MorrisonLow

Te Tari Taiwhenua
Internal Affairs

Assessment report

Clutha Mixed Use Rural Water Schemes

January 2023

Document status

Job #	Version	Written	Reviewed	Approved	Report Date
2756	Phase one DRAFT	Stuart Cross and Cushla Anich	Joan Jolly and Dan Bonifant	Dan Bonifant	25 October 2022
2756	Phase Two DRAFT	Stuart Cross and Cushla Anich	Dan Bonifant	Dan Bonifant	14 November 2022
2756	Phase Two FINAL	Stuart Cross and Cushla Anich	Dan Bonifant	Dan Bonifant	30 January 2023

Contents

Tables

Figures

Purpose of this report

Morrison Low has been commissioned to undertake a review into the future potential ownership of mixed use rural water supply schemes in the Clutha District. The purpose of this review is to assess the various costs, benefits and risks of the future ownership and operation of the Clutha district mixed use rural water supply schemes by either:

- Water Services Entity D, with provision for farmers to continue to be involved in the management oversight of the schemes through mechanisms like those they currently have with Clutha District Council, or
- Direct ownership and operation by the rural users of the schemes (including individually or collectively), with no council support or any guarantee of support from Water Services Entity D.

The review will not make any recommendations on the preferred ownership model and does not consider the legal form of the private ownership model.

It is expected that this review will also inform:

- DIA advice and government decisions on the final detail and operation of a statutory transfer mechanism for mixed use rural supplies to be provided through water services entity legislation.
- Decisions by Clutha district rural water services users on whether to seek to acquire ownership of mixed-use rural supply schemes through a yet-to-be-finalised statutory mechanism that government has agreed will be provided though water services legislation that is expected to be enacted by mid-2023.
- A standardised methodology to assessing the benefits, costs and risks of user versus water services entity ownership of mixed water use rural supply schemes in other locations.

This report presents the documented findings and deliverables for phase two of that assessment. The report presents the results of desktop research, interviews, and workshops with rural water scheme committee chairs, and includes:

- A detailed overview of the rural water supply schemes, including potential future investment requirements
- A summary of the key themes that have emerged through workshops and interviews with key stakeholders
- An outline of key assessment criteria which can be used to assess the benefits, costs and risks of the two ownership models
- A high-level overview of the privatisation model, outlining the key functions, obligations, challenges and responsibilities of collective and individual scheme privatisation options.
- An assessment of the performance of each option against the agreed criteria.

This report provides an update to our earlier report of 25 October 2022, and includes additional information derived through further desktop review alongside the detailed assessment of each option. This report also includes an outline of the key assumptions that will be applied in financial modelling and a summary of the initial insights from the draft financial modelling undertaken to date.

Next steps

Following the work set out in this report the next steps include:

- Further refinement and independent review of the financial models for each of the different privatisation models.
- Summary of the benchmarking review of three similar rural water or private water supply schemes, which included two privately owned mixed use rural schemes, and rural schemes owned by another council to identify key challenges and opportunities and to provide verification around cost, management, and governance models.
- Further refinement to the assessment of each option based on:
    - Financial modelling results
    - Feedback provided through the steering group meeting of 17 November and through the feedback period.

This will be summarised in a comprehensive report summarising the stocktake and confirming the assessment of options. The final comprehensive report will be presented to the steering group in early December.

Summary

This report highlights key differences between the rural water schemes in Clutha District and the potential future ownership options that may be available for the schemes. The assessment of the options presented in this report highlights that:

- The initial capital/debt outlay required for private schemes will be significant and a solution will need to be identified in order to ensure that private ownership models are viable from the point of their creation. Ongoing access to capital (including debt) by the schemes is not forecast to be as significant of an issue, but access to capital for unplanned capital works is likely to still be challenging
- There are a number of significant cost increases associated with a private ownership model which will make them more expensive than current charges by default. These include the costs of fully financing depreciation (particularly given the large recent increase in unit rates), servicing debt, and the costs of a management and governance structure.
- The separation of urban townships that currently receive bulk water from rural water schemes is not likely to be an acceptable approach for Taumata Arowai or indeed for the water services entity due to the inability to control issues relating to quality and quantity of water, and difficulties for a water services entity to meet its catchment/water source management obligations.
- While no ownership model fully passes all of the assessment criteria, there are a number of actions that can be undertaken by either ownership models which may address failures. These largely relate to providing assurance and comfort to rural users or the government that competing interests are appropriately addressed.

Key themes

In developing the assessment criteria for this work, we engaged with the following groups through interviews or workshops:

- Taumata Arowai's senior management
- Department of Internal Affairs (DIA) senior management
- Clutha District Council management
- Rural water scheme committee chairmen and representatives.

We also reviewed a range of technical, financial, and asset management information, and undertook site visits to a number of rural water treatment plants in the Clutha District.

Key themes that emerged through those workshops, interviews, and through the review of information are summarised below.

Influence

Rural water scheme committees in Clutha District currently have a high level of influence over the way that their schemes are operated. Scheme committee members are provided with information from Council, including cost projections, asset management plans, and investment proposals. Scheme committee members are then able to make recommendations to Clutha District Council regarding the number of units sold, the sale of additional units, unit charges, and future investment. While Clutha District Council is not required to follow the recommendations of scheme committee members, it typically does follow the recommendations of the scheme committees.

Rural water scheme committee members expressed that they need to continue to have influence on the governance and management of their schemes. Scheme committee members identified that they currently have a high level of involvement in how their schemes are managed, including input in identifying and agreeing to future investment.

It was also identified that the "sense of ownership" in a scheme was critical to its effective running – this ensured that faults and leaks were reported in a timely manner and that infrastructure currently located in private property was able to be accessed without issue.

Rural water scheme committee chairs also identified that if consumers were treating water schemes the same way that they treat other utility companies, that would represent failure by any future water scheme owner. That is, if consumers took the schemes for granted, and did not have regard for the broader consequences of network issues on other users, then it is likely that the scheme would no longer be effective or serve the best interests of all of their users.

Rural water scheme users know their land, and their water networks, and often have local knowledge that can be valuable for decision makers who may be planning investments in their networks. In some cases, this local knowledge has been essential in ensuring that the right solutions are adopted, particularly where this has related to the performance of the scheme (such as impacts on pressure) or where a local understanding of the geography of the area is important.

Te Mana o te Wai

Te Mana o te Wai is a concept provided for in the National Policy Statement for Freshwater Management issued in 2020 under section 52 of the Resource Management Act 1991. It refers to the vital importance of water. When managing freshwater, it ensures the health and well-being of the water is protected, and human health needs are provided for, before enabling other uses of water.

The Water Services Act 2021 requires drinking water suppliers to give effect to Te Mana o te Wai when exercising or performing duties under the Act, to the extent that Te Mana o te Wai applies to the duty. This will be applicable to regulatory requirements to develop drinking water safety plans and source plans and will likely require the supplier to consult with tangata whenua in the development of such plans.

In addition to the above, Water Services Entities will also be required to give effect to te mana o te wai statements by mana whenua whose:

i) rohe or takiwā includes a freshwater body in the service area; or

ii) whose interests in the service area are recognised in a Treaty settlement Act.

Security and reliability of supply

Security and reliability of supply was raised as the most significant issue that worries rural water scheme committee chairs. Rural water scheme committees were clear that 24/7 delivery and availability of water was critical for domestic users and for farmers to ensure animal welfare. There were concerns that water takes would be limited by low flow through some schemes, and water was almost restricted to one scheme in the summer of 2021/22. Concerns around reliability and security also extended to recent resource consents only being issued for a six year period by Otago Regional Council after a recent court case, and capacity in the reticulation network being maxed out already.

In some cases, water sources already have periods of low flow, with the water take of one scheme being restricted to only 9L/second in periods (or 777m3/day) when river flow drops below the minimum flow rate. The ability to meet future demands (including through an increase in lifestyle blocks) and the impact of possible increases in the frequency of drought events were significant concerns for all stakeholders.

Affordability

Affordability has been raised as a key issue for the future management of the rural water supply schemes from all stakeholders. Access to affordable drinking water is critical for domestic users connected to the mixed use rural schemes. While unit rates may not appear high when considered as a single unit purchase, farmers often purchase multiple units, and water can be a significant operational expense for some farming businesses.

Rural scheme chairs indicated a strong desire to ensure that water charges are kept low, and that future increases are limited by reference to the rate of inflation. While there is a desire to keep water charges low under any ownership model, charges will need to be sufficient to enable current and future investment in schemes, as well as cover all operating costs.

This will be achieved for water services entities through economic regulation. The economic regulator will have a key role in ensuring that water services entities operate efficiently in order to minimise future costs to consumers. Consumer protection that is likely to be provided through a future economic regulator for water is unlikely to apply to any private water suppliers.

An important consideration for a private ownership model will be the detail of how it will operate to ensure that consumers continue to have access to affordable drinking water. Also for how it will deal with consumer complaints and disputes related to service quality and provision as the consumer protection measures for consumers of water services entities will unlikely be extended to both residential and commercial consumers of private schemes.

There was a desire to ensure that schemes were established to be not-for-profit. To the extent that the scheme needs to generate a surplus to build financial reserves for future capital investment, they should be restricted from being able to make distributions to its members / owners.

Ability to invest

Stakeholders also identified that access to capital to fund future capital works (whether that be compliance upgrades, renewals, or increased capacity) is a key issue. Rural water schemes currently borrow to fund level of service and capacity upgrades within their networks. As the schemes are currently owned by Council, this debt is assumed by Clutha District Council, who has the ability to borrow at favourable rates, and on favourable terms, from the Local Government Funding Agency. Repayments for that debt are included in the calculation of charges for each scheme.

Rural scheme committees raised concerns about the ability to access cheap debt in the future, and the potential cost and commercial terms for that debt. While schemes were not concerned about their ability to repay debt, there were concerns about the ability to raise the debt in the first instance.

To the extent that capital contributions are required in the future, this may have an impact on the overall affordability of the schemes.

Obligations under Water Services Act

The Water Services Act 2021 sets out obligations for drinking water suppliers. These obligations include requirements to monitor and report on Drinking Water Standard compliance and source water quality, and the obligation to provide sufficient quantities of drinking water to consumers.

The Water Services Act also introduces a range of offences and liabilities for drinking water suppliers. Some of these offences apply only to the legal entity providing the water, while others specifically apply to directors, employees, or officers of the drinking water supplier. Penalties can be significant, and in some cases can include custodial sentences for most serious offences.

Concerns were raised by stakeholders that the potential offences and penalties for failure to comply with the Water Services Act 2021 would limit each scheme's ability to attract suitable people into director roles.

Safe drinking water

The need to provide safe, compliant drinking water to all users was reiterated by all stakeholders, and is a legal requirement under the Water Services Act 2021.

Taumata Arowai extended this to express a need to see that the governing bodies of any private drinking water suppliers are equipped with the appropriate expertise and advice to be able to monitor, and identify the key risks affecting their schemes. There is an expectation that any drinking water supplier has the appropriate processes and procedures in place to manage current and future risks and demands.

Animal welfare

The majority of the water produced in Clutha's mixed use rural water scheme is used to feed animals. The welfare of livestock was identified as a critical issue by rural water scheme committees.

In particular rural water scheme committees were concerned about the ability of a future scheme owner being able to provide sufficient quantities of water for livestock, and to rectify network faults quickly enough to ensure there are no negative impacts on animal welfare. This concern was particularly directed toward the Water Service Entity ownership model, where there were concerns that rural needs would not be prioritised.

Local skills

Stakeholders highlighted the value of having local skills, resources and knowledge involved in the operation of the rural water schemes. Schemes in the district are separated by large distances, and have features unique to the topography of the area.

Locally based contractors and scheme operators are essential for ensuring operational responsiveness. Examples were provided where contractors had a lack of local connection or understanding, which resulted in a lack of urgency in resolving issues. Similarly, contractors that are used to dealing with urban reticulation have previously needed to develop new skills to maintain the rural water networks.

Financial and non-financial sustainability

The issue of sustainability was raised by a number of stakeholders. Rural and Government stakeholders both expressed a strong desire for the ownership model to be enduring. That is, a key metric of success would be the ownership model's ability to meet the needs of future generations of its users, and to ensure that decisions regarding ownership of the scheme that are made now are not reversed at a later date.

Schemes must be able to meet all of their future operational and capital funding requirements.

Changes in demand for water, the ability to collect revenue, or changes in the amount of water that is able to be supplied (due to restrictive resource consents, giving effect to Te Mana o te Wai, or from climate change/drought) may have a long term impact on the financial sustainability of a private water supplier. In some parts of Clutha, land use changes (such as conversion to forestry) may have a long term impact on the amount of water required from schemes.

Technical expertise

Rural water schemes in the Clutha district require specialist technical expertise to operate. Drinking water treatment plants employ modern, specialist technology which require trained operators. Treatment plants, include technology such as:

- Coagulation
- Chlorination – via gas or salt production
- UV treatment
- Membrane filtration
- pH correction
- Turbidity monitoring
- SCADA.

We heard that in some cases Clutha District Council has had difficulty finding resources (particularly skilled employees) to operate the treatment plant. In other areas of its business, Clutha District Council has struggled to attract responses for tendered capital works. Attracting skilled contractors may be a challenge for any future water operator in the district, and this was reiterated as a concern from all stakeholder groups.

Issues with attracting expertise are typically addressed by providing works of sufficient scale (or sufficiently small scale) to match the market supply. For example, local contracting businesses may be able to complete maintenance of a small reticulation network but may struggle with a larger network while national or international scale contractors may not consider a small contract as being worth their time. This may impact levels of service and the cost of doing business.

Background of the schemes

Council owns and manages 12 rural water schemes (with Richardson North and South categorised separately) for domestic consumption and drinking water for stock. Each of these schemes is represented by a rural water scheme committee that makes recommendations to Council on the operations/governance and management of their scheme. This section is a summary of the current state of the rural schemes with detailed asset and performance information provided in the appendices.

Figure 1 Map of rural water scheme boundaries (Tuapeka East and West have been combined under a single scheme)

The rural water schemes are Balmoral 1, Balmoral 2, Clydevale-Pomahaka, Glenkenich, Moa Flat, North Bruce, Richardson North, Richardson South, South Bruce, Tuapeka, Waipahi and Wangaloa. Five small urban townships are provided with all of their water in bulk from the rural water schemes. These are Clinton, Waihola, Kaka Point, Stirling, Benhar and Kaitangata. Each of these schemes is more fully described in Appendix B. There are also small rural townships / settlements served by the schemes including Tuapeka Mouth, Waikaka, Pukerau, Heriot and Waitahuna.

There is 2,247km of reticulation pipeline and nine existing water treatment plants across the 12 schemes. The asset metrics for each scheme including the water treatment plant, reticulation pipeline length, population and townships served are detailed in Appendix A.

The rural water schemes were mostly established as stock water schemes in the 1970s and 1980s with support from Government funding. The schemes were required to provide potable water to the drinking water standards at that time as part of funding conditions. Over time they have expanded to provide drinking water to many households, townships, and community facilities (such as halls, schools and churches).

A map showing the scheme boundaries is provided in Figure 1 and shows the vast area that Clutha District covers. To give context of scale, the Clutha District has the third largest roading network in New Zealand.

Customer information

Most of these rural water schemes have restricted supplies to consumers (that is the water is provided at a reduced pressure and is fed directly into water tanks on connected properties), except for Benhar and Stirling which are both on demand schemes. Stirling is also universally metered. As the levels of service for customers on restricted supply is lower than those on urban town supplies, charges are set as being 15% less for urban restricted scheme customers than urban on demand customers.

The district's supplies are categorised as follows (due to the system interconnections between some of the urban and rural water schemes):

- Urban water on demand
- Urban water restricted
- Rural water restricted.

In the field, it has been found that many of the restrictors have been removed or larger holes drilled to improve flow. This impacts the schemes demand as designed based on lower capacity.

Rural water is sold on a "per unit" basis. Each unit sold entitles the unit holder to draw up to 1 cubic metre of water per day, with a "unit" representing the total annual allowance. Water is not metered, and instead a "unit" is based on the amount of capacity that is being purchased, and this is controlled by restrictor valves at the point of connection.

The rural water schemes serve 1,842 urban and 4,860 rural population. The number of rural and urban rated customers (based on units recorded in Council's rating database) is:

- Urban - There are 1,289 units in total for the six urban settlements served by the rural water schemes. Kaitangata is the largest urban settlement at 31% of unit numbers. The main land use types are single unit excluding baches at 67% followed by baches at 13%.
- Rural - There are 18,250 units in total for the rural water schemes including out of district units. The schemes with the highest proposition of units are Moa Flat at 15%, Clydevale-Pomahaka and Richardson at 14% each. The main land use types are stock finishing at 49% and dairy at 31%. It is noted that dairy land use type does not always mean that the water is used for this purpose. In many cases, there is insufficient supply to meet the water needs of a dairy farm.

Two schemes are serving customers located in neighbouring districts. These are:

- Glenkenich Rural Water Scheme is split between Gore and Clutha Districts, with 206 properties (and 982 units) outside the district boundary
- Moa Flat Rural Water Scheme is split between Central Otago and Clutha Districts, with 11 properties (and 259 units).

The number of Customer Service Requests received by Council for rural water schemes is high, with the proportion of service requests for rural water compared to urban water being higher than the proportion of rural water customers. The actual Customer Service Requests numbers for July 2022 for rural water schemes was 137 compared to 170 for urban water schemes and 195 for roading.

The plants serving the rural water schemes produced 8,406,044 m^3 of water in 2021/22 (refer to Appendix G). The largest schemes by water produced were Clydevale-Pomahaka Rural followed by Richardson and Waitahuna.

Network age and condition

Although the rural water schemes were established mainly in the 1970s and 1980s, most of the treatment plants have been or are being upgraded. Based on the most recent asset valuation commissioned by Council and it's asset information, the reticulation and treatment plant assets are estimated as being 62% through their useful life.

The condition of the above ground assets (i.e. treatment plants, reservoirs and pump stations) has not been formally assessed as most are being upgraded. A formal condition assessment is part of the Three Waters Operations and Maintenance Contract but has not been undertaken to date. Through interviewing the Operations and Maintenance Contractor, the following key themes were identified in relation to asset condition and performance:

- Most pump stations are considered in poor condition and overdue for upgrades.
- The Supervisory Control and Data Acquisition is recording data but cannot be reset or controlled remotely due to expired version (or lack of system for some sites), and requires investment.

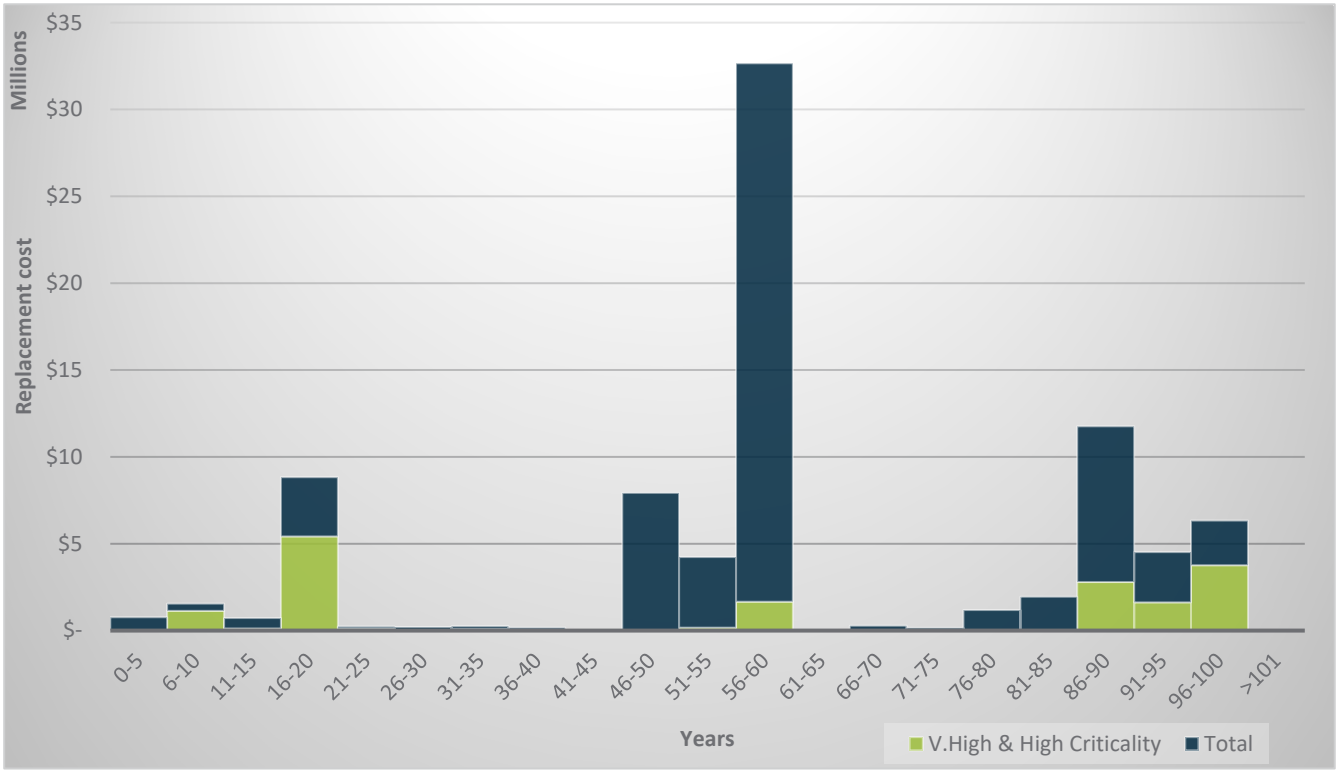
The condition of the reticulation pipeline is generally assessed based on the number of failures, consistent with good industry practice. An independent assessment of the asbestos concrete material pipeline was completed in 2018.

We have considered the future renewals requirements for the reticulation network by reviewing the remaining useful life of reticulation assets. As demonstrated in Figure 2, and Appendix E, asset replacement has three large "spikes" in 16 to 20 years, 46 to 60 years, and 86 to 100 years.

A large number of very high and high criticality assets are due for replacement in 16 to 20 years. While low criticality assets may be able to be "run to fail", high and very high criticality assets must be replaced on or before the end of their useful lives as the consequences of failure are significant.

An asset revaluation for the rural water schemes was completed in 2022, and resulted in a 35% increase in unit rates. Subsequent capital works contracts have been compared to the unit rates from the recent revaluation and have been found to be broadly consistent. A breakdown of asset replacement cost and useful life for each scheme is provided in Appendix E.

Figure 2 Replacement cost of network assets by remaining useful life and criticality across all schemes



Water quality performance

All rural water schemes are chlorinated to ensure public health protection against water borne diseases by killing bacteria. Compliance with the New Zealand Drinking Water Standards is lower for rural compared to urban water schemes but has been improving with the significant investment in plant upgrades. The achievement against the bacteriological compliance was 76% in 2021/22 compared with 64% in 2020/21 (compared to 92% for urban 2020/21). There are currently no rural plants achieving protozoal compliance (compared to 49% for urban).

Council is addressing this non-compliance with treatment plant upgrades underway (refer to Planned Investment Section below). The water treatment plants will be technically compliant with the Drinking Water Standards once the upgrades are completed but ongoing compliance will be dependent on operator competency.

All schemes have existing Water Safety Plans which are currently being updated to meet Taumata Arowai's requirements by the end of November 2022. The only outstanding item for the Water Safety Plans is the development of Source Water Risk Management Plans. This is a new requirement that most councils will take time to prepare and has been identified as an improvement action in their Water Safety Plans.

Taumata Arowai is responsible for developing the regulatory instruments to administer the Water Services Act 2021 and to ensure safe drinking water. New Drinking Water Standards, Drinking Water Quality Assurance Rules, and Aesthetic Values come into effect on 14 November 2022. Aesthetic values specify the minimum or maximum values for substances and other characteristics that relate to the acceptability of drinking water to consumers. The maximum acceptable values for lead and nitrate will likely change in future.

It is possible that over time Drinking Water Standards will change and may result in the introduction of stricter criteria. This may result in additional future costs.

Scheme performance

This section summarises the current scheme performance as measured by mandatory performance measures, resource consents and water leakage.

Mandatory performance measures

The current results in achieving the mandatory performance measures (combined across all rural schemes) for 2020/21 is summarised in Table 1.

Table 1 Achievement of mandatory performance measures (previous MoH standards) (Annual Report 2020/21)

Level of service	Performance measure	Achievement in 2020/21
LOS 1 - Water from council rural schemes is safe to drink	Compliance with Drinking Water Standards (Part 4) – Bacterial Compliance	Not achieved: 64% Three older water treatment plants still require upgrades and this work is underway
	Compliance with Drinking Water Standards (Part 5) – Protozoal Compliance	Not achieved: 100% Same comment as above
LOS 2: Rural schemes provide a continuous and reliable source of water to consumers	Number of drinking water complaints (requests for service) per 1,000 connections about:	
	Clarity	Achieved – 11
	Taste	Achieved – 2
	Odour	Achieved – 2
	Pressure	Not achieved - 221 Contractor performance has improved significantly during 2020 but further improvements in performance and reporting are still needed
	Continuity	Not achieved - 583 Same comment as above
	Council's response to any of these issues	Achieved – 2
LOS 3 - Rural water schemes are managed effectively and efficiently	Median response time (in hours) from notification of fault or unplanned interruption to when personnel reach the site – Urgent	Not achieved – 4 Same comment as above on Contractor performance
	Median response time (in hours) from notification of fault or unplanned interruption to when personnel reach the site – Non urgent	Achieved – 5
	Median response time (in hours) from notification of fault or unplanned interruption to when personnel confirm resolution – Urgent	Not achieved – 26 Same comment as above on Contractor performance
	Median response time (in hours) from notification of fault or unplanned interruption to when personnel confirm resolution – Non urgent	Not achieved – 30 Same comment as above on Contractor performance

Resource consents

The status of abstraction and backwash consents is as follows:

- Of the 11 abstraction consents for the water treatment plants, 2 have expired but consent renewal applications were lodged prior to the expiry date– Moa Flat and North Bruce
- All of the 9 backwash consents for the water treatment plants are current, with the earliest expiry date being 2032.

To give effect to Te Mana o Te Wai, the terms under which resource consents will be granted is likely to become increasingly favoured towards lower abstraction limits and higher water quality objectives for discharges. The conditions relating to backwash consents are likely to become more strict in the future, and there is a high level of risk that further treatment or backwash sludge disposal will be required.

Water leakage

Water leakage was assessed in 2018 as part of the Water Strategy using the following three water performance indicators:

- Infrastructure Leakage Index (ILI) - In the New Zealand context, typically an ILI greater than 3.0 indicates relatively high water losses are occurring. It measures how effectively the infrastructure activities (i.e. responding to leaks, active leakage control) are being managed at the current operating pressure. This is the proven leakage indicator used internationally.
- Real water losses – This relates water losses to consumption as a percentage and can be misleading in some cases. This is a DIA mandatory performance measure that must be reported on by Councils nationally. CDC's 2020/21 target for their urban systems is less than 28%.
- Non-Revenue Water – This is the ratio of water sold (i.e. billed) compared to water supplied (i.e. produced) as a percentage. This is considered a financial and not a water loss indicator.

The water leakage results using these three performance indicators are:

- Infrastructure Leakage Index - Of the rural systems, Clydevale Pomahaka and South Bruce were assessed with a relatively high level of losses (ILIs of 4.2 and 4.4 respectively). Four schemes (Richardson North and South, Tuapeka West and Wangaola) were assessed with moderate levels of losses (between 2.0 and 3.0). The remaining schemes were assessed with low levels of losses (less than 2.0).
- Real water losses – Using CDC's 28% urban target, Clydevale Pomahaka and North Bruce exceeded this at 32% and 29% respectively.
- Non-Revenue Water – It is generally considered that Non-Revenue Water greater than 25% needs proactive management. Clydevale Pomahaka and North Bruce exceeded this at 32% and 30% respectively.

Planned investment

There has been major investment in the rural water schemes particularly to meet the Drinking Water Standards as well as capacity in some cases. The planned investments by each scheme are described in Appendix D. It is expected that once all the planned investments are completed, the water treatment plants will be technically capable of compliance with the Drinking Water Standards but ongoing compliance will be dependent on operator competency.

The new Greenfield Bore scheme is a significant investment with a cost estimate of $19.8 million. The project involves the establishment of a new supply from a bore adjacent to the Clutha River and a single treatment plant. This will replace the Evans Flat and Waitahuna Treatment Plants that had source water issues including reliability and resilience. The new plant will provide water to three rural water schemes (Balmoral 1 and 2, Tuapeka) and Lawrence township, meaning in the future it will be most efficient to manage these three rural water schemes as a single scheme.

Financial information

Rural water supplies in Clutha District are operated under their own cost centres, with all costs allocated to each scheme separately.

There is no deliberate cross-subsidisation between rural schemes, or between rural and urban water schemes. However, the schemes benefit from utilising shared expertise, and from having the requisite scale to be able to employ resources rather than contract asset management work. Additionally, as is common in most businesses, not all time is able to be easily allocated between rural and urban water schemes, and the allocation methodologies used for cost sharing may result in some costs being over or under accounted for each scheme.

Indirect costs and overheads are allocated to each scheme. The methodology for allocating overheads differs between cost items, with costs typically being allocated based on what is considered to be the most appropriate metric/driver (for example finance team costs being allocated based on the number of transactions).

A high level summary of key financial information for each scheme is presented in Appendix F.

Assessment criteria

In later stages, the ownership options will be assessed against a range of criteria to assist future decision making.

The key issues identified through workshops and interviews with stakeholders were translated into assessment criteria that are covered below. We have also provided a definition for each assessment criteria to minimise the risk of ambiguity.

The assessment of each option against the criteria will be through a pass/fail/partial assessment. As the scope of this report does not include making a recommendation around a preferred ownership model, no weightings will be assigned to the criteria.

Table 2 Assessment criteria

Criteria	What we mean
Must deliver clean, safe drinking water that meets the requirements of the Water Services Act	The delivery of safe drinking water is a core requirement of any drinking water supplier and a requirement under the Water Services Act 2021. Failure to comply with that Act may result in criminal penalties being brought against the drinking water supplier or its directors. There is no option to cease providing drinking water to households for the Clutha schemes.
Must comply with health and safety regulations and have appropriate risk management processes in place	A person conducting a business or undertaking must have appropriate risk management processes in place and be able to mitigate, reduce, and manage health and safety risks on network. Scheme owners will have legal responsibility and can't delegate to contractors.
Must be able to access sufficient capital to meet future capital works needs	The schemes should be able to meet all future investment requirements. This means that they should be able to raise debt on acceptable terms or have the ability to raise capital from users (through accumulation of reserves).
Must be financially sustainable and affordable for all consumer groups	Affordability and financial sustainability includes: – Sufficient revenue to cover all operating and debt servicing costs – Sufficient cash flow to service capital (through debt, accumulated reserves or capital contributions) to meet any future investment requirements (particularly those relating to mandatory compliance) – Charges (including capital contributions) that are within the financial means of domestic and rural users – Annual increases in charges being manageable but sufficient to cover operating and capital cash flows – No price shocks.
Must provide for meaningful input from rural water users	Rural water users should continue to get a similar level of input into decision making as they are currently provided. This includes oversight over the number of water units sold on the scheme and the level of future investment made into the scheme.

Criteria	What we mean
Must give effect to Te Mana o te Wai	This means the future drinking water supplier will need to provide opportunities to meaningfully involve tangata whenua including through the development of long term visions for the management of freshwater and management of catchments.
Must be able to respond to and resolve supply issues in a timely manner	Leaks or other events which compromise the supply of water to domestic or rural users must be resolved in a timely manner, according to the level of service expectation of the users.
Must be able to attract and retain appropriate expertise for the management of the treatment plant operations	It is essential that appropriately skilled staff for the operation of water treatment plants are able to be employed.
Must be able to attract and retain appropriate expertise for the management of the water network operations	The reticulated network covers a large area and local, responsive contractors are likely to be needed to be able to maintain the network effectively.
Must have, use and maintain appropriate risk management and asset management practices in place	A drinking water supplier must have risk management practices that are able to effectively identify, mitigate and monitor relevant risks associated with the supply of drinking water. Asset management practices need to be in place to minimise the risk of failure and to optimise useful lives for financial sustainability. Processes need to be in place to identify, prioritise and plan future replacements and upgrades to infrastructure.
Must treat agricultural and drinking water users with equal importance	Clean drinking water is a basic human necessity, and contamination of water can cause widespread illness. The supply of water to farms is also critical for animal welfare. Rural water users are heavily reliant on rural water schemes to provide clean drinking water for livestock.
Must be able to respond to risk from natural and environmental hazards	The schemes must have the financial resilience to be able to respond to natural and environmental hazards including drought, and earthquakes.
Should be a scalable model	Any future ownership model should be able to be scaled to include more schemes under the same ownership structure.
Must have clear level of service expectations for agricultural water use and be accountable for performance against those levels of service	The supply of water to rural properties is different to the supply of water to non-rural properties. The future water supplier should have clear levels of service that are specific to, and are developed in consultation with, rural users in addition to levels of service for a broader population.
Must provide for consumer protection and dispute resolution	Domestic water users must be provided with sufficient protection mechanisms to ensure that: – Their water is affordable – They are receiving an acceptable quality and quantity of water – They are receiving an acceptable level of service – They are able to resolve disputes with the water supplier impartially and at low cost to the consumer

Criteria	What we mean
Should be administratively efficient and easy to deal with	Processes to lodge complaints, register faults, and provide rural scheme user input should be simple, clear and affective. A private scheme should be easy to run with minimal corporate overheads.
Should be able to respond to growth and allow for new connections	While Clutha District is not expected to grow significantly in the future, the district has experienced modest levels of growth in the past. Any future scheme owner should have the processes in place to work with Council and to meet future water demand and growth needs.

The assessment of each option against criteria will be completed by Morrison Low as part of a desktop review process, and challenged in a workshop with rural water scheme committee chairs, and subsequently through discussions with other key stakeholders. While options will be assessed as meeting, partially meeting, or failing a criteria, rationale for the score will also be provided.

Ownership models

This review considers the relative performance of different ownership models against a range of assessment criteria that have been developed through engagement with stakeholders. In order to determine how different options may perform against that criteria, we have first defined the key differences between potential ownership models.

Three waters reform is predicated on water infrastructure and operations throughout the country being combined into four water services entities. The users of the 12 Clutha rural water schemes have been given the opportunity to own the 12 schemes themselves. If they elect to own the schemes then they will not be transferred to Waster Services Entity D. If they do not wish to own the schemes then they will be transferred to Water Services Entity D, so there are effectively only two future ownership models, being private ownership by the users or ownership by the Water Service Entity. However, subsets of the private ownership model (such as different groupings of schemes) also exist and may impact performance against the assessment criteria.

The key differences and features of a private ownership model are compared with those of the water services entity in the table below.

Table 3 Private ownership compared with water services entity

Feature	Private model	Entity model
Role for rural water users	A private ownership model would see collective ownership of the schemes by its users. This would enable a high level of representation from rural water users, and could include specific provisions for the proportion of representatives from each user group.	There are no specific legal provisions for the inclusion of a "rural advisory group" or other governance body. Provision for sub regional advisory groups within the Water Services Entities Bill would allow for a rural representation. Such groups require co-governance with tangata whenua.
Liability	Directors of a drinking water supplier will have significant obligations under the Water Services Act 2021. As long as these obligations are met, the risk of legal action (including penalty or criminal prosecution) should be able to be managed to an acceptable level.	Rural water users input would not be attached to any formal or legal decision making rights. Any obligations under the Water Services Act 2021 would apply only to the water entity and its directors, and would not extend to rural water users. Directors of a water services entity have the same full legal obligations and liabilities under the Water Services Act 2021 as directors of private schemes.
Consumer protection and economic regulation	The private ownership model is not likely to be subject to economic regulation and may not be legally required to be a member of a disputes resolution schemes.	The Water Services Entity will be subject to full economic regulation, and consumer protection. The Water Services Entity will also be required to be a member of a disputes resolution scheme.

Feature	Private model	Entity model
	There will be no explicit consumer protection, although as a user owned scheme there is likely to be some level of inherent consumer protection/focus.	
Property access	There are currently no/few easements associated with rural water reticulation. Access to work on the network is currently through the Public Works Act provisions which will not be transferred to a private entity. A private entity will need to address access provisions through gaining easements, or through contractual supply agreements or shareholding/membership agreements.	The Water Services Entities will inherit property access rights under the Public Works Act to enable them to access network infrastructure that is situated on private land.
Ability to collect/enforce debt	Under a private model, the supply of water will be through a contractual relationship with its customers. While the private supplier will be able to reduce the amount of water that it supplies, it will not be able to cease supplying water entirely. Unlike a council, a private water scheme is not able to put a lien over customers properties.	Customer charters and contracts are set up and enforceable, similar to the arrangements at Watercare Services. A Customer Contract is an agreement between the customer and the water supplier. It sets out the terms under which the water supplier provides water services to the customer, the customer's obligation to pay for these services, and other rights and obligations including the customer's rights in any dispute with the water supplier.
Role for Māori/Iwi	A private water supplier is not required to have any minimum level of Māori/Iwi representation in its governing board. It will be required to involve tangata whenua as part of meeting its Te Mana o te Wai obligations.	Water Services Entities will be required to have equal representation on the regional representative group from councils and Māori/Iwi. Sub regional advisory groups that are created within the water services entity are also required to have equal representation from Māori/Iwi. Māori/Iwi will prepare Te Mana o te Wai statements which must be complied with.

Feature	Private model	Entity model
Ability to access capital/finance	A private water supplier will need to access capital – debt and/or equity. Debt finance will be on commercial terms from a bank or other institutional lenders. The terms of that debt (including minimum equity requirements and interest rate) are likely to be less favourable than they are through council or a water services entity.	Water services entities could have high credit rating (AA), and will be able to borrow through large bond issues to market, or through the Local Government Funding Agency at favourable interest rates. The Government will provide some support for debt, and the entities will be able to be highly leverage.

In developing private ownership options, we have considered the resourcing that may be required for private ownership models of different scales. These include:

- Models that don't supply drinking water.
- Each scheme managed/owned individually.
- Small schemes, serving between 2 – 3 of the schemes currently in Clutha. A combination of schemes would still make such a private scheme one of the largest private water suppliers in New Zealand.
- A single district wide model which would be a very large private water supplier in the New Zealand context.

The key roles, responsibilities and functions of a drinking water supplier are outlined in the table below. In preparing the table, we have considered whether certain functions could be contracted, and the level of specialist skills that may be required. Functions that are identified as being able to be outsourced could also be managed by internally appointed staff. However in some cases, the scale of the drinking water supplier may not be large enough to do so efficiently.

Table 4 Ownership

Function	Function entails	Stock water only	Single schemes or small grouping of schemes	A single district-wide private ownership model
Governance	Risk management, liaison with regulators, Ngāi Tahu, set strategic direction and monitor strategic execution, accountable to owners and customers for performance, accountable for regulatory and statutory compliance.	Dedicated	Dedicated	Dedicated

Function	Function entails	Stock water only	Single schemes or small grouping of schemes	A single district-wide private ownership model
Management	General management, working with regulators, Council.	Part time/shared	Full time	Full time
Business and financial planning	Set charges, budgets, business plans, etc.	Part time/shared	Part time	Full time
Strategic asset management	Long term investment planning, growth planning, Te Mana o te Wai, Asset Management Plan.	Outsource	Outsource	Outsource
Asset management planning and maintenance	Renewals planning, BAU fault detection, maintenance, condition monitoring, monitoring contractor performance.	Outsource	Part time/shared	Full time
Regulatory monitoring	Taumata Arowai, economic regulator, regional councils, compliance monitoring and reporting.	Only with regional council	Part time/shared	Full time
Treatment plant operation, maintenance, and automation	Specialist plant operations, quality monitoring, Water Safety Plans, consent compliance.	N/A	Outsource	Outsource
Network operation, maintenance, and automation	Pipes, meters, restrictors, delivery, and incident management.	Outsource	Outsource	Outsource
Capital works project management	Identify needed works, planning, procurement and project management.	Part time	Part time/shared	Possibly full time
Support functions	HR, legal, accounts, billing, community engagement, customer service.	Outsource	Part time	Full time

To provide a sense of the private water supplier resourcing that would be needed to operate, maintain, and govern a scheme at an effective level of service to meet the legal obligations of water stewardship and supply under the Water Services Act, the following functions would need to be resourced.

1. customer support function
2. operational function
3. planning and reporting function
4. project delivery function
5. business support function
6. governance function

An effective level of service means for the most part meeting the standards required for quantity and quality, and if unable to, communicating that to stakeholders in a timely manner. On occasion, primarily due to issues arising simultaneously at multiple treatment plants and/or within the network, it can be expected that quantity or quality of supply may be impacted.

Achieving a 24/7 level of service would require a significant investment due to the cost of afterhours resourcing, or enough resources to address issues simultaneously, so that is not considered in the resource approach outlined below, however the resourcing does reflect an a predominantly reactional operational environment. Over time, if the infrastructure is renewed, operational teams can transition from a reactive to a planned work environment and can contribute to the infrastructure improvement workstream (specifically their knowledge is needed for safety in design and hazard and operability). If the operational work environment is not transformed from reactive to planned, without ever increasing the number of staff, operations will not be able to keep up with service requests, and customer expectations will not be met.

For a single privately owned scheme such as North Bruce, the approximate size of the functions would be:

Table 5 Single scheme model

Function	Tasks	Type of Role Suitable for Single scheme	Number of Roles	Notes
Customer Support	Record customer enquiries in asset management system, obtain information from operations, and respond to customer enquiries. Stakeholder engagement and communication and logistics for annual general meeting.	Water Supply Manager	1 (Full time)	During emergencies the Manager would need to assist with logistics and to be the primary lead for communications to stakeholders.
Operational	Inspect, calibrate and (if appropriately skilled maintain) assets. Obtain water samples. Input information into asset management system.	Water Operating Technician Skilled Trades (Electrical, Mechanical, Automation)	2 (Full time) Outsource skilled trades to preferred contractors	Operating resources need to factor in a rostered approach to ensure availability during sickness and annual leave and after emergency events which result in fatigue. The greatest fatigue risk to technicians is driving between locations.

Function	Tasks	Type of Role Suitable for Single scheme	Number of Roles	Notes
				The treatment plant operators are specialist and reticulation infrastructure are semi-specialist.
Planning and Reporting	Collate operational, asset and project delivery data within the asset management system. Plan and direct the day to day, annual, three year and longer-term asset management activities. Reporting of data to stakeholders out from the asset management system.	Asset Planning and Report Lead	1 (Full time)	Reporting on all areas of business, including compliance data, Worksafe, Taumata Arowai, consents, asset management plan, water safety plan, annual operating/business plan.
Project Delivery	Procure replacement assets. Integrate with planning function and manage the physical installation of renewals (like for like) with minimal impact to level of service and ongoing operations. Manage design and delivery process where level of service is being lifted (upgrades). Manage operational training for any changes made to existing assets. Input information into asset management system.	Project Manager	1 (Part time) Could be outsourced	Over time, if the infrastructure is renewed, operational teams can transition from a reactive to a planned work environment and can contribute to the infrastructure improvement. The scale of this function would be dependent on what delivery is possible not what investment is available. It can be difficult to deliver renewals and upgrades if most of the operational work is reactional, since the operational team is focused on keeping the service "on", and are not available to input to safety in design or hazard and operability, and when renewals or upgrades by their nature require an interruption to service. Treatments plants require specialist engineering (such as process engineer) and reticulation infrastructure is semi-specialist (civil engineering)

Function	Tasks	Type of Role Suitable for Single scheme	Number of Roles	Notes
Business Support	Traditional skills of Health & Safety, Finance, HR, IT to support all other functions.	See Water Supply Manager with outsourced support		
Governance	Set strategic direction of planning function to achieve outcomes. Accountable for meeting all legal outcomes.	Chairman of Board, Director of Board	2 (Part time)	

A privately owned joint scheme such as a combination of Moa Flat, Glenkenich and Waipahi would need the resources allocated/ increased to the level noted.

1. Customer support function, expect a higher number of calls, Water Supply Manager should still be able to accommodate, but if not consider adding 0.5 FTE.
2. Operational function, at this scale and at the complexity of the upgraded treatment plant facilities, there would need to be up to 4 operating technicians, one of whom would fulfil a team leader function to manage the capability development of staff and to work with the planning function on staff time forecasting.
3. Planning and reporting function, planning, and reporting function, at this scale a dedicated function with 1.5 FTE.
4. Project delivery function, the scale of this function would be dependent on what delivery is possible. It can be difficult to get into the planned delivery space if most of the operational work is reactional.
5. Business support function, increase outsourced support, at this scale basic systems and tools are needed to standardize workflow and preserve efficiency are critical.
6. Governance function, maintain at 2 FTE.

A privately owned combination of all 12 schemes would need the resources increased to the level noted.

1. Customer support function, at this scale this would be a dedicated function of 1FTE.
2. Operational function, at this scale and at the complexity of the upgraded treatment plant facilities there would need to be up to 11 FTE's, one who is a dedicated team leader to manage the staff, and to work with the planning function on staff time forecasting and two who would fulfil senior operating technician roles.
3. Planning and reporting function, at this scale a dedicated function with 2.5 FTE.
4. Project delivery function, the scale of this function would be dependent on what delivery is possible. It can be difficult to get into the planned delivery space if most of the operational work is reactional.
5. Business support function, this would need to be scaled up to support the increase in staff, and at this scale the systems and tools are needed to standardize workflow and preserve efficiency are critical.
6. Governance function, increase to 3 FTE.

From site visits, and review of network maps and technical information, we note that there are a number of potential ownership arrangements for specific assets or service delivery options may result in different arrangements for the supply area of some rural water schemes. These are described below:

- The townships of Kaka Point, Clinton, and Waihola are currently provided with bulk drinking water from a rural water supply scheme. These townships are also connected to municipal wastewater treatment which will be transferred to the new water services entity. Given current arrangements, it would be possible for the rural water scheme owner to contract to the water services entity to provide bulk treated (or untreated) water to the township's reservoirs, and for the supply of water within the township to be transferred to the new entity. However the Water Services Entity may still have residual catchment risk mitigation responsibilities which may be difficult to navigate under this arrangement.
- The Kaitangata, Stirling and Benhar rural water schemes are provided water from a treatment plant which also provides water directly to townships. In this case, the treatment plant operations and ownership could be transferred to the water services entity, who could then sell bulk treated water to the rural water supply scheme.
- There are some rural water schemes that are geographically inclined to be able to work together under a joint ownership model. These include Moa Flat, Glenkenich and Waipahi, which may also be able to work with the Otama scheme (situated in Gore), or similar arrangements.

Conclusion

There are two ownership options:

- The water services entity model
- Private ownership.

There are a number of sub-options under private ownership involving different combinations of schemes:

- Individual schemes
- Small groupings (2 - 4) of schemes
- A single private ownership.

While it was identified that some urban townships that are currently provided with bulk water from rural supplies could, from a technical feasibility perspective, remain with the water services entity, this has generally been ruled out because:

- The private scheme would continue to hold the water quality risk unless it entered into an agreement to provide raw water. The addition of further treatment of water at reservoirs providing urban townships would be inefficient. Under an agreement to provide raw water, the rural water schemes would not be able to recover the treatment costs for water supplied.
- The water services entity would have no control over the source of its water, and therefore may not be willing to accept risk relating to the provision of a sufficient quantity of supply to urban townships.
- The water services entity would still retain residual catchment and water source management responsibilities.

For this reason, all schemes are assumed to include urban township supplies, with the exception of the Wangaloa and South Bruce schemes, which are connected to the urban water treatment plants of Kaitangata and Stirling respectively.

Assessment of options

Assessment of each option against the assessment criteria was undertaken in two stages:

- A desktop assessment was undertaken by Morrison Low drawing on feedback received through workshops, interviews with stakeholders, our benchmarking exercise, and drawing on our industry knowledge and water reform experience
- A challenge workshop was held with rural scheme committee chairs on 11 November 2022, during which rural water scheme committee chairs were encouraged to challenge the desktop scoring assessment and provide potential remedies to address failure against criteria.

The results of the assessment for the remaining options are highlighted in Table 6 below. More detail regarding the assessment is presented in Appendix I.

Table 6 Summary of assessment

Criteria	Water Services Entity	Individual ownership	Small groups	Single private entity
Must deliver clean, safe drinking water that meets the requirements of the Water Services Act	Pass	Pass	Pass	Pass
Must comply with health and safety regulations and have appropriate risk management processes in place	Pass	Partial	Partial	Partial
Must be able to access sufficient capital to meet future capital works needs	Pass	Fail	Fail	Fail
Must be financially sustainable and affordable for all consumer groups	Partial	Partial	Partial	Partial
Must provide for meaningful input from rural water users	Fail	Pass	Pass	Pass
Must give effect to Te Mana o te Wai	Pass	Pass	Pass	Pass
Must be able to respond to and resolve supply issues in a timely manner	Pass	Partial	Partial	Pass
Must be able to attract and retain appropriate expertise for the management of the treatment plant operations	Pass	Fail	Partial	Partial
Must be able to attract and retain appropriate expertise for the management of the water network operations	Pass	Partial	Pass	Pass
Must have, use and maintain appropriate risk management and asset management practices in place	Pass	Fail	Partial	Partial
Must treat agricultural and drinking water uses with equal importance	Fail	Fail	Fail	Fail

Criteria	Water Services Entity	Individual ownership	Small groups	Single private entity
Must be able to respond to risk from natural and environmental hazards[1]	Partial	Partial	Partial	Partial
Should be a scalable model	Pass	Partial	Partial	Partial
Must have clear level of service expectations for agricultural water use and be accountable for performance against those levels of service	Fail	Pass	Pass	Pass
Must provide for consumer protection and dispute resolution	Partial	Partial	Partial	Partial
Should be administratively efficient and easy to deal with	Partial	Partial	Partial	Partial
Should be able to respond to growth and allow for new connections	Pass	Partial	Partial	Partial

Options scored a fail against the assessment criteria for the following reasons:

- The Water Services Entity model failed against the criteria to provide for meaningful input from rural users based on currently drafted legislation. This scoring would be considered a pass if there were legal mechanisms to require levels of service to be established for agricultural use, and clear governance and management interfaces.
- Individual ownership failed against the criteria to attract and retain skilled treatment plant operators due to the scale of the model and complexity of treatment processes.
- All the private ownership models failed against the criteria to raise sufficient capital due to the significant upfront capital required. There is also a risk that capital works requirements are larger than currently estimated and raising capital for these unexpected costs may be challenging.
- The individual ownership model failed against the criteria for having risk and asset management processes due to challenges with scale and access to knowledge and skills.
- All options failed against the criteria to treat agricultural and drinking water uses of water equally. The water services entity model would pass this criteria with further clear commitments towards agricultural uses. The private ownership models could improve to a partial if they provide mechanisms to ensure township users are represented at a governance level and through clear supply agreement provisions.
- The water services entity model fails the clear level of service expectation for agricultural water use criteria as there is currently no legislative mechanism to require this.

[1] The entity will be able to access government assistance up to 60% of the cost of repairing damage to essential infrastrcuture under the Civil Defence and Emergency Management arrangements so will be materially better off financially

Financial modelling

Financial models were built for each of the individual schemes, as well as models for different groups of schemes, and a single ownership model.

These are bottom-up models that relies on operations and maintenance, chemical, and electrical costs from Council. These represent actual expected costs for operating and maintaining each scheme. While these costs have been used without adjustment, it is noted that rural schemes do not have the same scale as Council, and this will likely impact contracted rates.

Our modelling also includes additional costs for paid directors and a water supply manager who will have day to day responsibility for the schemes.

In some cases our modelling has relied on existing operating costs and budgets set based on the current technology in treatment plants. For the Greenfield bore scheme, Glenkenich, and the Moa Flat schemes, recent upgrades are either not complete or not operational and these may result in different operating costs (expected to be higher based on other completed plants nationally).

Importantly, the modelling is focussed on the key output being a unit rate. To reach this, the modelling assumes:

- Cash or cash equivalents cannot reduce below the working capital requirement and will set charges accordingly
- Schemes will borrow to fund renewals and capital upgrades
- Schemes will fully fund depreciation and will apply cash surpluses towards repayment of debt/funding annual capital works requirements.

If schemes make decisions to reduce their unit rates, this may have an impact on the ability to borrow or raise capital.

The results of the modelling, on forecast unit rate[2], are presented below (to be completed following finalisation of financial model).

Table 7 Financial modelling results (TBC)

Scheme	Unit rate 2025	Unit rate 2039	Unit rate 2052
Greenfield bore			
Clydevale-Pomahaka			
Glenkenich			
Moa Flat			
North Bruce			

[2] Unit rates are expressed in real dollars (2022/23 dollars).

Scheme	Unit rate 2025	Unit rate 2039	Unit rate 2052
Richardson			
South Bruce			
Waipahi			
Wangaloa			

In addition to the impact on unit rates, our initial draft financial modelling also identified that:

- Schemes are not currently fully funding depreciation, and with a recent increase in unit rates of 35%, the impact of fully funding depreciation results in a significant uplift in unit rates.
- The cost of debt is a major driver of operating costs and unit rates. Under a private ownership model, the debt cost is almost three time more than it currently is through Council. For the Greenfield bore scheme, interest costs account for almost half of the total operating cost.
- The addition of a management and governance structure results in higher unit rates particularly for schemes that have a small number of units sold.
- While affordability is subjective, for some individual schemes our initial (draft) financial modelling has indicated unit rates doubling within 2 – 3 years of privatisation.
- For the Greenfield bore scheme in particular, the initial debt position is not likely to be viable. The scheme is likely to inherit approximately $20 million of debt on day one of privatisation. We consider it is likely to be very challenging for a scheme to be able to get external finance to cover this initial debt outlay.
- At the unit rates provided, all schemes are able to reduce their borrowing over time based on our initial capital expenditure projections. In our view based on our initial draft modelling, annual ongoing borrowing requirements are likely to be achievable (this may change as capital expenditure projections and modelling are refined).

The detailed modelling assumptions are outlined in Appendix H.

Water services entity

Currently no detailed price path modelling has been completed that can be used to determine what unit rates for rural water may be under a water services entity model. However, based on three waters reform information published by DIA to date, and the overarching policy objectives of three waters reform, we would expect that the following principles may apply in setting prices for rural water:

- The existing tariff structure are likely to remain for a few years while the new water services entity model "beds in". Over time, these are likely to be transitioned towards a geographical averaging type approach
- There will not be cross subsidisation between the three waters, or between different user groups

- Water services entities are likely to have different charges for bulk water, as many costs are fixed and not related to volume
- Users that receive different levels of service will likely be charged a different rate (i.e. farms on a trickle feed won't get charged the same as someone with on-demand water).

We also note that the current amount of water revenue collected by Clutha per water connection is higher than the average amount across Entity D. While Clutha's mixed use rural water schemes have a lot of variation in terms of water charges, this suggests that geographical averaging may be generally beneficial for water users in Clutha.

Appendix A Current state – scheme asset metrics

Table 8 Summary of scheme asset metrics (Asset Valuation 2022)

Scheme	Rural population served	Urban population served [4]	Treatment Plant	Urban townships served	Rural townships served	Reticulation length (km)
Balmoral 1	247	0	Waitahuna	NA	Tuapeka Mouth	91
Balmoral 2	399	0	Waitahuna	NA	NA	203
Clydevale / Pomahaka	493	285	Clydevale Bore	Clinton	NA	113
Glenkenich	705	0	Glenkenich	NA	Waikaka and Pukerau	270
Moa Flat	534	0	Moa Flat	NA	Heriot (rural)	249
North Bruce	658	270	North Bruce	Waihola	NA	385
Richardson – north	312	0	Whitelea Road	NA	NA	86

[3] This is the population that is connected to the rural water scheme outside of the urban townships. All connections are assumed to include drinking water use
[4] This is the population served by an Urban Restricted water supply that is provided with bulk water by the relevant rural water scheme

Scheme	Rural population served	Urban population served [4]	Treatment Plant	Urban townships served	Rural townships served	Reticulation length (km)
Richardson – south	469	222	Puerua	Kaka Point	NA	178
South Bruce	434 Plus 303 in Stirling Township supplied by treatment plant	303	Stirling	Stirling and Benhar both on demand	NA	95
Tuapeka	276- east 283 – west	0	Waitahuna and Evans Flat pump station	NA	Waitahuna	110 – east 141 – west
Waipahi	NA	NA	NA – stock water only	NA	NA	47
Wangaloa	50	762	Kaitangata	Kaitangata	NA	53

Appendix B Scheme description

Table 9 Scheme description

Rural Water Scheme	Scheme description
Balmoral 1	The Balmoral 1 scheme was commissioned in 1974 primarily to meet the needs of the farming community for stock water. Water for Balmoral 1 RWS is purchased from the Waitahuna Water Treatment Plant and it shares a rising main and reservoir in common with Tuapeka (East) RWS. The scheme is bounded in the southeast by Waitahuna River, in the west by the Clutha River, in the north west by the Tuapeka River and the north east by a line approximately parallel with the old boundary line between the Bruce and Tuapeka Counties. 688 units are sold to 68 rural properties. The scheme also serves the rural town of Tuapeka Mouth. The reticulation comprises gravity mains from the Cairn Road reservoir (there are a few customers before this reservoir). There is approximately 91km of pipe reticulation. The Waitahuna Water Treatment Plant was commissioned in 1975 and is located adjacent to the Waitahuna River at the end of McCulloch Road. The sole source of water is the Waitahuna River which is a tributary of the Clutha River. The river drains a rural hill catchment of pasture, tussock and pine plantation. The plant's operational water sources are surface water, treated and chlorinated. Balmoral 1 and 2, and Tuapeka Schemes will form part of the proposed new Greenfield Bore scheme and Waitahuna Water Treatment Plant will be decommissioned.
Balmoral 2	The Balmoral 2 scheme was commissioned in 1974 primarily to meet the needs of the farming community for stock water. Water for Balmoral 2 RWS is purchased from the Waitahuna Water Treatment Plant. The scheme is bounded in the northeast by Mount Stuart and the southeast by a line approximately parallel with the old boundary line between the Bruce and Tuapeka Counties. 1,571 units are sold to 130 rural properties. There is approximately 203km of pipe reticulation.
Clydevale / Pomahaka	The Clydevale-Pomahaka RWS was commissioned with a new source in 2007, after the amalgamation of the Clydevale RWS (commissioned 1973) and the Pomahaka RWS (commissioned 1971). Both schemes were commissioned primarily to meet the needs of the farming community for stock water. The scheme supplies water to the area covering the Clydevale district (bounded by the Clutha and Pomahaka Rivers, and Back Stream, and the old Pomahaka area). The scheme provides bulk supply of water to the Clinton township. 2,521 units are sold to 183 rural properties. The reticulation comprises rising mains from bore pumps and six booster pump installations which supply the higher ground. There is approximately 113km of pipe reticulation. The sole source of water for the Clydevale-Pomahaka RWS is a bore field which is located back from the river's edge on the true left bank of the Clutha River immediately downstream of the Clydevale Bridge.

Rural Water Scheme	Scheme description
Glenkenich	The Glenkenich RWS was commissioned in 1979 to meet the needs of the farming community for stock water. It also provides domestic supply to the small rural communities of Pukerau and Waikaka. The original WTP was built in mid to late 1970s; the existing building is aged and is not considered fit for purpose. The plant currently uses surface water which is treated and chlorinated. It is split between Clutha and Gore districts. Source water from the Pomahaka River has tannin issues and the river also floods up to 3m. A new $3.4 million membrane water treatment plant is currently being built at the WTP. 2,048 units are sold to 310 rural properties. There is approximately 270km of pipe reticulation.
Moa Flat	The Moa Flat RWS was commissioned in 1983 primarily to meet the needs of the farming community for stock water. The scheme draws its water from Timber Creek in the eastern headwaters of the Pomahaka catchment. It also provides domestic supply to the rural community of Heriot. 2,660 units are sold to 214 rural properties. There is approximately 249km of pipe reticulation. The reticulation comprises gravity reticulation mains coupled with rising mains from the six booster pumps installations. The source of water for the Moa Flat RWS is Timber Creek. It is a small upland stream whose catchment is largely covered in tussock, the catchment is protected, and stock is excluded. DOC own land above the water source, and in the vicinity of the intake, the river has a bed substrate of bedrock and boulders. The plant currently uses surface water which is treated and chlorinated. A small proportion of the scheme is located in the Central Otago District. The raw water pipeline to the WTP consists of 17km of 200mm asbestos cement pipe. 4WD access is required all year round and there can be access issues in winter due to snow. The impoundment pond has 120 days storage as back up if the raw water pipeline fails.
North Bruce	The North Bruce RWS was commissioned in 1981 primarily to meet the needs of the farming community for stock water. Water is also provided for domestic consumption to the urban communities within the area of supply. It supplies treated water to the township of Waihola. 1,942 units are sold to 379 rural properties. The scheme is at capacity. There is approximately 385km of pipe reticulation. The raw water supply for North Bruce Scheme is from the Meggat Burn Catchment. The Meggat Burn (tributary of Waipori and lower Taieri River) is a small river which runs through the hill country of Berwick forest. This catchment can generally be described as mid highland, is privately owned, and largely covered in pine forest. The WTP currently uses surface water which is treated and chlorinated. There is raw water impoundment with about 7 days buffer if the pipe breaks. There are major land use changes in the scheme area. Calder Stewart is planting a new forest next to the WTP on arable farming fields. Further, there are filter backwash ponds located on the land that is being converted to forestry.

Rural Water Scheme	Scheme description
Richardson – north	The Richardson North RWS was established in 1981 to supply water for farms, stock, and rural domestic consumption. The scheme supplies treated water to the areas of Clifton, Kaihiku, Te Houka, portions of Warepa District and Kakapuaka. The plant currently uses surface water, treated and chlorinated for its own operations. There is approximately 86km of pipe reticulation for the Richardson North RWS. The reticulation of Richardson North RWS is comprised of rising mains from the high lift pumps at the treatment plant to the main reservoirs. The source of water for Richardson North RWS comes from the Clutha River / Mata-Au Catchment. The Clutha Catchment has three main areas, the alpine, sub-alpine, and a central block of moderately high mountains and rolling country of the lower river including the delta lands.
Richardson – south	The Richardson South RWS is supplied from the Puerua Treatment Plant, which draws from the Puerua River, and supplies Puerua, Warepa, Romahapa, Paretai districts and Telford. Richardson South supplies water to the township of Kaka Point. Water source is the Puerua River which is relatively small and has coloured water. The scheme has taste and odour issues in the summer months. The Richardson RWS comprises two separate, self contained components – Richardson (North) and Richardson (South). In total 2,558 units are sold to 292 rural properties. There is approximately 178km of pipe reticulation. The reticulations comprise rising mains to various reservoirs with five booster pumps supplying additional reservoirs and reticulation sections. Gravity mains then service the remaining reticulation. The Puerua River catchment has a diverse, mixed use rural catchment that includes forestry blocks, native bushland and farmland. The treatment plant is located on the Puerua Valley Rd on the true right bank of the Puerua River, approximately 3km south of Puerua Church Rd. The Puerua Treatment Plant was originally built in mid to late 1970s. It currently uses surface water, treated, and chlorinated water for its own operations. The Puerua Treatment Plant is being upgraded for taste and odour and to meet DWS. The WTP is capable of being compliant, and ongoing compliance is dependent on operator competency. Kaka Point ran out of water in the 2021/2022 summer, Filtec are scoping improvements to address these capacity issues.
South Bruce	Stirling Water Treatment Plant was built in 1983, the plant uses surface water which is treated and chlorinated. Stirling township's reservoir is supplied by the Stirling Treatment Plant but is not part of the scheme. The plant is capable of meeting DWS and includes UV treatment. The raw water source is the Clutha River. The water intake was moved from the riverbank to bridge pier to achieve a better run of the river water. The towns of Stirling and Benhar have on demand water supply, Stirling is also fully metered. About 15% of the water is used by the urban townships and 85% by rural users. Stirling township could connect to the Balclutha urban water supply system and therefore separate the rural and urban functions for this scheme. There is approximately 95km of pipe reticulation. This is a dairy farm scheme designed for water usage of 450 L/ha/day.

Rural Water Scheme	Scheme description
Tuapeka	The Tuapeka RWS was commissioned in 1976 (and opened in 1977). The scheme comprises two separate, self-contained components – Tuapeka West, which is supplied from its WTP at Evans Flat, and Tuapeka East, which purchases its water from the Waitahuna WTP. The scheme has 1,613 units that are sold to 186 rural properties. There is approximately 110km of pipe reticulation at Tuapeka East, and approximately 141km of pipe reticulation at Tuapeka West. Tuapeka East comprises two reticulation networks, one supplied via Cairn Road Reservoir and the other via Scrubby Booster. Both of these networks are supplied with treated water purchased from the Waitahuna Water Treatment plant and are interrelated to the Balmoral 1 RWS. The Tuapeka West reticulation network is supplied with treated water from the scheme's Evans Flat Water Treatment Plant. The plant currently uses surface water which is treated and chlorinated. The Tuapeka Scheme is supplied by Waitahuna Water Treatment Plant and Evans Flat Pump Station (basic). There is a permanent boil water notice in place for Evans Flat.
Waipahi	The Waipahi Stock Water Scheme was commissioned in 2009. The Waipahi scheme borders the Council's Glenkenich Rural Water Scheme to the northwest, and the Clydevale Pomahaka scheme to the east. There is approximately 47km of pipe reticulation.
Wangaloa	The Wangaloa RWS was commissioned in 1979. Water for Wangaloa RWS is purchased from the Kaitangata WTP. The raw water supply comes from the Clutha River catchment. Much of the catchment is in private ownership. The Lake Tuakitoto catchment and lower drainage channels from the Stirling area enter the Clutha River above the Kaitangata intake. 420 units are sold to 20 rural properties. There is approximately 53km of pipe reticulation. Kaitangata Water Treatment Plant was originally built in 1964 to service the urban township of Kaitangata. Wangaola rural scheme was originally serviced by a pumping shed then and basic WTP abandoned and joined urban Kaitangata Water Treatment Plant. The old WTP is now a pumping shed. The plant currently uses surface water, treated and chlorinated for its own operations. The water is fluoridated, the plant is capable of meeting the DWS and includes UV treatment. The scheme is predominantly dairy supply and could easily be split by urban and rural users. The urban Kaitangata Water Treatment Plant would then become a bulk supplier to the Wangaola rural scheme.

Appendix C Water quality performance

Note that performance against the drinking water standards below refers to the 2018 revision to the Drinking Water Standards for New Zealand 2005. New standards were set under the Water Services (Drinking Water Standards for New Zealand) Regulations 2022 and come into effect in November 2022. The new standards do not differ for bacteriological and protozoal compliance.

Table 10 Drinking Water Quality Results for 2021/22 (CDC as at 2 November 2022)

Scheme	Population served (estimated)	Compliance with DWS – bacterial	Compliance with DWS – protozoal
Balmoral 1	247	Not met	Not met
Balmoral 2	399	Not met	Not met
Clydevale / Pomahaka	550	Met	Not met
Glenkenich	705	Met	Not met
Moa Flat	534	Met	Not met
North Bruce	658	Met	Not met
Richardson North	312	Met	Not met
Richardson South	469	Met	
South Bruce	434	Met	Not met
Tuapeka – east	276	Not met	Not met
Tuapeka – west	238	Not met	Not met
Waipahi	NA – stockwater only		
Wangaloa – supplied by Kaitangata Treatment Plant (812 population)	50	Met	Not met

Appendix D Current state – planned investments

Table 11 Planned investment

Scheme	Planned investment
Balmoral 1	Proposed to be part of new Greenfield Bore scheme. $1m allocated for 2022/23 (AP and LTP). In design stage with $19.8 m total cost (revised with Council approval in October 2022).
Balmoral 2	Water source from production bore close to Clutha River is very good. So new, Greenfield WTP only needs chlorination and UV station. New Greenfield WTP in consenting stage and expected to take 18 months to construct. Upgrades will address non-compliance.
Clydevale / Pomahaka	Fourth borehead planned. Existing three boreheads to be sealed. Distribution upgrades needed. Technically capable of DWS compliance.
Glenkenich	New $3.4 million membrane water treatment plant being built. Expected to be commissioned in November 2022 for water production and supply in February 2023. Will address non-compliance.
Moa Flat	Major water treatment plant upgrade to meet Drinking Water Standards with investment of $1.7m. The upgrade includes new clarifier and UV unit. A new 1,000m^3 tank is to be built in 2022/23. Upgrades will address non-compliance.
North Bruce	Water treatment plant upgraded to meet Drinking Water Standards with investment of $1.7m including a UV treatment unit. The upgrade is complete and is in proofing period. New reservoir planned in next 6 months. Water loss reduction programme – zone metering at North Bruce with $99k allocated in 2022/23 in AP budget. Planned project to remove Waihola township off North Bruce Scheme and connect to Milton Urban WTP. New pipeline being in installed in 2022/23. Large residential lifestyle lots will remain on North Bruce Scheme.
Richardson – north	Whitelea Road Treatment Plant replacement / upgrade for capacity. $30k allocated in 2022/23 in AP budget. The new membrane plant is operational.
Richardson – south	Puerua Treatment Plant upgrade planned in 2022/23 with $150k AP budget allocated. Additional capacity upgrades required but not scoped or costed to date.
South Bruce	New reservoir planned for Stirling Water Treatment Plant in next 12 months. Technically capable of DWS compliance.
Tuapeka	Proposed to be part of new Greenfield Bore scheme (refer to notes above). Will address non-compliance.
Waipahi	NA
Wangaloa	None identified. Technically capable of DWS compliance.

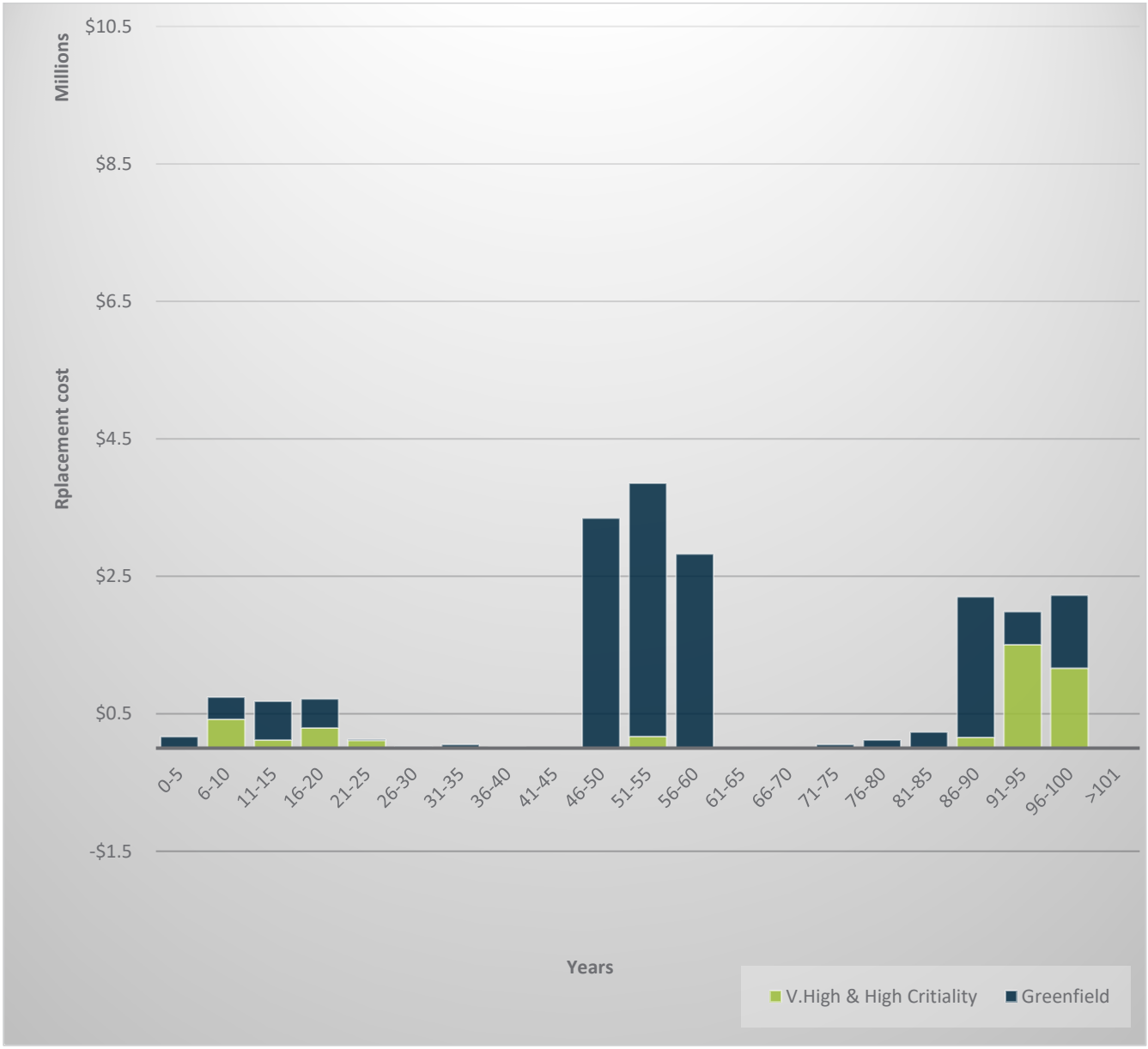
Appendix E Asset replacement cost and useful life by scheme

Greenfield

Balmoral 1, Balmoral 2, and Tuapeka have been combined for the purposes of showing the useful life and replacement cost information as they are likely to be treated as a single scheme in the future (by virtue of sharing a treatment plant).

The chart shows approximately $2,450,000 of assets that are due for replacement in the next 30 years, of which approximately $950,000 have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected $6,275,000 of depreciation funds.

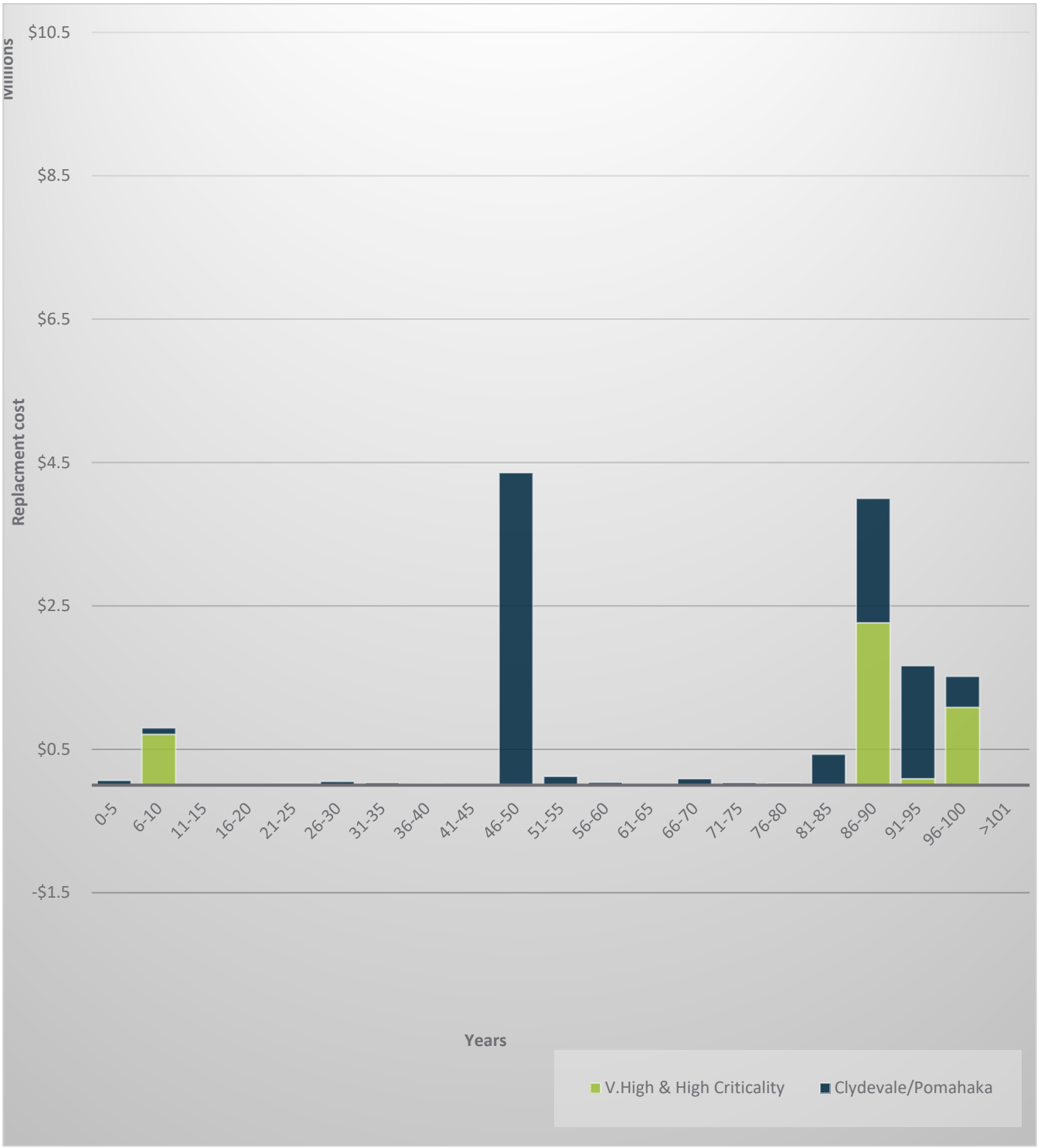
Figure 3 Asset replacement cost versus remaining useful life and criticality for schemes on the Greenfield bore



Clydevale-Pomahaka

The chart shows approximately $940,000 of assets that are due for replacement in the next 30 years, of which approximately $710,000 have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected $4,200,000 of depreciation funds.

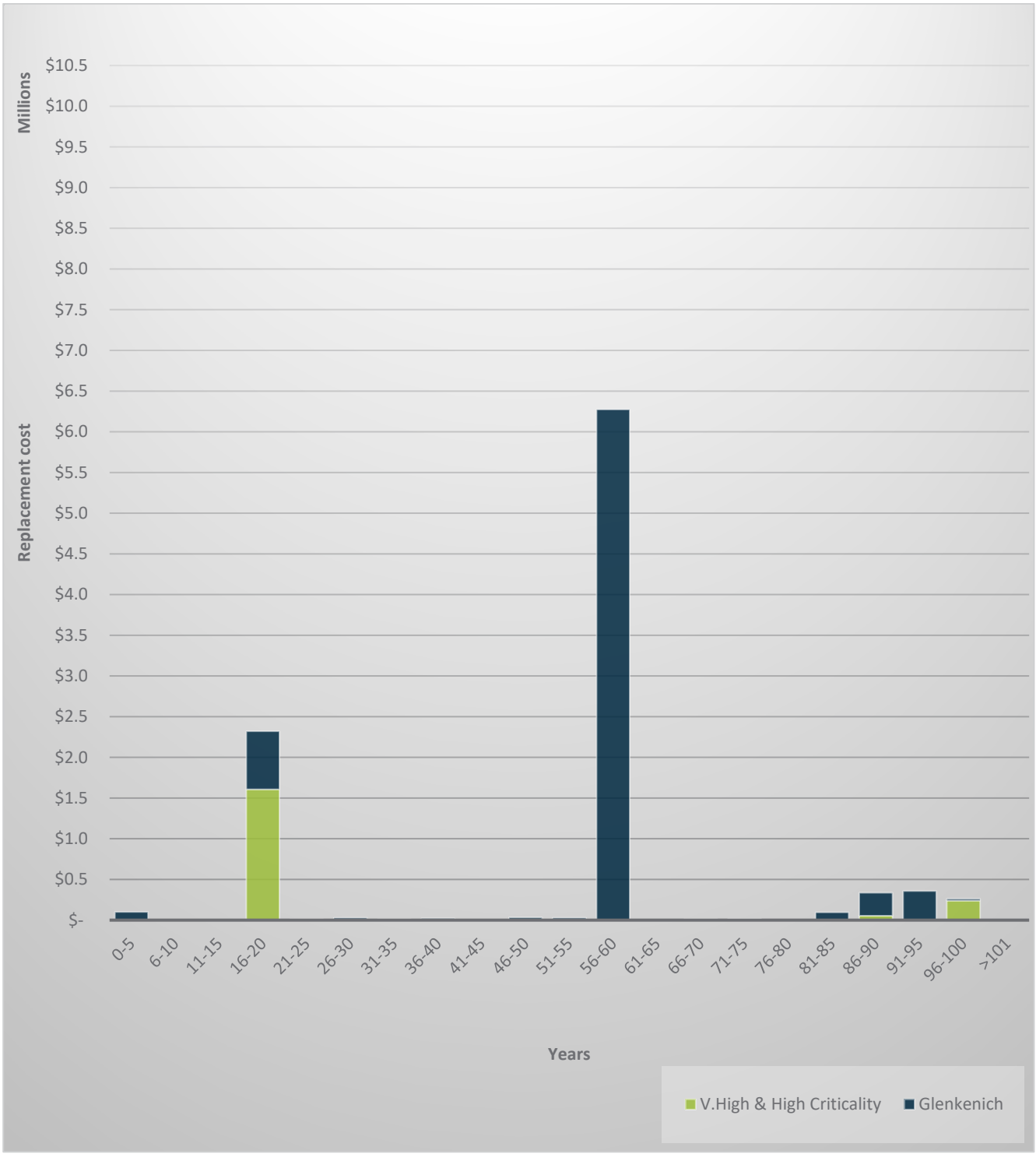
Figure 4 Asset replacement cost versus remaining useful life and criticality for Clydevale/Pomahaka



Glenkenich

The chart shows approximately $2,470,000 of assets that are due for replacement in the next 30 years, of which approximately $1,610,000 have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected $3,455,000 of depreciation funds.

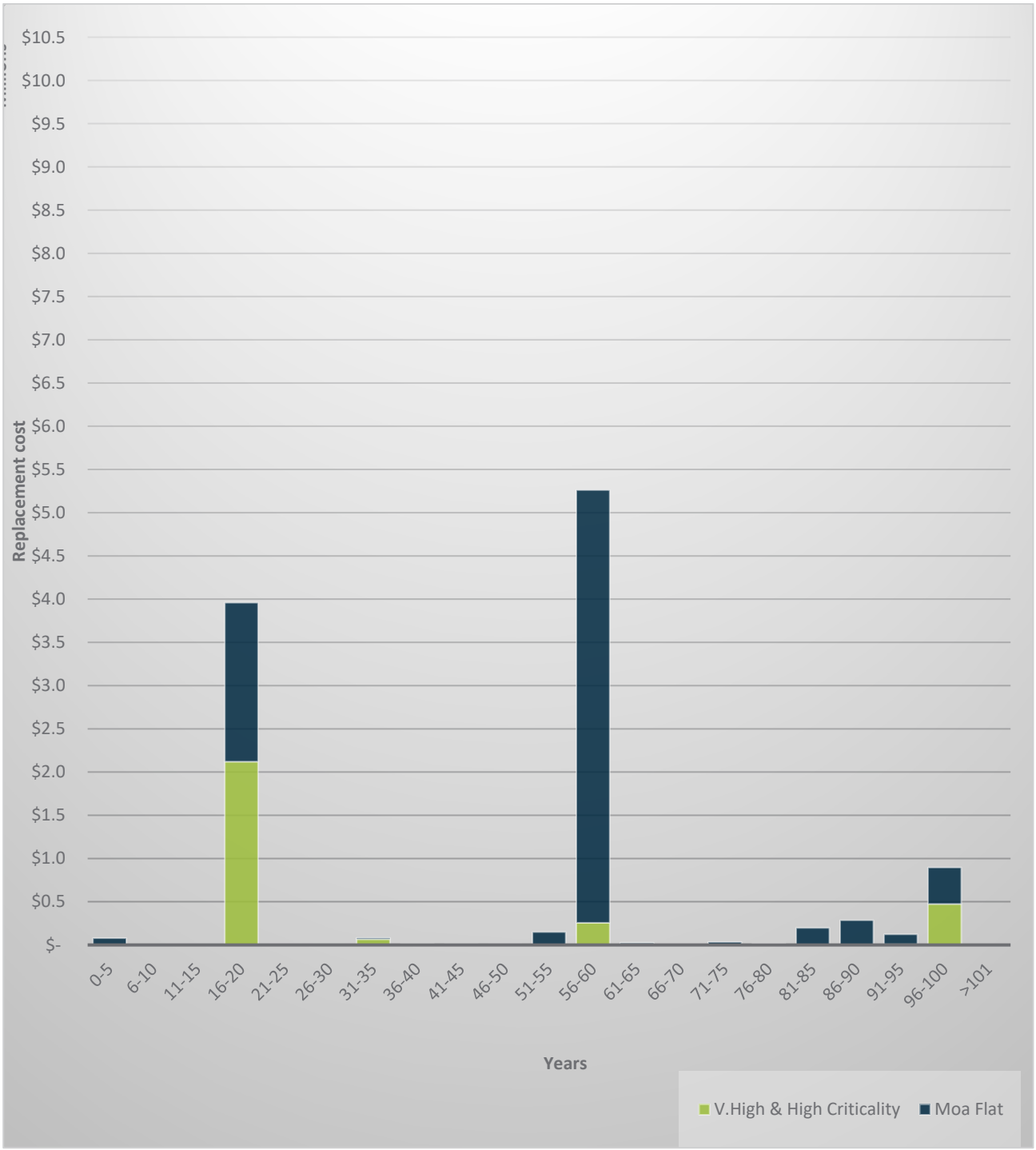
Figure 5 Asset replacement cost versus remaining useful life and criticality for Glenkenich



Moa Flat

The chart shows approximately $4,050,000 of assets that are due for replacement in the next 30 years, of which approximately $2,120,000 have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected $4,157,000 of depreciation funds.

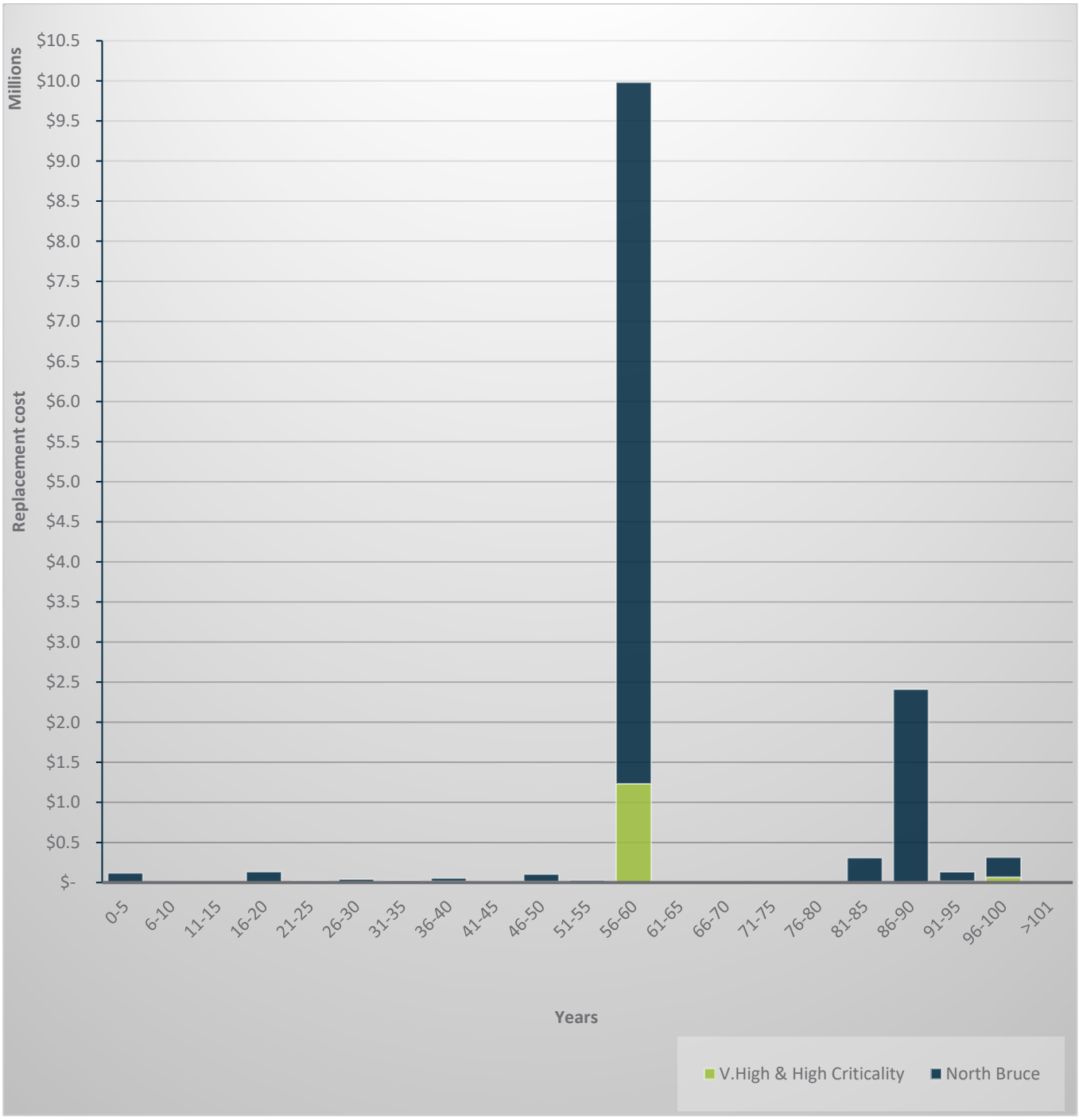
Figure 6 Asset replacement cost versus remaining useful life and criticality for Moa Flat



North Bruce

The chart shows approximately $310,000 of assets that are due for replacement in the next 30 years, of which approximately $1,000 have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected $4,180,000 of depreciation funds.

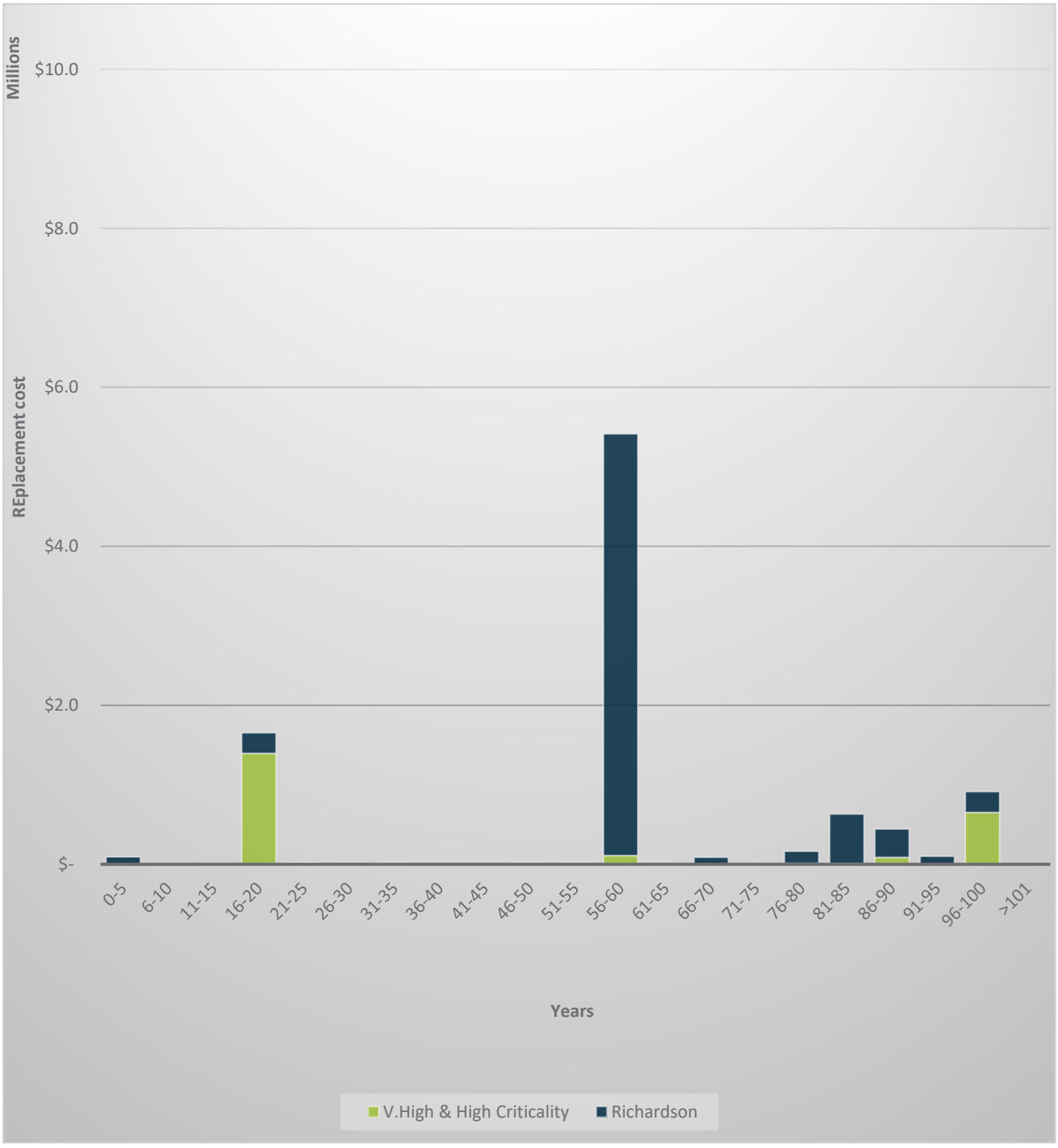
Figure 7 Asset replacement cost versus remaining useful life and criticality for North Bruce



Richardson

The chart shows approximately $1,800,000 of assets that are due for replacement in the next 30 years, of which approximately $1,400,000 have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected about $3,250,000 of depreciation funds.

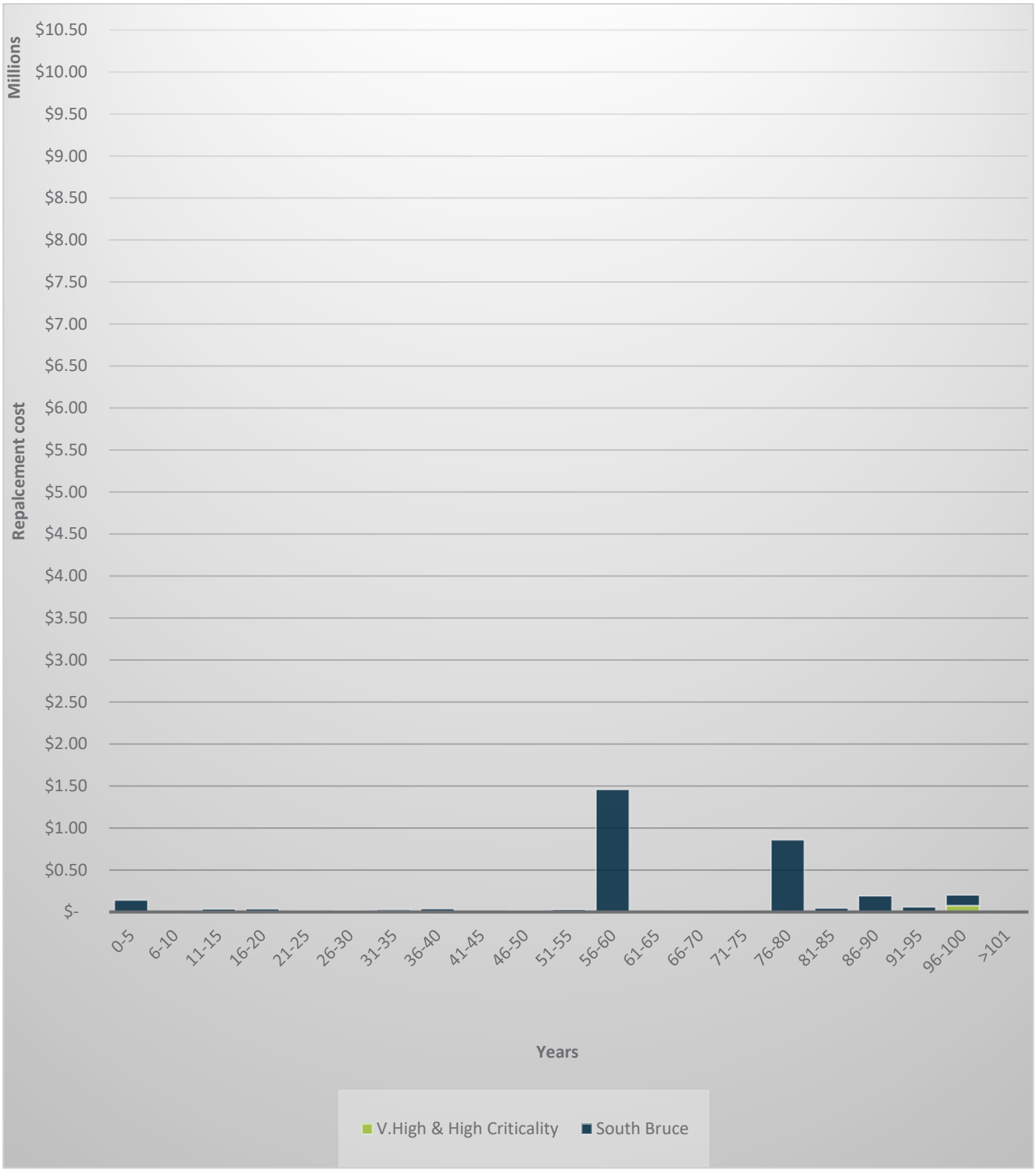
Figure 8 Asset replacement cost versus remaining useful life and criticality for Richardson



South Bruce

The chart shows approximately $237,000 of assets that are due for replacement in the next 30 years, of which approximately $11,000 have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected about $958,000 of depreciation funds.

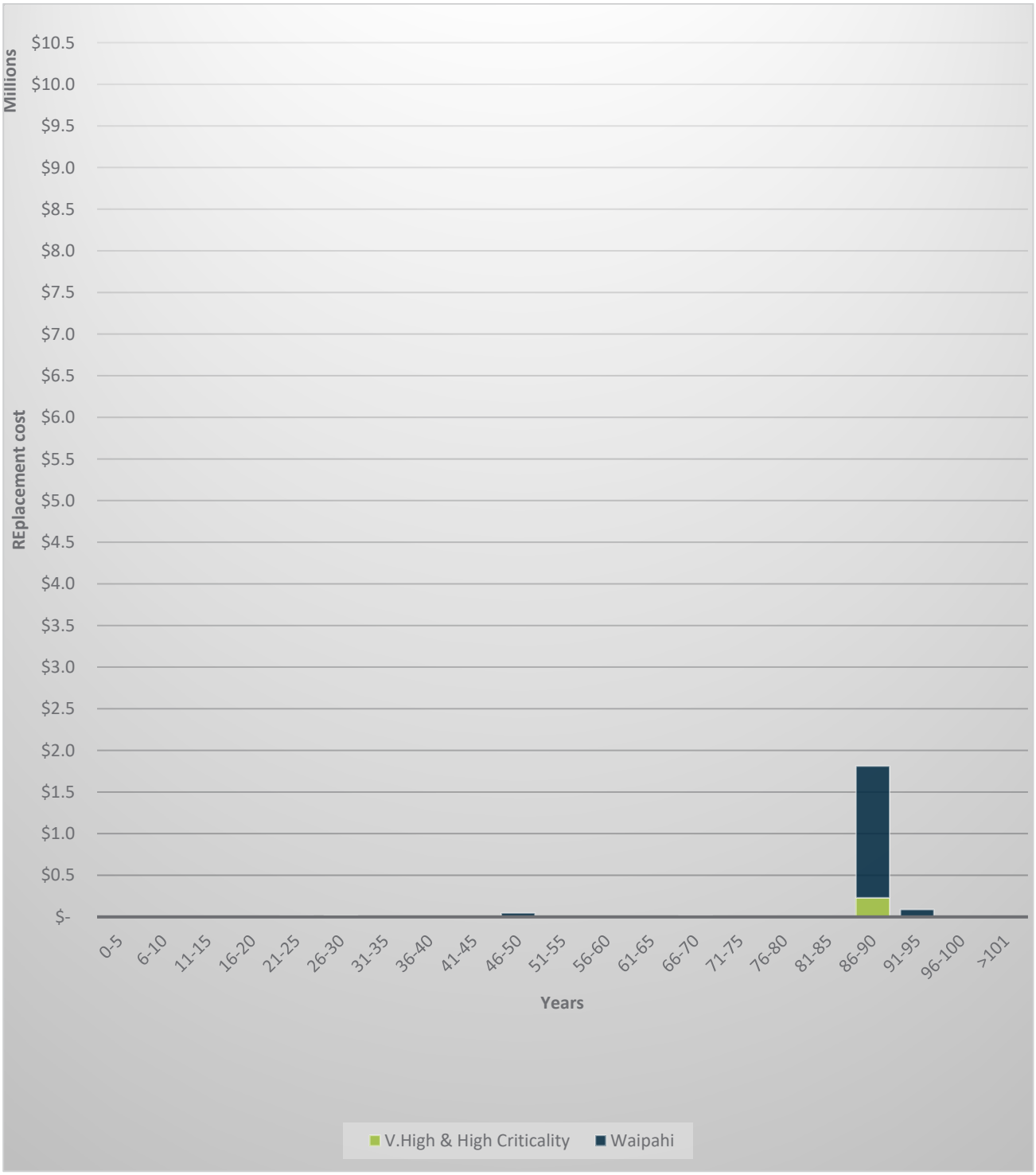
Figure 9 Asset replacement cost versus remaining useful life and criticality for South Bruce



Waipahi

The chart shows approximately $30,000 of assets that are due for replacement in the next 30 years, of which none have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected about $628,000 of depreciation funds.

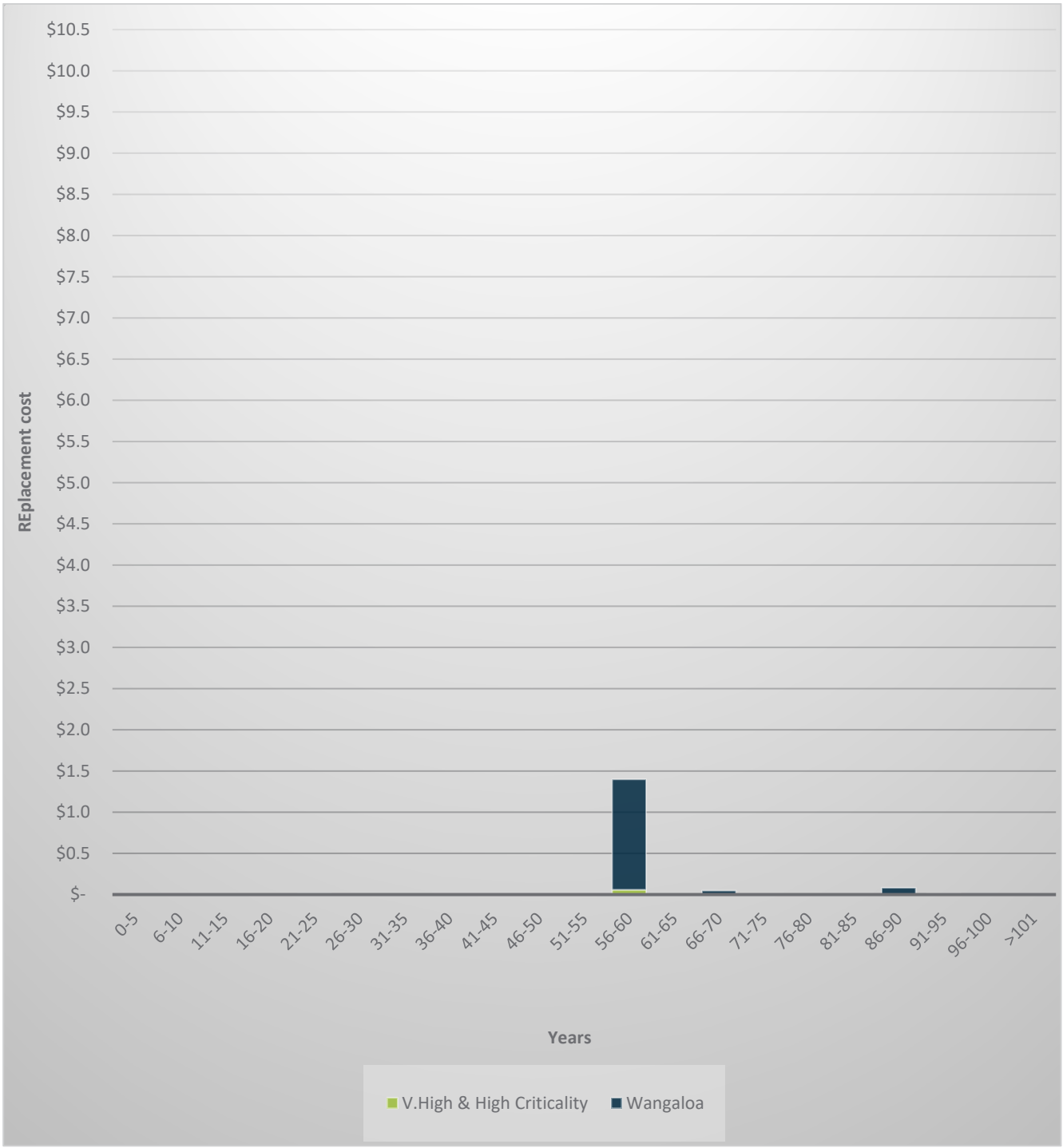
Figure 10 Asset replacement cost versus remaining useful life and criticality for Waipahi



Wangaloa

The chart shows approximately $25,000 of assets that are due for replacement in the next 30 years, of which less than $1,000 have very high or high criticality. Over the same period, if depreciation is fully funded the scheme will have collected about $480,000 of depreciation funds.

Figure 11 Asset replacement cost versus remaining useful life and criticality for Wangaloa



Appendix F High level financial summary

Scheme	Units sold	2022/23 Unit cost (excl GST)	Total collected[5] 2022/23	Annual operating costs 2022/23	Depreciation[6]	Debt[7]	10 yr Renewals[8]	10 yr Growth and level of service[9]
Balmoral 1	688	$420	$293,000	$219,000	$39,000	$503,000	$29,000	$126,000
Balmoral 2	1575	$290	$457,000	$435,000	$99,000	$884,000	$1,436,000	$256,000
Clydevale-Pomahaka	2415	$280	$607,000	$611,000	$201,000	$3,367,000	$1,338,000	$1,023,000
Glenkenich	2045	$344	$703,000	$734,000	$158,000	$200,000	$1,150,000	$1,123,000
Moa Flat	2612	$193	$504,000	$505,000	$179,000	$1,196,000	$899,000	$1,046,000
North Bruce	1928	$278	$536,000	$577,000	$168,000	$640,000	$764,000	$370,000
Richardson	2558	$247	$621,000	$683,000	$266,000	$1,464,000	$1,176,000	$3,646,000
South Bruce	1535	$147	$226,000	$200,000	$50,000	$409,000	$949,000	$619,000
Tuapeka	1615	$357	$577,000	$523,000	$131,000	$807,000	$971,000	$1,053,000
Waipahi	836	$241	$201,000	$152,000	$40,000	$927,000	$206,000	$81,000
Wangaloa[10]	420	$356	$150,000	$143,000	$22,000	-	$750,000	$1,770,000
Total	**18,227**		**$4,875,000**	**$4,782,000**	**$1,353,000**	**$10,397,000**	**$9,668,000**	**$11,113,000**

[5] Some additional funding and internal transfers may occur to increase total revenue
[6] Per recent valuation, excludes Kaitangata, Stirling and Waitahuna treatment plants ($228,000)
[7] Excludes Waitahuna, Stirling and Kaitangata treatment plants (total $1,784,000 debt)
[8] Per Asset Register data
[9] Excludes greenfield bore ($19,798,000)

Appendix G Water production

Network name / Element	Unit	Clydevale-Pomahaka Rural	Glenkenich Rural	Kaitangata / Wangaloa	Moa Flat	North Bruce Rural	Richardson Rural	Stirling / Benhar (South Bruce)	Tuapeka West	Waitahuna Rural
Drinking water abstraction points		1	1	1	1	1	2	1	1	1
Drinking water network source type		Bore	River / stream / creek	River / stream / creek	River / stream / creek	Other (include detail in comments field)	River / stream / creek	River / stream / creek	River / stream / creek	River / stream / creek
Total population served by the drinking water network		850	705	830	534	1088	1016	743	283	922
Water supplied to the drinking water network	m^3/year	912,593	540,485	152,260	742,530	578,580	763,474	34,000	282,539	758,886
Non-residential water use	m^3/year	670,219	438,783	66,572	622,822	342,927	637,184	-	222,499	639,691
Total water use	m^3/year	**1,582,812**	**979,268**	**218,832**	**1,365,352**	**921,507**	**1,400,658**	**34,000**	**505,038**	**1,398,577**

Appendix H Modelling assumptions

The financial modelling uses a bottom up approach and relies upon the following assumptions (per our initial draft modelling). These assumptions are subject to change as we further develop the financial model:

Assumption	Waipahi	Individual mixed use scheme	Group of 3 schemes	All schemes combined
Interest rate	7.3% (based on commercial lending offers we have reviewed elsewhere)			
Loan term	20 years			
Working capital	4 months of Opex			
Operations and maintenance costs	Per CDC actuals and budgets			
Electricity costs	Per CDC actuals and budgets			
Sampling, chemicals, telemetry, resource management and rates costs	Per CDC actuals and budgets			
Accounting fees	$20,000	$20,000	$30,000	$75,000
Directors fees	$10,000	$50,000	$75,000	$100,000
Employment costs	$21,250	$85,000	$150,000	$400,000
Consent renewal costs	$20,000/annum	$20,000/annum	$60,000/annum	$180,000/annum
Depreciation	Per fixed asset registers and based on average depreciation rate for new assets			
Asset management plan costs	$10,000/annum	$20,000/annum	$25,000/annum	$60,000/annum
Water safety plan costs	Per CDC estimates			
IT costs	$30,000	$30,000	$45,000	$80,000

Assumption	Waipahi	Individual mixed use scheme	Group of 3 schemes	All schemes combined
Light and heat (non-water related electricity)	$2,400	$2,400	$2,400	$2,400
Office rental	$5,200	$5,200	$5,200	$10,000
Legal fees[11]	$1,500	$1,500	$4,500	$13,500
Insurance costs	$2,800 per $100,000 of asset replacement cost (per benchmarking)		$2,100 per $100,000 of asset replacement cost	
Renewals investment	Based on useful remaining life in asset register			
Upgrades capex	Based on Clutha DC submission to NTU			

Sensitivity testing

There is a high level of uncertainty around potential future costs for private water suppliers in Clutha. To address this, we have carried out sensitivity testing regarding:

- Potential future operating costs
- Potential future capital costs
- The interest rate for external borrowing

[11] Excludes establishment costs, which likely include securing easements over properties with underground assets

Appendix I Assessment of options

Criteria	What we mean	Water Services Entity		Individual group - with townships		Small group - with townships		All schemes - with townships	
Must deliver clean, safe drinking water that complies with the requirements of the Water Services Act	The delivery of safe drinking water is a core requirement of any drinking water supplier and a requirement under the Water Services Act 2021. Failure to comply with that Act may result in criminal penalties being brought against the drinking water supplier or its directors. Schemes must also provide a sufficient quantity of water. There is no option to cease providing drinking water to households for the Clutha schemes.	As a legal requirement we would expect that the WSE will meet this. Plants will be technically capable of compliance.	Pass	As a basic legal requirement we would expect this to occur. Plants will be technically capable.	Pass	As a basic legal requirement we would expect this to occur. Plants will be technically capable.	Pass	As a basic legal requirements we would expect this to occur. Plants will be technically capable.	Pass
Must comply with health and safety regulations and have appropriate risk management processes in place	A person conducting a business or undertaking must have appropriate risk management processes in place and be able to mitigate, reduce, and manage health and safety risks on network. Scheme owners will have legal responsibility and can't delegate to contractors.	An entity is going to be set up with the support, structure and resourcing to ensure it meets H&S obligations. Existing risks will remain and will take time to resolve. Expensive to do well.	Pass	There are existing health and safety risks on network/treatment plant. Private schemes are less likely to have strong processes due to cost and resourcing requirements, water supply will be prioritised.	Partial	There are existing health and safety risks on network/treatment plant. Private schemes are less likely to have strong processes due to cost and resourcing requirements, water supply will be prioritised.	Partial	Scale may allow costs to spread and more dedicated focus on health and safety.	Partial
Must be able to access sufficient capital to meet future capital works needs	The schemes should be able to meet all future investment requirements. This means that they should be able to raise debt on acceptable terms or have the ability to raise capital from users (through accumulation of reserves).	Absolutely - crown backed.	Pass	Initial capital is main issue, depends on tolerance for price increases. It is possible to address initial capital through novel approaches (farmers lending direct for example) but generally regarded as challenging.	Fail	Initial capital is main issue, depends on tolerance for price increases. It is possible to address initial capital through novel approaches (farmers lending direct for example) but generally regarded as challenging.	Fail	Initial capital is main issue, depends on tolerance for price increases. It is possible to address initial capital through novel approaches (farmers lending direct for example) but generally regarded as challenging.	Fail
Must be financially sustainable and affordable for all consumer groups	Affordability and financial sustainability includes: · Sufficient revenue to cover all operating and debt servicing costs · Sufficient cash flow to service capital (through debt, accumulated reserves or capital contributions) to meet any future investment requirements (particularly those relating to mandatory compliance) · Charges (including capital contributions) that are within the financial means of domestic and rural users · Annual increases in charges being manageable but sufficient to cover operating and capital cash flows · No price shocks	No clear price paths, unclear what costs will be for rural water, but can assume rural water (bulk water) will be sold at lower cost. Economic regulation will apply to the entities to control price. Partial due to lack of certainty.	Partial	Subjective assessment but not likely to be affordable for all individual schemes.	Partial	Subjective assessment but likely to see some price increases that are not considered "manageable".	Partial	Subjective assessment but likely to see some price increases that are not considered "manageable".	Partial

Criteria	What we mean	Water Services Entity		Individual group - with townships		Small group - with townships		All schemes - with townships	
Must provide for meaningful input from rural water users	Rural water users should continue to get a similar level of input into decision making as they are currently provided. This includes oversight over the number of water units sold on the scheme and the level of future investment made into the scheme.	Based on what is provided for currently in legislation. Could change to a pass if the committee had a similar role in the new entity. Critical issue here is around setting and accountability against rural levels of service and operational responsiveness. That is, there is a need for a strong operational relationship as well as a role at the governance level.	Fail	Ownership of the schemes by its users will provide for this - i.e. There is no separation between ownership and customers.	Pass	Ownership of the schemes by its users will provide for this - i.e. There is no separation between ownership and customers.	Pass	Ownership of the schemes by its users will provide for this - i.e. There is no separation between ownership and customers.	Pass
Must give effect to Te Mana o te Wai	This means the future drinking water supplier will need to provide opportunities to meaningfully involve tangata whenua including through the development of long term visions for the management of freshwater and management of catchments.	A legal requirement, though acknowledged that this could take time and legal requirements are higher than private entities.	Pass	Legally lower expectations mean this may be met sooner. Trend is for standards to increase.	Pass	Legally lower expectations mean this may be meet sooner. Trend is for standards to increase.	Pass	Legally lower expectations mean this may be meet sooner. Trend is for standards to increase.	Pass
Must be able to respond to and resolve supply issues in a timely manner	Leaks or other events which compromise the supply of water to domestic or rural users must be resolved in a timely manner, according to the level of service expectation of the users.	If dealing with multiple or conflicting failures then resolution on farm may not meet expectations, however scale and capability should allow fast resolution, particularly given ability to draw on resources from out of district.	Pass	If dealing with multiple or conflicting failures resolution on farm may not meet expectations, however there are a number of local contractors that could have standing arrangements to provide additional support as needed.	Partial	If dealing with multiple or conflicting failures resolution on farm may not meet expectations, however there are a number of local contractors that could have standing arrangements to provide additional support as needed.	Partial	If dealing with multiple or conflicting failures resolution on farm may not meet expectations, however there are a number of local contractors that could have standing arrangements to provide additional support as needed.	Pass
Must be able to attract and retain appropriate expertise for the management treatment plant operations	It is essential that appropriately skilled staff for the operation of water treatment plants are able to be employed.	Everyone will struggle but entity has scale and ability to train in house.	Pass	Specialist skills will be hard to acquire, safety standards to meet are higher.	Fail	Specialist skills will be hard to acquire, safety standards to meet are higher. Scale may allow for some technical resource to be acquired.	Partial	Specialist skills will be hard to acquire, safety standards to meet are higher. Scale may allow for some technical resource to be acquired.	Partial
Must be able to attract and retain appropriate expertise for the management of the water network operations	Similarly, the reticulated network covers a large area and local, responsive contractors are likely to be needed to be able to maintain the network effectively.	Entity's scale means this is a proposed feature of the entity model. There are current workforce shortages in the traditional contractor space though. However, entity will not have local knowledge of rural reticulation which is different from urban systems.	Pass	Reticulation contractors may be obtained from different markets to entity, including farming contractors. Small scale may be a challenge.	Partial	Reticulation contractors may be obtained from different markets to entity, including farming contractors.	Pass	Reticulation contractors may be obtained from different markets to entity, including farming contractors.	Pass

Criteria	What we mean	Water Services Entity		Individual group - with townships		Small group - with townships		All schemes - with townships	
Must have, maintain, and use appropriate risk management and asset management practices in place	A drinking water supplier must have risk management practices that are able to effectively identify, mitigate and monitor relevant risks associated with the supply of drinking water. Asset management practices need to be in place to minimise the risk of failure and to optimise useful lives for financial sustainability. Processes need to be in place to identify, prioritise and plan future replacements and upgrades to infrastructure.	Possible, level of effort to do it properly is high. Need to write a proper plan. There is a fair way to go to get there.	Pass	Nothing to prevent but use and maintenance is likely to drop over time due to cost and effort.	Fail	Nothing to prevent but need clear discipline and give appropriate focus. Will be necessary to address legal risk.	Partial	Nothing to prevent but need clear discipline and give appropriate focus. Will be necessary to address legal risk.	Partial
Must treat agricultural and drinking water uses with equal importance	Clean drinking water is a basic human necessity, and contamination of water can cause widespread illness. The supply of water to farms is also critical for animal welfare. Rural water users are heavily reliant on rural water schemes to provide clean drinking water for livestock.	Could be a pass if there is further commitment about agriculture. Can't cut off supply to agriculture without cutting off supply to domestic users, but an entity could reduce volumes.	Fail	There is a risk that animal welfare/farm businesses get priority treatment. Typically cannot just stop supplying water to consumers but could provide lower quality. New plants/water sources reduce risk of quantity versus quality decisions having to be made. Would move to partial if governance included representatives from township users/councillors, and two-way supply agreements established.	Fail	There is a risk that animal welfare/farm businesses get priority treatment. Typically cannot just stop supplying water to consumers but could provide lower quality. New plants/water sources reduce risk of quantity versus quality decisions having to be made. Would move to partial if governance included representatives from township users/councillors, and two-way supply agreements established.	Fail	There is a risk that animal welfare/farm businesses get priority treatment. Typically cannot just stop supplying water to consumers but could provide lower quality. New plants/water sources reduce risk of quantity versus quality decisions having to be made. Would move to partial if governance included representatives from township users/councillors, and two-way supply agreements established.	Fail
Must be able to respond to risk from natural and environmental hazards	The schemes must have the financial resilience to be able to respond to natural and environmental hazards including drought, and earthquakes.	More ability to move water, long term view to climate investment, and will have access to crown support for the repair of essential infrastructure up to 60%. No more able to respond to immediate flood or drought issues than private ownership. Materially better than private schemes	Partial	Can insure, but costly. Local buyin and commitment, and being located close to schemes means farmers can be responsive in getting water services back on.	Partial	Can insure, but costly. Local buyin and commitment, and being located close to schemes means farmers can be responsive in getting water services back on.	Partial	Can insure, but costly. Local buyin and commitment, and being located close to schemes means farmers can be responsive in getting water services back on.	Partial
Should be a scalable model	Any future ownership model should be able to be scaled to include more schemes under the same ownership structure.	By default	Pass	Would require deliberate effort and planning.	Partial	Would require deliberate effort and planning.	Partial	Would require deliberate effort and planning.	Partial
Must have clear level of service expectations for agricultural water use and be accountable for performance against those levels of service	The supply of water to rural properties is different to the supply of water to non-rural properties. The future water supplier should have clear levels of service that are specific to, and are developed in consultation with, rural users in addition to levels of service for a broader population.	It is believed that there is an intent for clear levels of service to be included, but the entity has been marked a fail here until provisions are available to review.	Fail	Ownership management, governance and users are all aligned (and the same).	Pass	Ownership management, governance and users are all aligned (and the same).	Pass	Ownership management, governance and users are all aligned (and the same). Conflict arises with scale.	Pass

Criteria	What we mean	Water Services Entity		Individual group - with townships		Small group - with townships		All schemes - with townships	
Must provide for consumer protection and dispute resolution	Domestic water users must be provided with sufficient protection mechanisms to ensure that: - their water is affordable - they are receiving an acceptable quality and quantity of water - they are receiving an acceptable level of service - they are able to resolve disputes with the water supplier impartially and at low cost to the consumer.	Would be a pass if there are clear mechanisms to ensure consumer protection framework (disputes resolution service, elements of regulation) protects agricultural users.	Partial	Competing priorities unless there are independent or balanced representation for all user types/groups. Could join a disputes resolution scheme.	Partial	Competing priorities unless there are independent or balanced representation for all user types/groups. Could join a disputes resolution scheme.	Partial	Competing priorities unless there are independent or balanced representation for all user types/groups. Could join a disputes resolution scheme.	Partial
Should be administratively efficient and easy to deal with	Processes to lodge complaints, register faults, and provide rural scheme user input should be simple, clear and effective. A scheme should be easy to run with minimal corporate overheads.	Strong processes and scale to support, but large entity with competing priorities. Economic regulation will force inefficiencies to be removed.	Partial	Efficient because small scale reduces overhead but may not have dedicated resources to be effective.	Partial	Efficient because small scale reduces overhead but may not have dedicated resources to be effective.	Partial	Competing interests but not enough scale to support levels of processes and systems to be efficient.	Partial
Should be able to respond to growth and allow for new connections	While Clutha District is not expected to grow significantly in the future, the district has experienced modest levels of growth in the past. Any future scheme owner should have the processes in place to work with Council and to meet future water demand and growth needs.	Water entity is taker of spatial plans and may be required to provide water to growth areas at any cost. Will be resourced to model impacts of growth and investment and input into spatial planning.	Pass	Private supplier would likely be happy to sell more units if capacity exists at manageable cost. Some capacity constraints are infrastructure related and some are source related. May not have resources to work with council and input into growth planning.	Partial	Private supplier would likely be happy to sell more units if capacity exists at manageable cost. Some capacity constraints are infrastructure related and some are source related. May not have resources to work with council and input into growth planning.	Partial	Private supplier would likely be happy to sell more units if capacity exists at manageable cost. Some capacity constraints are infrastructure related and some are source related. May not have resources to work with council and input into growth planning.	Partial