Infrastructure Strategy 2024-54

We manage drinking water, wastewater, stormwater, roading and footpath assets for the benefit of everyone who lives, works and travels in our district. Quality infrastructure is a prerequisite for a thriving district. People need roads to get around and to transport goods into, out of and around the district; water networks promote good public health and can enable commercial and industrial developments.

Thinking ahead and planning for the long term is vital to ensure that current and future generations enjoy well-maintained services.

Our Infrastructure Strategy looks across the next 30 years and outlines the most likely scenarios for how our critical infrastructure will be managed, and the most important decisions we're going to face as a community in the future.

This strategy does not stand alone. It is written in conjunction with the Financial Strategy, which sets out the funding challenges that the community faces over the next 10 years. These two strategies underpin our 10 Year Plan, which contains more detailed plans and programmes across the Council operation.

Both documents are informed by our overarching strategic vision: To be the district of choice for lifestyle and opportunity.

In this strategy, figures used are inflated unless stated otherwise.

Our present

Ashburton District is in the central South Island, south of the city of Christchurch. It has a land area of around 6,190 square kilometres and is crossed by State Highway 1. We have a population estimated at 36,800 with around 20,800 people living in our largest town – Ashburton[1]. Other urban centres in our district include Methven (around 2,000 people) and Rakaia (around 1,600 people). There are also several smaller villages around the district. The township of Methven is close to the Mt Hutt ski field and attracts many tourists during the winter season.

Our district's economy is centred on agriculture and its supporting industries. It has shown strong economic growth over the past ten years due to reliable irrigation and the growth of dairying, dairy support and high value crops. This growth, however, has slowed in more recent years following the completion of farm conversions, and government rules restricting further conversions from occurring.

We saw consistent population growth of approximately 2% per year between 2006 and 2018 in our district. While we continue to grow, the rate has slowed, with average growth forecasted at 0.5% per year over the next 25 years, adding around 4,600 people between 2023 and 2048[2]. The population in 2048 is expected to be around 41,400.

[1] *StatsNZ subnational population estimates, 2023.*

[2] *StatsNZ subnational population projections 2018-2048 – medium population projections (2018 base). Projections updated June 2023.*

Our assets

This Strategy covers the core asset groups of drinking water, wastewater, stormwater, roads and footpaths. According to the July 2023 asset valuation, we have approximately $1,048 million of replacement value ($780 million after depreciation) in these asset groups, more than half of which is in roads and footpaths.

Asset group	Description and highlights	Depreciated replacement value[3]
Drinking Water	12 drinking water schemes with 14 water treatment plants 520 km of water mains	$110 million
Wastewater	4 wastewater treatment and disposal facilities serving 3 schemes 18 wastewater pump stations 202 km of wastewater mains - most is gravity, but there are some isolated areas of pressure sewer reticulation	$156 million
Stormwater	42 km of stormwater mains 7.5 ha of stormwater detention and infiltration basins	$45.4 million
Roads and Footpaths	1,522 km of sealed and 1,100 km of unsealed road 257 km of footpath 188 bridges 10,444 signs	$467 million

How well do we know our assets?

While we know our assets pretty well, there still remains a lot we don't know. Some of our assets were built over a hundred years ago, and it's not always easy to understand the condition they're in or to predict exactly when they'll fail.

In the last five to ten years we have worked hard to improve our knowledge and understanding of our assets. In particular, we have implemented a new asset database for three waters and have thoroughly checked and corrected the information we hold on all of our assets, both water and transportation.
In the three waters area, we have added more data capture from inspections, repairs and routine maintenance visits.

The recent information gathering work as part of the Three Waters reform has been an opportunity to examine our asset information but has also restricted the development work we have been able to do on our own systems.

An asset management maturity assessment has been completed for Transportation, and an update of the Three Waters maturity assessment is due to follow soon. This will provide an opportunity to work across the organisation on developing our asset management policies and practices, including extending the use of our asset management data systems.

We carry out regular condition assessments on our assets. We undertake a closed-circuit television (CCTV) survey of a selection of our wastewater pipes each year to assess their condition and refine our renewals programme. Roads, bridges, footpaths and other transportation assets are also inspected regularly for defects and condition to inform the upcoming renewal programme.

Both asset groups are generally assessed as having accuracies of ±5-15% depending on the type of asset. Some assets are inspected more easily and more regularly than others, such as bridges or fire hydrants. Others are more difficult to inspect, such as underground pipes, or are less well-documented, such as retaining walls. Replaced or new assets come with high-quality data, which improves our overall knowledge.

The tables below list the data confidence grades given to each of our asset classes. We have given a grade to various pieces of information:

- the location of those assets;
- the amount or number of assets in each class (e.g. the length of pipe);
- the cost to replace those assets;
- the life remaining in them.

[3] *Depreciated replacement value taken from Annual Report 2022/23.*

On the whole, this gives us reasonable confidence that the information we're using in our planning is correct and that our plans represent good use of funds.

Table 1. Utilities assets' data confidence

Asset group	Asset	Location	Quantity	Replacement cost	Life expectancy
Drinking Water assets	Pipes and reticulation	B	B	B	C
	Facilities	A	A	B	C
Wastewater assets	Pipes and reticulation	B	B	B	B
	Facilities	A	A	B	C
Stormwater assets	Pipes	B	B	B	B
	Treatment, retention and outfall structures	B	B	B	B

Key:

A: The data is accurate (±5-10%) and based on reliable documentation
B: Data is based on some supporting documentation but is less certain (±10-15%)
C: There is a fair amount of assumption and local knowledge used to reach the conclusion (±15-25%)
D: A reasonable informed guess, where there is no formal documentation to base an assessment on (±25-40%)

Table 2. Transportation assets' data confidence

Asset group	Asset	Location	Quantity	Replacement cost	Life expectancy
Transportation assets	Berms	B	C	B	C
	Bridges	A	A	B	B
	Drainage	B	C	B	C
	Footpaths	A	A	B	B
	Islands	B	B	C	C
	Minor structures	B	A	B	B
	Railings	B	B	C	C
	Retaining wall	C	C	C	C
	Signs	B	C	B	C
	Streetlights	A	A	C	C
	Surface water	A	B	B	C
	Traffic facility	B	B	B	C
	Traffic signals	A	A	A	A
	Formation	A	A	B	B
	Pavement	A	B	C	C
	Top surface	A	B	A	C

Our Key Drivers and Assumptions

We are guided by a range of factors that influence our decisions. All long-term planning is based on assumptions about the future, which affect future operations and future capital spending. Infrastructure planning occurs in a wider context of what else is happening in the district, New Zealand and the world.

We have a series of general forecasting assumptions from our 10 Year Plan which underpin how the LTP has been prepared and tell us about the overall direction of the district. When discussing future decisions later in this strategy we have also identified some more specific assumptions.

For this strategy we have identified four key drivers (compliance, growth, resilience, and affordability), made assumptions about the most likely future, and assessed the impact that they might have on our infrastructure.

Compliance

Most likely scenarios for our district	Impact on infrastructure and our response
Local Water Done Well - There remains uncertainty about the management and delivery of water services in the coming years. The new coalition government have recently repealed legislation that would have established a new way of delivering water services. They have signalled a new regime, called Local Water Done Well but we are uncertain as to its final makeup or the impact on our services and funding at this time. The first Bill establishing the new regime is anticipated in mid 2024.	Bearing in mind this uncertainty, we are planning for the future of three waters assets under the assumption that we will continue to own and operate them, albeit with higher standards of both water quality and reduction in environmental impact, and asset management practices. Depending on the nature of Local Water Done Well when finalised, it may have a major impact on the services that we provide and therefore the funding that we have available to us.
Short- to medium-term uncertainty over the future regulatory standards for drinking water	A new regulator (Taumata Arowai) is in place and has published new rules and standards. However, there are signals that further rules and scrutiny will be introduced over the coming years and decades. We must be able to adapt to the future. This means considering all reasonable options, working with authorities, and preparing to respond as new information arises.
An extension of the role of Taumata Arowai into wastewater and stormwater.	More regulatory oversight may lead to additional capital upgrades in wastewater and stormwater treatment in the longer term. There will also be an increased focus on operational rigour, documentation, and procedures.
Long-term pressure to reduce or maintain volumes in water take resource consents.	Increasing water-use efficiency requires ongoing investment in monitoring, but also in education and communication with customers.

Compliance

Most likely scenarios for our district	Impact on infrastructure and our response
General tightening of environmental discharge rules to improve freshwater quality, affecting the renewal of consents.	Wastewater treatment facilities are likely to come under increased scrutiny and capital programmes will increasingly feature expansion of discharge sites or intensification projects to improve treatment efficacy.
Increasing regulatory standards and requirements from Waka Kotahi NZTA for work in and around our roading network.	From July 2024, the Consistent Condition Data Collection (CCDC) project will introduce a new requirement for pavement condition inspection surveys and data collection methods. This will change our contracting and supplier selection process for sealed road inspections and data collection. Temporary Traffic Management (TTM) changes will increase the costs of in-house staff certifications and contractor project costs. An alternative TTM system could be utilised with lesser, but still appropriate, requirements.

Growth

Most likely scenarios for our district	Impact on infrastructure and our response
The district is forecast to grow approximately 12.5% between 2023 and 2048. This represents an annual average growth of 0.5%, which will equate to an additional 2,000 houses throughout the district.	Growth and development and the extra capacity required is accounted for when planning renewals and upgrades. Additional capacity will continue to be added to the network to meet future requirements. We will update demographic projections following the release of the 2023 Census results, which is not expected until 2024/25.
There is likely to be strong growth in the number and proportion of older people (65+) and of young people particularly the 0-14 and 25-39 age groups.	When planning for water and transportation networks takes place, we make provision where practicable. Growth and demographic shifts are currently occurring slowly enough that they are not affecting modelling processes or budgets, beyond a steady increase in renewal and maintenance budgets commensurate with the expansion. Urban walking and cycling would be affected by increases in older and younger residents, but not to the extent of changing existing levels of service or forecast works.
Changing land use and increased economic activity over the last 20 years has led to a significant increase in Heavy Commercial Vehicles (HCV). However, these also cause the majority of damage to roads. We expect to only see moderate HCV traffic volume increases in the foreseeable future.	Road deterioration is likely to continue. Maintenance and renewals will need to be increased to ensure defined levels of service are attained.

Resilience

Most likely scenarios for our district	Impact on infrastructure and our response
Resilience is the ability of the network to remain as fully functional as possible, when there is a disruption to it. We believe there is a reasonable probability of a significant earthquake in the life of our infrastructure assets.	New and renewed infrastructure needs to be designed to remain as serviceable as possible, or be quickly repaired, after a natural disaster. This will affect construction priorities and methodologies. As part of the regular renewal programmes, we prioritise the replacement of critical or vulnerable assets. We consider the resilience of the replacement solutions at the design phase.
Climate change is expected to lead to more frequent and more extreme weather events, including heavy rain and flooding, and drought conditions.	Extremes of weather are likely to impose additional demand on future design and build costs for our infrastructure. Climate change and other extremes are considered whenever assets are renewed, replaced or new assets planned, and proposed work programmes already account for this. This includes sizing watermains for peak demand or stormwater systems for high rainfall. Water sources of all types may be threatened in the longer-term, and alternatives or more secure sources may be needed. Some less secure water sources have alternatives already proposed in this LTP, including the drilling of an additional water supply source in Ashburton. As trends indicate the need for further work, we will provide for that. The large grid-like road network means the district is relatively well-placed to withstand long-term disruption, with river crossings the main weak points of the network. Where flooding is a recurring issue on parts of the road network these are addressed either with an engineering solution (which may remove or minimize the effect of the flooding) or a standard procedure (traffic management).

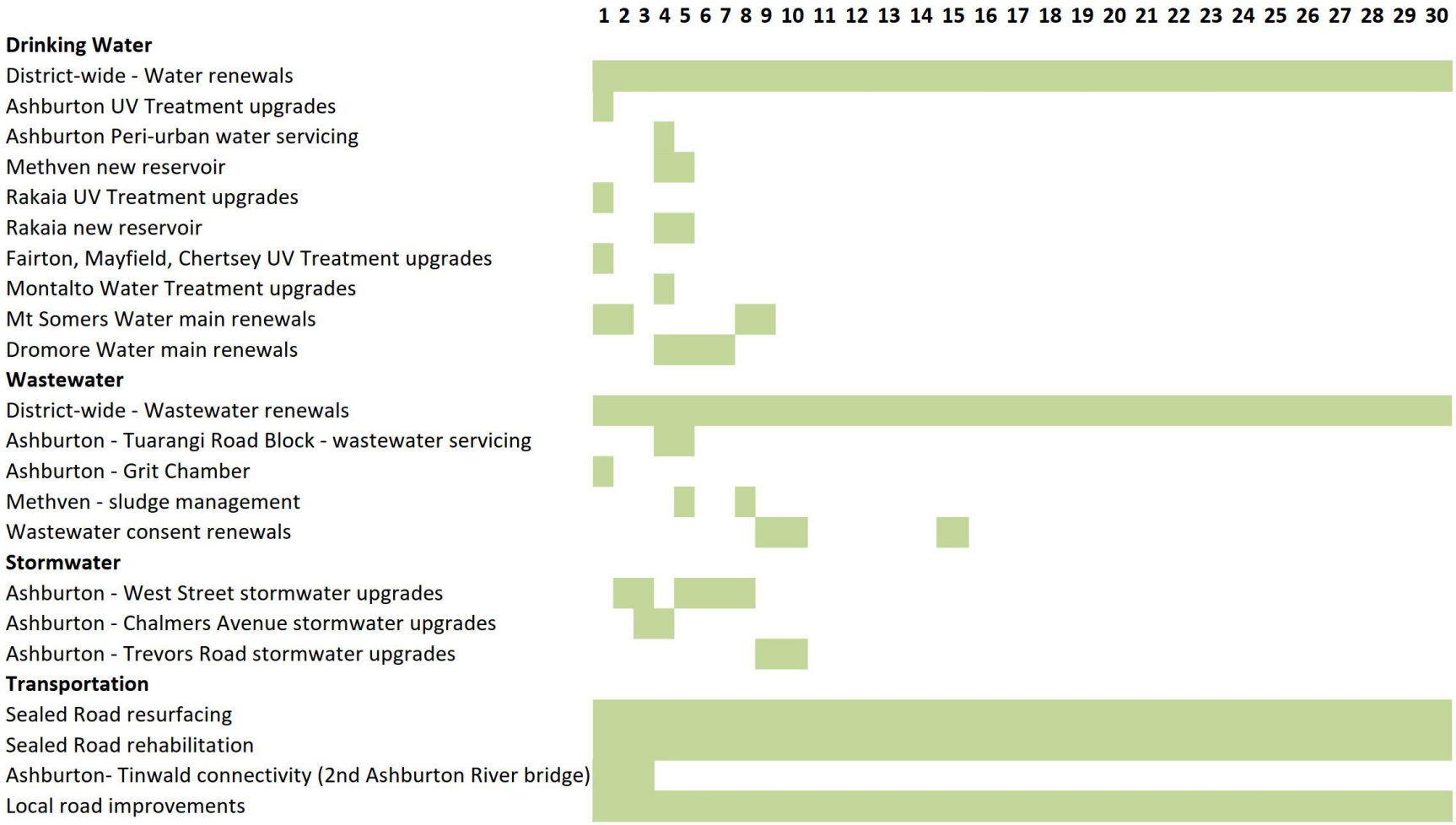
Affordability

Most likely scenarios for our district	Impact on infrastructure and our response
Financial forecasts show that future infrastructure spending has significant cost and may challenge the affordability for our communities. In short, we expect to face increased pressure to keep rates affordable. This means future rates rises and borrowing limits have caps to work within.	Maintaining and renewing our existing infrastructure will continue to be a core focus for us. Price increases, including from inflationary pressure and rising interest costs, mean that the cost of doing this is expected to rise annually. Major project work, such as water treatment upgrades, are loan funded. Where practical, the timing of major projects will be coordinated across our activities to manage the impact on rates affordability. However, where there is an immediate need, or a regulatory deadline, this may not be possible. Council will continue to advocate to government for maximum government funding for the district for infrastructure upgrading, and for new ways of funding that reduce pressure on rates.
There is likely to be increased pressure on engineering resources (people and plant) due to expanded infrastructure programmes.	The strain on resources puts ambitious infrastructure work programmes at risk, meaning that work can't be completed in the timeframe expected (generally resulting in increased costs). We have focused on developing an LTP work programme that is realistic and achievable.
Oil price volatility will affect construction costs and bitumen prices in particular.	In the transportation activity, forecast works are initially based on need rather than available budget, so any funding limitations will be managed by undertaking a final programme that is affordable. Flexibility in programming is always required as work may change in priority for several reasons.

Summary of major infrastructure projects

We have a number of major decisions to make around how we deal with a number of major projects over the coming 30 years. These decisions are shown across the timeline below showing when they need to occur and roughly how long it will take to complete the project. Further detail explaining the projects and decisions that need to be made are in the following sections of this strategy.

Our major infrastructure projects



There are many projects in the first three to four years. The relatively small number of projects later on is partly due to these projects simply not yet being identified. One of the main drivers of our work programme is new regulations and standards – these do not yet exist for the later years.

The relatively high number of projects early on for drinking water reflects a need for work to meet current drinking water standards.

Our Significant Decisions

The following are a summary of the key decisions for each of the asset areas covered by this strategy (* indicates Council's preferred option)

	Key Decision	Drivers	Principal Options	Cost estimate and timing
Drinking Water				
1)	Reticulation Extensions (2024 onwards)	Demand and growth	1. Proactively prepare plans and designs for peri-urban residential areas*	Higher overall capital cost but spread over time
			2. Consult with larger areas and proceed with design and construction only if an area-wide rollout is favoured	Lower capital costs overall but incurred in larger amounts each time
			3. Do not plan for or install reticulation. Allow developers or private landowners to install reticulation to be vested in Council.	Minimal cost to Council
			4. Regulate to restrict development	Potentially high cost if legal challenges arise
2)	Complete universal water meter installation	Compliance Demand and growth	1. Install water meters on every water connection in Ashburton and Rakaia (remaining unmetered schemes)	$5m 2027-2030
			2. Status quo	Est. $100,000 pa
3)	Change our renewal programme intensity (2026, and prior to every LTP thereafter)	Resilience Affordability	1. Renew approximately in line with depreciation*	No additional cost
			2. Raise renewal funding above depreciation	Variable. Possibly $500,000 p.a. additional
			3. Lower renewal funding below depreciation	Potential for higher costs of repairing at point of failure
4)	Montalto water supply upgrade	Compliance	1. Investigate options for Montalto Drinking water scheme to meet Drinking Water Standards*	Minimal cost to investigate
			2. Upgrade the intake weirs with new fish screens; construct new membrane-level treatment plant; construct new potable trunk reticulation	$8.5m 2027-2028
			3. Withdraw potable water service to customers and reverting the scheme to stockwater-only	Est. $1.7m
			4. Upgrade the intake weirs with new fish screens; install point of supply treatment and selective abstraction equipment at each farm; construct new trunk reticulation with defined points of supply to customers	$8.5m 2027-2028
			5. Upgrade the intake weirs with new fish screens; install point of supply treatment and	$11m-$21m

			selective abstraction equipment at each farm; replace all reticulation.	
5)	Water charging (2027 or later)	Compliance Demand and Growth	1. Charge volumetrically for commercial and large properties only (status quo)	$0 (no change)
			2. Universally charge for water on a volumetric basis	Cost-neutral
			3. Remove all volumetric charging	$0

	Key Decision	Drivers	Principal Options	Cost estimate and timing
Wastewater				
1)	Change our renewal programme intensity (2026, and prior to every LTP thereafter)	Resilience Affordability	1. Renew approximately in line with depreciation*	No additional cost
			2. Raise renewal funding above depreciation	Variable. Perhaps $500,000 p.a. additional
			3. Lower renewal funding below depreciation	Potential for higher costs of repairing at point of failure
2)	Upgrading the Ocean Farm wastewater disposal irrigation system (2026)	Compliance Affordability	1. Replace current irrigation system with subsurface irrigation	Possibly $3m
			2. Replace existing popup sprinklers with another type, such as impact sprinklers	More expensive that $3m
			3. Replace existing irrigation system with other irrigation system, such as a combination of pivots and laterals	Likely to be the most expensive and complicated option
			4. Do minimum	Cheapest option
3)	Resource consent renewal approach (from 2035)	Compliance Demand and Growth	1. Follow a similar treatment approach, but expand the disposal area to meet contaminant loading limits	Moderate and relatively quick to implement
			2. Upgrade the treatment processes	High cost and would need to begin planning perhaps 3 years prior to renewal
			3. Attempt to ensure compliance though the consenting process	Low cost, approximately 1 year prior to expiry

	Key Decision	Drivers	Principal Options	Cost estimate and timing
Stormwater				
1)	Approach to land drainage associated with the closure of the stockwater race network (2024 and ongoing)	Resilience Demand and Growth	1. Assess and designate important former/existing races as drainage assets for the purposes of the Land Drainage Act and consider whether Council would accept responsibility for these drains	$175k p.a. to investigate and identify, ongoing costs unknown
			2. Stronger advocacy for ECan to manage rural drainage	Minimal cost
			3. Leave as the responsibility of landowners	Minimal cost

	Key Decision	Drivers	Principal Options	Cost estimate and timing
Transportation				
1)	Implementing and Funding Ashburton-Tinwald connectivity (2024)	Resilience Demand and Growth	1. Progress the construction of the Ashburton second bridge, subject to funding*.	$113 million
			2. Do not construct the Ashburton second bridge	$0
2)	Affordably maintaining and improving our roading network (2024 and ongoing)	Resilience Demand and Growth	1. The network funding that our community can afford	Additional $2.7million funding per year, total increase of $8.2million for 2024-7
			2. The network funding that our Network needs	Additional $7.5 million per year, total increase of $22.7million for 2024-7

The following sections detail each of the main asset activities covered by this Strategy, including details options analysis of the key decisions.

Our future – Drinking Water

Our drinking water services provide our communities with access to safe, reliable, and potable water at an affordable cost.

The future for the Drinking Water activity will see significant tension between demands to improve drinking water quality and security of supply, and the costs involved in achieving this aim. This will be of greatest concern for our relatively small rural schemes.

Our priorities and key issues for the next 30 years are to:

- Attain and maintain compliance with all applicable regulations, especially the Drinking Water Standards for New Zealand (DWSNZ) and our various resource consents and to continuously adapt as standards change.
- Monitor and manage demand to ensure levels of service can be maintained.
- Continue to replace aging assets to minimise the chance of failures.
- Seek out cost efficiencies, including adopting new technologies.

Compliance

Compliance, particularly in water safety, is the highest priority in the Drinking Water area.

New drinking water regulations released in 2022 required upgrades to all our water supplies. Some were already planned, such Methven, Mt Somers, Methven Springfield and Montalto (approach to be confirmed). Others were already thought likely, such as UV and filtration for other supplies. These upgrades will be the focus for the first two years of the Long-Term Plan 2024-34, and will bring our water schemes into compliance with the current bacterial, protozoal and chemical rules.

As time goes on, Taumata Arowai will continue to develop and improve safety standards. This might include requiring treatment for viruses, mandating fluoridation, and generally improving monitoring rigour.

A significant increase is likely in the protection and monitoring of reticulation networks; for example, this means rolling out backflow prevention devices, and establishing continuous monitoring of pressure and chlorine around the networks. Improving safety in the distribution zone also implies significant reductions in the number of leaks and the speed of their detection and repair.

It is likely that additional resourcing, in terms of staff, technology or a combination of the two, will be needed to manage the preparation, maintenance and implementation of more detailed water safety plans and water safety programmes.

Demand management

Our district's water supplies have notably high levels of reported water loss. Early investigations from smart water meters retrofitted to existing residential properties over the past five years suggest that there is also a relatively high level of real water loss. This means that we are not meeting the water loss or the consumption per person level of service targets.

As well as the level of service targets, water loss bears real, tangible costs. There is a financial cost to pump and treat water that is wasted. Reducing water loss also delays the need to amend or expand water take resource consents, which is a costly process that brings other risks. In some cases, there is a possibility of breaching consent limits in the short term.

Water loss from old pipes will be addressed over time through our ongoing renewal programme, and new leaks can be located and fixed. Design and construction standards are being improved to reduce the probability of leaks from new and renewed infrastructure.

Industry rules of thumb estimate that around half of water loss is from private (on-property) pipes and fittings. Our main tool to address private water loss and inefficient consumption is universal water metering. We have installed meters in several small schemes through the last LTP, including Methven, and are using these to understand demand patterns and losses. Data and lessons from the use of the metered schemes may inform future decisions on the wider use of meters.

Widespread water metering will give future councils better information on which to base decisions on drinking water funding, including the introduction of wider or universal volumetric charging, should this occur.

Asset renewal

We have been renewing our water pipes and associated assets steadily for decades, and this programme will continue. Timely renewal of assets is important to reduce the probability of major unplanned failures, and to reduce the maintenance cost imposed by frequent, repeated minor repairs, such as stuck valves or leaking pipes or fittings. This is important to control costs; many repairs simply must be carried out and paid for.

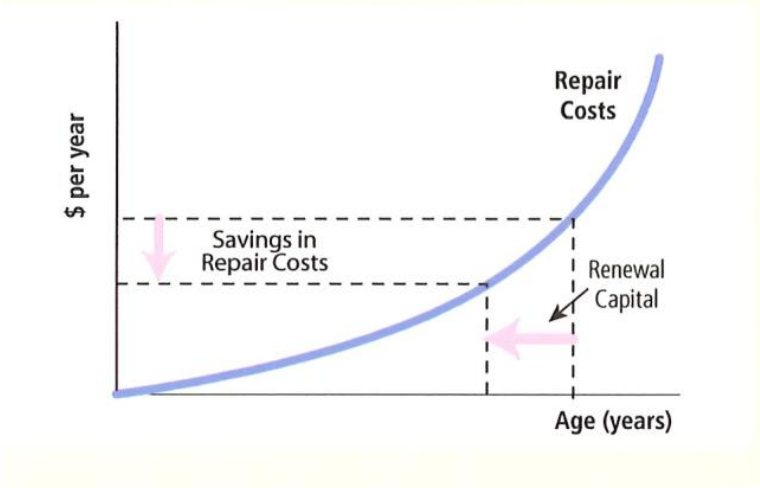
Renewals to date have been focused mainly on Ashburton and Methven, the oldest schemes. At the present rate, the renewal of all original pipe networks in the Ashburton and Methven towns is likely to take another 20 years. The other schemes, although constructed in the 1970s and 1980s, are beginning to show signs of approaching their end of life, and so over the next 10 years these are also planned for renewal.

Renewals expenditure is matched approximately to the rate of depreciation. In the urban areas we are not seeing many full-scale asset failures, so the conclusion is that our assets still have remaining life in them. As time goes on, the risk of assets failing before being renewed increases. We choose to spread out renewals over time to avoid having a large spike of expenditure over a short time period. Where a significant rise in maintenance visits is seen for specific assets or classes of asset, they are prioritised for urgent renewal, and a higher rate of renewal may be necessary.

As the extensive rural schemes reach end of life, a small acceleration of renewal expenditure over depreciation is anticipated. This means spending more in order to take advantage of the efficiency of scale. For example, in Dromore each branch of the network represents approximately 5km of pipe. However, it is more cost-effective to renew a whole branch at once rather than doing it in parts.

Renewal priority is based around age, material and criticality, with modifications made based on analysis of maintenance records and customer complaints.

As more assets age toward the end of their nominal life, we expect an increased rate of failures, unreliability or other problems. In that case, a faster rate of renewal will be required to prevent the maintenance cost burden, and reduced levels of service to customers caused by widespread network failures. Renewal lowers the average age of the network, which lowers the maintenance cost. In theory, the best approach to renewing an asset is to renew it when the cost of renewal reaches the same amount as the money that would be saved in maintenance. (see figure inset). However, it may become beneficial to increase the rate of renewal early to spread out expenditure peaks, rather than reach a point where a large volume of assets reaches its optimal renewal point at the same time.



Cost efficiency

Affordability is one of the key drivers for any public service, and councils constantly face the need to balance the costs of providing higher levels of service against the desire to keep cost increases to a minimum.

Some cost efficiency will come from minimising maintenance costs and optimising renewals. More will come from minimising water loss and inefficient water use.

Another route to reducing costs is likely to be the adoption of new technologies to enable automation, optimisation and remote monitoring of networks. For example, smart water meters can be read wirelessly from a passing vehicle and do not need a meter reader to open every toby box and record the reading. If these meters were able

to automatically send back readings continuously, there would be only minimal need for readings.

Automation is used around Ashburton in the central control system, which adjusts the numbers and speeds of the various pumps to optimise the running of the network and avoid inefficient pumping practices. With more detailed pressure and demand information this system could be further refined. There is also the option to time reservoir filling cycles to take advantage of cheaper power at low demand times (e.g. overnight). These options have not been worked through in detail and have not been assumed when forecasting future costs.

As a final example, cameras and solar-powered data loggers can reduce the number of visits required at remote locations, such as the water intakes and infiltration galleries, saving significant time and cost.

Economic performance

The economic performance of the water supplies will come under increasing public and regulatory scrutiny in the future. This means investing properly into infrastructure and understanding and justifying that investment.

What this means for us is that we will be expected to have greater knowledge of our assets' condition and performance, informing more detailed demand management strategies and investment plans. This also includes funding strategies and mechanisms to ensure that water supplies are financially sustainable in the long term.

In practice, this may mean more asset inspection and assessment, more network monitoring, more detailed record-keeping around expenditure, and to facilitate this there will need to be improvements to asset data systems.

Drinking Water - Significant decisions

This section outlines the main significant decisions to be made in the coming years. These range from very specific questions about projects to questions of strategic direction.

In this section, figures used are uninflated to facilitate comparisons between options.

1) Reticulation extensions

Driver: Demand and growth

Decision required: Periodically, from 2024 onwards

Around the district, particularly on the edges of towns, there are areas of development or residential areas that are currently unserviced. There are regular requests for large-scale extended reticulation.

For example, the North-East Ashburton area contains mainly large residential and lifestyle properties, obtaining their water from private bores. In recent years there have been concerns around the quality and safety of the water being supplied to these properties, with E. coli and nitrates being the main areas of concern.

Concept designs have been started for some areas around Ashburton. As development proceeds and zoning changes, planning needs to take place. This decision is about our preferred approach to new development.

Assumptions:

- Demand for reticulation in the area will be present and will increase.
- We are not compelled to provide reticulation by an external factor

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.*	Proactively prepare plans and designs for peri-urban residential areas and areas identified for future development but wait for demand and service small areas – an incremental approach.	Overall servicing plans are developed to ensure that the systems will work and provide appropriate levels of service. Installing the reticulation ourselves ensures control over the alignment and quality of the infrastructure and allows fair cost recovery to be achieved. Spreading out the construction helps keep increases in capital cost and depreciation cost small. Where a pipeline is constructed in a street there may be a capital contribution required, and even non-connected properties may be liable for a (half) rating charge. Responding to demand limits the impact of this on opposed ratepayers.	Higher overall capital cost but spread over time.	✓	✓	
2.	Consult with larger areas and proceed with design and construction only if an area-wide rollout is favoured.	This option, as a larger single package of work, offers cost-efficiency. However, the cost is all incurred at once, which may affect debt and rates limits. This option also may lead to the installation of infrastructure which is largely unused for years or decades, and slow uptake may delay cost recovery through capital contributions. This option may be seen as not recognising the needs of specific roads or areas.	Lower capital costs overall but incurred in larger amounts each time.	✓	✓	
3.	Do not plan for or install reticulation. Allow developers or private landowners to install reticulation to be vested in Council.	This option is the cheapest for Council, as the costs of development are borne by the landowners directly. This may act to discourage connections to the reticulated network and encourage more deep private bores. This option cedes some control over the location and timing of development.	Minimal cost to Council	✓	✓	
4.	Regulate to restrict development	This option uses non-engineering responses to control development by reducing the available areas of residentially zoned land, to steer development into areas that are currently serviced, or which will be the most cost-effective to service. This option takes more control over the location of development but is vulnerable to legal challenge through the District Plan process and the environment court. This option could alternatively be combined with other options, rather than being seen as an option in itself.	Potentially high cost if legal challenges arise	✓	✓	

* This is Council's preferred option

2) Complete universal water meter installation

Driver: Compliance, demand and growth

Decision required: 2026 (for next LTP preparation)

While our population is growing, we currently operate within fixed water take limits. The district's water supplies have relatively high levels of water loss. Not being able to demonstrate sound management of water demand is likely to hinder consent renewals or applications for larger allocations.

We need to improve our water use efficiency to remain compliant with consents and to ensure levels of service can be maintained for our customers. The current position is for water meters not to be used for volumetric charging, but be focused on helping to assess and improve water leakage.

Previous consultations have acknowledged the community are prepared for occasional water restrictions in times of less water availability and that water is not an unlimited resource.

Assumptions:

- Population growth will continue as forecast and will lead to a proportional increase in demand.
- Water take resource consent limits will remain unchanged, at least until they begin to expire in the 2030s. For planning purposes, we assume consents are renewed with the same annual allocation as the current consents. Given general growth, this represents a reduction in per-property allocation.
- We will continue a programme of public leak detection work.

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.	Install water meters on every water connection in Ashburton and Rakaia (remaining unmetered schemes)	Results of the trial and investigations in Methven will be used to confirm the validity of previous water loss assumptions. In particular, it will confirm the presence and scale of private property leaks and allow for the balance between public and private leakage to be quantified. Meters are likely to slow water demand through knowledge of consumption and assist with understanding and finding private property leaks or high users. Metering would show good stewardship of the water allocated under our consents and facilitates a better estimate of real water loss. It also supports broader objectives under the Climate Change Policy to reduce emissions and to improve capacity and resilience. However, there would be an ongoing cost associated with reading meters. Additional infrastructure to enable automatic continuous reading may provide operational cost savings.	$5m 2027-2030		✓	
2.	Status quo	We would continue our leak detection and asset condition monitoring programmes. Will leave us without a key tool to avoid breaching resource consent limits. We would also find it more difficult to meet the levels of service agreed with the community for water loss and consumption. Significant reputation loss would arise from a perceived double-standard between ADC water supplies and other water users (e.g. farmers) who are working hard to improve efficiency. May reinforce perceptions at Government or regulator level that local authorities are not a fit steward of water resources. Improving water loss would require more active leak detection, plus increased operational costs to repair previously unknown leaks found.	Est. $100,000 pa		✓	

3) Changing our Renewal programme intensity

Driver: Resilience, affordability
Decision required: 2026, and prior to every LTP thereafter.

Ongoing renewal of aging pipes is carried out to minimise the costs of failures or leaks. The amount of money dedicated to renewals can be varied to trade expenditure for risk.

Assumption: The rate of failures increases relatively slowly, rather than a sudden jump

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.*	Renew approximately in line with depreciation	There is no additional effect on rates as depreciation must be rated for regardless. This is the preferred option because we are not seeing a widespread increase in infrastructure failures and so the additional cost may be unnecessary.	No additional cost			✓
2.	Raise renewal funding above depreciation	This option would help to reduce the risk of a large increase in failures leading to a high number of renewals being require in a short timeframe. This would protect future ratepayers but at a cost to present ratepayers.	Variable. Possibly $500,000 pa additional		✓	✓
3.	Lower renewal funding below depreciation	There is no effect on budgeted rates as depreciation must still be funded, but over time an increase in maintenance costs may be seen as more pipes fail. This ensures that asset lives are maximised and a reserve may be built up with this option, to be spent on demand as assets begin to fail. However, failures can be unacceptable to the public, causing inconvenience and potentially danger. Renewal of failing assets is more time-critical and less flexible than planned routine renewal. Work under this option is inherently more variable and may not be compatible with efficient procurement of large or multi-year work packages.	Potential for higher costs of repairing at point of failure		✓	✓

* This is Council's preferred option

4) Montalto Water Supply Upgrade

Driver: Compliance

Decision required: 2027

The Montalto rural water supply is not able to comply with current Drinking Water Quality Assurance Rules and resource consents for a number of reasons: the source weirs need upgrading to provide fish screening; there is no compliant treatment for bacteria or protozoa; the distribution system is in poor condition and has many connections, most of which lack reliable backflow prevention. As a result, all parts of the supply need an upgrade. The supply is under a permanent boil water notice.

Options have been developed for this upgrade. Council and the community will have to decide which approach to take and then how to fund it. Currently Montalto is self-funding, and is not grouped with other water supplies.

Assumptions:

- No significant change in population or demand for water on the scheme
- No changes to the rules or consents

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.*	Investigate options for upgrading the current Montalto Drinking water scheme to meet Drinking Water Standards	Council will investigate the best option to improve the Montalto water supply. This will include consulting with users to determine a solution that works, while meeting drinking water standards. Some possible options, outlined below, may involve a single solution or combination.			✓	
2.	Upgrade the intake weirs with new fish screens; construct new membrane-level treatment plant; construct new potable trunk reticulation with defined points of supply to customers	The existing reticulation would become stockwater-only, as a bulk supply. This would need to be renewed, but could potentially be transferred to the community to operate and would not need to meet drinking water specifications. If Council retained ownership, the renewals could be spread over a longer period of time to reduce the impact. This option would provide high-quality drinking water to customers almost irrespective of source water quality. Customers would probably need to transition from the current on-demand supply to a restricted model (similar to Methven Springfield) for domestic water, and would need to connect to a new single point of supply. If Council funded this work the cost could rise.	$8.5m 2027-2028		✓	
3.	Withdraw potable water service to customers and reverting the scheme to stockwater-only	Customers would need to move to rainwater systems (this is what the budget covers) and would become self-suppliers. Council would need to take care to ensure that no one is using the stockwater supply for drinking water, including that everyone has disconnected their houses from the scheme and that they all have a suitable source of potable water. It is likely that some amount of tankered water would be required most years. This would represent a significant reduction in the level of service provided to customers.	Est. $1.7m		✓	

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
4.	Upgrade the intake weirs with new fish screens; install point of supply treatment and selective abstraction equipment at each farm; construct new trunk reticulation with defined points of supply to customers	Existing reticulation would become stockwater-only, as a bulk supply. This would need to be renewed, but could potentially be transferred to the community to operate and would not need to meet drinking water specifications. If Council retained ownership, the renewals could be spread over a longer period of time to reduce the impact. The new trunk reticulation is still required because the existing network has water security risks due to unprotected connections. This option simply changes whether this water is treated at the source or at the property. This option would require the treatment equipment at each property to monitor the quality of the source water to ensure it can be treated effectively. There is a risk that water quality might exceed the capabilities of some forms of point-of-supply treatment (i.e. filters and UV) for extended periods of time. Customers would probably need to transition from the current on-demand supply to a restricted model (similar to Methven Springfield) for domestic water, and would need to connect to a new single point of supply. If Council funded this work the cost could rise.	$8.5m 2027-2028		✓	
5.	Upgrade the intake weirs with new fish screens; install point of supply treatment and selective abstraction equipment at each farm; replace all reticulation.	Customers would receive a combined feed at their point of supply and would abstract and treat a drinking water supply from that source. This option is very expensive because the pipes would need to be larger to accommodate the higher volumes of water and there would be more pipe to be replaced.	$11m-$21m (Depending on installation method)		✓	

** This is Council's preferred option*

5) Water charging

Driver: Compliance, demand and growth

Decision required: 2027 or later

While our population is growing, we operate within fixed water take limits. The district's water supplies have relatively high levels of water loss. Not being able to demonstrate sound management of water demand is likely to hinder consent renewals or applications for larger allocations.

Currently, we charge for water for users connected through a targeted rate depending on the water scheme. This implies that users essentially receive an unlimited amount of water for no additional cost above the rate.

We need to improve our water use efficiency to remain compliant with consents and to ensure levels of service can be maintained for our customers.

As investment levels are likely to increase in the medium and long term, additional revenue mechanisms may be desirable, both to raise more funding and to help affordability and equity. Water charging may be one mechanism to balance the fixed rate with a user-pays charge. Depending on the future regulatory environment, especially with an economic regulation regime likely to be introduced, these mechanisms may need to be explored sooner, rather than later.

Assumptions:

- Population growth will continue as forecast and will lead to a proportional increase in demand.
- Water take resource consent limits will remain unchanged, at least until they begin to expire in the 2030s. For planning purposes, we assume consents are renewed with the same annual allocation as the current consents. Given general growth, this represents a reduction in per-property allocation.
- We will continue a programme of public leak detection work

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.	Charge volumetrically for commercial and large properties only (status quo)	As this option represents the status quo, no significant effect is expected to be seen. We would probably also continue to not meet the levels of service agreed with the community for water loss and consumption.	$0 (no change)		✓	

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
2.	Universally charge for water on a volumetric basis	The exact charging model is yet to be determined, and options include: • Charge per m^3 with an allowance • Charge per m^3 with no allowance • Charge per m^3, reducing the cost per m^3as consumption increases • Charge per m^3, increasing the cost per m^3as consumption increases Each option has different impacts on customers and will have different effectiveness. Adding a direct cost signal is likely to improve the effect of meters through reducing demand to save money and improving the rate and speed with which leaks are fixed. However, there would be an ongoing cost associated with generating and handling billing	Cost-neutral		✓	
3.	Remove all volumetric charging	It is expected that this option would lead to an increase in demand from some customers. This might be immediate as people are no longer incentivised to economise, or longer-term as there is no financial feedback if demand grows. People may feel that, as they pay their rates, they are entitled to as much water as they wish. This option may be popular with larger consumers, particularly, for example, large residential or small lifestyle property owners, whose relatively high demand would be subsidised by other ratepayers. Significant reputation loss could arise from a perceived double-standard between ADC water supplies and other water users (e.g. farmers) who are working hard to improve efficiency. We would probably also continue to not meet the levels of service agreed with the community for water loss and consumption.	$0 Potentially a small saving in administration cost, although this is unlikely to be realised as this is a small part of larger roles for the staff involved.		✓	

Financial forecasts

Renewal profile

The renewal profiles in Figure 1 show the forecast renewals for each year over the next 100 years (blue bars), based solely on standard asset lives and valuations, modified for condition rating. There is one for reticulation assets and one for facility assets. These show the theoretical renewal programme before any smoothing is applied. The chart also shows the 5- and 10-year moving averages and cumulative depreciation.

The reticulation profile indicates that expenditure requirements approximately match depreciation funding when spread over the next 20 years. There is no significant gap or build-up of delayed renewal work. This reflects the end of the renewals of the large amounts of pipe installed in the 1960s to 1980s. After this, the profile implies a period of low demand for reticulation renewals. In practice this will be spent on proactive renewals, spreading the demand, and replacing assets that are failing earlier than expected.

The facility profile tells a different story, with a short-term demand for expenditure above depreciation. This is due to several treatment plants having been upgraded between 2003 and 2012, where key equipment will be due for renewal after 15-25 years of service.

The low cumulative replacement cost relative to depreciation towards the end of this profile reflects that subsequent replacements of assets are not shown on the profile. In practice, the renewals for these assets are likely to appear towards the end and the cumulative replacement cost will increase accordingly.

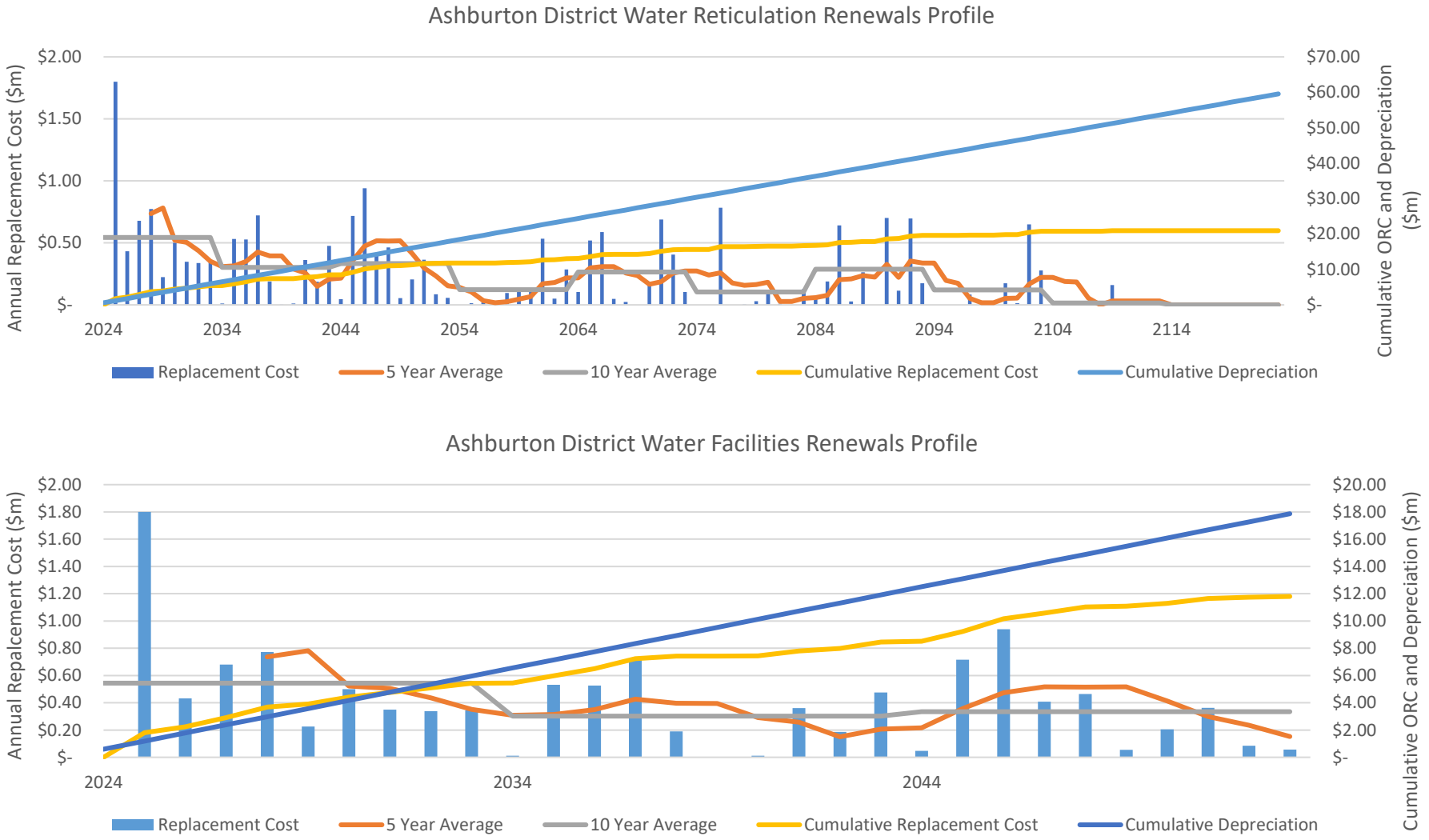


Figure 1. Drinking Water renewal profiles – all schemes

Looking at the next 10 years, and considering reticulation and facility assets, Figure 2 shows our actual planned renewal expenditure (green bars), with the 10-year average expenditure (black line) and the annual depreciation in 2024 dollars (blue line) on top. This shows how we plan to spend approximately in line with our depreciation, effectively replacing assets as fast as they age.

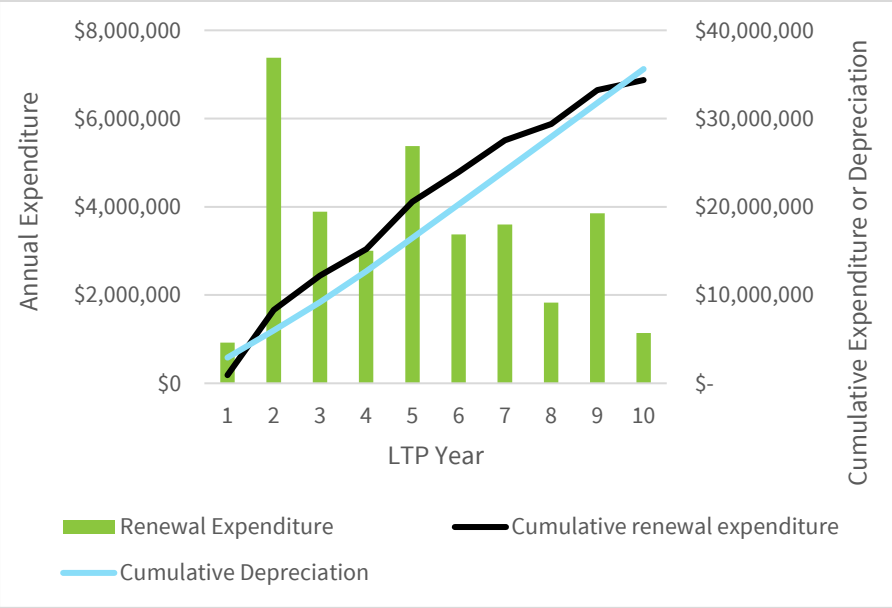


Figure 2. Drinking Water 10-year renewal expenditure vs depreciation forecast

Capital expenditure

All new capital expenditure on Drinking Water is shown in the chart below. Note that the last four bars represent 5-year totals. The chart shows a large amount of new infrastructure in the first 5 years of the plan, reflecting a push to achieve compliance with the current and proposed Drinking Water Standards within 5 years.

The lack of projects in the later years reflects high uncertainty about where standards may go in the future. We will add projects to this long-term programme when the direction of travel becomes clear. For example, we may be required to provide for nitrate removal, or a policy of removing chlorination may be adopted, but any attempt to predict the scale and timing of any such improvements will only provide misleading guesses.

Unlike some other councils, we do not proactively install water pipes in advance of development, preferring to let developers install this as development occurs and vest the assets in Council.

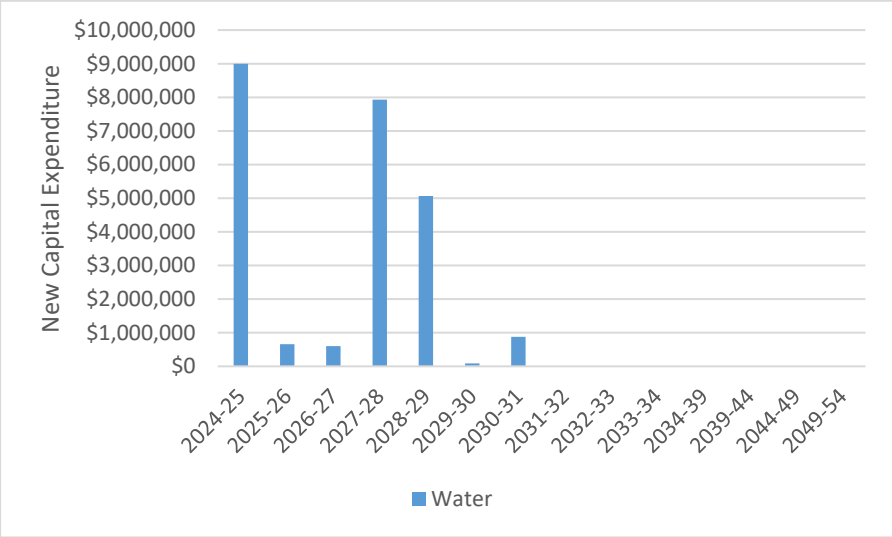


Figure 3 - Drinking Water new capital expenditure (uninflated)

Operating costs

Forecast operational expenditure for Drinking Water is shown in the chart below. Note that the last four bars represent annual average figures, for easier comparison. This chart shows a general increase over the next 30 years, as costs overall rise in line with inflation and growth in the network. New facilities add to the cost of operating the network, while new pipes should not lead to an immediate increase in costs as they should be reliable for a long time.

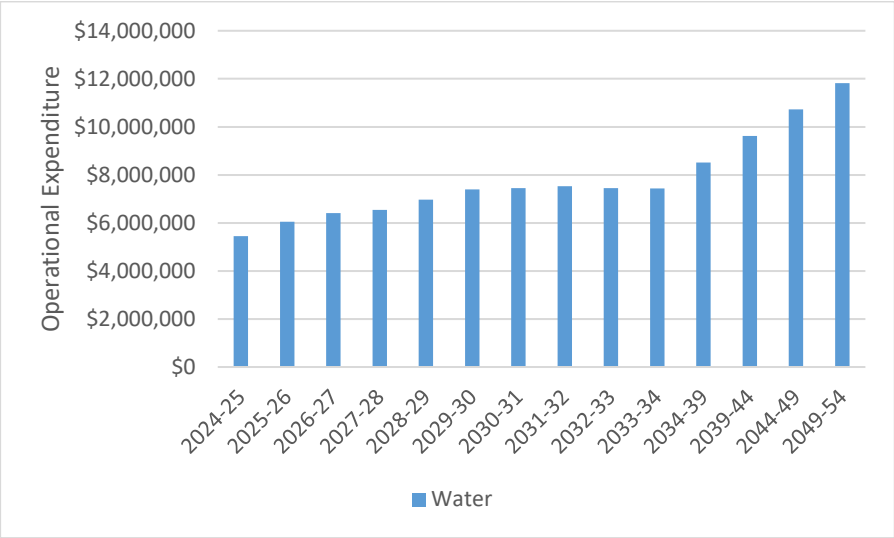


Figure 4. Drinking Water forecast operational expenditure (inflated)

Our future - Wastewater

Our wastewater services provide communities with safe, reliable and sanitary disposal of wastewater at an affordable cost.

Our priorities and key issues for the next 30 years are to:

- attain and maintain compliance with applicable resource consents;
- monitor condition and performance of assets to ensure that levels of service are being maintained;
- continue to replace aging assets to minimise the chance of failures and to increase resilience;
- seek out cost efficiencies, including adopting new technologies.

The future for the Wastewater activity will see tighter requirements for nutrient loadings take effect as resource consents come up for renewal in the 2030s.

The new three waters regulator Taumata Arowai will have impact on the management of wastewater services. It is likely to mean higher standards and expectations, both around performance and reporting. Compliance monitoring is still the responsibility of Environment Canterbury, but Taumata Arowai will exert influence at the higher level.

Infiltration and inflow (I&I) will continue to consume capacity, pumping and treatment resources. Ongoing renewals will help to reduce infiltration from the public mains networks, but other interventions may be needed if capacity becomes too constrained and causes maintenance problems or impedes development and expansion.

Low pressure sewer systems are gaining acceptance and can provide advantages in certain circumstances over gravity networks. The first public systems have been vested and adopted in the district, and throughout the life of this strategy an expansion of these types of sewer systems is likely. There will be a need to manage these in a way that minimises faults and maintenance costs and that optimises the use of the networks.

Finally, there may be pressure to expand municipal wastewater services to areas not currently serviced. We have already begun planning for the periphery of the Ashburton urban scheme, to the north-west of Ashburton, for example.

Other villages such as Hinds may need to be serviced in the longer term, although there is no direct imperative for that at present.

Compliance

Compliance with resource consents and particularly with effluent quality and contaminant loadings is the highest priority in the Wastewater area.

Our three wastewater schemes generally comply with our resource consents, although there have been departures in recent years. The most important of these are at Ocean Farm, where the effluent has had E. coli concentrations above the permitted levels, and Rakaia, where the sludge nitrogen loading has been higher than permitted. These are being addressed through consenting processes and capital works.

These resource consents are due for renewal in the 2030s. In anticipation of higher standards, capital expenditure is likely to be needed at these treatment facilities, either to achieve higher treatment levels or to increase disposal area. Ocean Farm and Rakaia have already had extra land purchased nearby to provide options for extending irrigation areas. What is yet unknown is whether the focus will remain primarily on nutrient loadings, or whether treatment processes will need to be made more sophisticated to deal with emerging contaminants, such as viruses.

Inflow and infiltration management

Inflow of water directly into sewers or infiltration of groundwater into pipes and manholes consumes conveyance and treatment capacity in wastewater networks and facilities, which adds to running costs and leads to the need to renew earlier or enlarge pipes to avoid wet weather overflows.

Our ongoing renewal programme helps to reduce infiltration in the public network by replacing older, leaky pipes with new, sealed ones. Inflow is addressed through ongoing inspection of gully traps and stormwater systems and by tracing sources of water during wet weather events.

Sludge Management

The ponds at Ashburton, and to a lesser extent Methven, accumulate sludge as a natural byproduct of the treatment processes. After decades in use, this sludge can build up to the point where it needs to be removed to restore the effectiveness of the treatment. In a worst-case scenario, excessive build-up can cause the ponds to stop treating entirely and can generate significant odour.

In the life of this LTP we propose to desludge the Wilkins Road Facultative Oxidation Pond, and to carry out a follow-up survey at Methven to see if and when that will need desludging. Removed sludge must be dewatered and then disposed of to an appropriate facility as hazardous waste. This is a very expensive project, but fortunately it doesn't need to be done very often.

Asset renewal

We have been renewing our wastewater pipes and associated assets steadily for decades, and this programme will continue. Timely renewal of assets is important to reduce the probability of major unplanned failures, and to reduce the maintenance cost imposed by frequent, repeated minor repairs, such as blockages caused by dips or faulty joints. This is important to control costs; many repairs simply must be carried out and paid for.

Relining of existing reticulation is favoured for the on-property sewers that are prevalent in Methven and the Hampstead area of Ashburton. Relining is only practical when the sewer main is not collapsed or badly deformed, otherwise excavation is needed. It is therefore important to ensure that relining is carried out before these pipes begin to fail, or accelerated if there appears to be an increase in failures.

We carry out CCTV inspections of a sample of approximately 1-2% of pipelines every year and have used this information to extrapolate the condition of similar pipes in the network. As more information is forthcoming the priorities and pace of the programme can be revisited.

Renewals expenditure is matched approximately to the rate of depreciation. As with the drinking water assets we are not seeing many full-scale asset failures, so the conclusion is that our assets still have remaining life in them. As time goes on, the risk of assets failing before being renewed increases. We choose to spread out renewals over time to avoid having a large spike of expenditure over a short time period.

In the 2024-34 LTP we are proposing to spend above depreciation overall. This is driven by a large allocation in 2027-28, around $7m, to desludge the Wilkins Road ponds. This is a large, infrequent project, typically decades apart. It is also entirely possible that this is not needed at the time and can be deferred; this will be confirmed with a sludge survey programmed for 2026-27. Without the allocation for desludging, we spend slightly under the total depreciation.

Renewal priority is based around age, material, and criticality, with modifications made based on analysis of maintenance records and customer complaints.

Since the Rakaia scheme was constructed in 1999 we do not anticipate widespread renewals in the near future, but we anticipate adding this scheme to the inspection programme from the 2040s onwards. We expect to begin the first renewals towards the 2070s or 2080s in order to provide reasonable smoothing of expenditure, although this is very much subject to change depending on the deterioration of the pipes.

Cost efficiency

A large component of cost in our wastewater treatment systems is electricity – used for powering mechanical aerators and pumping wastewater around treatment plants and out for irrigation at Rakaia and Ocean Farm. The best way to save costs is to stop groundwater or stormwater from entering the network, and thereby not spending resources pumping or treating it. Methods for reducing this infiltration and inflow have already been discussed.

There are also options to improve the efficiency of the treatment, such as more energy-efficient aeration methods, smarter monitoring, and control of aeration, and managing pumping schedules to spread demand.

In the reticulated networks we carefully consider the best approach to renewals. This means carefully selecting the methods used, and considering which assets to replace and to what extent.

As with drinking water, remote monitoring equipment and greater use of automation can reduce the number of visits required at sites, saving significant time and cost.

Wastewater - Significant decisions

This section outlines the main significant decisions to be made in the coming years. These range from very specific questions about projects to questions of strategic direction.

None of these are being specifically addressed in the Consultation Document. This is because the options are not developed and understood, or the decisions fall several LTPs hence, or the proposed option is status quo.

In this section, figures used are uninflated to facilitate comparisons between options.

1)Changing our Renewal programme intensity

Driver: Resilience, affordability

Decision required: 2026, and prior to every LTP thereafter

Ongoing renewal of aging pipes is carried out to minimise the costs of failures and blockages, and the additional treatment costs from infiltration and inflow. The amount of money dedicated to renewals can be varied to trade capital expenditure for risk.

Assumption: The rate of failures increases slowly, rather than in a sudden jump.

	Principal options	Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.*	Renew in line with depreciation	There is no additional effect on rates as depreciation must be rated for regardless. This is the preferred option because we are not seeing widespread infrastructure failures and so the additional cost may be unnecessary.	No additional cost		✓	✓
2.	Raise renewal funding above depreciation	This option would help to reduce the risk of a large increase in failures leading to a high number of renewals being require in a short timeframe. This would protect future ratepayers but at a cost to present ratepayers. When borrowing costs are low, this might present a favourable option compared to waiting for assets to fail and borrowing at the prevailing rates at the time.	Variable. Perhaps $500,000 pa additional		✓	✓
3.	Lower renewal funding below depreciation	There is no effect on budgeted rates as depreciation must still be funded, but over time an increase in maintenance costs may be seen as more pipes fail. A reserve may be built up with this option, to be spent on demand as assets begin to fail. This has the advantage of maximising the life of assets, by not renewing them until they fail, or begin to cause large increases in maintenance costs. However, this option also requires more reactivity and agility as renewal of failing assets is more time-critical and less flexible than planned routine renewal. Work under this option is inherently more variable and may not be compatible with efficient procurement of large or multi-year work packages.	Potential for higher costs of repairing at point of failure			✓

** This is Council's preferred option*

2) Upgrading the Ocean Farm wastewater disposal irrigation system

Driver: Compliance, affordability

Decision required: 2026

Treated wastewater from Ashburton (including Tinwald and Lake Hood) is transferred to Ocean Farm, passed through a surface flow wetland, then disposed of to land via a network of pop-up sprinklers and grass is harvested and sold through a cut-and-carry operation.

Birds in and around the wetland contribute to non-compliance with a consent limit of faecal coliforms in the final effluent. The sprinklers suffer from pressure problems that limit irrigation coverage and the direct application of effluent to the grass limits the markets it can be sold to. Furthermore, ECan have noted that the area actually irrigated is significantly smaller than the area of the paddocks, which in turn raises our effective nitrogen loading rate, putting compliance at risk.

Alternative systems for disposal of wastewater could solve these problems, which would increase yields and thus income.

We have a long-standing unmet requirement to measure effluent volumes discharged to each irrigation zone. Ideally this would be addressed along with any overhaul of irrigation.

Assumptions:

Cut and carry remains part of the operation of Ocean Farm.

Any required variations or approvals from ECan to vary the irrigation methodology are forthcoming.

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.	Replace current irrigation system with subsurface irrigation	Under this option the existing irrigation will be removed from the whole farm and replaced with subsurface drip irrigation. Main pipework may be reused or may be replaced, to be determined by detailed design. This option carries a high capital cost but should be cheaper for operations as the number of sprinklers needing replacement and cleaning will be dramatically reduced. This option also enables higher grass yields due to more complete coverage (up to doubling the area reached by irrigation) and may unlock higher prices for the grass due to more buyers for the product.	To be determined. Could be on the order of $3m		✓	✓
2.	Replace existing popup sprinklers with another type, such as impact sprinklers	Small-scale trials have indicated that changing to impact sprinklers improves irrigation coverage. High-maintenance pop-up sprinklers would be replaced with simpler alternatives, reducing operational costs. There is a significant capital cost for this option as well, although the cost could be spread. Failed pop-up sprinklers could be replaced with impact sprinklers individually or on a zone-by-zone basis, so the up-front cost is offset by not spending maintenance funds on new pop-ups.	More expensive than option 1			✓
3.	Replace existing irrigation system with other irrigation system, such as a combination of pivots and laterals	This option has not been explored in detail to date and would require investigation to determine both feasibility and cost. It is likely to be the most expensive and most complicated option, particularly given the nature of the farm (long, narrow and split across two levels with inlets).	Likely to be the most expensive and complicated option			✓
4.	Do minimum	This is a viable option because the irrigation methodology is not a consent liability per se. However, there is a risk that we will exceed nitrogen loading rates and need to expand the irrigated area to comply. We would still need to either improve flow monitoring to meet our consent condition or vary the consent (or seek non-enforcement).	Cheapest option			

3) Resource consent renewal approach

Driver: Compliance, demand and growth

Decision required: From 2035

Resource consents for the wastewater activity are due for renewal in the 2030s: Rakaia in 2033, Methven in 2034 and Ashburton in 2039. In anticipation of higher standards, capital expenditure is likely to be needed at these treatment facilities, either to achieve higher treatment levels or to increase disposal area.

Assumption: We have not proposed any major projects in the short term, but with the uncertainty about the future regulatory environment it is possible that a clearer strategic direction may emerge in the next few years, which will be reflected in subsequent AMPs and LTPs

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.*	Follow a similar treatment approach, but expand the disposal area to meet contaminant loading limits	Likely to be the lowest cost and gets the most from our available resources	Moderate Relatively quick to implement		✓	
2.	Upgrade the treatment processes	Expensive	High Due to the need for investigations and design we would need to begin planning perhaps 3 years prior to renewal		✓	
3.	Attempt to ensure compliance though the consenting process	Unlikely	Low Approximately 1 year prior to expiry			

** This is Council's preferred option*

Financial forecasts

Renewal profile

The renewal profiles below (Figure 5 and 6) show the forecast renewals for each year over the next 100 years (blue bars), based solely on standard asset lives and valuations, modified for condition rating. This shows the theoretical renewal programme before any smoothing is applied. The chart also shows the 5-year moving average and 10-year average, as well as the running totals of depreciation and replacement cost.

What these illustrate is that there is a need for a routine pipeline renewals programme for the next few decades, and then a relative lull before renewals expenditure ramps up again into the 22nd century as PVC pipes installed in the last two decades come up for renewal. This is likely to be brought forward, based on condition assessment, both to spread the cost and to renew pipes as they need it, since some are likely to not make their theoretical life. The facilities renewal profile has a number of large spikes, which relate to specific treatment assets reaching their end of life.

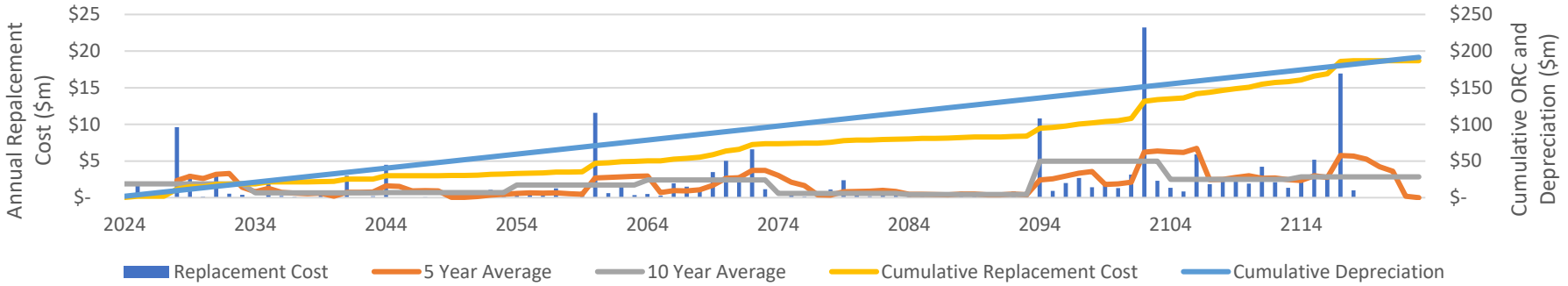


Figure 1. Wastewater reticulation renewal profile

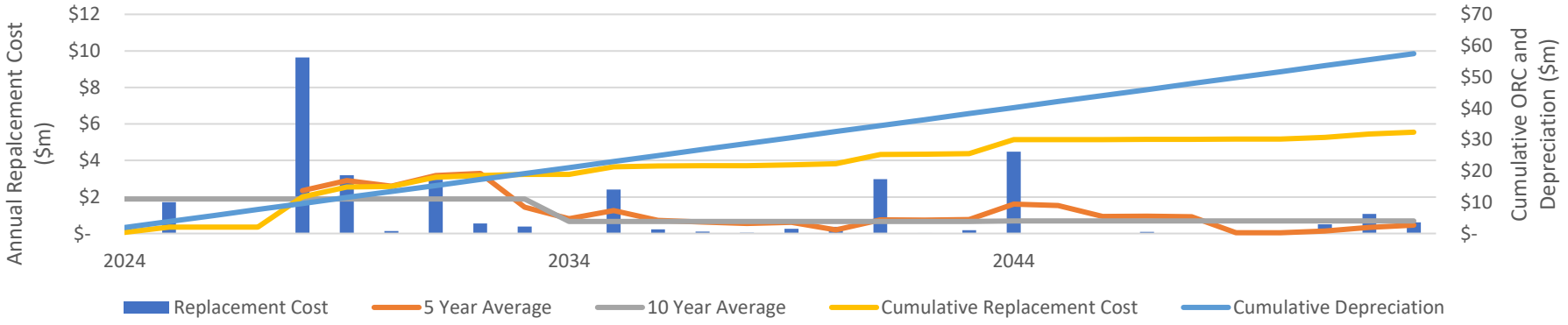


Figure 5. Wastewater facilities renewal profile

Capital expenditure

All new capital expenditure on Wastewater is shown in the chart below. In 2028-29 there is large outlay for an area of town being reticulated in the north-east area.

It is anticipated that there will be more expenditure required in the approach to consent renewal. Some of this is previously included in renewal expenditure, and any additional assets, once investigations have indicated the most appropriate direction, will be added to the long term plan.

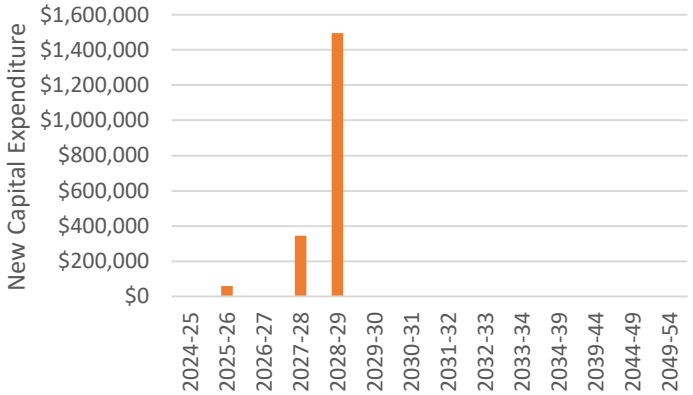


Figure 6 - Wastewater new capital expenditure (uninflated)

Operating costs

Forecast operational expenditure for Wastewater is shown in the chart below. Note that the last four bars represent annual average figures, for easier comparison. This chart shows a general increase over the next 30 years, as costs overall rise in line with inflation and growth in the network. New facilities add to the cost of operating the network, while new pipes should not lead to an immediate increase in costs as they should be reliable for a long time.

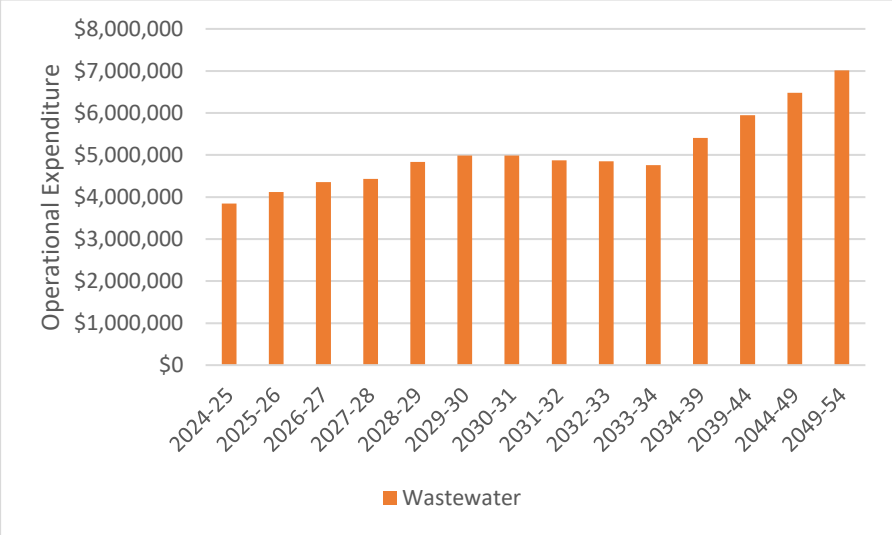


Figure 7 - Wastewater forecast operational expenditure (inflated)

Our future - Stormwater

Our stormwater services provide communities with managed collection, conveyance, treatment and disposal of stormwater at an affordable cost.

Our priorities and key issues for the next 30 years are to:

- obtain, implement and maintain compliance with applicable resource consents;
- roll out the programme of upgrades proposed for Ashburton to ensure that discharges to the river and streams are captured and treated to an appropriate quality;
- monitor the condition and performance of existing assets to ensure that levels of service are being maintained;
- seek out cost efficiencies, including adopting new technologies.

We expect the next 30 years will see a stronger focus from government and regulators on improving freshwater quality, and stormwater management is a key part of that. Historically stormwater networks have focused on collection and disposal rather than treatment and the quality of wastewater discharges to waterways; this balance is changing.

Councils need to formalise resource consents for stormwater disposal from their urban networks and begin to implement monitoring and improvement programmes outlined in these consents. We have recently obtained a network-wide stormwater consent covering the Ashburton, Tinwald and Fairton urban areas which is beginning to be implemented. Network-wide stormwater consents for Methven and Rakaia will follow in the next year.

The new three waters regulator Taumata Arowai will impact on the management of stormwater services. It is likely to mean higher standards and expectations, both around performance and reporting. Compliance monitoring is still the responsibility of Environment Canterbury, but Taumata Arowai will exert influence at the higher level.

There has been an increasing interest in rural stormwater management in recent years, particularly as land use patterns change and irrigation and stockwater races are closed or moved. This may lead to an expansion of the scope of the stormwater services to include more than the traditional concentrated networks.

The second Ashburton urban bridge provides an opportunity for improved treatment of the stormwater from the Tinwald area and Chalmers Avenue areas. There is likely to be stormwater treatment needed for the bridge and the new roads associated with it, which could be combined with urban stormwater treatment for a better combined outcome.

Stormwater - Significant decisions

The future direction for the urban stormwater networks is largely set by the existing and future resource consents. As a result, there are no significant decisions relating to those networks. The identified significant decision relates to the future of the responsibility and management of rural drainage.

In this section, figures used are uninflated to facilitate comparisons between options.

1) Approach to land drainage associated with the closure of the stockwater race network

Driver: Resilience, demand and growth

Decision required: 2024, ongoing

Ashburton District has had a network of water races since the late 1800s primarily providing water for stock. Land use change has driven an extended period of race network rationalisation. As these races have been closed and filled in over the past twenty years, the drainage function they also served has been lost, resulting in changes to overland flow paths and nuisance flooding issues. Environment Canterbury only takes responsibility for the drainage schemes operated by the former drainage boards. This decision is around how we manage rural stormwater on behalf of our ratepayers.

Assumption: Stockwater race closures increase in anticipation of Council ceasing service provision by 30 June 2027

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
1.	Assess and designate important former/existing races as drainage assets for the purposes of the Land Drainage Act and consider whether Council would accept responsibility for these drains	By accepting responsibility for these drains there will be a need for funding and resources to inspect and manage them. A modest budget provision has been agreed already for current issues, but this would increase continually as more assets come under the Rural Stormwater umbrella. We might require landowners to maintain the drains or undertake maintenance ourselves. There may be some efficiencies available in the short term if the management can be shared with the existing Stockwater activity, but this is signalled to cease in June 2027.	Council has budgeted $175,000 (in the stockwater activity) to fund the investigation and identification project. The operational cost of any expanded rural stormwater service is undetermined at the moment, as these drains are yet to be comprehensively identified. This project will be completed during this LTP. However, the cost is likely to be high, on the order of hundreds of thousands of dollars per year.		✓	

Principal options		Implications of the options	Cost estimate and timing	Driver		
				Growth	Level of service	Renewal
2.	Stronger advocacy for Environment Canterbury to manage rural drainage	Environment Canterbury already employ staff with knowledge and expertise with drainage schemes and catchment management within the district.	Minimal cost		✓	
3	Leave as the responsibility of landowners	May be seen as not providing a necessary community service.	Minimal cost		✓	

Financial forecasts

Renewal profile

The renewal profiles below (Figures 9 and 10) show the forecast renewals for each year over the next 100 years (blue bars), based solely on standard asset lives and valuations, modified for condition rating. This shows the theoretical renewal programme before any smoothing is applied. The chart also shows the 5-year moving average and 10-year average, as well as the running totals of depreciation and replacement cost.

What these illustrate is that there are few assets in need of renewal in the next 30 years, and so depreciation accumulates until it is needed in later decades. By the time all current assets have been renewed, renewal expenditure has (correctly) caught up to depreciation.

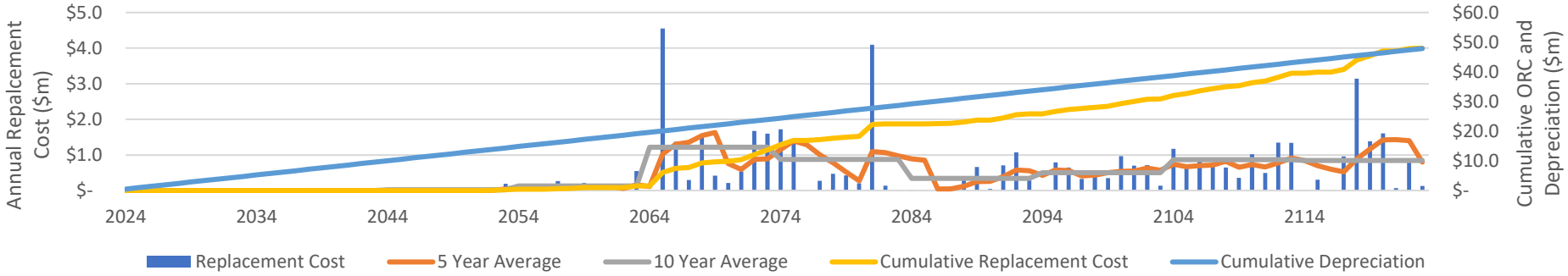


Figure 2 - Stormwater reticulation renewal profile

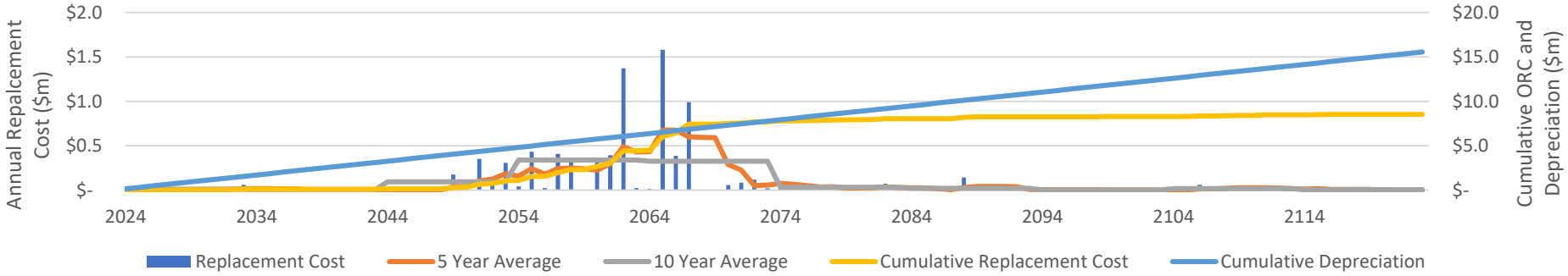


Figure 3 - Stormwater structures renewal profile

Capital expenditure

All new capital expenditure on Stormwater is shown in the chart below. Note that the last four bars represent 5-year averages. The chart shows a long-term programme of pipelines and treatment facilities spread across the 30 years.

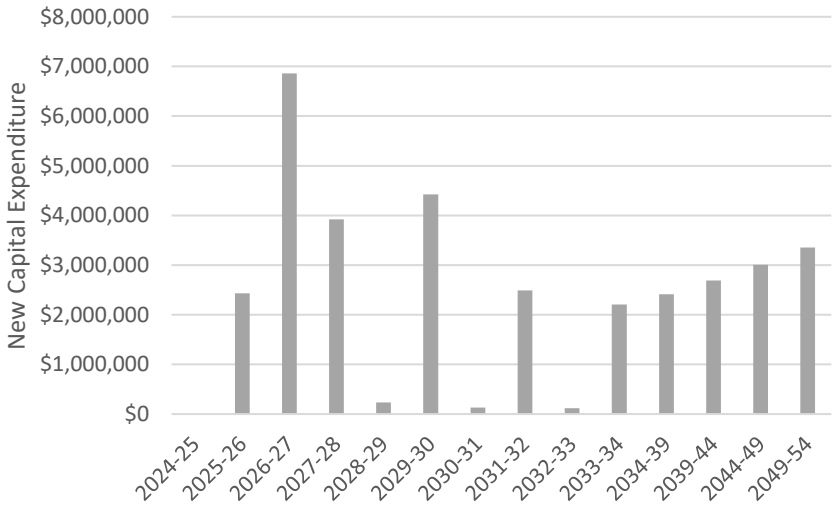


Figure 4 - Stormwater new capital expenditure (uninflated)

Operating costs

Forecast operational expenditure for Stormwater is shown in the chart below. Note that the last four bars represent annual average figures, for easier comparison. This chart shows a general increase over the next 30 years, as costs overall rise in line with inflation and growth in the network. New facilities add to the cost of operating the network, while new pipes should not lead to an immediate increase in costs as they should be reliable for a long time.

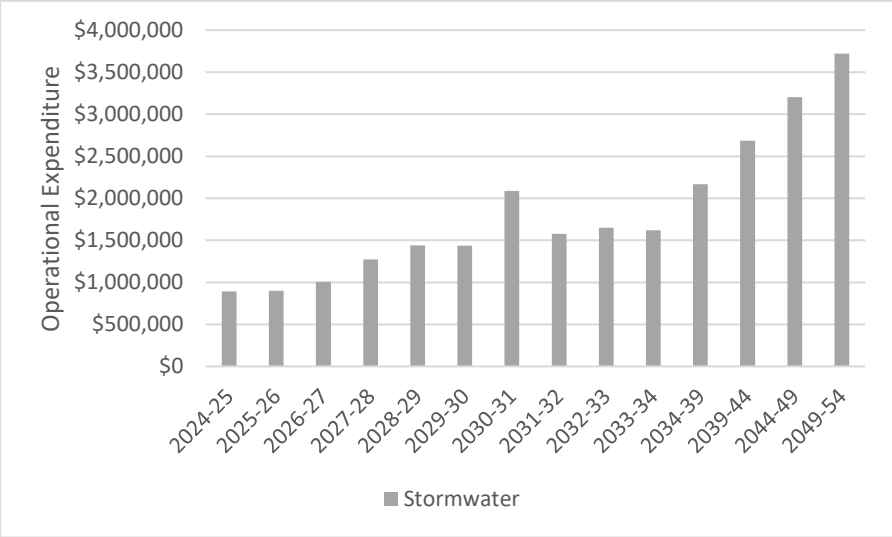


Figure 5 - Stormwater forecast operational expenditure (inflated)

Our future - Transportation

Our responsibility is to provide users with a network that enables safe, effective and fit-for-purpose journeys. This network includes roads, bridges, footpaths, walkways and cycleways.

Our priorities and key issues for the next 30 years, are to:

- ensure network users' safety
- provide multi-modal transportation options
- achieve value for money
- minimise environmental impacts and identify and manage risks
- enabling and improving resilience.

Our users are diverse and include (but are not limited to) residents, tourists, pedestrians, truck drivers, cyclists, commuters, goods and service suppliers, schoolchildren, motorcyclists, farmers, the disabled and physically challenged, and shoppers. This means we must balance varied community requirements. The composition and needs of users over the next 30 years is unlikely to change markedly, but there is likely to be moderate expansion of the existing urban areas.

Rural Roading network upgrading

The roading network is an important driver for the rural economy. Our rural sealed road network is experiencing increased failure (such as potholes) due to the age of the network, historic underspend in maintenance and renewals and the high cost escalations causing a further delay in remedial works. Heavy commercial/agricultural vehicles (HCVs) are increasing in both tonnage and number. This combined with our districts sealed road network generally being thin and structurally inadequate results in increased pavement failures in the rural areas. To address these problems, additional funding investment is required to address the historic backlog and ensure we are achieving value for money while enabling the network to remain safe and accessible.

Addressing Drainage issues

Given our relatively flat topography, appropriate drainage is necessary to ensure water is kept off and directed away from our roading network. However, climate change is affecting the intensity and frequency of storm events causing runoff and overland flow to flood our network, resulting in road closures and pavement failures. To address these problems, increasing routine drainage maintenance and construction (especially rural roadside swale drainage) is required to aid in keeping water away from the pavement. Strengthening the remote access routes and strategic planning is also required to provide secure network access throughout the district.

Ashburton – Tinwald Connectivity

The Ashburton River Bridge on State Highway 1 (SH1) is a crucial connection nationally, regionally, and locally. Periods of closure of the bridge over recent years due to high river flows from severe weather events, highlighted the poor network resilience and the need to improve the connectivity across Hakatere (Ashburton) River for the Ashburton transport network.

A detailed business case for a second Ashburton River bridge between Ashburton and Tinwald has been presented (July 2022) to Waka Kotahi NZ Transport Agency. The business case demonstrates that the impacts of having only a single connection between Tinwald and Ashburton go beyond just traffic congestion issues. The wider effects on travel choice, resilience, community severance, safety and freight movement are also significant.

The government's strategic Investment Programme (draft GPS 2024) has identified the Ashburton second bridge project for the National Land Transport Programme (NLTP). The focus is around achieving a total transport system solution which provides better connectivity and travel choice while improving a greater resilience, safety and economic prosperity.

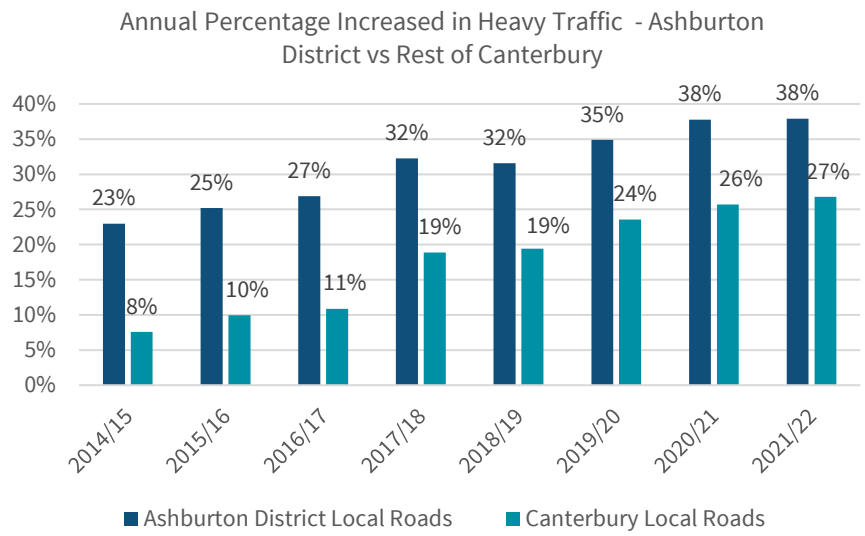
Improving the network for other road users

Transportation is more than just cars and trucks, and enabling journey choices for all network users is an important part of achieving acceptable living standards. Young and aged people who unable to drive and people with physical disabilities should have public transport that is safe and easy to use. Inclusive access, healthy options and environments, and safe transport corridors are all part of Council's aspirations for our community.

With the council Walking and Cycling strategy and incorporating other local, regional and national policy drivers, specific projects and longer-term plans will be generated to meet the needs of our walkers and cyclists in all their forms.

The State of the Roading Network

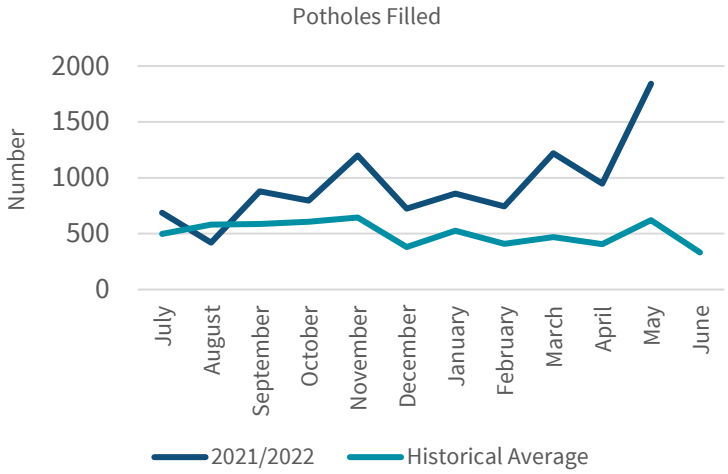
The majority of Ashburton District's roads are narrow and originally developed from unformed roads or tracks. As shown in below figure heavy commercial vehicles are continuing to grow in both tonnage and number, and the district's thin and structurally inadequate pavement is suffering.

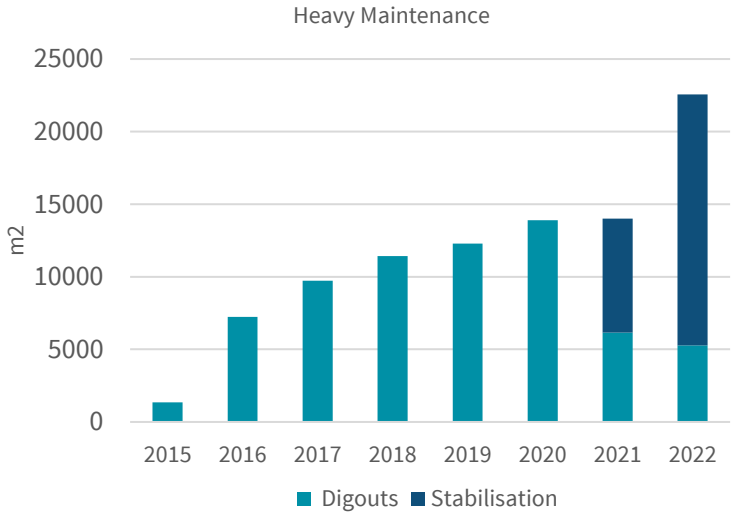


(Source: Te Ringa Maimoa Transport Insights Web portal)

The pavement loading has increased with the increasingly heavy traffic resulting in the rural network with increased failures and a corresponding decrease in pavement life.

The figurebelow provides evidence of the overall sealed road remedial trend, the number of potholes filled, and the heavy maintenance (digouts and stabilisation) undertaken are constantly growing. As of June 2023, about 52,863 square metres of heavy maintenance had been identified with an estimated cost of more than $3.3million.



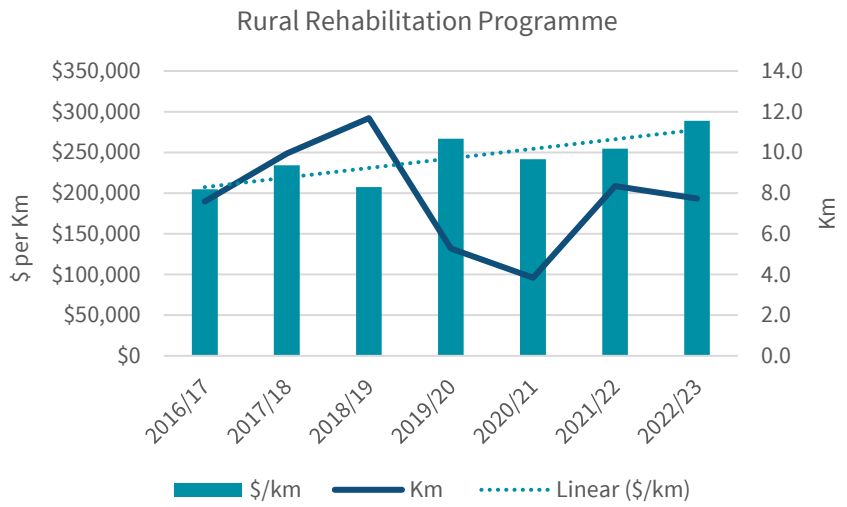


The affordability to maintain the sealed network at its desirable level of service is a concern. Waka Kotahi NZ Transport Agency audit in 2021

concluded that ADC's maintenance expenditure is in the lower quartile compared to the peer group. In addition, ADC's current maintenance contract has a 23% of cost escalation being applied which causes a further reduction in programmed works able to be completed. Reduction in ongoing maintenance costs affects the useful life of the pavement and increases the likelihood of more frequent failure.

The wet winters and heavy rain events in past three consecutive years (2021-22 and 2023) have damaged the rural sealed roads. The amount of reactive maintenance undertaken has significantly impacted the routine maintenance activities and caused stress on the maintenance budget. Unless the primary routes and deteriorating sections of roads are rehabilitated with adequate pavement strength to provide a fit-for-purpose solution, the condition of the rural sealed network will continue to deteriorate.

Ashburton District Council aimed to rehabilitate 10 km/annum of rural sealed roads to provide the fit for purpose network. However, from figure below it can be identified that with the current funding, Council is unable to accommodate the scheduled programme. Reduction in the rehabilitation programme contributes to increasing the network deterioration and road safety risks



Overall, there is an increasing need for sealed pavement maintenance and renewals funding investments in the short term to achieve long-term benefit. Continuing with the do-minimum reactive maintenance approach will slow the pavement deterioration rate but it will increase the financial and safety risk in the longer term. A thin and structurally incapable pavement will be less likely to perform with the current/future traffic demand.

Transportation - Significant decisions

In this section, figures used are uninflated to facilitate comparisons between options.

1) Implementing and Funding Ashburton-Tinwald connectivity

Driver: Resilience, demand and growth

Decision required: 2024

State Highway 1 (SH1) as a key strategic transport route for the South Island, is the main route through Ashburton and Tinwald, and also functions as a core local traffic distributor. A number of factors combine to regularly cause standstill congestion through this urban area. A detailed business case for a second Ashburton River bridge between Ashburton and Tinwald has been presented (July 2022) to Waka Kotahi NZ Transport Agency. The business case demonstrates that the impacts of having only a single connection between Tinwald and Ashburton go beyond just traffic congestion issues. The wider effects on travel choice, resilience, community severance, safety and freight movement are also significant.

The government's strategic Investment Programme (draft GPS 2024) has identified the Ashburton second bridge project for the National Land Transport Programme (NLTP). The focus is around achieving a total transport system solution which provides better connectivity and travel choice while improving resilience, safety and economic prosperity.

The DBC timeframe for this project to design and constructed are as shown in the table below:

Activity	Timeframe
Detailed Business Case (DBC) development	Start of 2022 - Mid 2023
DBC funding approval	Mid 2023 - End 2023
Detailed design and consenting	Start 2024 - Mid 2025
Procurement	Mid 2025 - End 2025
Bridge construction	2026-27 (potentially 2028)

The estimated cost for construction of the second bridge and new road is over $100 million. We have committed to a budget of $7.5Million towards the new bridge. The remaining funding is expected to come from central government. We are seeking a 62% Funding Assistance Rate (FAR) from Waka Kotahi NZ Transport Agency; including 51% of standard FAR, 7% contribution based on crash reduction on State Highway and an additional 4% based on wider GDP resilience benefit, with the balance of funding to come from central government.

Assumption: Having only a single two-lane bridge across the Ashburton River in the urban area is causing undue traffic congestion and significant effects on travel choice, resilience, community severance, safety and freight movement.

Principal options		Implications of the options	Cost estimate and timing	Drivers		
				Growth	Level of service	Renewal
1.*	Progress the construction of the Ashburton second bridge, subject to funding.	Substantial financial commitment for both construction and subsequent ongoing maintenance and renewals. Requires connecting roads/paths (and related assets) to be constructed or renewed. Requires bylaws regarding Heavy Commercial Vehicle (HCV) routes to be updated to ensure residential areas are not unduly affected by changes in traffic composition or volumes.	$113 million (ADC contribution $7.5million (7%), Waka Kotahi $58 million (51%), Central Government $47.5million (42%)) 2024/25 – 2028/29 (design, construction)	✓	✓	
2.	Do not construct a second bridge –	These options could include increasing lane numbers, increasing lane widths and controlling traffic movements on the existing State Highway and connecting local roads through Ashburton and Tinwald. It is unlikely that these actions would adequately address the current congestion issues, and even less likely with subsequent traffic growth, even if that growth is low.	Unknown		✓	

** This is Council's preferred option*

2) Affordably maintaining and improving our roading network

Driver: Resilience, demand and growth

Decision required: 2024 and ongoing

To maintain our roading network to the standard our community expects would require an average expenditure of $22.7 million per annum for maintenance, operation and renewals activity over the 2024-27 period. This represents an increase of 58% ($7.5 million per year) funding from the 2021-24 period, due to both the substantial cost escalation, and the historic funding backlog to provide fit-for-purpose services.

However, this aspiration collides with affordability for our community. Our financial strategy aim is to keep rates affordable while maintaining the level of service. Maintaining the roading assets at their desired state will significantly impact the council's affordability.

We believe that maintaining the affordability and meeting community expectations can be achieved by a 21% ($2.7 million per year) funding increase for the 2024-27 period. This results in a 9.6% rate increase across the district in 2024/25 FY.

Principal options		Implications of the options	Cost estimate and timing	Drivers		
				Growth	Level of service	Renewal
1.*	The network funding that our community can afford	While a significant lift in investment for our roading network, this is unlikely to improve the levels of service and will simply maintain our roading network to the standard it was in 2021. Likely to be increased pressure on maintaining the level of service, which will result in the need for substantial funding investment during the 2027/30 period to fill the existing funding gap.	Additional $2.7million funding per year, total increase of $8.2million for 2024-7			✓
2.	The network funding that our Network needs	This option would see us maintain our roading network to the standard our community expects. Likely to be unaffordable for our community to handle a rate increase of this magnitude. Yet this will achieve long-term benefits while reducing the safety risk, reactive maintenance and customer dissatisfaction.	Additional $7.5 million per year, total increase of $22.7million for 2024-7		✓	✓

** This is Council's preferred option*

Financial forecasts

Renewals

The forecast renewal expenditure for the next 30 years is shown in the graph below. Note that the last four bars are annual averages, for ease of comparison.

This illustrates a fairly consistent rate of renewal, reflecting a stable programme with no large variations for major asset renewals. The increase is due mainly to a general trend of cost inflation, with no significant increase in the asset base anticipated.

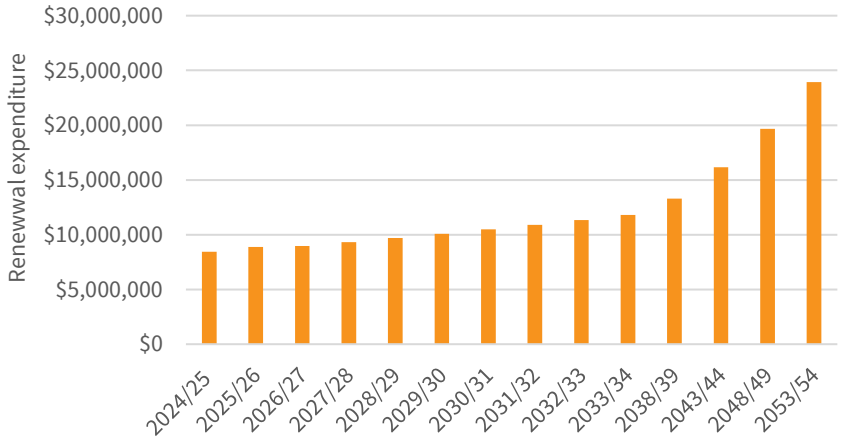


Figure 6 - Roading renewal expenditure (uninflated)

Capital expenditure

All new capital expenditure on Transportation is shown in the chart below. Note that the last four bars are annual averages, for ease of comparison.

The chart shows large expenditure in 2025-26 and 2026-27 for the Ashburton-Tinwald connectivity project, $3.75M each year.

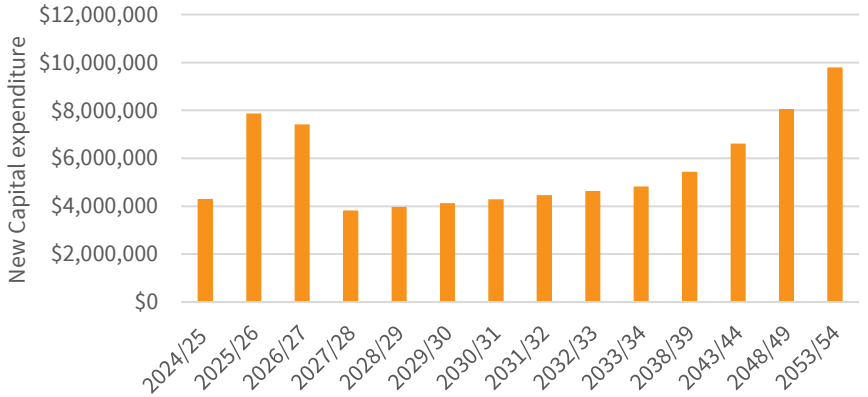


Figure 7 - Roading new capital expenditure (uninflated)

Operating costs

Forecast operational expenditure for Transportation is shown in the chart below. Note that the last four bars represent annual average figures, for easier comparison. This chart shows a general increase over the next 30 years, as costs overall rise in line with inflation.

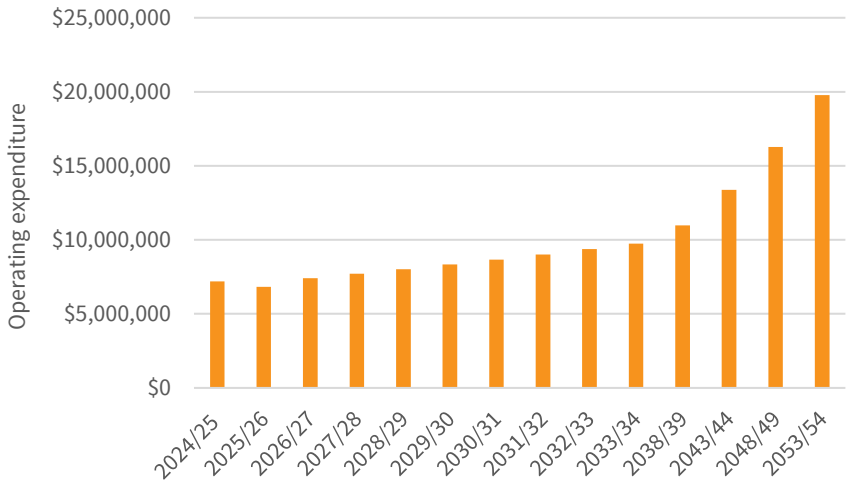


Figure 8 – Roading forecast operational expenditure (uninflated)