking water

The Conns Creek intake feeds from a safe catchment which provides a good safety factor the local supply with regards to flows. The chemical water quality is satisfactory. The microbiological water quality is bad. The catchment is characterised mostly by indigenous forest and shrubland.

Parameters of concern:

Turbidity, total suspended solids, E.coli

At times (post rainfall) there is a high concentration of dissolved organic carbon in the water concentrations of DOC up to 4.0 g DOC/m^3 were recorded.

Assumptions for treatment train:

Filtration: 2 step - coarse and fine

DOC removal (membrane)

UV treatment

Chlorination

A full set of water analysis was prepared for the catchment. The only expensive treatment related issue for the catchment are high levels of organic carbon which also make UV disinfection hard or impossible.

Drinking Water Quality Assurance Rules				
Population served	appr. 350 avg, 720 peak			
Set of rules	G + S2 + T2 + D2			
Existing system				
Intake structure	dam, weir			
Raw water storage	50 m^3 open tank			
Relevant Rules in accordance with the 'DRAFT Drinking Water Quality Assurance Rules 20 December 2021'				
Rule set 'G' is covered under overhead				
S2. Source Water Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
S2.1	Surface water sources must be monitored for the determinands/parameters and at the frequency set out in Table 9.	No online monitor required, sampling by operator		
S2.5	Water sources must be categorised as either low-risk, medium-risk or high-risk for the presence of cyanobacteria.	To be assessed. The water is free flowing out fo a bush catchment which leads to a first assumption of a low risk environment.	Assessment of cyano bacteria prevalence. The working theory for this analysis is that probability is low causing no CAPEX item.	
T2. Treatment Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
T2.1	Water leaving the treatment plant must be monitored for the determinands/parameters and at the frequencies set out in Table 12.	As the plant is not visited daily all parameters as requested per table 12. T2 are to be set up using monitors	included in lumpsum below	
T2.4	All water must be filtered by a media, membrane or cartridge filter system	2 stage filtration to be installed	included in lumpsum below	
T2.7	All water must be disinfected with UV light.	UV system to be installed	included in lumpsum below	
General requirement to build and set up a water treatment plant				
	Land, right of way			$ 100,000.00
	Intake, sedimentation and raw water tanks			$ 580,831.97
	Transmission lines to Waimangaroa			$ 413,594.91
	Water Treatment Plant (electrical, mechanical, controls)			$ 731,500.00
	WTP Building and Services			$ 248,000.00
	Rising/falling/drainage lines			$ 110,760.47
	Treated Water Storage Tanks			$ 284,812.65
	Fluoridation plus monitoring			$ 40,000.00
	Design, supervision, experts, survey, procurement, commissioning	20%		$ 436,937.47
	Contingency	25%		$ 736,609.37
Costs water treatment plant				**$ 3,683,046.84**
Funding activities in accordance with the Water Services Act 2021 and General				
Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.01			Water Safety Plan update	$ 20,000.00
WSA/G.02			Source Water Management Plan	$ 10,000.00
WSA/G.03			Consent Renewal	$ -
WSA/G.04			Easements	$ 20,000.00
WSA/G.05			Set up of auditing program	$ 12,000.00
WSA/G.06			nil	
WSA/G.07			nil	
WSA/G.08			nil	
WSA/G.09			nil	
WSA/G.10			nil	
Costs General Activities, One Off and Initial				**$ 62,000.00**

Drinking Water Quality Assurance Rules				
Population served	appr. 350 avg, 720 peak			
Set of rules	G + S2 + T2 + D2			

Existing system

The majority of the system ws builtin the eighties. some of the pipes are overdue for replacement, mainly steel and galvanised pipes. The backlog is about 410 m of pipes or $ 100,000.

D2 Distribution System rules

Item	Rule	Comment - Action	Cost Item	Estimate
D2.1	Water in the distribution system must be monitored for the determinands/parameters and at the frequencies set out in Table 13	FAC and pH to be tsted on line additional to sampling as site is not visited daily	FAC/pH monitor plus cabinet, weatherproof plus power connection	$ 20,000.00

Levels of Service (Water Asset Management Plan 2015) - relevant items only

LTP Water Services	Key Service Criteria	Target Level Of Service	Measurement	Comment
Provide an adequate quality of water	Is the water safe to drink?	No potential for illness due to unwholesome water	No E.Coli confirmed by second sample	not possible yet
Provide an adequate quantity of water	There is an adequate flow of water for domestic activities, such as taking a shower?	To be able to fill a 10 litre bucket three times within a minute	Residual pressure > 200kpa at the dwelling, while drawing 30 L/min	ok
Provide an adequate quantity of water	There is an adequate flow of water for fire fighting?	All fire hydrants to be operational	All existing Fire Hydrants to remain operative All new subdivisions within Westport and Reefton to be designed to comply with hydrant requirements in SNZ PAS 4509:2003	One hydrant can be used at any time
Provide a reliable supply of water	Can you rely on the water supply to be available?	To provide water into the system virtually all of the time	Water supplied 99% of the time	ok
Provide a reliable supply of water		To minimise disruption caused by unplanned shutdowns	No more than 3 shutdowns per km At least 90% compliance with response times stated in service request	ok
Provide a reliable supply of water	Is the use of water restricted?	To permit gardens to be maintained in a healthy state all year	No more than 5 days water restrictions per year	ok
Provide water with the minimum environmental impact	Is the environment being harmed?	To comply with resource consent conditions	100% compliance with RC conditions	ok

Funding activities in accordance with the Water Services Act 2021 and General

Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.11			Flow metering households	$ 90,000.00
WSA/G.12			Dedicated sampling spots	$ 6,000.00
WSA/G.13			Backflow prevention program	$ 15,000.00
WSA/G.14			nil	
WSA/G.15			nil	
Costs Compliance				**$ 41,000.00**
CAPEX Distribution improvement				**$ 90,000.00**
General Activities, One Off and Initial				**$ -**

Material	Length	Meter Pipe per Diameter																						
	[m]	762	716	600	525	500	375	300	250	200	175	150	125	100	90	80	75	50	40	32	25	20	15	12
POLY	2,415	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	405	0	0	1,679	320	11	0
PE	2,260	0	0	0	0	0	0	0	0	0	0	0	0	191	0	0	0	297	0	0	1,771	0	0	0
GS	44	0	0	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	4	0	17	0
ALK	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173	0	0	0	13	39	0
PVC	5,790	0	0	0	0	0	0	0	0	0	0	2,405	0	3,368	0	0	0	16	0	0	0	0	0	0
STEE	398	0	0	0	0	0	0	0	0	0	0	7	0	351	0	0	0	0	0	0	0	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	3	7	0
Total	11,158.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,412.5	0.0	3,933.7	0.0	0.0	0.0	890.9	0.0	0.0	3,458.0	335.4	73.9	0.0
%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	21.6%	0.0%	35.3%	0.0%	0.0%	0.0%	8.0%	0.0%	0.0%	31.0%	3.0%	0.7%	0.0%

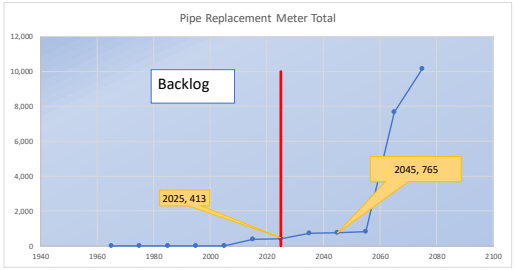
Material	Meter Pipe per Condition					Meter Pipe Installed within Period												
						>=1900	>=1910	>=1920	>=1930	>=1940	>=1950	>=1960	>=1970	>=1980	>=1990	>=2000	>=2010	>=2020
	Excellent	Good	Average	Poor	Very Poor	N/A	<1910	<1920	<1930	<1940	<1950	<1960	<1970	<1980	<1990	<2000	<2010	<2020	<2030
POLY	28	370	2,017	0	0	0	0	0	0	0	0	0	0	0	2,173	209	5	28	0
PE	191	2,068	0	0	0	0	0	0	0	0	0	0	0	0	2,068	0	0	191	0
GS	0	44	0	0	0	0	0	0	0	0	0	0	0	0	21	23	0	0	0
ALK	0	52	0	173	0	0	0	0	0	0	0	0	173	0	52	0	0	0	0
PVC	513	2,121	518	2,330	308	0	0	0	0	0	0	128	0	0	2,611	2,249	684	118	0
STEE	0	0	116	279	3	0	0	0	0	0	0	389	0	0	7	1	0	0	0
Spiral Steel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Conc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	4	4	17	3	0	0	0	0	0	0	0	3	0	0	21	0	4	0	0
Total	735.4	4,658.4	2,667.9	2,784.8	311.8	0.0	0.0	0.0	0.0	0.0	0.0	520.8	172.8	0.0	6,952.4	2,482.4	692.7	337.1	0.0
%	6.6%	41.7%	23.9%	25.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.7%	1.5%	0.0%	62.3%	22.2%	6.2%	3.0%	0.0%

Key

POLY	Polyethylene (PE)	STEE	Steel
GS	Galvanised Steel	AC	Asbestos Cement
PE	Polyethylene	CI	Cast Iron
ALK	Alkathene, low Density Polyethylene (LDPE)	PVC	Poly Vinyl Chloride

Material	BaseLife	Residual Life												Replacement period for built pipe during decade xx/xx										
	[years]	1905	1915	1925	1935	1945	1955	1965	1975	1985	1995	2005	2015	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065	2075	2085	2095
PE	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0									2065			2095
GS	40	-77.0	-67.0	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0									**2025**	**2035**		
ALK	70	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0							**2035**		2055			
PVC	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0						**2035**			2065	2075	2085	2095
STEE	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0						**2015**			**2045**	2055		
Spiral Steel	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
CI	90	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0												
AC	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Timber	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Conc	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Copper	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0												
Unknown	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0						**2015**			**2045**		2065	

Material	Replacement length per period built											
	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY									**2,173**	**209**		
PE									**2,068**			
GS									**21**	**23**		
ALK							**173**		**52**			
PVC						**128**			**2,611**	**2,249**		
Spiral Steel						**389**			**7**	**1**		
ABS												
CI												
AC												
Timber												
Conc												
Copper												
Unknown						**3**			**21**		**4**	
TOTAL	10,132											



2.9.Westport

Plant: Westport

Funding requirement	CAPEX	General	Renewals Retic	OPEX
Compliance with DW standards Treatment	$ 7,155,000.00			
General and WSA2021 activities Treatment		$ 80,000.00		
Compliance with DW standards Distribution	$ 95,000.00			
Capex activities Distribution Improvement	$ 1,500,000.00			
General and WSA2021 activities Distribution		$ 300,000.00		
Renewal for Distribution backlog	$ 4,600,000.00			
Renewals for Distribution to 2045 (incl. backlog)			*$ 288,256.14*	
Renewals for Distribution to 2045 (excl. backlog)			$ 77,090.91	
Operations Costs Treatment				$ 406,690.22
Operations Costs Distribution				$ 209,710.00
Totals	$ 13,350,000.00	$ 380,000.00	$ 77,090.91	$ 616,400.22

WTP and Reticulation O&M Sheet

Client	Buller District Council		Plant load avg	5,983	PE	
Plant	Westport		Plant flow pract. avg	5,163	m3/d	
$ O&M per connection	$ 205.47	$/year		57,488	m3/yr	
$ O&M per m³	$ 10.72	$/m3	Connections	3,000.00		

01.00	**General**											**hrs**	**$/hr**	**$/pos**	**$/totals**
	Council Overhead Costs													$ 23,930.67	
	Electricity													$ 98,550.00	
	Insurance													$ 17,948.00	
	Others													$ -	
01.00	**Total General**														$ 140,428.67
02.00	**Operation WTP**														
02.10	**General**														
	Grounds	10,000	m2	3.00	h/1000m2.month	1.00	hr/d	7.00	hr/w	365.00	hr/y				
	Housekeeping	1,000	m3	0.50	h/100m3.month	0.17	hr/d	1.17	hr/w	60.83	hr/y				
	Sampling	40	conditions per month	7.00	min/cond.month	0.16	hr/d	1.09	hr/w	56.78	hr/y				
	Data gathering	25	locations	5.00	min/location.month	0.07	hr/d	0.49	hr/w	25.35	hr/y	507.96	$ 78.00	$ 39,620.75	
02.20	**Water Treatment Plant operation**														
	Plant operation as per worksheet							15.63	hr/w	813.00	hr/y	813.00	$ 90.00	$ 73,170.00	
	Small materials and consumables													$ 50,000.00	
02.30	**Non productive**														
	Training					0.10	hr/d	0.70	hr/w	36.50	hr/y				
	Administration					0.10	hr/d	0.70	hr/w	36.50	hr/y				
	Driving					0.30	hr/d	2.10	hr/w	109.50	hr/y	182.50	$ 78.00	$ 14,235.00	
02.00	**Total Operation**											1503.46			$ 177,025.75
03.00	**Maintenance WTP**														
	Plant maintenance as per worksheet							11.59	hr/w	602.62	hr/y	602.62	$ 90.00	$ 54,235.81	
	Small materials and consumables													$ 35,000.00	
03.00	**Total maintenance**							**11.59**		**602.62**		602.62			$ 89,235.81
	Total Operation and Maintenance WTP														**$ 406,690.22**
04.00	**Operation and Maintenance Reticulation**														
	Plant maintenance as per worksheet							23.44	hr/w	1,219.00	hr/y	1219.00	$ 90.00	$ 109,710.00	
	Small materials and consumables													$ 100,000.00	
04.00	**Total maintenance**							**7.81**		**406.33**		1219.00			$ 209,710.00
	Total Operation and Maintenance Reticulation														**$ 209,710.00**
	Total Operation and Maintenance WTP & Reticulation														**$ 616,400.22**

Source Specifications				
			Reference	Comment
Type		**Drinking Water**		
Supply Code		WES001	TA	
Supply Name		Westport	TA	
Source Code		G00023	TA	
Source Name		Inangahua River Flat Bore	TA	
Resource Consent		S00016 & S01038		
Expiry		29/04/2040		Giles Creek (N+S branch)
Allowable Take		10,022	m^3/day	= 116 l/s
Supply type		On Demand		
Supply Category		Large		
Water Demand Estimates				
Supply Population avg	P+PE	4,974	AMP 2021	
People per property	P/con	1.7	calculation	less than average
Supply Population peak	P+PE	8,000	assumption	
People per property	P/con	2.7	calculation	
Commercial and Industry		0		
Connections current	#	3,000	assumption	
Connections max		3,000	assumption	
Specific water demand avg	l/P.d	200	assumption	
Specific water demand peak	l/P.d	200	assumption	
Unaccounted water	l/conn.d	1,300	assumption	
Supply Volume Accounted AVG	m^3/d	995	calculated	
Supply Volume Accounted Peak	m^3/d	1,600	calculated	
Supply Volume Unaccounted AVG	m^3/d	3,900	calculated	
Supply Volume Unaccounted Peak	m^3/d	3,900	calculated	
Supply demand avg	**m^3/d**	**4,894.8**	calculated	
Supply demand peak	**m^3/d**	**5,500.0**	calculated	
Raw Water quantity and quality - NIWA NZRiverMaps - estimates				
Land use		indigenous forest		
Catchment area	km^2	3.32		332 ha
1 in 5 yr low flow	m^3/s	0.041		3,582 m3/d
Median flow	m^3/s	0.375		32,441 m3/d
Nitrate 95%	g/m^3	0.134		
Ammoniacal N	mg/m^3	4.37		
Dissolved Reactive P	mg/m^3	4.62		
Total Suspended Solids	g/m^3	1.24		
Turbidity	NTU	1.41		
Temperature	°C	10.7		
E.coli 95%	#/100ml	226		
Comment for use as drinking water				

The Giles Creek catchment provides good water quality to Westport and is usually reliable. During a recent high intensity rainfall event the catchment was taken out of service over several weeks and significant damage occurred to the intake infrastructure.
The water is of high volume but could run low which would need to be covered by either the Orowaiti supply (backup) or the for a short period by raw water storage.
It is expected that the creeks carry concentrations of DOC which are of concern, however the treatment train coagulation/filtration takes care of that under normal circumstances. However, higher DOC levels combined with traces of nutrients bear a risk for cyano bacteria occurrence especially in combination with the huge raw water storage. The risk of cyano toxins needs to be assessed; a safety barrier might be required in the treatment train.

Parameters of concern:
DOC, turbidity, potentially cyanotoxins
Existing treatment train:
Coagulation, Filtration
UV treatment
Chlorination
pH correction

Drinking Water Quality Assurance Rules				
Population served	appr. 4974 avg, 8000 peak			
Set of rules	G + S3 + T3 + D3			
Existing system				
Intake structure	dam, weir			
Raw water storage	130,000 m^3			
Treated water storage	3,000 m^3	Ref: AMP 05/2021		
Relevant Rules in accordance with the 'DRAFT Drinking Water Quality Assurance Rules 20 December 2021'				
Rule set 'G' is covered under overhead				
S3. Source Water Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
S3.3	Source water must be monitored for the determinands/parameters and at the frequency set out in Table 14 and Table 15	Monitoring	Analyser for conductivity, pH	$ 20,000.00
S3.6	Water sources must be categorised as either low-risk, medium-risk or high-risk for the presence of cyanobacteria.	To be assessed. The water is free flowing out fo a bush catchment which is typically low risk. However, the water is stored for 15 - 25 days in an open reservoir which which is a high risk element with regards to cyanobcateria proliferation.	A step is required for cyanotoxin and odour/taste reduction based on activated carbon filtration and plant improvements in general, Q = 6,000 m^3/d, biological activated carbon filter (BAC), chemcial handling, piping, instrumentation, automation, plus improvments for existing system	$ 4,500,000.00
T3. Treatment Rules				
Item	Rule	Comment - Action	Cost Item	Estimate
T3.14	All water must pass through the UV reactor(s) and must be monitored in accordance with Table 19	compliant UV reactor installed	UVT analyser installed	
T3.17	Turbidity does not exceed 5.0 NTU for the duration of any consecutive 15-minute period.	existing filter satisifies this criteria	nil	
T3.22	T3 direct filtration rule, All of the requirements in Table 21 must be met.	all achieved	nil	
General requirement to build and set up a water treatment plant				
	Land, right of way			$ -
	Fluoridation plus monitoring			$ 250,000.00
	Design, supervision, experts, survey, procurement, commissioning	20%		$ 954,000.00
	Contingency	25%		$ 1,431,000.00
Costs water treatment plant				**$ 7,155,000.00**
Funding activities in accordance with the Water Services Act 2021 and General				
Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.01			Water Safety Plan update	$ 30,000.00
WSA/G.02			Source Water Management Plan	$ 20,000.00
WSA/G.03			Consent Renewal	$ -
WSA/G.04			Easements	$ -
WSA/G.05			Set up of auditing program	$ 30,000.00
WSA/G.06			nil	
WSA/G.07			nil	
WSA/G.08			nil	
WSA/G.09			nil	
WSA/G.10			nil	
Costs General Activities, One Off and Initial				**$ 80,000.00**

Drinking Water Quality Assurance Rules				
Population served	appr. 4974 avg, 8000 peak			
Set of rules	G + S3 + T3 + D3			

Existing system

The network in Westport is very old with some pipes dating back to 1900. Some of these pipes are still in service. A bigconcern are the galvanised steel pipes for house connections as these pipes with the water quality in the region in mind are a huge risk for leaks.
Occurrence of leaks and gradually blocking of cast iron and steel pipes are in a feedback loop with high pressure. More leaksand smaller diameter result in more pressure to sustain the same amount of flow, more pressure results in more leaks.
Due to funding reasons there is significant backlog to repair the Westport DW network. This backlog is represented by 23 km of pipework and estimated 4.6 Mio $ (data 2021). 9km of that is small diameter GS pipe.
The reason for the build up of back log is an optimistic asset life expectancy. Sampling of pipes and testing for remaining life by a laboratory could help to adjust the remaining asset life and renewals program.
Renewing overdue pipes could help fixing the supply issue in Westport without installing big new infrastructure.

D3 Distribution System rules

Item	Rule	Comment - Action	Cost Item	Estimate
D2.1	Water in the distribution system must be monitored for the determinands/parameters and at the frequencies set out in Table 13	FAC and pH to be tsted on line additional to sampling as site is not visited daily	FAC/pH monitor plus cabinet, weatherproof plus power connection	$ 20,000.00

Levels of Service (Water Asset Management Plan 2015) - relevant items only

LTP Water Services	Key Service Criteria	Target Level Of Service	Measurement	Comment
Provide an adequate quality of water	Is the water safe to drink?	No potential for illness due to unwholesome water	No E.Coli confirmed by second sample	ok
Provide an adequate quantity of water	There is an adequate flow of water for domestic activities, such as taking a shower?	To be able to fill a 10 litre bucket three times within a minute	Residual pressure > 200kpa at the dwelling, while drawing 30 L/min	ok
Provide an adequate quantity of water	There is an adequate flow of water for fire fighting?	All fire hydrants to be operational	All existing Fire Hydrants to remain operative All new subdivisions within Westport and Reefton to be designed to comply with hydrant requirements in SNZ PAS 4509:2003	ok, firefighting should be possible with 2 hydrants, not confirmed
Provide a reliable supply of water	Can you rely on the water supply to be available?	To provide water into the system virtually all of the time	Water supplied 99% of the time	no, catchment blocks in high intensity events
Provide a reliable supply of water		To minimise disruption caused by unplanned shutdowns	No more than 3 shutdowns per km At least 90% compliance with response times stated in service request	no, see above
Provide a reliable supply of water	Is the use of water restricted?	To permit gardens to be maintained in a healthy state all year	No more than 5 days water restrictions per year	ok
Provide water with the minimum environmental impact	Is the environment being harmed?	To comply with resource consent conditions	100% compliance with RC conditions	ok

Funding activities in accordance with the Water Services Act 2021 and General

Item	Rule	Comment - Action	Cost Item	Estimate
WSA/G.11			Flow metering households	$ 1,500,000.00
WSA/G.12		achieved	Dedicated sampling spots	-
WSA/G.13			Backflow prevention program	$ 75,000.00
WSA/G.14			Reticulation assessment field	$ 300,000.00
WSA/G.15			nil	
Costs Compliance				**$ 95,000.00**
CAPEX Distribution improvement				**$ 1,500,000.00**
General Activities, One Off and Initial				**$ 300,000.00**

Material	Length	Meter Pipe per Diameter																					
	[m]	762	716	600	525	500	375	300	250	200	175	150	125	100	90	80	75	50	40	32	25	20	15	12
POLY	9,007	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1,627	333	629	692	4,582	1,043	100
PE	11,028	0	407	271	900	557	0	1,674	0	0	0	0	358	929	35	131	0	2,995	0	37	780	1,335	619	0
GS	9,472	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	503	1,073	568	0	4,773	516	1,761	275
ALK	1,895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	143	645	1,061	5
PVC	41,941	0	0	0	0	12	193	343	469	6,043	0	3,118	0	10,117	0	3	179	16,815	3,472	0	952	206	18	0
STEE	1,393	1,171	0	0	0	0	18	88	1	58	33	0	0	0	0	0	0	3	0	0	9	0	12	0
Spiral Steel	4,842	0	0	0	0	0	4,830	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CI	18,235	0	0	0	0	0	0	0	0	6,071	0	977	1,004	1,826	0	0	8,358	0	0	0	0	0	0	0
AC	12,627	0	0	0	0	0	0	0	0	0	0	2,193	0	9,198	0	0	378	818	0	0	0	20	0	0
Timber	111	0	0	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	0
Conc	2,219	72	0	455	1,445	0	248	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	0	14	19
Unknown	3,062	0	0	0	0	0	0	0	0	25	0	0	0	0	0	0	0	389	0	0	135	482	2,031	0

Total	115,920.4	1,242.9	407.4	796.8	2,345.1	568.6	5,288.7	2,116.3	470.0	12,197.4	33.1	6,287.9	1,361.7	22,073.0	34.9	134.1	9,418.9	23,720.7	4,372.9	705.5	7,537.3	7,786.7	6,600.4	399.0
%	100%	1.1%	0.4%	0.7%	2.0%	0.5%	4.6%	1.8%	0.4%	10.5%	0.0%	5.4%	1.2%	19.0%	0.0%	0.1%	8.1%	20.5%	3.8%	0.6%	6.5%	6.7%	5.7%	0.3%

Material	Meter Pipe per Condition						Meter Pipe Installed within Period													
							>=1900	>=1910	>=1920	>=1930	>=1940	>=1950	>=1960	>=1970	>=1980	>=1990	>=2000	>=2010	>=2020	
	Excellent	Good	Average	Poor	Very Poor	N/A	<1910	<1920	<1930	<1940	<1950	<1960	<1970	<1980	<1990	<2000	<2010	<2020	<2030	
POLY	6,185	1,932	357	69	97	368	0	0	0	0	0	98	115	0	1,092	220	3,027	4,237	217	
PE	6,484	337	36	20	914	3,236	0	0	0	0	0	3	0	0	316	0	3,891	4,621	2,197	
GS	307	2,636	3,382	1,013	2,133	0	0	25	22	0	0	957	4,209	1,106	2,798	235	32	30	58	
ALK	271	766	659	73	126	0	0	6	6	6	26	165	32	149	1,105	78	134	178	10	
PVC	26,917	7,774	1,624	180	3,167	2,279	0	18	0	0	0	18	1,493	181	4,312	7,394	16,235	11,654	636	
STEE	155	33	10	24	0	1,171	10	0	0	0	0	0	33	0	51	0	101	28	1,171	
Spiral Steel	794	0	124	3,579	345	0	4	0	0	0	0	0	4,044	0	0	0	189	604	0	
CI	12	2,376	13,788	988	1,022	48	6,690	4,594	1,685	579	3,380	348	0	0	0	0	0	0	0	
AC	259	3,912	6,069	560	1,828	0	0	135	0	242	13	195	6,156	3,171	2,397	292	21	6	0	
Timber	0	0	89	0	0	23	0	0	0	0	0	0	0	0	89	0	0	23	0	
Conc	23	0	260	1,795	142	0	1,784	0	0	0	0	0	0	188	224	0	0	23	0	
Copper	0	0	87	0	0	0	0	0	0	0	0	14	73	0	0	0	0	0	0	
Unknown	365	785	1,433	381	98	0	36	57	22	11	44	463	562	200	1,255	109	258	35	9	

Total	41,772.3	20,551.6	27,917.8	8,682.8	9,871.9	7,124.1	8,523.9	4,835.6	1,735.5	838.1	3,463.2	2,261.4	16,717.1	4,995.1	13,639.3	8,328.1	23,889.1	21,438.6	4,297.4
%	36.0%	17.7%	24.1%	7.5%	8.5%	6.1%	7.4%	4.2%	1.5%	0.7%	3.0%	2.0%	14.4%	4.3%	11.8%	7.2%	20.6%	18.5%	3.7%	

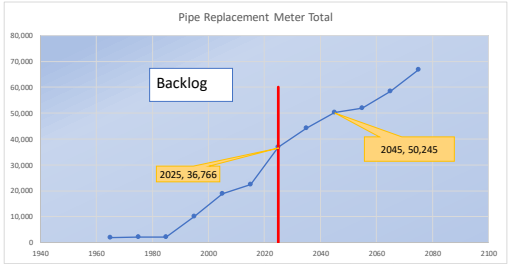
Key

POLY	Polyethylene (PE)	STEE	Steel
GS	Galvanised Steel	AC	Asbestos Cement
PE	Polyethylene	CI	Cast Iron
ALK	Alkathene, low Density Polyethylene (LDPE)	PVC	Poly Vinyl Chloride

Material	BaseLife	Residual Life												Replacement period for built pipe during decade xx/xx										
	[years]	1905	1915	1925	1935	1945	1955	1965	1975	1985	1995	2005	2015	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0						**2035**	**2045**	2055	2065	2075	2085	2095
PE	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0						**2035**			2065		2085	2095
GS	40	-77.0	-67.0	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0		**1955**	**1965**			**1995**	**2005**	**2015**	**2025**	**2035**	**2045**	2055
ALK	70	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0		**1985**	**1995**	**2005**	**2015**	**2025**	**2035**	**2045**	2055	2065	2075	2085
PVC	80	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0		**1995**				**2035**	**2045**	2055	2065	2075	2085	2095
STEE	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	**1965**					**2025**		**2045**			2065	2075
Spiral Steel	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	**1965**					**2025**					2065	2075
CI	90	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	63.0	73.0	83.0	**1995**	**2005**	**2015**	**2025**	**2035**	**2045**						
AC	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0		**1975**		**1995**	**2005**	**2015**	**2025**	**2035**	**2045**	2055	2065	2075
Timber	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0									**2045**			2075
Conc	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	**1965**							**2035**	**2045**			2075
Copper	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0						**2015**	**2025**					
Unknown	60	-57.0	-47.0	-37.0	-27.0	-17.0	-7.0	3.0	13.0	23.0	33.0	43.0	53.0	**1965**	**1975**	**1985**	**1995**	**2005**	**2015**	**2025**	**2035**	**2045**	2055	2065	2075

Material	nt length per period built											
	00/10	10/20	20/30	30/40	40/50	50/60	60/70	70/80	80/90	90/00	10/20	20/30
POLY						**98**	**115**	**0**	**1,092**	**220**		
PE						**3**			**316**			
GS		**25**	**22**			**957**	**4,209**	**1,106**	**2,798**	**235**	**32**	**30**
ALK		**6**	**6**	**6**	**26**	**165**	**32**	**149**	**1,105**	**78**	**134**	
PVC		**18**				**18**	**1,493**	**181**	**4,312**	**7,394**		
Spiral Steel	**10**						**33**		**51**		**101**	**28**
ABS	**4**						**4,044**				**189**	**604**
CI	**6,690**	**4,594**	**1,685**	**579**	**3,380**	**348**						
AC		**135**		**242**	**13**	**195**	**6,156**	**3,171**	**2,397**	**292**	**21**	**6**
Timber									**89**			**23**
Conc	**1,784**							**188**	**224**			**23**
Copper						**14**	**73**					
Unknown	**36**	**57**	**22**	**11**	**44**	**463**	**562**	**200**	**1,255**	**109**	**258**	**35**

TOTAL	66,821



INFRASTRUCTURE STRATEGY COMMITTEE

11 MAY 2022

AGENDA ITEM: 7

Prepared By:	Eric de Boer Manager Infrastructure Delivery
Reviewed By:	Mike Williams Manager Infrastructure Planning
Attachment:	A – Staff Memo on Water Services Act Penalties and Fines

WATER SERVICES ACT 2021 – COMPLIANCE, PENALTIES AND FINES

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1. REPORT PURPOSE

The Water Services Act 2021 (the Act) came into power on 15 November 2021 along with a new water regulator Taumata Arowai which replaced the Ministry of Health (MoH) as the water regulator with the intention of providing better regulation to water supplies.

One avenue of achieving this is via the Act. This memo summarises Buller District Council's (BDCs) obligations and penalties under the act.

2. REPORT SUMMARY

A staff memo (refer Attachment A) is attached that provides an oversight on:

- Duties of BDC as a water supplier
- Enforcement and Compliance of the Act
- Legal Opinion – next steps

3. RECOMMENDATIONS

That the Committee:

1. **Notes the content of this report and attachments and its implications for Buller Districts Water Supplies.**

2. **Endorses the procurement of a legal opinion on the direct consequences to Council of continued non-compliance with the Act, for discussion in Public Excluded forum at Full Council Meeting.**

4. CONSIDERATIONS

4.1 Strategic Alignment

Community benefit and well-being is in accordance with our LTP and is critical to the success of our district. Provision of safe, reliable and compliant drinking water supplies provide for community well being and safety.

4.2 Significance Assessment

Compliance is considered significant in terms of fit for future levels of service, community benefit and cost impacts.

4.3 Tangata Whenua Considerations

Council works in partnership with Ngāti Waewae to provide governance. Infrastructure compliance has high importance in relation to Tangata Whenua matters on safety of Wai.

4.4 Risk Management Implications

Major risks are managed in accordance with Council's risk management processes including a "what could go wrong?" approach to ensure all practicable steps are being taken to assess, control and monitor identified risks.

4.5 Policy Framework Implications

Council must comply with the relevant policy and legal requirements including the Local Government Act 2002, the Water Services Act 2021 and the Water Services Regulator Act 2020.

4.6 Legal Implications

There are clear legal implications with non-compliance with the Water Services Act 2021.

4.7 Financial / Budget Implications

Costs for delivering compliant services are expended against planned and approved budgets established in the LTP and Annual Plans and these will need to be rated by Council accordingly.

4.8 Media/Publicity

Publicity is expected with non-compliant levels of service, not all of which will be positive. However, this should not deter from the reasons for delivering important assets and infrastructure for the community.

4.9 Consultation Considerations

Affected parties and stakeholders including community members, private sector, government ministries, agencies and authorities are consulted throughout the service delivery process.

INTERNAL STAFF MEMO

MEMO DETAILS	
DATE:	04/05/2022
TO:	MIKE WILLIAMS, MANAGER INFRASTRUCTURE PLANNING
FROM:	RORY WESTON, DRINKING WATER COORDINATOR

Water Services Act Penalties and Fines

Introduction

The Water Services Act 2021 (the Act) came into power on 15 November 2021 along with a new water regulator Taumata Arowai. Taumata Arowai replaces Ministry of Health (MoH) as the water regulator with the intention of providing better regulation to water supplies.

This memo summarises Buller District Council's (BDCs) obligations and penalties under the act.

Duties of a Water Supplier under the act.

The relevant duties under the Act affecting BDC are:

1. Duty to supply safe drinking water (Section 21) – defined as water that is unlikely to cause a serious risk of death, injury and illness.
2. Duty to comply with drinking water standards (Section 22)
3. Duty of owner of drinking water supply to register supply (Section 23)
4. Duty to take reasonable steps to supply aesthetically pleasing supply (Section 24)
5. Duty to provide sufficient quantity of drinking water (Section 25) – defined as supporting the ordinary needs of consumers at point supply and not interrupting a supply for more than 8 hours, unless Taumata Arowai is informed and an alternative supply is provided.
6. Duty to protect against backflow (Section 27)
7. Exercise due diligence (Section 29). There is a general duty on all employees, officers and agents of a supplier to take reasonable care and skill to ensure the supplier complies with their duties under the Act.
8. Owners must have a Drinking Water Safety Plan (section 30) and lodge it with Taumata Arowai. Section 31 requires this to be proportionate to the scale and complexity of the supply. Note Water Safety Planning includes chlorinating supplies unless an exemption is approved, however, there is very little chance that any BDC supply would get an exemption approved.
9. Notify Taumata Arowai of any 'notifiable risks or hazards' to the water supply (section 35)
10. Tell Taumata Arowai of any supplies who are not complying with their duties i.e those who are not registered, do not have a water safety plan or are not complying with drinking water standards (Section 36). This includes any water supply which feeds two or more houses.

11. Keep records of supply (Section 37)
12. Have a complaints process and provide prescribed information to consumers (Section 44)
13. Prepare and implement a source water risk management plan (Section 43)
14. Suppliers must monitor quantity of water at the abstraction point (Section 44).

BDC's Water Supplies and duties under the Act

In the current state, **no** BDC supplies are meeting the proposed Drinking Water Standards and all require varying levels of investment. Many of these upgrades will require additional funding, more than what is proposed under the Long-Term Plan and will require direct investment in compliant infrastructure from council. Council will play a critical role in ensuring that BDC is able to meet its duties under the Act.

Taumata Arowai do not expect every supply to be compliant by July 1st (date of adoption of new standards), however they have clearly indicated that they will want to see effort being made to achieve this and for that to happen within a realistic timeframe.

Under the Act, water safety plans are required to be in place for each supply by 15 November 2022. A key component of water safety planning under the Act is residual disinfection and as a result chlorination of all supplies is required. This will require additional infrastructure in the following treated supplies:

- Inangahua
- Punakaiki
- Reefton (Note: this investment is planned for 2022/23FY Annual Plan)

It is also important to note, that while community consultation is important, the community ultimately no longer have any direct say if they want chlorine in their supply.

Currently, it is unknown what the expectation will be with Mokihinui, Waimangaroa and Little Wanganui in relation to timeframes as currently these supplied do not even have any treatment processes in place. There are other supplies in New Zealand which chlorinate untreated water to provide at least one barrier to contamination.

Currently for Council, The Mokihinui, Little Wanganui and Waimangaroa supplies are of particular concern. These supplies are untreated and as a result BDC is failing several key duties under the Act. With no significant funding being made available to ensure these supplies become compliant and the recent recorded council resolutions on the Waimangaroa Treatment Plant, it will be difficult for Taumata Arowai to see how BDC is committed to trying to meet its duties under the Act and Council is at risk of being viewed as not exercising due diligence.

Taumata Arowai is aware of cost implications of meeting compliance. It has set in place a set of Acceptable Solutions to try and lessen the impact upon water suppliers. However, none of these Acceptable Solutions apply to surface water supplies, which rule

these supplies out for being eligible. It is expected that Taumata Arowai will need to clearly see a timeline for achieving compliance and for this be part of a committed and approved Water Safety Plan. A plan that provides a committed, clear and systematic pathway of investment towards meeting the duties imposed by the Act.

The objectives of the Water Services Regulator Act 2020 make it apparent that public health is the top priority and it has been set as the number one priority for Taumata Arowai and its compliance regulatory team. Barriers around cost will not be an acceptable excuse to continue to be non-compliant.

It should also be noted that under the Act the definition of a drinking water supplier includes 'a person who ought to reasonably to know that the water they are supplying is or will be used as drinking water'. In its current state the Cape Foulwind supply may yet be deemed to also be obligated to meet the requirements of the Act.

Taumata Arowai does provide the ability to exempt a supply from meeting compliance with a range of requirements from the Act. However, Taumata Arowai has stated "exemptions should be used sparingly and to solve exceptional problems or to respond to exceptional circumstances". In staff's view, it is highly unlikely that any BDC supply would be able to obtain an exemption.

Enforcement and Compliance of the Act

Taumata Arowai are still working on their enforcement and compliance framework. However, early indications from discussion with the regulator are that all supplies and councils are going to be treated the same and there will be less room for leniency just because a supply and its rating base is small.

New powers have been developed to ensure that a graduated response can be taken to non-compliance. These powers are vested in Taumata Arowai and its compliance officers and provide for the following:

- Compliance officers have powers to direct suppliers, with the Chief Executive able to issue compliance orders where non-compliance is serious.
- Search and information gathering powers for compliance officers – this includes powers to obtain documents, test water samples and enter premises without a search warrant to inspect drinking water infrastructure.
- Civil proceedings can be made in relation to non-compliance with a compliance order.
- New infringement offences and fees for non-compliance;
- Criminal proceedings (Subpart 10) including a prosecution for an offence under the Act (by the Taumata Arowai Chief Executive only) or a private prosecution.

In addition to the above, the Act contains strict liability offences in the event that drinking water suppliers cannot demonstrate that all reasonable precautions were taken, and due diligence was exercised to avoid infringement of drinking water standards, some of the key offences are displayed in Table 1.

Offences under the Act

OFFENCES UNDER THE WATER SERVICES ACT 2021		
Section	**Offence**	**Penalty**
171	Recklessness in supply of unsafe drinking water	**Individual:** imprisonment not exceeding 5 years or a fine not exceeding $600,000 **Body corporate:** fine not exceeding $3 million
172	Negligence in supply of unsafe drinking water	**Individual:** fine not exceeding $300,000 **Body corporate:** fine not exceeding $1.5 million
173	Offence involving contamination of raw water or drinking water	Imprisonment not exceeding 5 years or a fine not exceeding $600,000
174	Offence involving recklessness in failure to take immediate action when drinking water unsafe	**Individual:** imprisonment not exceeding 5 years or a fine not exceeding $600,000 **Body corporate:** fine not exceeding $3 million
175	Offence involving negligence in failure to take immediate action when drinking water unsafe	**Individual:** fine not exceeding $300,000 **Body corporate:** fine not exceeding $1.5 million
176	Offence involving failure to notify Taumata Arowai of notifiable risk or hazard	**Individual:** fine not exceeding $50,000 **Body corporate:** fine not exceeding $200,000
177	Offence involving failure to provide sufficient quantity of drinking water	**Individual:** fine not exceeding $50,000 **Body corporate:** fine not exceeding $200,000
181	Offence involving drinking water safety plan	**Individual**: fine not exceeding $50,000 **Body corporate**: fine not exceeding $200,000

Table 1. Offences under the Act

The definition of committing an 'unsafe water' offence is:

(1) A drinking water supplier commits an offence against this section if the supplier—

(a) has a duty under—
(i) section 21 to supply drinking water that is safe; or
(ii) section 22 to supply drinking water that complies with the drinking water standards; and
(b) without reasonable excuse, engages in conduct that exposes any individual to whom the supplier has a duty under paragraph (a) to a serious risk of death, injury, or illness; and
(c) is reckless as to the serious risk to an individual of death, injury, or illness.

As all BDC supplies are not meeting Drinking Water Standards currently and are not chlorinated (except Westport) this opens BDC up to significant risk of prosecution.

The untreated supplies are of the highest concern, but this reemphasises the need for council to take an active approach to water safety. If no action or intent is taken to improve the supply; then in the eyes of the Regulator, it could be argued BDC is being negligent to its duties under the Act.

If Taumata Arowai deems a drinking water supplier is not performing or persistently failing to meet one or more legislative requirement, the Chief Executive Officer of Taumata Arowai may appoint one or more operators to act in place of the supplier and to perform all or any of its functions. Costs for undertaking this work will be recovered from the drinking water supplier.

Next Steps

BDC staff will procure a legal view from Council legal advisors; Fletcher Vautier Moore and report this in Council Meeting Publicly Excluded session.