Our Direction | Tō mātau ahunga

Our vision | Tō Mātou Tauākī Moemoeā

Our home, our future

Our vision captures our reason for getting out of the bed in the morning. It's our team's purpose.

To us '**our home, our future**' means that we're proud to live here and we want our future generations to be proud to live here too. We want to work with you to help shape our future rather than waiting for things to happen. That means creating opportunities for the now and also for future generations. We are ready to push boundaries to make things happen.

Tō tātou rohe kāinga, Tō tatou ao tūroa

Ka hopukina tō mātou tauākī moemoeā te tino pūtake ka ara ake i te moenga ia ata. Ko tēnei tō mātou pūtake mō te tima.

Ki a mātou '**Tō tātou rohe kāinga, Tō tatou ao tūroa**' ka noho whakahī tahi tatou i tēnei wā, a tērā wā hoki o ā tātou uri whakatupu. Ko tō mātou hiahia kia mahi ngātahi tātou ka whakaritea tō mātou ao ki mua, ka tatari kē kia tutuki. Ka whakaritehia ngā āheingaināianei, āpōpō hoki mō ngā uri whakatupu. Kua reri mātou kia panahia ngā ripa tauārai ēnei āhuatanga.

Ka whakatauria te LTP ngā ritenga kia hanga taua ao tūroa.

Our mission

Our mission sets out what we do. It is our mission to:

- actively provide leadership to, and advocate for, our communities
- provide good quality infrastructure, services and regulatory functions
- foster open-minded and two-way communication with our communities
- ensure the sustainable use and management of resources…

… for the benefit of all who live in, work in and visit our district.

Community Outcomes

Our **community outcomes** express in more detail about what we'd like to see happen in our District. These outcomes continue to stay at the forefront of the decisions we make. We developed these community outcomes after speaking to our community about what they love about our District, and what they want to see in the future.

Healthy environment | Te Mauri o te Taiao

- Ecosystems are protected, restored and respected.
- We minimise waste.
- Our rivers, streams and wetlands are healthy and we use water carefully.
- We reduce our carbon footprint to minimise climate change.

Connected people | Tūhono

- We look after each other.
- We are partners with iwi.
- We collaborate with other local authorities, and central government.
- Youth are engaged and supported.
- We're proud to live here.

Vibrant and safe communities | Te Oranga pai o te Hapori

- Public spaces are fun and inviting.
- Everyone has access to safe, healthy, and affordable homes.
- Roads and bridges are safe and well-maintained.
- We have a reliable drinking water supply.
- We plan for and adapt to the effects of climate change.

Strong economy | Oranga Ōhanga

- Local business is supported – we can get what we need locally.
- There is opportunity for paid work and employment, and training.
- We are skilled and educated.

Our financial strategy | Tā mātou Rautaki pūtea

We deliver a wide range of services to our communities every day. Those services include a variety of things that we almost take for granted in our day to day lives. Everything from roads and drinking water, to halls, pools and library books; it's all part of what Council delivers. But like anything, those services cost money and we need to balance the wants and needs of our communities with their ability to pay for those services. Sometimes that means we need to make hard calls about what we include in our budgets, and balance that with our communities ability to pay. The provision of our services needs to be affordable.

Our financial strategy sets out how we propose to manage our finances in the foreseeable future. Over the next ten years, the cost of providing our services is likely to increase significantly. Among many things, the biggest driver of the increase, is ensuring that we comply with new environmental regulations, and other regulations set by central government. Our challenge will be how to manage the financial impact of these costs, in a way that is affordable for our communities.

In 2018/19, about 80% of our income came from rates. Our average rates increases per year started at 6.49% in 2018/19 (excluding water rates) and were projected to finish in year 10 of the 2018-28 plan at 4.49%. For water, those increases ranged from 6.0% to 2.0% at the end of the plan. Our external debt was forecast to remain relatively constant, ranging from between $45 million and $49 million.

Where we're at as we head into 2021

Our population is growing and so too is the number of properties within the district. Over the next ten years, our population is expected to increase by 125 people every year to 22,750 by 2031. It is also projected that the number of dwellings in the District will increase by an average of 77 per year, reaching 10,990 by 2031. That growth has a flow on effect for the services and facilities we provide, and the cost of providing those functions to communities.

Growth in industrial activity could also have a big impact on the capacity of our services. For example, a single wet industry such as an abattoir could easily have the same impact as 1000 to 2000 additional houses on our wastewater facilities. We would expect that the cost of providing this additional capacity would be met by the new industry.

We are not expecting that the increase in population, or any land use changes, will have a significant effect on Council.

The ability of our communities to pay their rates is an area of increased focus as we plan for the next ten years. We know that:

- Our district's average median annual household income was $52,500 in 2018, lower than the national median of $75,700.
- In the District a higher number of people derive their income from superannuation and means tested benefits (e.g. Job Seeker support) than the New Zealand average.
- In 2019 4.4% of our workforce were not in employment.
- Rates exceed the affordability threshold for 38% of our home-owning households (that is where rates are more than 5% of household income).
- Paeroa and Waihi towns, and the Hauraki Plains South area all have a deprivation rating of 9. This means they are in the most deprived 20 per cent of areas in New Zealand.
- Our population and the number of rating units are both projected to increase over the next ten years. That's an increase of 1,250 people (5.6%) and 770 rating units over the life of the plan.

Due to many factors, the obvious being the challenging economic climate we are experiencing due to the Covid-19 pandemic, interest rates are at historically low levels. This results in lower borrowing costs for the Council. Great news, but all good things will come to end so we have had to make some assumptions about what interest rates may do during the next ten year period.

Our vision

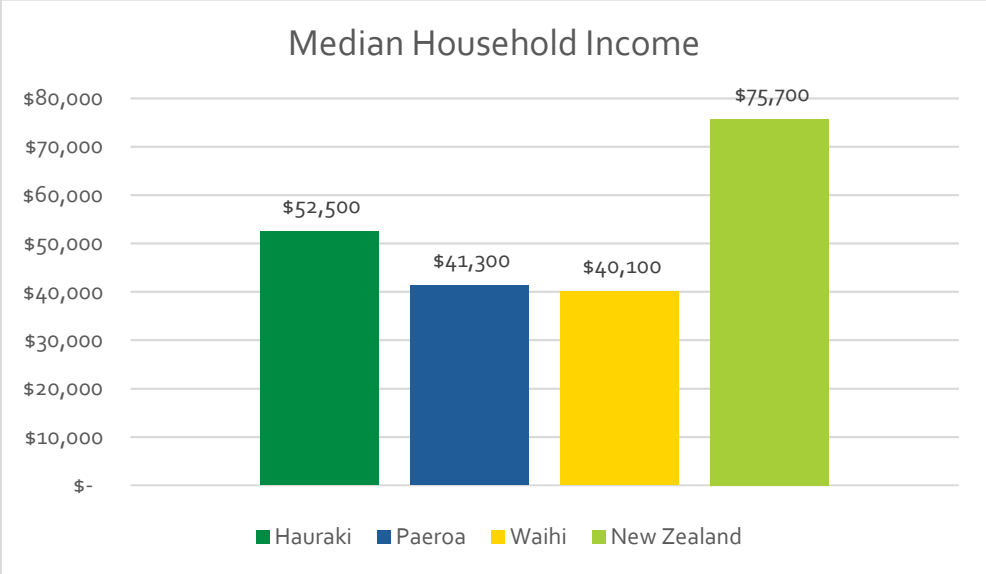
Our vision ***Our home, Our future / Tō tātou rohe kāinga, Tō tatou ao tūroa*** guides what we deliver and how. It means that we're proud to live here and we want our future generations to be proud to live here too. We want to work with our communities to help shape our future rather than waiting for things to happen. That means creating opportunities for the now and also for future generations.

Key issues affecting our financial picture

The affordability of our rates - pressures on household budgets

Our residents' income levels are much lower than the national average, so their ability to pay for our services is front of mind. Recent indicators of local deprivation in our communities suggest that it is more difficult for a larger proportion of our ratepayers to pay for our services (via rates or user fees) compared to New Zealanders in general.

The household income of ratepayers in our two largest towns, Paeroa and Waihi, is only slightly more than half of the national average. That is, $41,300 and $40,100 per year respectively. More than three quarters of all the households in these towns have income below the NZ median.



Research suggests that households will start to struggle to afford rates bills when they exceed 5% of the household's income. Our research suggests that more than 60% of the households in Paeroa and Waihi meet this threshold so we've looked at what we can do to help and have considered some options to relieve the pressure on those customers. Over the life of the plan, our rates are forecast to increase by more than incomes will. This is mostly due to the cost of changing wastewater discharge standards.

The price of higher environmental standards

Over the past 20 years, we have spent a considerable amount on upgrading all our wastewater treatment plants. We have also upgraded all our water treatment plants so they are all capable of complying with the latest drinking water standards. A significant portion of our current debt relates to these water and wastewater improvements.

The Government has enacted a suite of legislative and regulation changes to improve the current management of freshwater. The new policy aims to get 90% of lakes and rivers reaching swimmable water quality standards by 2040. Regional councils have the task of setting standards for the wastewater and stormwater that flows from our pipes

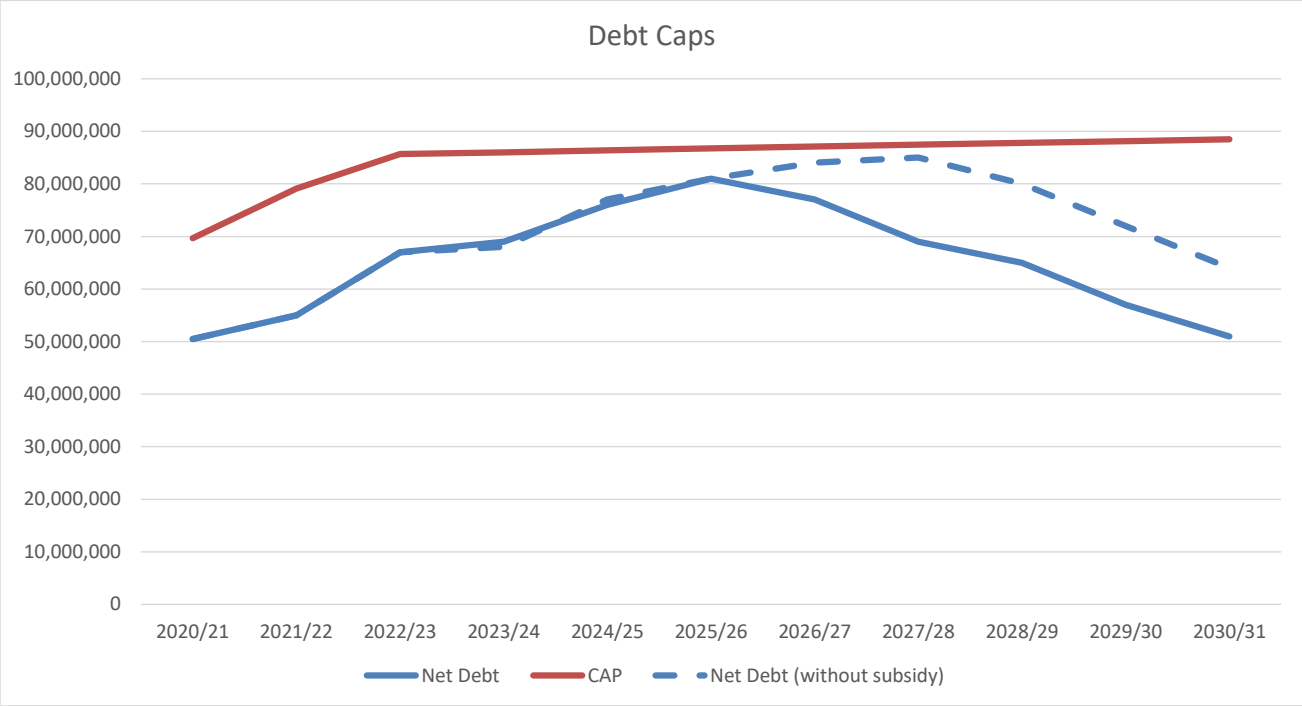
into these waterways. The new regulations do not take into account the actual effect that Council's current discharges are having on the waterways. They simply require a higher degree of treatment than previous consents.

The result of this is that in this LTP we are now forecasting future capital works of $41 million over the next ten years to again upgrade our wastewater treatment plants. Currently, these plants have little negative impact on the rivers they discharge to. Together with other upcoming pressures, this extra expenditure means Council debt will exceed $67 million. If Council did not have to meet these increased regulations, debt would be $41 million lower.

For example in Ngatea, it would cost $10 million to upgrade the wastewater treatment plant to meet these regulations; this is a cost of over $10,000 per household in Ngatea. We don't believe this is affordable for our ratepayers.

Wastewater rates are forecast to increase by 118% ($780 per household) over the next 10 years. The key issue for us is that this investment will not provide any significant improvement in environmental outcomes, and we need to spend our ratepayers' money more wisely. We are not saying that we should not do anything, but that if we do, it should be an investment that has substantial environmental outcomes.

We have assumed that if the proposed three waters reforms do not go ahead, that Council will receive subsidies of 50% of the costs of these upgrades to make these upgrades affordable for Hauraki communities. If they do not, then Council debt will reach $85 million in 2027/28. Wastewater rates would also have to increase by another 39%, a total of 157% ($1,040 per household) over the 10 years of the plan. At this level, 78% of the households in Paeroa and Waihi would be paying more than 5% of their household income on rates which research suggests is unaffordable.



Three waters reform

The government has signalled a possible reform that would remove the water, wastewater and stormwater activities and assets from councils, and transfer them to a new entity. If this was to occur, it is likely to happen in 2023 or later. If the reform does occur, it is likely the income, expenses, assets and debt for these activities will be transferred. This loss of income means that Council will not be able to recover some of its support costs from these activities. Some of these costs will be reduced, however some are fixed and this will leave our remaining activities to bear a greater burden of these costs.

At the start of the LTP, the forecast value of the assets that would be transferred is $141 million. The debt that would be transferred is $22 million. The annual cost of providing the three waters activities is $13.5 million, while Council receives about $12.6 million of income annually. This is 28% of council's income.

We estimate that about 36 staff would no longer be employed by Council in our community. The annual overheads that relate to the three waters activity equals about $2.2 million. We estimate that $700,000 of this would not be able to be transferred to any new entity and would remain with Council. This cost would likely result in an average overall rates increase of 3%.

In 2020, the Government offered funding towards water and wastewater projects – conditional upon councils signing a memorandum of understanding (MoU) relating to the reform. This MoU does not commit us to support the transfer of water services to another entity, but we are participating in the exploration of future service delivery options. We decided the benefits of the funding being offered made it worthwhile to sign this MoU.

Under this MoU central and local government agree to work together to identify an approach to service delivery reform that considers the following features:

- Water service delivery entities that are:
  - of significant scale (most likely multi regional) to enable benefits from aggregation over the medium to long term
  - asset owning entities with balance sheet separation to support access to capital and improved balance sheet strength
  - structured as statutory entities with appropriate commercial disciplines and competency based boards
- Delivery of drinking water and wastewater services as a priority, with the ability to extend to stormwater service provision where it is effective and efficient to do so.
- Water entities would be public owned, with a preference for collective council ownership.
- Mechanisms for enabling communities to provide input in relation to the new entities.

Whatever happens our community will need three waters services whether we deliver them or not. These activities are reflected in the long term plan.

For now, we will watch this space and amend our plans if and when we know more.

As this is not a certainty, we have prepared our LTP under the assumption that we will continue to provide our water services. For more information on this and other assumptions, see the forecasting assumptions section within our LTP.

We need to invest more to keep our infrastructure up to scratch

We own and manage a wide range of assets from footpaths and bridges to pipes and water treatment plants. Like most assets such as a house or garden, they need to be maintained. We used to replace a lot of our infrastructure only when the maintenance costs had started to increase or the service level had begun to decrease. This sometimes impacted on the service that our users received and also created a lot of reactive costs.

Better information has shown our reticulation and roading renewals in particular need to continue to increase over the next ten years to ensure that our infrastructure keeps performing at the desired levels. This of course, comes at a cost and such costs will need to be managed within the wider financial context to ensure we keep our rates affordable.

Getting real about natural hazards and climate change

We'll need to look more closely at what climate change and other natural hazards mean for our communities. More recent climate change forecasts anticipate the effects will be felt much earlier than previously thought. Over the next three years, we'll be looking at how vulnerable our communities will be and how effective our infrastructure will be. This will involve conversations with our communities about these topics.

Some of our services will be negatively affected by the forecasted sea level rise and will need to be upgraded or will have increased operating costs. The physical works needed to upgrade these assets fall outside the ten year life of this plan. Other natural events like earthquakes and tsunami also pose risks. We don't know how big a problem these

hazards are yet but we think it's responsible to ensure we are in a good financial position to deal with any new spend required once we know more.

We have included more information on our responses to climate change in our Infrastructure Strategy.

Covid-19

Measures to contain Covid-19 in New Zealand have resulted in an economic downturn. Hauraki's economy is highly dependent upon agriculture and mining, and our tourism sector is mainly based on domestic tourism (85%). To date, Hauraki seems to have been less affected than most of New Zealand.

We are not currently forecasting that a large portion of our community will find it significantly harder to pay their rates as a result of Covid-19. Some councils have lost income from significant businesses or investments that they usually rely upon to subsidise their rates. We do not have such investments so we have not been affected by this loss of income from other sources.

We have assumed Council is not significantly affected by the economic effects of Covid-19. For more information on this and other assumptions, see the forecasting assumptions section within our LTP.

Our challenge in a nutshell

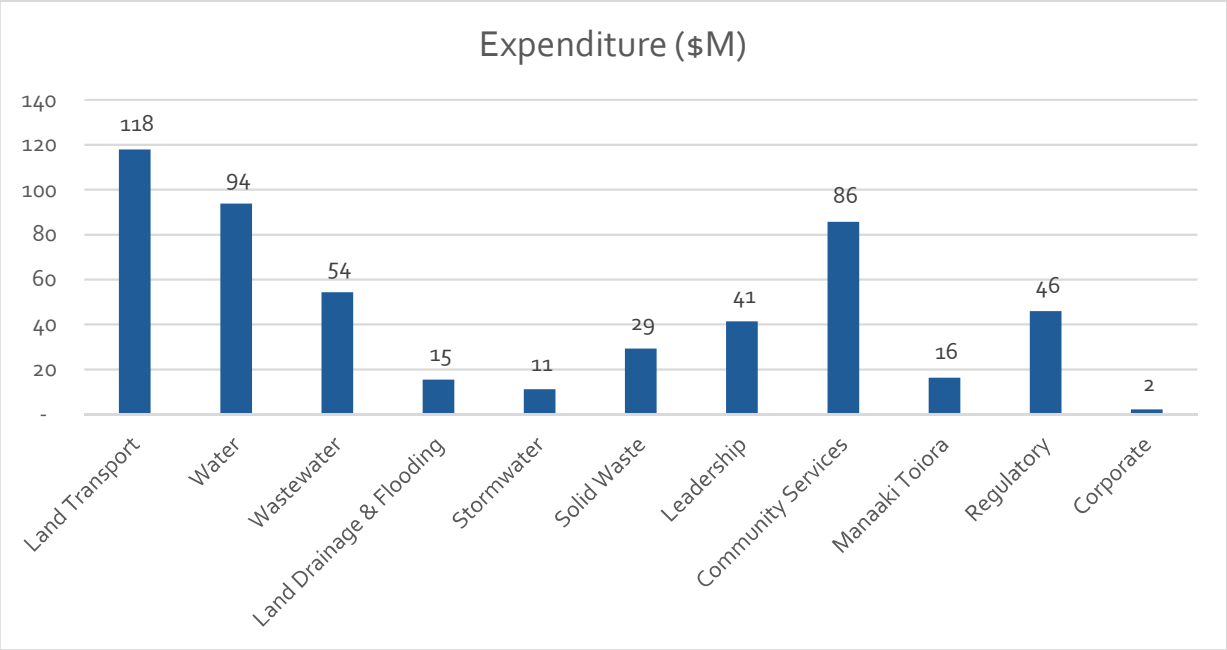
Our ability to fund our responses to the challenges above is affected by the incomes of our communities. We have a higher than average number of low-income households in our district. We want to ensure that our communities can afford to pay to use our services and pay their rates bill, but we also need to be in a good financial position to cope with the changes and challenges ahead.

The other factor affecting our ability to respond to our challenges is our capacity to borrow and service debt. We are concerned that the cost of meeting increased environmental standards will exhaust our borrowing capacity. These costs will arrive at the same time as we are confronted with the need to renew ageing infrastructure and respond to climate change, both of which will also require funding.

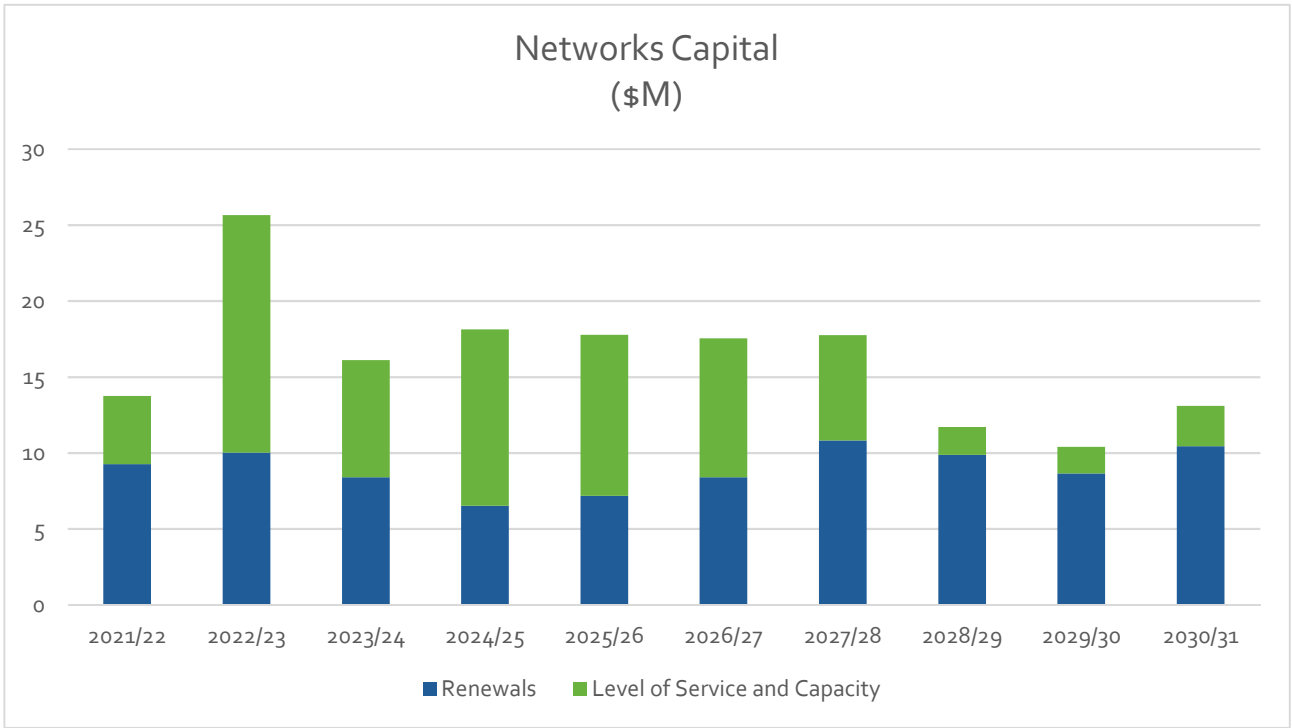
There is a high degree of uncertainty for some of the expenditure that will be required to meet higher environmental standards and service level changes. There is also uncertainty around whether or not we will be providing the services of water supply, wastewater and stormwater in the future.

What's the cost?

Like any household or business, we prepare our budget so we can best manage our income and expenses and run an efficient business. As a result, we estimate our total operating expenses for the next ten years to be:



Our capital costs for our infrastructure assets (land transport, water, wastewater, drainage and flood protection) are shown in the following chart. We are forecasting to spend $110 million renewing our current assets. On top of that we are forecasting $86 million of expenditure on new assets. The biggest part of this new asset spend, is $41 million for wastewater to meet the changing environmental standards mentioned above.



So that being the case, we need to work out the best way to cover those expenses, in a way that is affordable for our communities. Let's talk about the tools we have available to us.

Our levers

There are a few ways we can work out how to cover our costs.

- **Lowering Costs – continual improvement / technology**

  We are always looking to utilise technology and find better ways of doing things to reduce costs. This is a continual area of focus for us.
- **Changing Levels of Service**

  Trade-off between levels of service and rates – what should we stop doing or do less of, so we can do more of something else or to reduce costs.
- **Using Debt**

  Not appropriate for funding operating costs except for short term deficits. Used for funding long life capital works or to spread the cost of capital projects across the generations of ratepayers who use them.
- **Increasing Revenue**

  This means increasing fees and charges or increasing rates, however this should be last lever to pull. At the end of the day rates is where we get most of our revenue from.

Achieving affordability will be a combination of all of the above tools.

So… what's our plan?

We have weighed up our issues and prepared a pathway forward.

- We've considered what we **must** deliver and what we'd **like** to deliver and prioritised the essential items.
- We've decided that it's important to keep investing in some 'discretionary' projects that help stimulate our local economy, particularly as our communities recover from pandemic restrictions.
- We're continuing to investigate the most cost effective ways of providing our services while also meeting regulatory compliance requirements.
- We are investigating alternative means of meeting or offsetting increasing environmental discharge standards.
- We have also increased our debt caps where it is prudent to do so.
- We've increased some of our user fees to reflect the increased cost of our services.
- We've looked at how we can change the way we fund some activities through rates, to better reflect ratepayer's use of our services (for example, by charging annual charge type rates per 'separately used or inhabited part' of a property rather than charging one per property).
- We're raising our forecast rates income to cover the extra 'must do' expenses as well as some of the discretionary initiatives.
- We're increasing our caps on rate increases to cover those rates as well as providing enough head room to cover any other necessary expenses in future. We don't expect the increase in costs we are facing to reduce in the decades ahead.

Over the next few pages we talk about what our forecast spend is, how it's funded and what it means for borrowing and debt.

The unknown – and how we'll pay for it

Our long term plan allows for the planned maintenance or upgrade of our assets, as those assets reach the end of their 'useful life'. We have also budgeted for the day to day operation of our business, based on our assumptions that we mentioned earlier. However, sometimes the unforeseen happens. Those are things that we just can't plan for, such as an emergency event... or even Covid is another example of something 'out of the blue'. Such events can have a significant financial impact on our business, like it would for any other business or household.

We plan to manage those unplanned financial situations by allowing ourselves a bit of 'wriggle room' in our debt cap, so that if we need to, we can make use of this. We also currently maintain flexible borrowing facilities that allows us to borrow up to $5 million if required to meet unforeseen costs.

What our plan means for rates

We've relooked at what the realistic cost is to deliver what we need to over the next ten years. The costs have gone up a lot and we don't anticipate this to reduce in the years beyond, and have forecast that our infrastructure operating costs are likely to more than double over the next 30 years. We have allowed for inflation of a little over 30% over the 10 year life of the plan. Over thirty years we forecast that inflation alone will cause our costs to double.

> *The result of all the changes we are proposing, is an average rates increase (excluding water rates) of 4.9% per year over the next ten years, compared to a forecast average rate increase of 4.4% per annum over the 2018-28 period.*
>
> *In the first year, non-water rates will increase by 4.5%. This is slightly higher than the 3.6% forecast for 2021/22 in our last LTP.*

This doesn't include our water rates, which we present separately.

Why are water rates shown separately?

Combining the water rates cap with other rates would have distorted the picture for the rest of our activities. The high level of capital upgrades required in the water supply activity was forecast to drive water rates increases that were higher than those forecast for non-water rates. We felt that the cap for water rates needed to be isolated. We also believe that ratepayers see water rates as separate to other rates as they are billed separately as well.

Options for reducing rate increases

To reduce the amount that rates rise, more cuts to our services or initiatives would be needed than we have already proposed.

Our total forecast spend usually fluctuates each year, however in the past we've spread any large increases over several years. That means you can expect your rates bill to increase about the same amount every year as it helps provide certainty on what you can expect your rates bill to be. It also means we run temporary surpluses and deficits in the budgets year on year.

Capping our income from rates

We have revised our rates caps to allow some leeway to increase the rates we collect for unexpected events or new requirements.

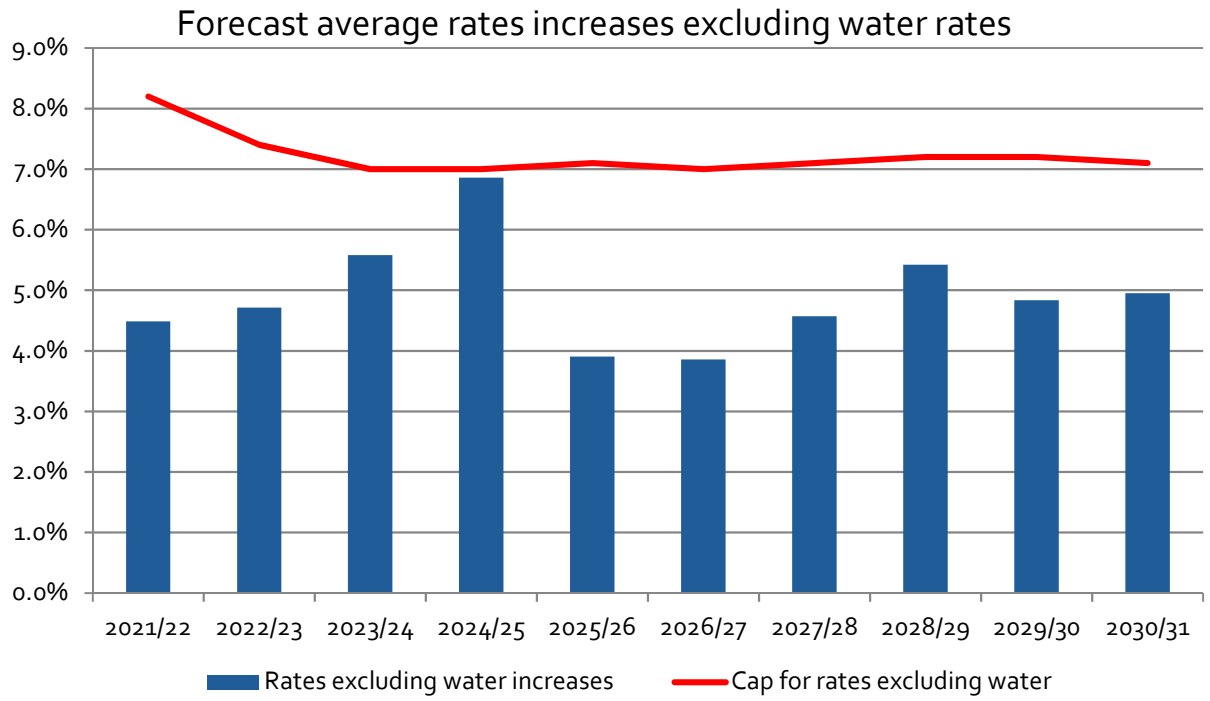
> ***The amount that rates can increase each year (excluding water) will be capped at the forecast LGCI plus 4.5%.***

This **rates cap** is on average 2.3% higher than the actual forecast rate increases needed to fund our forecasted spend. We don't anticipate that rates will need to be increased to the level of the rates cap, but the flexibility is there in case it becomes absolutely necessary.

In 2024/25 our rates increase is forecast to be 6.86%, which is close to the 7.0% cap in that year. The lower rates increases forecast in later years will give us some flexibility to defer some of any additional increase caused by unforeseen costs.

What is LGCI?

We use the LGCI as it reflects the non-household type costs that councils have to meet including energy, pipes, earthmoving, petroleum type products used in roads. These can increase at a different rate than the consumer price index (CPI) that we often hear about.



The increases for each year are specified in Appendix A.

Our water rates

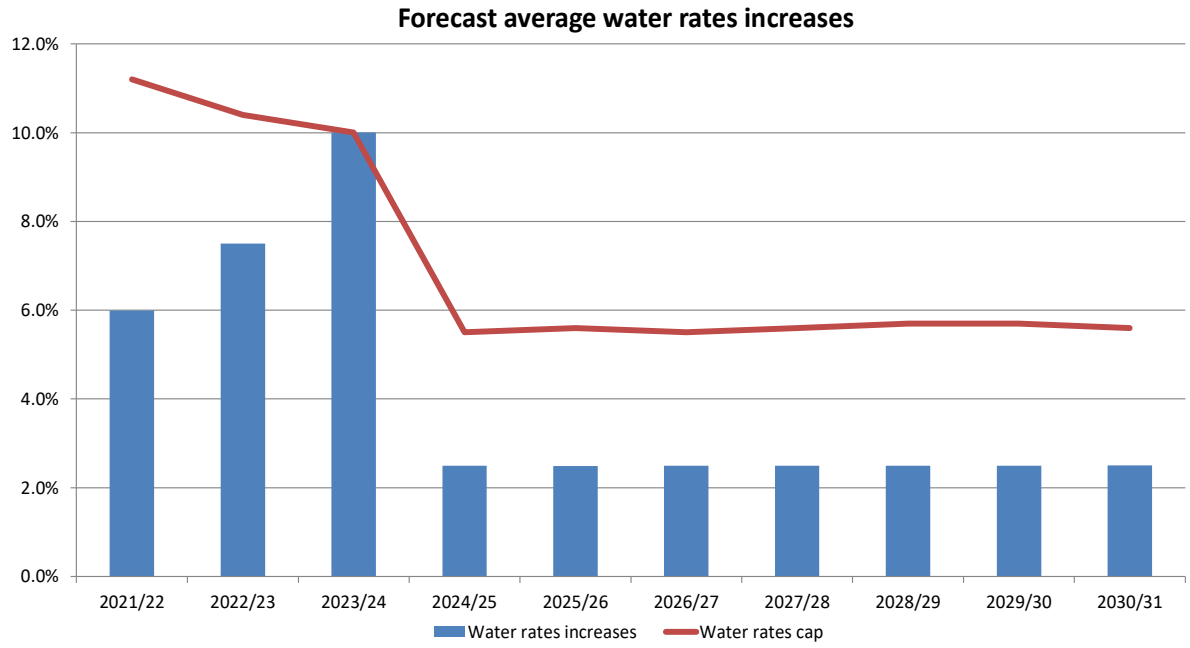
To recover the additional costs we face to continue to meet drinking water standards, and to remove unsightly manganese from the Plains water supply, we are proposing to increase water rates by 6% for the first year, then 7.5% and 10%, then 2.5% for the last seven years of the plan to cover inflation increases and to continue to spend on replacing water supply infrastructure like ageing pipes.

We have tried to spread the increases but there are higher increases in the first three years of this LTP. Deferring rate increases to the latter part of the LTP period would mean not leaving enough capacity to deal with the unexpected (like major weather events) or on the big spend items we expect will come. Having higher increases in the short term is important for getting our budgets in balance.

Our water rates increases have been set at 6% for year one, then 7.5% for year two and 10% for year three, and 2.5% in the following seven years.

We will cap our **rates increases for the water** activity at the forecast LGCI plus 7.5% in the first three years of the Long Term Plan, and equal to or less than the forecast LGCI plus 3% in the remaining years of the Long Term Plan.

In 2023/24 our water rates increase is forecast to be 10.0%, which is equal to the 10.0% cap in that year. The lower rates increases forecast in later years will give us some flexibility to defer some of any additional increase caused by unforeseen costs.



The increases for each year are specified in Appendix A.

What our plan means for borrowing and debt

A number of the assets and infrastructure we provide have long lives. We usually borrow money so that we can spread the costs of these sorts of assets over time instead of imposing large one-off costs on ratepayers.

In our previous plan, we forecast that debt levels would peak at about $47 million and remain at a similar level for the life of the plan. Because we are now having to spend more to increase our wastewater treatment to meet new environmental standards, as well as to replace some of our infrastructure assets that are coming to the end of their lives, we are forecasting changes to what amount we borrow and when. We are now forecasting that our net debt will peak at $81 million and will still be at $51 million in June 2031 (the end of this plan).

Despite this, over the next ten years all of our activities except for the water and wastewater activities, will have reduced debt levels. Because of the treatment plant upgrades, our wastewater debt levels will increase from $6 million to $23 million over the next ten years. These upgrades will continue beyond the life of this plan to 2032/33 and this will put pressure on our debt levels. Over the first three years of this plan we will be looking at options to reduce what we are forecast to spend on the upgrades and look to reduce the debt forecast.

We believe that some of these wastewater upgrades are of little environmental benefit and that the requirements to fund them puts significant constraints on our ability to respond to other as-yet-unforecast future spend, whether they are driven by community need or regulatory change.

Our debt caps

We have determined what we believe are prudent debt levels and have set these as caps to ensure borrowing stays within prudent levels. We use four different debt cap measures as shown below. To arrive at an *overall* debt cap, the four measures are calculated and the lowest value from these four becomes our overall debt cap. The measures we are proposing to use are the same as those used in our previous 2018-28 LTP.

We are a member of the Local Government Funding Agency (LGFA), a co-operative that allows councils to borrow at lower interest rates and have easier access to long term borrowing, which reduces our overall borrowing costs. The LGFA has a number of caps that its shareholders must adhere to and the debt forecast in our financial strategy is well within these limits.

Our forecast debt compared to our caps as follows:

Our cap measures	Our forecasts
1. Total net external debt will not exceed 175% of total revenue in any year.	The LGFA has the same limit. We are forecasting to remain within this debt limit in this plan, with a peak of 153% in 2025/26.
2. Net interest expense is ≤ 15% of rates revenue in any year.	We have set our limits more conservatively than the LGFA. The LGFA has a limit that net interest expense is ≤ 25% of rates revenue in any year. We will remain within this debt limit, with a peak of 4.9% in 2025/26.
3. Net interest expense is ≤ 10% of total revenue in any year.	We have set our limit more conservatively than the LGFA. The LGFA has a limit that net interest expense is ≤ 20% of total revenue in any year. We will remain within this debt limit, with a peak of 3.8% in 2025/26.
4. Net external debt per rating unit is ≤$8,000 in any year.	The LGFA has no equivalent limit. We will remain within this debt limit, with a peak of $7,472 in 2025/26.

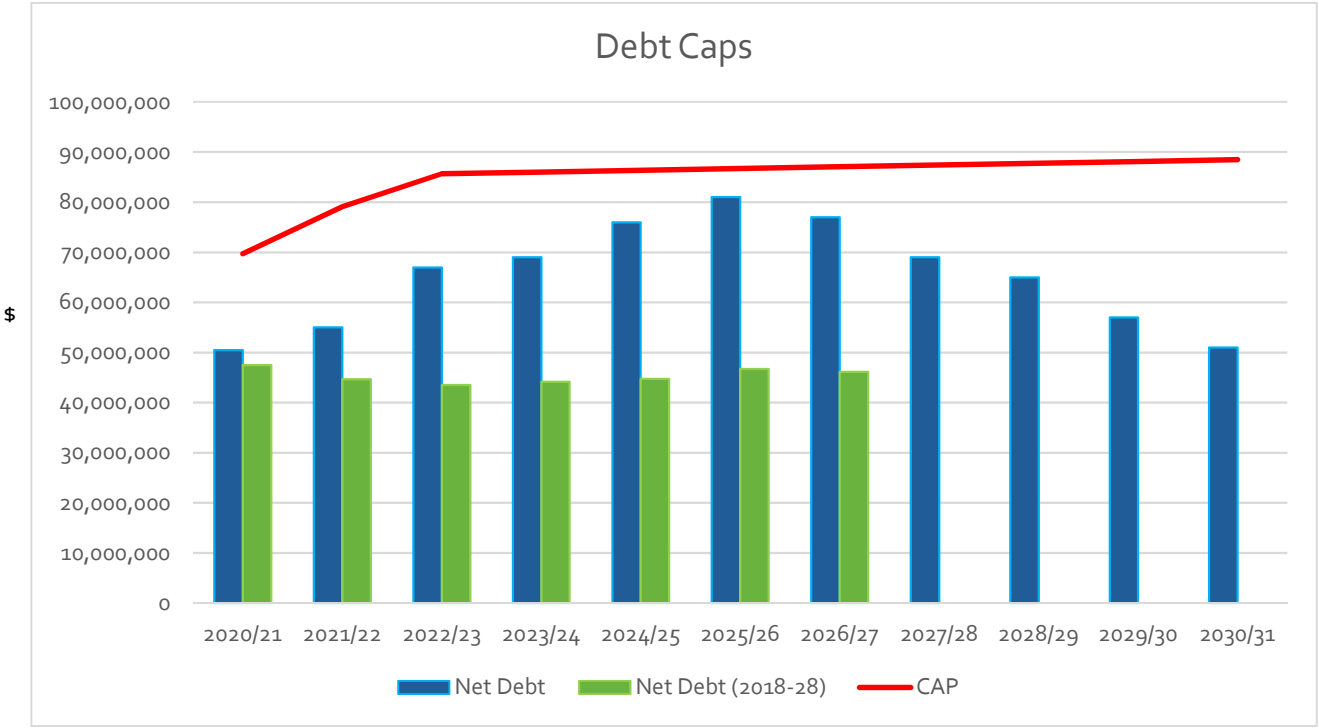
The forecast 10 year caps for each measure are specified in Appendix B.

Overall, we believe our approach to debt to be financially prudent and appropriately conservative.

The following graph shows our projected net external debt[1] profile against the *overall* debt cap over the life of this plan, as well as the projected debt profile of the 2018-28 plan for comparison. We are forecast to stay within our caps for the ten years of this plan, but we are concerned about the years 10 to 30 as infrastructure spend continues. In response we have proposed to keep rates levels beyond 2024/25 a good amount below our rates cap. This will give us some room to cover the cost of servicing ongoing debt.

Wastewater rates however are forecast to rise at a higher level in the latter years of this plan as our debt for this activity is facing high increases. We will monitor how our debt levels are tracking and continually review our expenditure and rates levels to ensure that our debt remains at a prudent level.

[1] Net external debt is external debt (the amount that the Council owes to its external lenders such as banks) less the Council's cash and other similar liquid assets.



Policy on giving securities for borrowing

We'll secure our borrowing against rates revenue as per section 115 of the Local Government Act 2002. Other forms of security may be considered if they will reduce the overall cost of borrowing.

Objective for holding and managing financial investments and equity securities

We don't currently hold equity securities (shares) for the primary purpose of earning a return on our investments. We have no plans to invest in equity securities during the term of the 2021-31 Long Term Plan. The companies in the table below are those in which we currently hold shares. There's no rate of return for these investments and the objectives for investment are noted in the table below.

Company	Objective of holding equity	Target rate of return
New Zealand Local Government Funding Agency (LGFA) (0.4% shareholding)	To ensure that the LGFA has sufficient capital to remain viable so that it continues as a source of debt funding.	≥0%
Waikato Local Authority Shared Services (LASS) (1.97% shareholding)	To ensure that the LASS has sufficient capital to remain viable so that it continues as a provider of shared services to the Council.	≥0%
Civic Financial Service Ltd (0.5% shareholding)	To ensure the Council can obtain superannuation and financial services.	≥0%

Appendix A: Forecast rates change

Increases in forecast rates (excluding water) and cap

Forecast	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Forecast	4.48%	4.71%	5.58%	6.86%	3.90%	3.85%	4.57%	5.42%	4.84%	4.95%
Rate Cap	8.20%	7.40%	7.00%	7.00%	7.10%	7.00%	7.10%	7.20%	7.20%	7.10%
Difference	-3.72%	-2.69%	-1.42%	-0.14%	-3.20%	-3.15%	-2.53%	-1.78%	-2.36%	-2.15%

Increases in forecast water rates and cap

Forecast	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Forecast	6.00%	7.50%	10.00%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Rate Cap	11.20%	10.40%	10.00%	5.50%	5.60%	5.50%	5.60%	5.70%	5.70%	5.60%
Difference	-5.20%	-2.90%	0.00%	-3.00%	-3.10%	-3.00%	-3.10%	-3.20%	-3.20%	-3.10%

Appendix B: Forecast annual debt caps

	Cap	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Net debt as % of total revenue	175%	122%	136%	132%	143%	153%	123%	104%	109%	94%	81%
Interest cost to total revenue	10%	3.3%	3.2%	3.5%	3.5%	3.8%	3.3%	3.0%	3.0%	2.9%	2.4%
Interest cost to total rates	15%	4.4%	4.5%	4.9%	4.7%	4.9%	4.9%	4.5%	3.9%	3.6%	3.1%
Net debt per rating unit	8,000	5,155	6,255	6,416	7,038	7,472	7,075	6,314	5,924	5,174	4,611

Our Infrastructure Strategy | Rautaki hanganga

Executive summary

Our Infrastructure Strategy (our strategy) provides us and our communities with our strategic direction for the provision of core infrastructure over the next 30 years. Core infrastructure includes our water supply, wastewater, stormwater, land drainage and flood protection, and land transport activities (roading and footpaths). These activities support economic activity, protect private property and the environment, and ensure public health.

This strategy outlines a 30-year view of strategic issues, expenditure requirements and significant decisions that will need to be made.

Our vision Our home, our future / Tō tātou rohe kāinga, Tō tatou ao tūroa guides what we deliver and how. It means that we're proud to live here and we want our future generations to be proud to live here too. We want to work with our communities to help shape our future rather than waiting for things to happen. That means creating opportunities for the now and also for future generations.

Ki a mātou '*Tō tātou rohe kāinga, Tō tatou ao tūroa*' ka noho whakahī tahi tatou i tēnei wā, a tērā wā hoki o ā tātou uri whakatupu. Ko tō mātou hiahia kia mahi ngātahi tātou ka whakaritea tō mātou ao ki mua, ka tatari kē kia tutuki. Ka whakaritehia ngā āheingaināianei, āpōpō hoki mō ngā uri whakatupu.

We own and manage $579 million of infrastructure assets across these activities, including:

620 ***kilometres of roads*** (506 kilometres sealed, 114 kilometres unsealed)

163 bridges and major culverts and 114 kilometres of footpaths.

Four water treatment plants (five schemes have recently been decommissioned) supplying ***six defined supply areas*** with approximately ***582 kilometres*** of pipes servicing ***7,366 urban and rural properties.***

Seven wastewater treatment plants servicing approximately ***5,720 properties*** via **167 kilometres** of pipes.

95 kilometres of urban stormwater pipes and 30.5 kilometres of open drains.

650 kilometres of ***rural land drains*** and **92** kilometres of ***stopbanks.***

Key district infrastructure issues

In preparing our strategy we've identified eight district-wide issues that need to be at the forefront of our infrastructure planning and decision-making. They are:

- Higher environmental standards
- Treaty settlement arrangements and co-governance
- Preparing for climate change
- Legislation and policy changes including Freshwater Management, Carbon Zero, Road to Zero Strategy, and three waters reforms
- Affordability for our community
- Increasing focus on compliance
- Ageing population
- People and infrastructure resilience

The following key issues have been identified for each of our infrastructure assets in addition to the key district issues. Options to respond to the issues are identified in the relevant section for each of the activities.

Activity	Key issues
Water supply 	• New drinking water regulator (Taumata Arowai) and changes to legislation. • Government's stated intention to aggregate three waters suppliers. • Capacity challenges for water supply treatment plants coupled with resilience issues. • Water network losses. • Impacts of climate change on the water supply activity with prolonged droughts may result in restrictive consent conditions for water takes from streams. • Increasing compliance and quality management requirements. • Environmental protection may have priority over water allocation for public drinking water purposes.
Wastewater 	• Increased environmental compliance standards will require significant investment. • Government's stated intention to aggregate three waters suppliers. • Government's proposed suite of legislation changes to improve freshwater ecological health. • Projected population growth will exceed the capacity of existing wastewater treatment plants, particularly in Paeroa. • Need to reassess the capacity of wastewater infrastructure to cope with climate change impacts – more intense rainfall in an event may lead to overflows. • Focusing on the network catchments that are overloaded due to infiltration and resulting in overflows.
Stormwater 	• Government's stated intention to aggregate three waters suppliers. • Becoming more proactive in stormwater quality management, including treatment of stormwater surface runoff from our roads, for good environmental outcomes. • Higher standards requiring stormwater treatment for discharges of stormwater into waterways. • Need to understand the impact of climate change particularly for the townships located on the Plains that may not be able to drain stormwater flows to the river by gravity longer term. • Limited knowledge of the condition and performance of our stormwater assets.
Land drainage and flood protection 	• Sea level rise may require stopbanks to be raised and gravity drainage may become less effective due to floodgates becoming partially submerged and needing to be supplemented or replaced by pumped outlets. • Land subsidence due to peat consolidation. • More stringent resource consent conditions for the clearing of drains.

Activity	Key issues
Land transport 	• Developing an optimised resurfacing programme that is affordable for our communities. • Providing accessible transport systems for our ageing population. • Parts of our transport network are vulnerable to weather related events and rising sea levels and the need to establish lifeline routes across the flood susceptible Plains. • Safety and resilience risks associated with the uncertainty of bridge load bearing capacity. • Focusing on road safety initiatives and investment.

Activities overview

Water supply

The New Zealand Government announced its packages of three waters reforms in 2019 in response to the Havelock North water contamination outbreak. Key features include the introduction of the Taumata Arowai – the Water Services Regulator Act, which has created a new standalone Crown entity (Taumata Arowai) to oversee, administer, and enforce the drinking water regulatory system. The Water Services Act will also give effect to Cabinet's decisions on reforming the drinking water regulatory framework, and Taumata Arowai's wastewater and stormwater monitoring functions. This is anticipated to be enacted during 2021. Until Taumata Arowai is fully functional with supporting legislation, the Ministry of Health will remain the regulator for drinking water safety.

As a result of the Government's stated intention to improve the regulation and supply arrangements of drinking water, wastewater and stormwater (three waters), we are expecting these services to move to a semi-regional / regional / multi-regional or national supplier within three to four years. Council has signed a Memorandum of Understanding (MOU) agreeing to work with the Government on the reforms.

The Kerepehi water supply treatment plant is approaching peak demand capacity coupled with resilience issues with the raw water main and tank due to its age and some sections located under the state highway, and potential saltwater intrusion risk at the intake. To address this we have been investigating linking the Paeroa and Plains Water Networks to increase the utilisation of the treatment plants (Paeroa, Kerepehi and Waitakaruru) as well as increasing our overall network resilience.

The Government is proposing a suite of legislative and regulation changes to improve the current management of freshwater. This may mean that environmental protection, Te Mana o te Wai, will have priority over water takes for public drinking water purposes. The potential reduction in our current allocation of raw water volume may impact our ability to meet demand. We are currently experiencing some capacity constraint at Waihi water treatment plant due to consent enforced restrictions, during periods of low river levels caused by extended dry weather events.

Wastewater

There are significant challenges with the future wastewater treatment plant upgrades as consents expire. Consideration is needed of the Waikato Regional Council's Plan Change 1 and possible Plan Change for the Waihou-Piako catchment, National Policy Statement for Freshwater Management 2020 (in effect from 3 September 2020), the higher standard of treatment required by resource consents (based on the initial conditions for Ngatea upgrade), as well as growth.

All of our plants will either have or will be in the process of securing new resource consents by 2023. We have extrapolated the draft Ngatea wastewater treatment plant discharge consent as it is consistent with the intent of the National Policy Statement for Freshwater Management, and thus reflects the likely conditions across our other six treatment plants in the district. While each catchment has its differences, the draft conditions are reasonably generic and generally give effect to the National Policy Statement.

The likely wastewater upgrade cost estimates are significant and may not be affordable for our community. In addition, an upgrade may not represent the best environmental outcomes because the discharge from the plants is minimal when compared to agricultural runoff. If we were looking to make a significant environmental impact, we may be wiser investing in other options. Non-asset solutions such as purchasing farmland or smart farming practices may provide better return on capital investment for the environment than costly, state-of-the-art treatment plants.

To address the significant wastewater issues that we are facing, we will be developing a clear strategy on the treatment and discharge of wastewater within our district for the next 50 years.

Taumata Arowai will have a national oversight / transparency role for stormwater and wastewater. It will publish an annual report on environmental performance of wastewater and stormwater systems owned by territorial authorities and the Crown, and their compliance with requirements like resource consents. It will also highlight poor practice and recommend action. Regional councils will continue to regulate wastewater and stormwater systems under the Resource Management Act and Taumata Arowai will be the 'watchdog'.

Stormwater

Our consents for discharging stormwater into waterways for the Plains, Paeroa, Waihi / Karangahake / Waikino and Whiritoa expire in 2023 (six in total with three for the Plains). We also need a discharge consent for the townships of the Wharekawa Coast. We have started preparing the evidence to support our applications. We know that there will be higher discharge standards than we currently have including treatment and comprehensive reporting. This will require us to be more proactive in stormwater management than our current practices.

At this stage, we do not know what the minimum discharge standards will be. This will be influenced by the Government's suite of legislative and regulation changes to improve freshwater ecological health, including the National Policy statement for Freshwater Management 2020 and the National Environmental Standards for Freshwater (2020).

Land drainage and flood protection

Our stopbanks need raising periodically to maintain service levels so our communities are protected and we ensure pastoral land remains productive. The stopbanks experience ongoing settlement due to consolidation of the soil layers under the weight of the stopbanks. In addition to this sea level rise due to assumption will require some primary stopbanks to be raised over and above the settlement amount to maintain the levels of service currently provided.

We are collecting evidence so we can understand any material change to the land drainage and flood protection activity due to climate change impacts. This includes monitoring rainfall events at sites in our district. The total rainfall volume during an event is the main concern for this activity as this may result in longer periods of inundation of farmland. This may result in the need to provide an increased level of service.

Land transport

We know that we need to invest more in resealing our roads. We need to keep ahead so there is not an unsustainable deficit that is unaffordable for our future ratepayers. We have undertaken a high level analysis of different reseal profiles (five profiles in total for chip seal reseals only) in advance of the long term modelling outputs. An optimised profile has been identified and has informed this strategy and our long term plan.

An assessment of the seal life of pavements shows that 28% of our network is older than the design life compared to an industry acceptable level of 10 to 15%. There is also a large cohort with an expected remaining life of five years. We have been gathering evidence to develop an evidence-based pavement intervention strategy to better inform future investments for the sealed network, including performance validation of sealed pavements built on different soil types.

An increased investment in reseals is required to address the large amount of aged sealed assets (overdue). In mid-2021 we received notification from Waka Kotahi New Zealand Transport Agency that it would not be in a position to provide subsidy for the full schedule of projects we had allowed for the first three years of our long term plan. This means we will not be able to complete as many reseals and rehabilitation of roads as we'd like in the first three years

and have kept our reseals and rehabilitation budget at the same level it was in our 2018-28 long term plan for years 1-3. We plan to bring the percentage of backlog down to 15% (from 28%) from year four with a higher level of investment. This is likely to result in a reduced level of service as rehabilitation of roads is deferred.

There is an increased focus on road safety nationally and there is a greater awareness of road safety in our community. A network wide safety assessment has been completed and the top 11 crash roads have been identified. Most crashes were generally found to occur on open (rural) roads, at intersections or busy sections of road with no street lighting, and were often due to direct roadside hazards. We will focus our safety investment on these 11 worst roads to gain the maximum benefits. Options include reducing speed or physical engineering improvements.

High speed roads that do not provide adequate recovery areas are particularly of concern. There is a greater chance of drivers not able to rectify errors quickly on these roads resulting in accidents. To address this, we will also be reviewing the road safety policies and allow for physical engineering interventions at targeted sites as required.

Funding

We fund our infrastructure activities through a mixture of rates, subsidies and fees and charges such as development contributions. The majority of funding comes from rates. We also use debt to spread the funding of large one-off costs, especially capital expenditure, over the useful life of the asset.

Overall position

Financial position changes

Our financial position has changed from that forecast in our 2018-2048 Infrastructure Strategy.

- Better information has shown that water supply and wastewater reticulation, and roading renewals need to continue to increase over the planning period to keep our infrastructure performing.
- Forecast increased environmental standards will likely demand significant additional capital expenditure on our wastewater treatment facilities.
- Prior to 2018 our district projections were for no or minimal population and rating unit growth in our communities. This changed in the 2018-48 Infrastructure Strategy where growth in our population and rating units was forecast. Current and forecast growth means we'll need to increase the capacity of some of our infrastructure.
- We also face risks as a result of future climate change and natural hazards.

Our ability to fund our responses to the challenges above is affected by the incomes of our communities. We have a higher than average number of low-income households in our district. We want to ensure that our communities can afford to pay to use our services and pay their rates bill, but we also need to be in a good financial position to cope with the likely changes ahead. The amount that we spend and borrow in the short to medium term will shape how much flexibility we have to respond to these new challenges ahead.

There is a high degree of uncertainty for some of the expenditure that will be required to meet higher environmental standards and service level changes. We have responded by prioritising our 'must-dos' and cutting back on some of the 'nice-to-haves'. We have also increased our rate and debt caps. The rate increases now forecast mean that we maintain a solid financial position, but further infrastructure cost increases may put this at risk.

Our financial strategy provides more detail.

30 Year expenditure forecast

Table 1 shows the total expected capital and operational expenditure for each infrastructure activity over the 30-year period 2021 to 2051.

Infrastructure activity	Operational expenditure ($)	Capital expenditure ($)
Water supply	384,101,939	124,811,001
Wastewater	224,621,153	97,999,762
Stormwater	45,790,750	25,220,858
Land drainage and flood protection	64,096,166	14,629,728
Land transport	492,150,116	176,262,691
Total	**1,210,760,124**	**438,924,039**

Table 1: Expected 30 year total operating and capital expenditure (inflated adjusted)

Figure 1 shows the most likely scenario for the total operating and capital expenditure (inflation adjusted) for combined assets over the 30-year period 2021 to 2051.

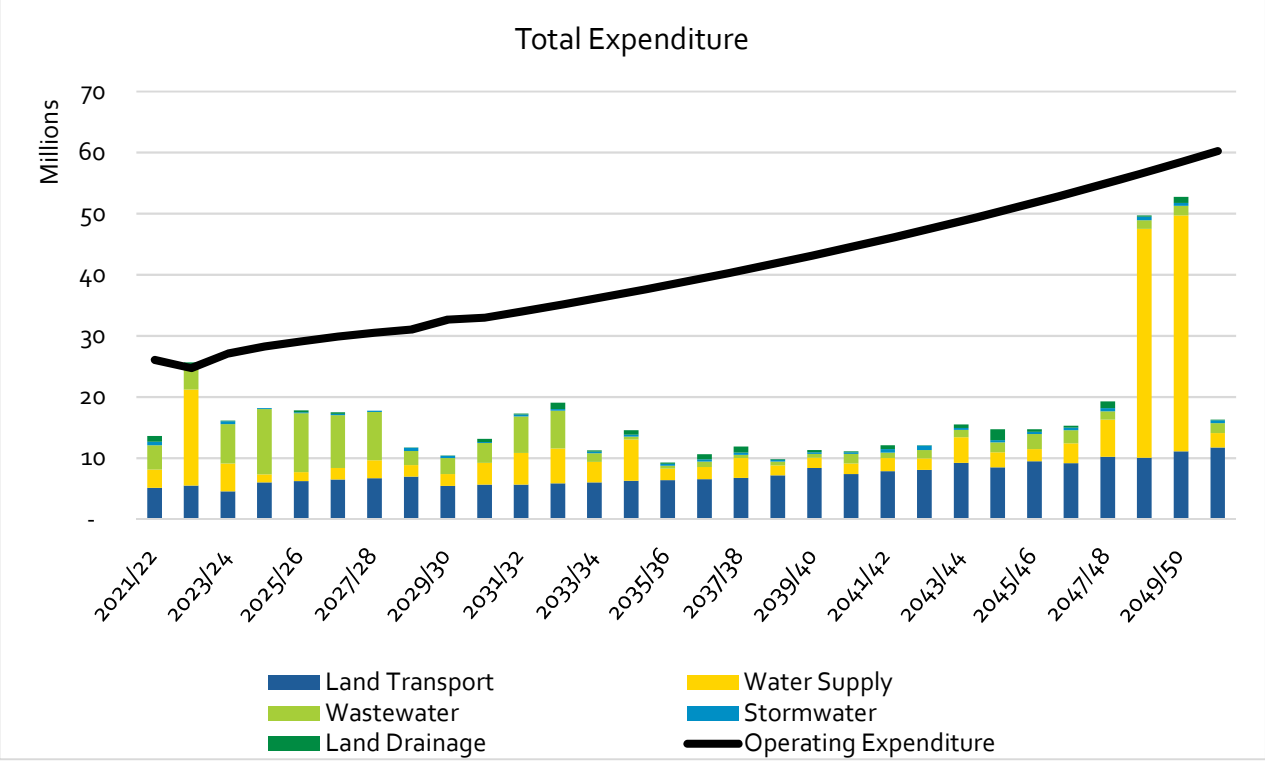


Figure 1: Total expenditure over 30 years

Over the next 30 years, it is expected that:

- Operational expenditure will account for 70% of the total expenditure
- Planned expenditure on renewals across all infrastructure activities is generally constant at about $10 million per annum, but increases in the last four years
- Capital expenditure on levels of service improvements focus on higher environment standards and obtaining resource consents for water supply, wastewater and stormwater.

Capital works delivery

We realise it is crucial that we deliver our planned programme of capital works, and that we need to increase our capability to ensure we are successful in delivering a higher level of investment in the future.

In 2018 we established a Council wide Project Management Office (PMO) and appointed a PMO manager to implement project management improvements and put in place additional project management and reporting controls.

The following capital works delivery actions have been undertaken:

- Renewals and upgrades to water and transport network are the major projects in our capital programme.
- A number of multiyear projects are already underway in planning and execution.
- As well as our PMO resourcing, we are working towards a collaborative approach with the construction industry Civil Contractors New Zealand – Waikato branch through the Waikato Local Authority Shared Services (WLASS) procurement working group.
- We have contracts in place for aspects of our land transport activity, such as our streetlight and road maintenance contracts. We open an annual tender for area wide treatments on the road networks, and the reseal programme.
- Contracts are in place for some of the projects which will be part funded by the Three Waters Stimulus Grant.
- For the upgrade of the Paeroa wastewater treatment plant and associated work, a strategy document is in the process of being finalised and we are in the process of engaging a team to start the design work. This will be subject to a consent process and is likely to be a 2-3 year project before physical works start.
- The renewals programme for water pipes will be undertake by in-house physical works team, as part of the repairs and renewals work they do.

Summary of strategic actions

We've identified a number of infrastructure challenges over the next 30 years and our strategy identifies our strategic approach to addressing these. The initial period of our strategy is focussed on gathering evidence on our three waters assets, strengthening resilience of our water and wastewater infrastructure, meeting higher environmental standards, increasing investment in road resealing to preserve the road assets, and road safety. The latter part of the strategy has an increased emphasis on stormwater quality improvements.

We consider our decision on three waters the most significant decision we will have to make. In particular, there are significant cost implications with the future wastewater treatment plant upgrades to improve the discharge quality. We consider this to be significant because the financial consequences are high, and will affect both our capacity to deliver our range of existing services without significantly impacting on our debt levels and our rates funding requirements. This would affect ratepayers across the district financially through higher increases in wastewater rates.

Other key decisions that will need to be made by elected members over the next 30 years include:

- We will continue to build people capability and capacity so that we have a resilient workforce and can be prepared for black swan (unpredictable) events such as the global pandemic.
- We will gather evidence particularly the condition of our critical three water assets in the next three to ten years to help us develop robust and risk based renewal programmes.
- We will continue to strengthen our infrastructural resilience as some of our district is located on the Hauraki Plains and is susceptible to weather related events and rising sea levels.
- We will develop a joint strategy with our internal Transport Team to reduce road runoff pollution and achieve good environmental outcomes.
- We will invest at a higher level in roading reseals to address the large amount of aged sealed assets (overdue) to bring the percentage of backlog down to 15% (from 28%) in the next five years.
- We will implement the Road to Zero Strategy to prioritise safety risks across the network holistically.
- We will continue with our maintenance and renewal programmes that target interventions at appropriate levels consistent with good industry practice and meeting agreed levels of service.

Part One – Strategic Context

Purpose of this strategy

Our infrastructure strategy (strategy) has been prepared in accordance with the requirements of section 101B of the Local Government Act 2002 (LGA). The purpose of our strategy, as stated in the LGA, is to:

- identify our significant infrastructure issues over the period covered by the strategy, and
- identify the principal options for managing those issues and the implications of those options.

This strategy also outlines the most likely scenario for the management of our infrastructure assets during its 30 year period, the estimated costs of managing those assets, the nature and timing of expected significant capital expenditure decisions and the assumptions on which the scenarios are based.

In accordance with section 101B (6) of the LGA, our strategy includes infrastructure assets used to provide our services or services on our behalf, in relation to the following groups of activities:

- Water supply.
- Wastewater (sewerage and the treatment and disposal of sewage).
- Stormwater.
- Land drainage and flood protection (flood protection and control works).
- Land transport (the provision of roads, bridges and footpaths).

As well as the infrastructure we provide, flood protection and control works are also provided by the Waikato Regional Council. This infrastructure strategy only relates to those assets that we provide. Also our strategy does not include state highways. Planning for, providing and managing state highways is the responsibility of Waka Kotahi NZ Transport Agency (Waka Kotahi).

Strategic principles

In essence this strategy is looking to ensure the **right asset is in the right place at the right time** in our district. There will be competing needs, priorities, demands, resource availability and financial considerations that will need to be balanced as part of the infrastructure planning and decision-making process. We have developed a set of strategic principles that will guide infrastructure planning for our district over the next 30 years. Financial sustainability is an overarching principle that crosses all of the other principles identified below:

- Proactive provision and management of critical assets.
- Robust asset management practices.
- Integrated provision of infrastructure.
- Make the best use of our existing investment.
- Affordable infrastructure solutions for our community that are environmentally beneficial.
- Partnerships with Iwi and Māori.

Strategic linkages

Our vision Our home, our future guides what we deliver and how.

It means that we're proud to live here and we want our future generations to be proud to live here too. We want to work with our communities to help shape our future rather than waiting for things to happen. That means creating opportunities for the now and also for future generations. We are ready to push boundaries to make things happen.

It is our mission to:

- actively provide leadership to and advocate for the community,
- provide good quality infrastructure, services and regulatory functions,
- foster open-minded and two-way communication with the community,
- ensure the sustainable use and management of resources,

...for the benefit of all who live in, work in and visit the Hauraki District.

Our strategy delivers on our mission statement through the planning and provision of good quality infrastructure and the sustainable use and management of resources of our district for the next 30 years.

Our Community Outcomes are clear aspirations or goals that we believe help to provide leadership and guidance in meeting our purpose and role. In 2020 we developed new Community Outcomes in partnership with our communities. In developing these aspirations and goals we were mindful of the United Nations Sustainable Development Goals and the Waikato Wellbeing Project.

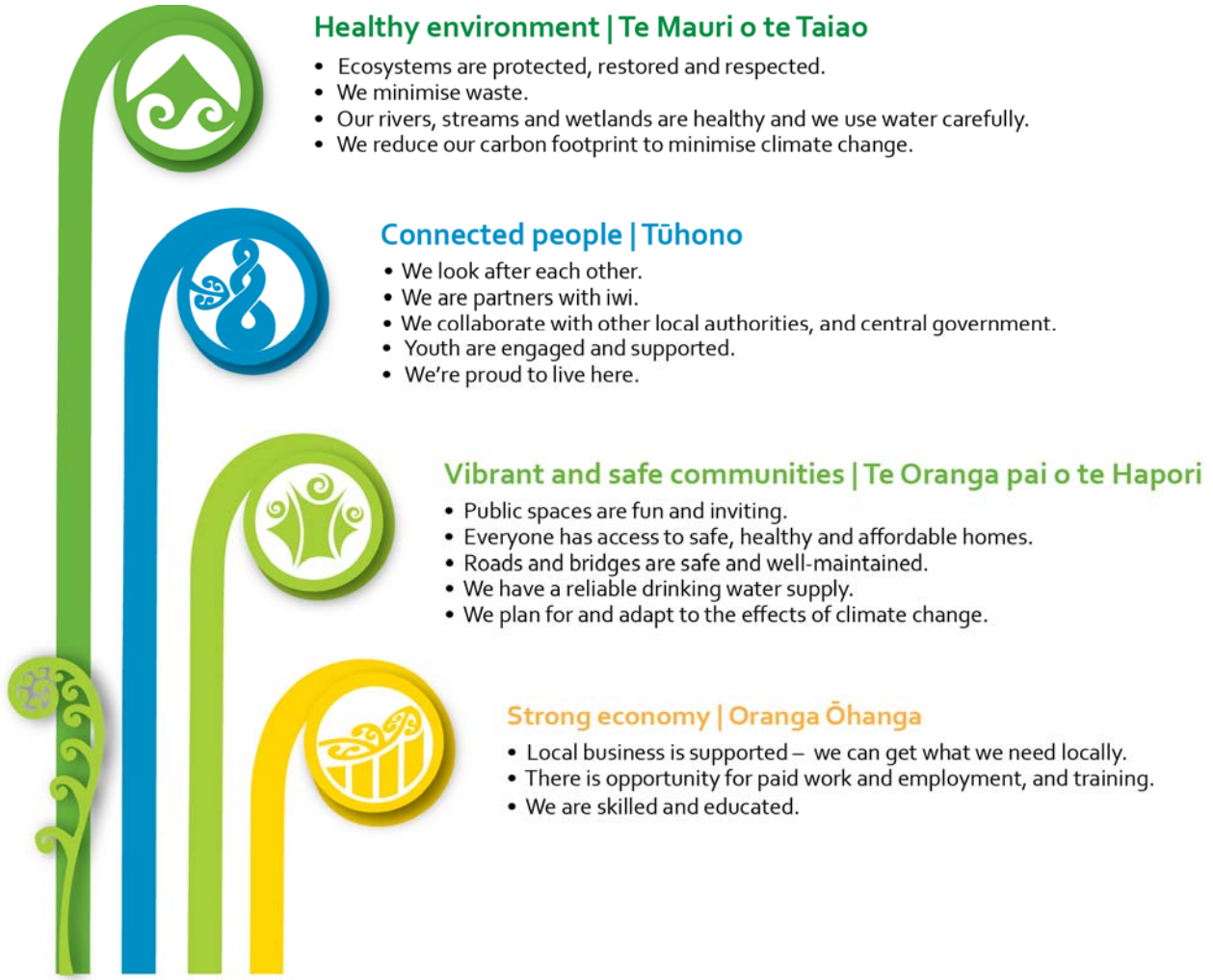


Figure 2: Hauraki District Council Community Outcomes

Our infrastructure is a key mechanism to achieve these Community Outcomes. Our water supply and wastewater infrastructure provide safe and reliable drinking water and disposal of wastewater in a sustainable manner, while land drainage protects land from inundation and water ponding. Land transport provides safe roads, bridges and footpaths for the community, businesses and visitors to the area. The provision of the five activities covered by this strategy all contribute to the economic development of our district, enabling goods to get to market, supports public health and, protects land and the environment.

Our strategy is a key strategic Council document that links to other core plans and strategies as shown in Figure 3.

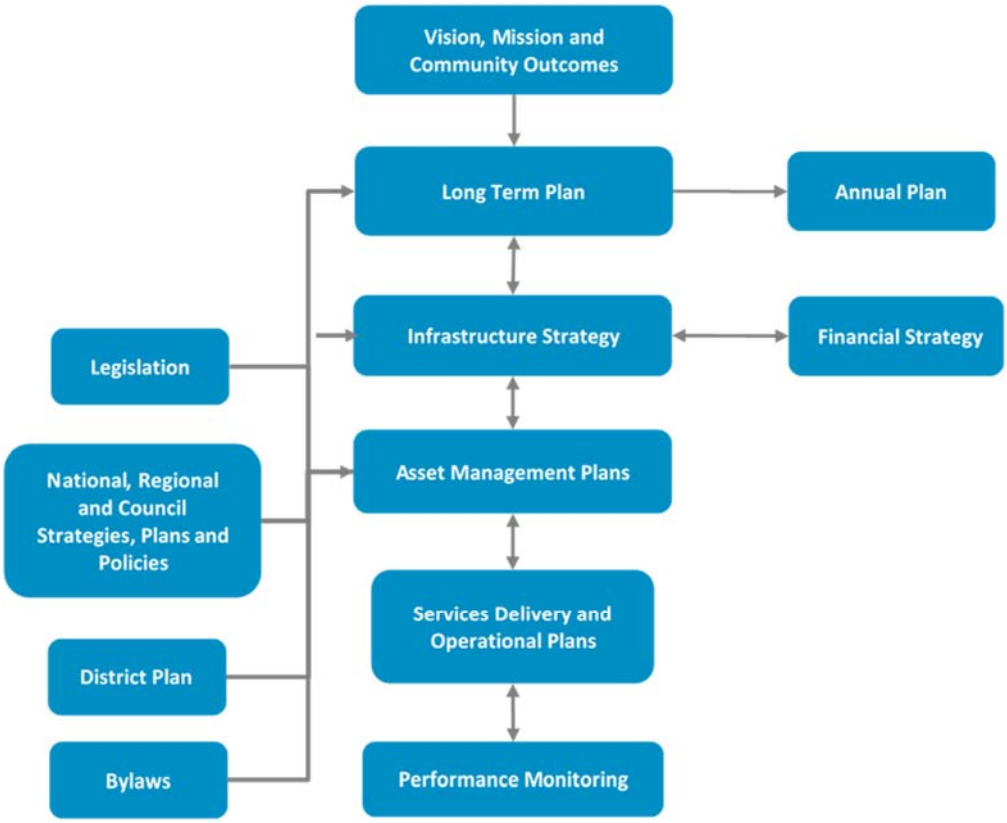


Figure 3: Infrastructure Strategy linkages with other documents

About the Hauraki District

The Hauraki District covers an area of approximately 1,269 square kilometres. Our district spans from the Wharekawa Coast (also known as the Shorebird Coast) across the Hauraki Plains, through the Karangahake Gorge and over the Kaimai / Coromandel ranges before reaching the Golden Valley farmlands in the northeast, and the Pacific Ocean at Whiritoa.

Historically, the Hauraki Plains was a large swamp, but after extensive drainage work, it is now highly productive dairy land. Areas within the Hauraki Plains have an overlying peat layer and / or soft estuarine soil both of which are susceptible to increasing and decreasing water levels which has a direct impact on our infrastructure assets, particularly our roads and pipes. Natural hazards continue to pose a risk to our district, particularly the Hauraki Plains area, with Ngatea at or slightly above the mean high water spring sea level.

The three largest urban centres in the district are Waihi, Paeroa and Ngatea. However the district also includes a number of smaller townships including Kaiaua, Turua, Kerepehi, Karangahake, Mackaytown, Waikino, Whiritoa and Waitakaruru. The district map in Figure 4 shows the 2018 Census boundaries.

Industry

Our district is most well-known for its farming, mining and tourism. We have a strong farming history which is predominantly pastoral farming, with a significant number of businesses supporting and servicing the farming industry. A number of new industries have established in our district including an ice cream manufacturing plant at Kerepehi.

The mine in Waihi, which includes an open pit and several underground mines, is one of only a handful of mines in the developed world that operate within an established residential community. As such, a paramount link to the mine's success and on-going development is its relationship with the surrounding community and Council. Tourism has been growing with the Hauraki Rail Trail, Karangahake Gorge and the Wharekawa Coast attracting people to visit the district. Pre-COVID 19 the increase in tourism numbers placed an increasing demand on our infrastructure and facilities, as well as Waka Kotahi and the Department of Conservation facilities. The effects of COVID-19 are still to be understood fully, however are likely to have a negative effect on tourism growth in the short to medium term.

We also need to consider how the national, regional and local economies are changing with the impact of the global pandemic. As a nation we learnt from the global financial crisis that is it not wise to cut spending in core infrastructure. The 2021 Infrastructure Strategy outlines the investment programmes to ensure we are meeting our legislative obligations as well as maintaining service levels to our communities. This investment will stimulate Hauraki's local economy. We have learnt through the various national lockdowns how important essential services are for the community and core infrastructure must be reliable.

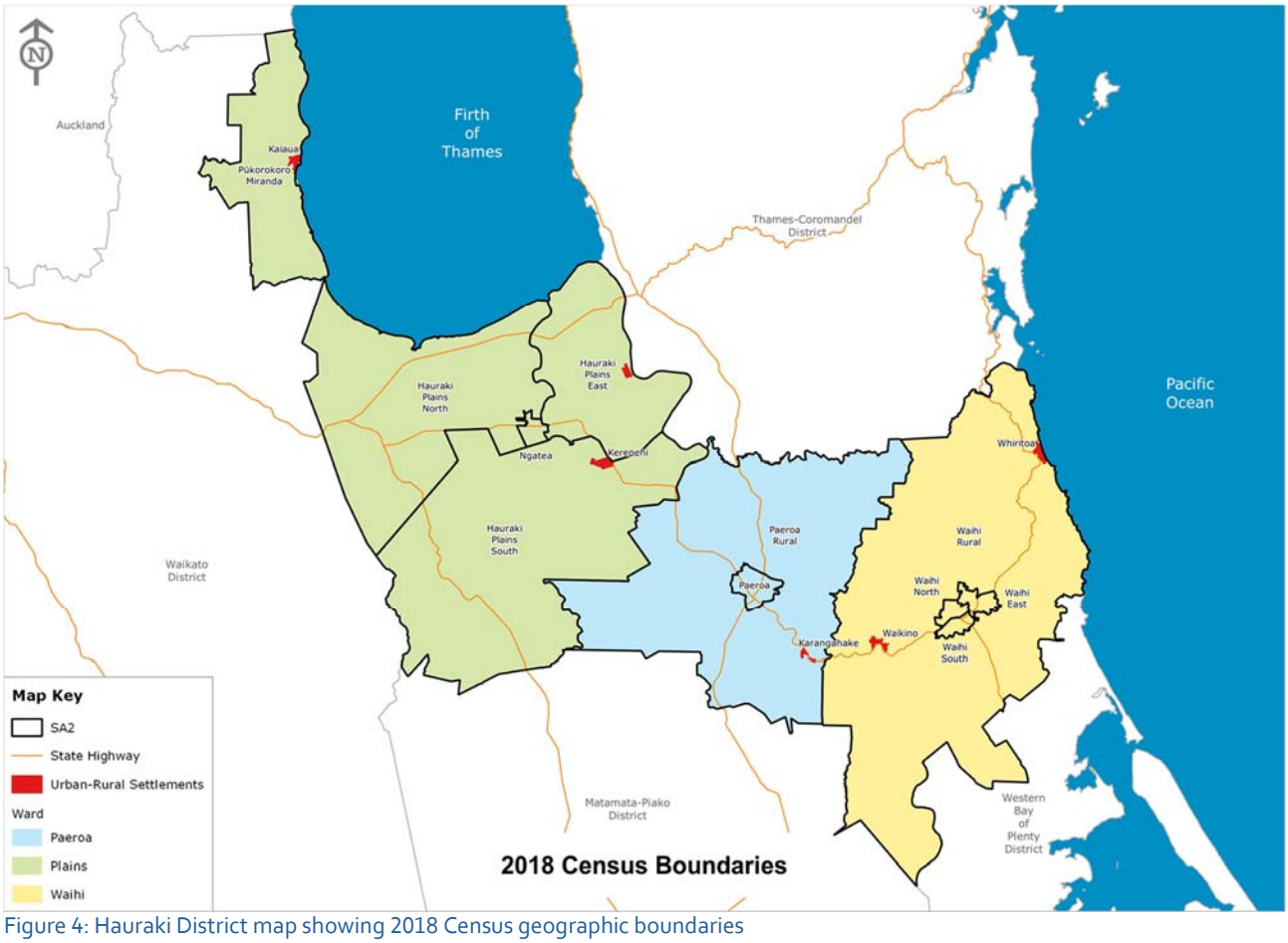


Figure 4: Hauraki District map showing 2018 Census geographic boundaries

Demographic context

Our district population was mainly static between 1996 and 2013, sitting at just over 18,000. Population growth picked up in 2014, driven primarily by people moving to our district from Auckland, and to a lesser extent, an increase in people from overseas. Over the 5-year period between the 2013 and 2018 Censuses the district population grew by 12.4% to reach 20,022.

A significant assumption underlying this strategy is the district will continue to experience population growth for the next 10 years, albeit at a slower rate than between 2013 to 2018. The population is projected to be approximately 21,500 in 2021 and reach 22,750 by 2031, that's an increase of 5.6% over the ten years. Growth will be spread across the district, with only the population in the areas of Miranda-Pūkorokoro and Hauraki Plains North projected to

decline before 2031. After 2021 the population is projected to decline slightly, mainly due to the age profile of the district's residents. By 2051 the population is projected to be 21,400, with minimal population growth still occurring in Waihi and Paeroa. We estimate that 26% of the population is currently aged 65+, with this increasing to 35% in 2031 and 40% by 2051.

While the recent growth and that forecast is not high when compared to some other areas of New Zealand, it will impact our infrastructure as the network capacity has already been, or will soon be reached. In addition, we need to plan for our communities to be future proofed and accessible for an increasing aged population.

We adopted the medium growth projections scenario provided by our population specialists, as opposed to the high scenario, because of the expected impacts of COVID-19, such as minimal national net migration and limited economic growth. However, if we experience higher net migration than forecast over the next 10 years the district population may not decline in the future. The high growth scenario, based on higher net migration figures, projects the district population to be approximately 24,200 in 2051. That is why, in years 10-30 of our strategy we are also planning with the high growth projections in mind because we do not want to underinvest in our infrastructure. We believe there is no risk of overinvesting if we base our planning on the medium and high projections, given the two scenarios are not significantly different.

Dwelling and rating units

Growth in dwelling numbers can be driven by an increase in population, a demand for holiday homes, or if more homes are needed to house less people per dwelling, for example due to an ageing population. It is projected in 2021 there will be 10,220 dwellings in the district and 10% of those will be unoccupied, such as holiday homes. Over the ten-year period to 2031 it is projected the number of dwellings in the district will increase by an average of 77 per year, reaching 10,990 by 2031. Due to the projected decline in population after 2031 dwelling numbers are also projected to decline slightly to 10,700 in 2051. The high growth scenario projects the number of dwellings to be 11,800 in 2051. The distribution of dwellings within the district largely follows the distribution of population, but with some differences, as areas with ageing populations require more dwellings as their average household size decreases faster than the district overall.

Rating unit growth is driven by the economy, population and other changes in demographics, lifestyle patterns, and growth in neighbouring districts, including Auckland. In 2021 our district is projected to have 10,995 rating units. Between 2021 and 2031 it is projected that the number of rateable units will increase by an average of 90 per annum, reaching 11,890 by 2031. In 2021 residential and residential lifestyle properties are projected to account for 77% of the District rating units. By 2051 it is projected the number of rating units in our district will reach 12,310. This is an average annual increase of 21 rating units between 2031 and 2051. The continued growth is mainly attributed to growth in commercial and industrial rating units.

Social deprivation and annual household income

Our district continues to experience higher levels of deprivation compared to other parts of the country when using the New Zealand Deprivation Index. On a scale of one to ten (least to most deprived scores) Waihi, Paeroa and Hauraki Plains South are assessed individually as having a score of 9.This means they are in the top 20 per cent of areas that have the most deprived scores in New Zealand. This is an improvement for Waihi and Paeroa, as they had scores of 10 in 2013.

The average median household income (half earn more and half earn less) in the District was $63,100 in 2018 – lower than the national median of $89,100. Given that our district has a high proportion of the population over 65 years of age, a higher number will have income from superannuation and means tested benefits which will impact on the average household income for our district. House prices have increased considerably in our district while median incomes have not kept pace with this movement. In the year to June 2019 the average (mean) residential house price in the District was $421,355. That is an increase of 63% when compared to average residential house prices in June 2015, when the average price was $259,033. This means parts of our district are less affordable than in the past.

Our District in the future - planning assumptions

In preparing this strategy and the long term plan, we have to identify significant forecasting assumptions, including demographic and climate change projections and financial assumptions. These can be viewed within the 2021-31 long term plan.

In summary, some of the assumptions we've made about what the district and the community might look like in 30 years and what that might mean for our infrastructure are noted below. Given these are assumptions, we have indicated our level of uncertainty with these.

- Our district will continue to moderately grow over the next ten years then growth will likely slow as projected in the medium growth scenario that we have adopted. (Medium level of uncertainty)
- Paeroa, Waihi and Ngatea will continue to be the main urban towns. (Medium level of uncertainty).
- There will be an increase in the aged population and more developments catering for aged persons. (Low level of uncertainty).
- There will be more industry with the continued growth of the Kerepehi industrial hub and industrial development in the Waihi rural area. (Medium level of uncertainty).
- Three waters services are expecting to move to another entity within three to four years. (Medium level of uncertainty)
- Farming practices may change particularly on the Plains with the impact of climate change and in response to increasing environmental requirements. (High level of uncertainty).
- Climate change will affect our district over the medium to long term in line with projections provided by the Ministry for the Environment for the Waikato Region. (High level of uncertainty).
- There will be greater reliance on pumping of floodwaters to remove ponding on paddocks for farming activities on the Plains, due to climate change impacts. (High level of uncertainty).
- The townships located on the Plains may need supplementary pumping to be drained of storm flows. (High level of uncertainty).
- Sea level rise, coastal erosion and weather events as a result of climate change will increase requiring us to adapt the way we manage our assets. (High level of uncertainty).
- Our partnership with Māori will be stronger including in decision making and co-management of waterways. (Low level of uncertainty).
- After the initial decrease in tourism due to COVID-19, domestic tourist numbers will continue to increase, partially because of the popular Hauraki Rail Trail. (Medium level of uncertainty).
- Resources will be available so we can deliver our capital works programme. On average, costs of major capital works will not vary significantly from costs estimated at the concept stage, subject to general inflation trends. (High level of uncertainty).

A summary of our financial assumptions can be viewed in Part 3 of our strategy. Further activity-specific detail can be viewed in our Activity Management Plans (AMPs), available from the Council on request.

Overview of our infrastructure

We own and manages $579 million of infrastructure assets which can be summarised as follows:

Land transport – value $369 million

We're responsible for the planning, provision, development, operations and maintenance of our district's land transportation network and facilities to ensure the safe and efficient movement of people and goods around the district. We have 620 kilometres of roads (506 kilometres sealed, 114 kilometres unsealed), 163 bridges and major culverts, and 114kms of footpaths. In addition to this, we own the assets of the Hauraki Rail Trail across the Thames-Coromandel and Hauraki Districts and the section of the Trail from Paeroa to Te Aroha and then to Matamata, which lie in the Matamata-Piako District). The land transport activity represents more than half of the infrastructure value with a 2017 replacement cost of over $369 million[1].

[1] Hauraki District Council Valuation of Roading Assets 2019, WSP

Water supply – value $118 million

We provide safe drinking water to dwellings, commercial and industrial premises and many rural properties. We are quite unique in that nearly 65% of the water we treat is consumed by rural communities for agriculture. It is not used for irrigation, but predominantly for drinking water for stock. The provision of safe drinking water is a public health priority. Four major water treatment plants (with Kaimanawa due to be commissioned in 2021) supply five schemes with approximately 582km of pipes supplying 7,366 properties.

Wastewater – value $78 million

We collect, treat and dispose of treated wastewater from properties in the district via 167km of pipes. The safe disposal of wastewater is required for public and environmental health. Seven wastewater treatment plants service 5,720 properties.

Stormwater – value $46 million

Our stormwater network consists of 95km of urban stormwater pipes and 30.5km of open drains to manage the disposal of water from prolonged periods of rain to reduce risks to people and property.

Land drainage and flood protection – value $29 million

We provide 650 kilometres of rural land drains and canals, and a range of flood protection and land drainage assets including 92 kilometres of stopbanks, 123 floodgates and 5 pump stations to collect runoff from rural catchments and to discharge it to river or sea outlets. The drainage service is provided in five drainage districts (including the new Pūkorokoro Drainage District north of Miranda which is still under discussion).

Achievements since 2018

We have made some progress on implementing the key actions identified in the 2018 Infrastructure Strategy, as outlined below.

Reliability of information

We have made some progress with understanding the condition of our water and wastewater networks. Priority was given to the water supply activity in response to the Havelock North water contamination outbreak.

We have put a lot of effort in the last two years to better understand the state of our transport assets. This includes increasing our in-house knowledge of the transport network performance, having reasonably complete asset condition data for sealed road pavements, inspecting the district's bridges to assess asset condition, and regularly collecting footpath condition data.

We have started to gather evidence to understand the effects of climate change for our stormwater, land drainage and flood protection, and land transport networks. Analysis work is being undertaken by the transport team to better understand pavement performance on different soil types, against associated maintenance costs and traffic demand data.

Water supply

We have continued our ongoing leakage management programme and are working towards our water supply network performing within acceptable industry limits. We recognise that our leakage management programme will take time to achieve results, however initial results in the Paeroa and Plains network areas are good.

We have renewed pipes in very poor condition across the district with our proactive risk based replacement programme. We are also replacing the domestic water meters for the district. The replacement of our large water

meters is on hold while we wait for technology changes to be more accessible. We have made progress on understanding the condition of our assets, however the focus has been on compliance.

Wastewater

About half of our pump stations have alarms to alert us in advance of an incident to mitigate the effects of wastewater overflows and improve reporting to the Regional Council. We will include the programme to install alarms for the remaining pump stations to protect public health and the environment in the 2021 long term plan budget. We have made some progress on understanding the condition of our wastewater assets.

Stormwater

We have made limited progress on understanding the condition of our stormwater assets. With the appointment of new engineering resources, condition assessments will be a focus area in the next three years including resetting the programme.

Land drainage and flood protection

We have completed modelling of the stopbank settling and impacts of sea level rise. Our next step is to refine our cost data (for moving soil and compaction) used for modelling purposes. We are also undertaking work with the Regional Council to better understand the effects of climate change on this activity.

Land transport

Overall there has been effort to gather and improve the underlying asset data for preparing evidence based renewal programmes, particularly for the resurfacing of the sealed network. This means we now have a much better understanding on the state of our transport assets as noted above.

All of the district's bridges have now been surveyed to assess the asset condition and record the construction dates from the plate ID. This asset data is recorded in our asset management system. The condition survey has informed the development of our forward works programme.

Uncertainty and implications

In developing this strategy there are a number of things that we do not or cannot know. This has flow on effects on the identification of issues and options for dealing with issues and how we can best respond.

Areas of uncertainty we have identified are:

- Legislative changes, National Policy Statement for Freshwater Management 2020 and National Environmental standards that may require significant changes to the way we plan, manage and fund infrastructure.
- Effect of climate change on Council's infrastructure and on the Plains long term.
- The impact of the Government's proposed Action for Healthy Waterways legislation may require additional fencing and riparian planting of local drains.

Reliability of information

We have made significant improvement in data collection and quality for the land transport activity since the 2018 Infrastructure Strategy. We have also assessed the current state of the wastewater pump stations including electrical switchboard safety, condition, pump performance, capacity, and resilience. However, there is still varying levels of reliability of information across the five activities covered in this strategy.

Gaps have been identified in the following areas:

- Condition of our above ground water supply assets.
- Condition of wastewater (excluding pump stations) and stormwater assets.
- Completeness of surface water channel inventory and limited understanding of the streetlight pole condition.
- High speed data to detect cracking in road surfaces.

The data records for the three waters assets are recorded in our asset management system for most asset classes. Water supply condition is based on pipe breaks. Wastewater asset condition is based on CCTV surveys. There is limited data recorded about condition at water supply and wastewater treatment plants.

The data confidence of the three waters asset data has been classified in accordance with the International Infrastructure Management Manual as follows; water supply, wastewater and stormwater - reliable for inventory completeness and age, less certain for condition (except for raw water mains, treated water pipelines and reservoirs, and open drains).

The data confidence of the land transport assets was independently assessed for the 2019/20 year (by the Road Efficiency Group) as follows:

- Data completeness at 93% and data quality to expected standard.
- Data accuracy to expected standard for 84% of the data set, minor data quality issues for 11% of the data set and major data quality issues for 5% of the data set (related to invalid attribute data for pavement layer records).

The records for the land drainage and flood protection assets are mostly complete for inventory, age and condition data. Asset condition is known but not recorded in the asset management system (AssetFinda).

Identified strategic issues

We have identified nine strategic issues that will impact on the provision of infrastructure over the next 30 years. They are:

Strategic Issue	Description
Legislation and policy change	The Government's Three Waters Reform and changes to legislation are significant as it has signalled major structural changes to the service delivery model. While this will have significant and long reaching implications for the Council, it is outside of the scope of this strategy. It is expected that these services will move to another entity within three to four years. The National Policy Statement on Freshwater 2020 and associated legislation will have significant impacts on a number of our activities. The new Zero Carbon Act means we will need to consider opportunities for reducing the carbon emissions it generates.
Treaty Settlement arrangements and co-governance	The Hauraki Treaty Settlement will result in iwi having co-governance arrangements with the Waikato Regional Council and local councils and will have a greater role in governance and freshwater. The Treaty Settlement is not yet complete and the implications are not fully known.
Preparing for climate change	We are preparing for the impacts of climate change on our infrastructure assets as we are already experiencing impacts such as prolonged droughts. The Plains is particularly susceptible to weather related events and rising sea levels. We need to account for uncertainty and change over long timeframes. Strengthening our infrastructure resilience is a key focus.
Affordability for our community	Hauraki District continues to experience higher deprivation scores than other parts of the country. There is also a risk of increasing existing inequities and creating new and additional inequities because of climate change impacts, such as lack of access to insurance and the displacement of people from their homes. The potential impacts of the higher environmental standards for our wastewater treatment plants due to legislative and policy changes may not be affordable for our community.
Higher environmental standards	Taumata Arowai will provide oversight of, and advice on, the regulation, management, and environmental performance of wastewater and stormwater networks and administer the drinking water regulatory system for drinking water safety. Together with the Government's suite of legislation and regulation changes to improve the freshwater ecological health, as well as Waikato Regional Council's future Plan Changes, these significant national and regional changes will impact the cost of upgrading our wastewater treatment plants and may not be affordable for our community or provide the desired environmental outcomes.

Increasing focus on compliance	There is an increased focus on compliance and reporting for meeting consent conditions and drinking water standards. This will impact our internal resourcing under the current legislation, even before the impacts of the proposed Water Services Bill is fully understood.
People and infrastructure resilience	A fundamental shift has been expanding our approach to resilience by adapting and strengthening our people as well as our hard infrastructure, particularly in global events such as the pandemic crisis. A key focus is strengthening our infrastructure resilience as part of our district is located on the Plains and is susceptible to weather related events and rising sea levels.
Ageing population and increasing accessibility and network connectivity	The district's aged population is increasing, and we need to ensure that our transport network is accessible for them as well as disabled people. We need to increase accessibility in our urban areas by providing connectivity through installing, upgrading and maintaining footpaths, and shared paths and cycleways in accordance with the Government Policy Statement on Land Transport (2021).

Risk management

Our risk management approach

The planning approach for managing infrastructure balances risk and performance while providing cost effective services. Infrastructure risks can be considered in terms of global threats (such as climate change), national (legislative changes), corporate and asset risks. At an activity level, these infrastructure risks need to be considered holistically as part of the asset management planning approach and not taken in isolation.

Part Two outlines how this is addressed for each activity with the detail provided in the Activity / Asset Management Plans.

Climate change impacts and actions

Climate change is a major management issue facing all infrastructure providers and the built environment. Hauraki District is tested further as it has physical constraints / natural hazards including the Firth of Thames and the low lying Plains that need to be considered in the context of climate change impacts.

Climate change will affect our district over the medium to long term in line with projections provided by the Ministry for the Environment for the Waikato Region. The major trends expected for the Waikato Region are (with the full projections list detailed in in the 2021 long term plan):

- Higher temperatures.
- Rainfall – Will vary within the region, and largest changes will be for particular seasons rather than annually.
- Wind – The frequency of extremely windy days is likely to decrease by 2 to 3 per cent.
- Storms – Future changes in frequency of storms are likely to be small compared to inter-annual variability.
- Sea level rise – Projections range from 0.55m to 1.36m sea level rise by 2120 (based on the 2017 Ministry for the Environment guidance on Coastal Hazards and Climate Change for New Zealand).

We design our infrastructure to take into account climate change projections and the risk of climate change weather related events. At this stage the financial implications of adapting to the effects of climate change are uncertain for our infrastructure assets and they will be refined in subsequent strategies and plans as investigations are progressed.

Our specific proposed climate change actions are outlined in the following table at activity level with further detail in Part Two and in the Activity / Asset Management Plans.

Activity	Most likely effects due to climate change	Proposed action
Water supply 	• Prolonged droughts may result in restrictive consent conditions for water takes from streams and waterways. • Potential long term saltwater intrusion risk at the intake for Kerepehi water treatment plant.	• Upgrade treatment plants / reconfigure supply areas to address reduction in demand due to restrictive consent conditions for water takes from rivers and streams. • Undertake the modelling required to determine whether saltwater intrusion is a risk requiring mitigation.

Activity	Most likely effects due to climate change	Proposed action
		• Investigate an alternative raw water source for Kerepehi at a different location if modelling identifies a definite risk of saline intrusion.
Wastewater 	• Inflow and infiltration increase and reduces pipeline capacity during storm events resulting in more frequent wet weather overflows. • Pump station vulnerability due to flooding inundation.	• Continue to implement the targeted infiltration and inflow programme to continue to prioritise the catchments for remedial works.
Stormwater 	• Minimum floor levels for some low lying areas in Paeroa may have limited freeboard against more frequent higher intensity storms. • In the longer term stormwater flows in the townships located on the Plains may not be able to be drained to the river by gravity through floodgates due to sea level rise.	• Continue to monitor flooding risk to residential properties with the more intense and frequent storms. • Design new stormwater infrastructure in line with our engineering design manual (includes an allowance for a 20% increase in rainfall intensity or in accordance with RPC8.5 Scenario).
Land drainage and flood protection 	• Flood gates may not open long enough to drain the land adequately due to sea level rise. • The total rainfall volume is not predicted to increase significantly long term but may fall in more intense events. • More frequent storm surges may require stopbanks to be raised accordingly.	• Continue to monitor stopbank height to maintain existing service levels. • Collecting evidence so we can understand any material change on the activity, including monitoring rainfall events at sites in the district.
Land transport 	• Identified four road sections susceptible to sea level rise. • Road slips / under slips. • Erosion undermining road sections and bridges.	• Undertake scenario planning to establish the key engineering lifeline routes across the district. • Identify critical bridges and culverts, the impact of stopbank failure and identify safe routes.

Table 2: Proposed climate change actions

Levels of service

The high level customer levels of service for the infrastructure are set out in Table 3 with the detail provided in the Activity / Asset Management Plans. The levels of service framework provides alignment and strategic linkages between our vision and the Community Outcomes, Infrastructure Strategy, Activity / Asset Management Plans, and activities. Levels of service for infrastructure include customer outcomes (i.e. responding to unplanned water interruptions) as well as meeting legislative requirements (i.e. compliance with resource consents).

Any major service level changes and implications long term are identified in Part Two of the Infrastructure Strategy at the activity level.

Community Outcomes	Customer Outcomes	Customer levels of service – activity outcomes				
		Water supply 	Wastewater 	Stormwater 	Land drainage and flood protection 	Land transport 
Vibrant and safe communities | Te Oranga pai o te Hapori	Safety	That the water is safe to drink	Wastewater services meet regulatory requirements	Stormwater systems protect houses from flooding in urban areas	Quality land drainage and flood protection services are provided to all Drainage Districts	Provide a safe transport network for users and the community
		Good quality water is supplied to customers	Mitigate the risk of environmental impacts and public health			Council delivers a roading network that addresses safety and amenity issues
		Water pressure and flow is appropriate for its intended use	To provide safe reliable wastewater service to customers			
Connected people | Tūhono Strong economy | Oranga Ōhanga	Quality / Amenity / Reliability	To provide reliable water networks	To provide reliable wastewater networks	To provide reliable stormwater networks	To provide reliable land drainage and flood protection networks	Provide an effective and good quality transport network
						Footpaths assets are fit for purpose
						The pavement life of sealed roads is preserved
Vibrant and safe communities | Te Oranga pai o te Hapori	Resilience	Water supply disruption during natural disaster events is minimised	Wastewater disruption during natural disaster events is minimised	Stormwater disruption during natural disaster events is minimised	Disruption during natural disaster events is minimised	Access is provided to the network of local roads
Connected people | Tūhono Strong economy | Oranga Ōhanga	Responsiveness	That customer service requests are dealt with promptly and appropriately	That customer service requests are dealt with promptly and appropriately	That customer service requests are dealt with promptly and appropriately	Efficient response to drainage problems and emergencies	That customer service requests are dealt with promptly and appropriately
	Collaborate	Council collaborates with customers, Iwi, other local authority, and central government to manage the water supply activity and their specific areas of interest	Council collaborates with customers, Iwi, other local authority, and central government to manage the wastewater activity and their specific areas of interest	Council collaborates with customers, Iwi, other local authority, and central government to manage the stormwater activity and their specific areas of interest	Council collaborates with customers, Iwi, other local authority, and central government to manage the land drainage and flood protection activity and their specific areas of interest	Council collaborates with customers, Iwi, other local authority, and central government to manage the land transport activity and their specific areas of interest
Healthy environment | Te Mauri o te Taiao	Environmental sustainability	Council will seek to minimise the losses from its water supply network	Protection is provided to the community and the environment	Protection is provided to the community and the environment	Operating in compliance with regulatory requirements	Effects on the natural environment are minimised
		That the water supply service is operated in compliance with regulatory requirements				

Table 3: Customer levels of service

Part Two – Our Infrastructure Services

Water Supply

Background

We are responsible for the provision of safe, clean drinking water to domestic, commercial, industrial and agricultural communities as a matter of public health. Nearly 65% of the water we treat is consumed by rural communities for agriculture. It is not used for irrigation.

Our water supply network draws water from surface water bodies (e.g. rivers and streams). There are four major water treatment plants supplying four schemes with approximately 582km of pipes supplying 7,366 properties.

Strategic water challenges

Renewing infrastructure

We have been successful with implementing our new proactive and risk based renewal water strategy since 2018. We replaced more water pipes in the 2018/19 year than the previous seven years. With our proactive asset management approach, we are finding other water assets that require renewing, such as the old raw water tank located at the Kerepehi water treatment plant and the Kerepehi and Paeroa raw water mains.

As part of our risk based approach, critical assets are replaced proactively to ensure service continuity and non-critical assets are replaced reactively (generally end of life). There is budget allowance for the reactive renewals and this is monitored to ensure the right balance between critical and non-critical asset investment levels.

Providing for growth and changes to levels of service

We need to resolve the raw water supply issues in Waihi to cater for future additional growth. Once this is resolved, we will need to consider an upgrade to the existing infrastructure to process the additional water. The Waihi water treatment plant currently has no redundancy if the single membrane treatment stream fails. There is also a capacity constraint at the treatment plant due to reductions on how much water we can take, during periods of low river levels caused by extended dry weather events, by the Regional Council (set in the resource consent at 15% restriction). We are actively working to reduce water loss due to leaks, which will help alleviate the low flow supply restrictions.

Managing risk and increasing resilience

A fundamental shift has been expanding our approach to resilience by adapting and strengthening our people as well as our hard infrastructure (this applies to all three waters).

People resilience – We know it is important to build people capability and capacity within our district. It is being tested with the global pandemic crisis in 2020 that people have never experienced before.

Our new treatment and engineering resources have recognised tertiary qualifications. Many of our new treatment technicians are relatively young (less than 40 years old) and we are taking on more cadets and apprentices across the Group. We are also working towards sharing our operational resources with neighbouring Matamata-Piako District Council to improve the management of operational risks, such as wastewater overflows. We will also investigate the establishment of a sub-regional control centre so we can enable effective 24/7 coverage.

Infrastructural resilience – A key focus is strengthening our infrastructural resilience as part of our district is located on the Hauraki Plains and susceptible to weather related events and rising sea levels.

Our Kerepehi water supply treatment plant is approaching capacity coupled with resilience issues with the raw water main and tank due to its age and some sections located under the state highway, and potential long term saltwater intrusion risk at the intake. We have been investigating linking the Paeroa and Plains water networks to increase the utilisation of the treatment plants (Paeroa, Kerepehi and Waitakaruru) as well as increasing our overall network resilience. We have also constructed two new treated water tanks at the Kerepehi treatment plant to increase storage, so we have a backup supply of treated water should an issue occur with the treatment process.

Like many public water networks, asbestos concrete is the main pipe material (at about 40%) comprising our network. This means our piped water network is vulnerable as asbestos concrete is a brittle material and known to break frequently causing outages. We are addressing this asset risk over the next ten years as we continue to implement our risk based water renewal strategy.

The Kerepehi and Paeroa raw water mains are both critical assets that are reaching the end of their operational and economic life. There are significant consequences if they fail as both water pipelines have sections located under state highways which makes repair difficult. We intend to proactively replace these assets before they are predicted to fail, but this requires major renewal investment which was not budgeted in the 2018 Long Term Plan. We are investigating the replacement of these assets to ensure our networks are resilient so there is service continuity for our communities. As part of our building people resilience, our field staff are undergoing training to plan for these critical pipes breaking so they can restore service faster.

Planning for climate change – We already appear to be experiencing the impacts of climate change on the water supply activity with prolonged droughts. This may result in restrictive consent conditions imposed on us for water takes from rivers and streams. We need to investigate the impacts on water takes in the medium term recognising that some schemes may need reconfiguration (such as Waihou River, Paeroa and the Plains).

We have identified that saltwater intrusion may be a risk for the Kerepehi Intake (located on the Waihou River near the Firth of Thames). It is tidal and may be affected by saltwater, however a report[2] prepared by NIWA has indicated that this would be a long term outcome. We currently test for salinity at this location and will be modelling the impact of climate change in the medium term.

A suite of legislative and regulation changes to improve the current management of freshwater, including the National Policy Statement for Freshwater Management 2020 came into effect in September 2020. This may mean that environmental protection, Te Mana o te Wai, will have priority over water takes for public drinking water purposes. The potential reduction in supply of raw water may affect our ability to meet demand. We are currently experiencing some capacity constraint at the Waihi water treatment plant due to take restrictions, during periods of low river levels caused by extended dry weather events.

Improving public health and environmental outcomes

There are two water quality issues that we are currently managing:

- There is a long-standing water quality issue with the water produced from the Kerepehi water treatment plant. It serves the Ngatea township and the manganese rich water can stain washing. We are investigating the costs and benefits of an additional module for the treatment plant. Our proposed projects include the installation of online monitoring instruments to determine the scope of the problem. Phase two includes design, construction and the commission of a manganese removal system.
- Nitrate contamination of potable water sources is becoming a concern internationally. Small rural communities such as the Hauraki Plains are particularly impacted by nitrate due to high farming activity and use of fertilisers on land. We are testing for nitrates on an annual basis and the results show that the levels are substantially lower that the Drinking Water Standards thresholds. We will continue to keep a watching brief on international studies and best practices.

[2] Synthesis Report: RA2 Coastal Case Study: The Firth of Thames and Lower Waihou River; *G McBride, G Reeve, M Pritchard, C Lundquist, A Daigneault, R Bell, P Blackett, A Swales, S Wadhwa, A Tait, C Zammit; https://ccii.org.nz/app/uploads/2017/02/RA2-Coastal-Case-Study-Synthesis-report.pdf*

Asset condition and performance

Most of the water supply network is between 30 and 50 years old, as presented in Figure 5 , so over the midway point of the asset life. Our oldest pipes are concrete, asbestos concrete, alkathene and cast iron. This group is indicative of the problematic pipe materials that are known to fail. These assets will need replacement in the short to medium term. We have complete records of the pipe material types and age, and less complete for asset condition.

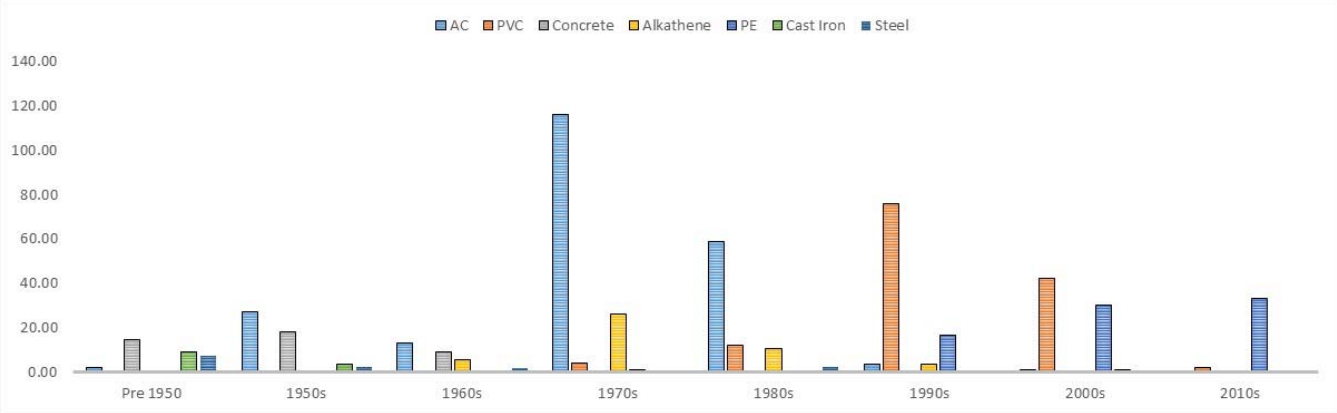


Figure 5: Pipe material and age distribution

Pipe performance using water main breaks is used as the proxy of condition consistent with industry best practice. The water main breaks are analysed on a regular basis and inform the pipe renewal programme taking into account criticality to ensure service to continuity.

We have defined our critical water supply assets based on the potential mitigated consequence of failure. These are classified from very high to low criticality. We have undertaken a basic categorisation in the asset management system based on size and high risk assets such as pipe bridges. We will refine this in the next three years using a geo database to pull together different datasets for the criteria. The same approach has been adopted for wastewater and stormwater assets.

Asset performance of Council's water supply network is assessed in terms of water leakage and water quality as follows:

- Water leakage – Water leakage is a known problem due to the aged network with a formal programme being developed to address it. Our analysis has shown that the Hauraki Plains accounts for over 50% of faults in the district. Drought conditions (causing breaks) and the age of pipes is the leading cause of faults contributing to 39% of all faults, where 33% of these occur on the Plains. We are addressing the high level of leakage through the proactive leakage management programme, including responding to leaks and the renewal programme. We intend to use the Infrastructure Leakage Index for measuring leakage and to prioritise zones based on international best practice. As a first step, the current meter reading routes need to be rationalised into zones / townships.
- Water quality – The four water treatment plants comply with the Drinking Water Standards. The current state of water supplies is shown on our website using a simple traffic light system.
- We have a suite of plans and processes, including Water Safety Plans and Emergency Response Plans, to provide assurance that we are providing safe drinking water. Our water quality is measured monthly against the mandatory performance measures and reported in our Annual Report. We are currently reviewing our process for collecting and reporting our performance data including the end to end job management process.

Significant infrastructure issues for the water supply activity and the principal options for managing these issues are detailed in the following table. The highlighted option is the preferred as the most likely scenario. Some issues may have more than one preferred option recommended.

Significant issues and options

Table 4 below identifies the significant district wide issues and the options facing water supply in our district.

Significant issue	Principal options for managing the issue	Implications of the option	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
Implications of the Government's Three Waters regulation (Taumata Arowai) and changes to legislation are likely to result in higher standards for water treatment and compliance costs.	1. Continued regional approach by collaborating with neighbouring councils to determine and implement good practice for compliance. **Option 1 is preferred as the most likely scenario (short term)**	• Implications from water regulation reforms are happening at a rapid pace. • There are likely to be increased costs to address health/safety concerns / issues.	✓ Budget are unknown but expected to be significant.	Unknown	Unknown	High There may be some short term economic and resilience benefits should neighbouring Councils collaborate with compliance reporting and management. High
	2. Increased focus on compliance and reporting for meeting consent conditions and drinking water standards. This involves getting appropriate systems set up. **Option 2 is preferred as the most likely scenario (short term)**	• This will impact our internal resourcing under the current legislation, even before the impacts of the proposed Water Services Bill are fully understood. • A dedicated compliance resource (shared for three waters) has been identified to address the increasing quality management.	✓ Medium cost for an additional resource (shared for 3 waters)			
Implications of the Government's Three Waters Service Delivery Reform	1. Aggregation of water supplies into semi-regional, regional, multi-regional or national suppliers will be on an "Opt-Out" voluntary basis, however aggregation appears inevitable and thus proactive collaboration with the DIA and other Councils is regarded appropriate. 2. The Council may choose to "opt out" of the aggregated water supply, however the government may act to prevent this in future.	• This will result in the Council transferring the assets and service delivery of the three waters. • The Council will lose approximately 35% of its income resulting in a significant reduction of staff and stranded overheads. • There is likely to be a medium term increase in the cost of delivery for this service.	✓ Full effect unknown but expected to be significant.			

Significant issue	Principal options for managing the issue	Implications of the option	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
	Option 1 is the most likely scenario (only option)					
Implications of the Government's suite of legislative and regulation changes to improve the current management of freshwater. The potential reduction in water take allocation may impact our existing treatment plant capacity.	1. Allocate funding and resourcing to secure new resource consents and monitoring of conditions. Start early discussions with the Regional Council to understand significant changes so we can plan and budget for this. **Option 1 is preferred as the most likely scenario (only option)**	• The requirements to prepare a resource consent may increase (for example completing environmental impact assessments). • The resource consenting process will likely require changes to the amount of water we can take for supply. • Additional operational and capital expenditure may be required to meet consent conditions.	✓ $50,000 per annum for consent monitoring. $100,000 for Waihou intake consent. $100,000 Waitakaruru abstraction consent	✓ $100,000 Walmsley Stream and Golden Valley water abstraction consents (Waihi)	✓ $50,000 Kerepehi Discharge consent	High
The Hauraki Treaty Settlement will result in iwi having co-governance arrangements with the Waikato Regional Council and territorial councils, and will have a greater role in governance and freshwater.	1. Promote water conservation initiatives so there is less demand for water take from streams and therefore safe guarding the waterways which is important for iwi. **Option 1 is preferred as the most likely scenario (ongoing)**	• Continue with proactive leakage management programme. Increase community education on water conservation and linkage to water take from streams.	✓ Low cost from existing resources			Medium
	2. Set up governance structure for co-governance arrangement in freshwater.	• Can take time to set up and agree long term vison • Better alignment with Maori values and community aspirations.	Budget impacts are unknown	Unknown	Unknown	Medium
Strengthening our infrastructural resilience as some of our district is located on the Hauraki Plains and susceptible to weather related events and rising sea	1. Investigate linking the Paeroa and Kerepehi networks to strengthen resilience as well as addressing future capacity constraints (mainly the Kerepehi Water Supply	• Linking the two networks would increase the overall network resilience. • Engage suitably qualified experts to undertake option analysis for linking the networks and risk	✓ High cost for external engineering support			

Significant issue	Principal options for managing the issue	Implications of the option	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
levels. For example, the pipes on the Plains are more susceptible to breakage due to ground movement during droughts and extreme rainfall events.	Treatment Plant as approaching capacity). **Option 1 is preferred as the most likely scenario (medium term)**	reductions achieved. • It may require significant expenditure but would mitigate risk.				
	2. Continue to implement our risk based renewal water strategy to address asbestos concrete pipe failures and replace the Kerepehi and Paeroa raw water mains. **Option 2 is preferred as the most likely scenario (ongoing)**	• Both are critical assets and reaching the end of their economic life. The replacement costs will be significant but there are major consequences if they fail as both have sections located under state highways.	✓ Significant costs for raw water main replacement			High
Effect of climate change on water supply resulting in restrictive consent conditions and some supply areas may need reconfiguration.	1. Investigate an alternative raw water source for Kerepehi at a different location due to potential saltwater intrusion as sea levels rise. **Option 1 is preferred as the most likely scenario (medium term)**	• Modelling will be required to determine whether saltwater intrusion to the Kerepehi water source is a risk requiring mitigation and what those mitigation measures will be. This will be done during the resource consent renewal process prior to 2034. • Water supply continuity. • Cost of relocation.	✓ Low cost from existing resources		✓ Will be known after investigation is completed. If required it will be beyond the term of this strategy.	Medium We have time to identify and respond to changes.
	2. Upgrade treatment plants / reconfigure supply areas to address reduction in demand due to restrictive consent conditions for water takes from rivers and streams by the Regional Council.	• Significant expenditure may be required to upgrade treatment plants but this may also be required for water reforms as well regardless of demand. • Developers may be required to contribute to the cost of upgrading the treatment plants.			✓ Significant expenditure	High We have time to identify and respond to changes

Table 4: Significant issues and options for water supply

Water supply expenditure forecasts

Figure 6 presents the expenditure forecast for water supply which is based on the following assumptions:

- Legislative and regulatory changes will require water treatment process changes.
- Capacity constraints exist at some treatment plants.
- Existing service levels will be maintained.
- Legislation changes with the three waters reform will have a significant impact on this activity and at a rapid pace.
- Resources will be available so we can deliver our capital works programme.
- We will provide services at the levels forecast in our Water Supply asset management plan and 2021 long term plan.

Over the next 30 years it is expected that Council's major capital expenditure items include (uninflated):

- Replacement of ductile iron pipes in the first 10 years ($1.5 million)
- District wide pipe renewal programme ($16.5 million over 30 years)
- Improvements to strengthen resilience ($8.5 million first ten years)
- Domestic water meter replacement ($6.66 million over next 30 years).

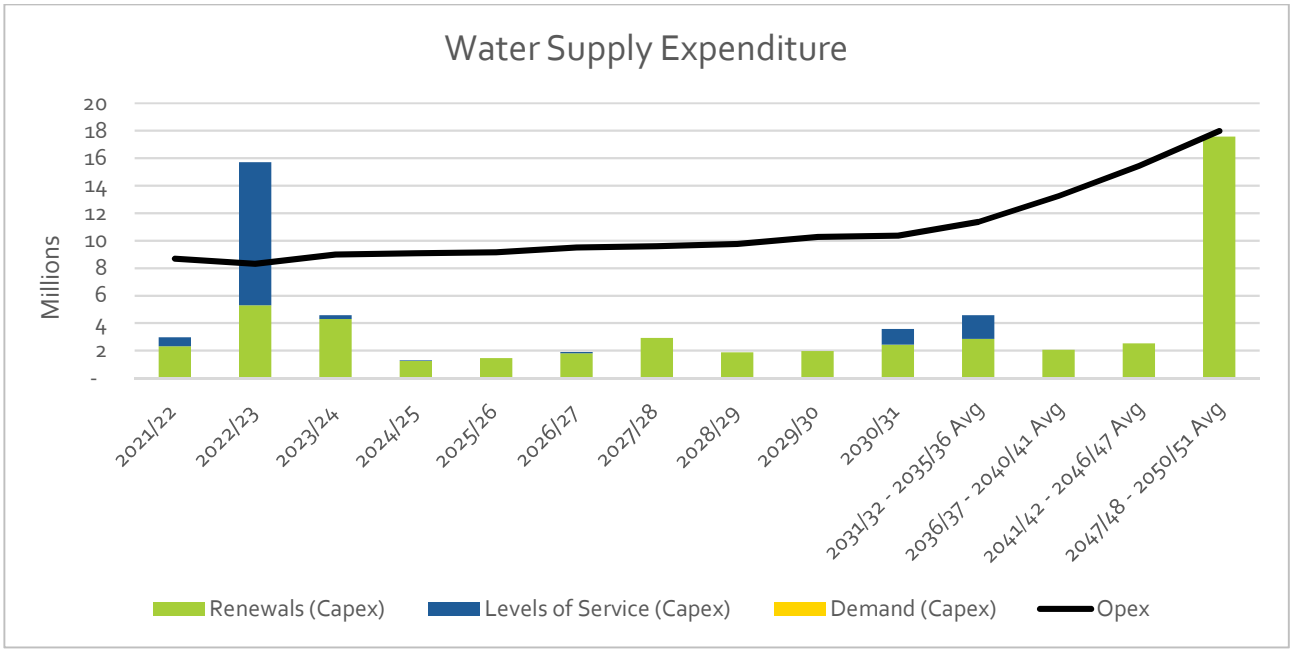


Figure 6: Water supply expenditure forecast (inflated)

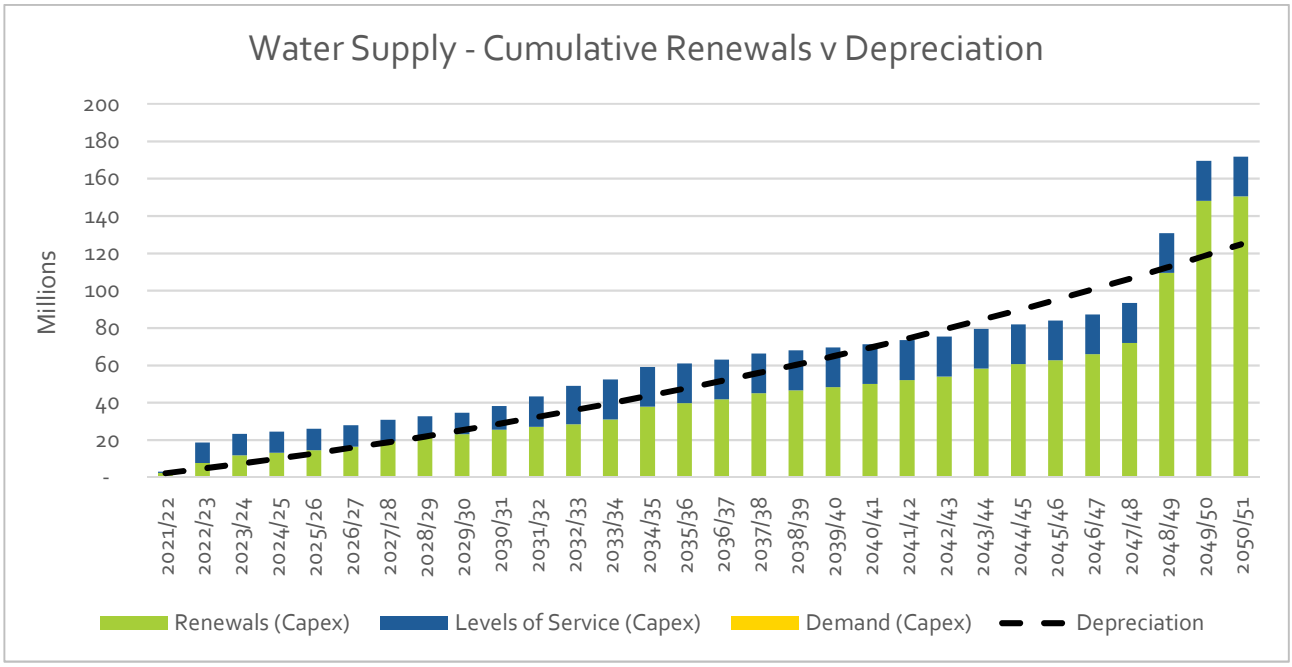


Figure 7: Water supply cumulative renewals and depreciation (inflated)

Our forecast renewals are lower than annual depreciation as we have recently upgraded our major water treatment plants, as shown above.

Funding this activity

We fund our water services through a targeted rate comprised of annual charges and volume charges (all supplies are fully metered). As with many of our activities, our policy on funding capital expenditure is to utilise sources of funds in the following order:

1. Grants and subsidies
2. Development/Financial Contributions
3. Depreciation
4. Reserves
5. Borrowing – internal
6. Borrowing – external

Wastewater

Background

We collect, treat and dispose of treated wastewater from domestic property and commercial / industrial premises on our reticulated wastewater network for seven urban townships in our district. Seven wastewater treatment plants service 5,720 properties via 167 kilometres of pipes.

Resource consents are required for discharging into six water bodies and one onto planted forestry and are issued by the Waikato Regional Council. The main purpose of a consent is environmental protection and is driven by the Resource Management Act. These consents are subject to requirements that restrict the volume of water that can be discharged, and stipulate the water quality parameters the discharged water must meet.

Strategic wastewater challenges

Renewing infrastructure

We are focussed in the short to medium term on understanding the current state of our network and wastewater pump stations. A renewal programme will then be developed, and a significant capital investment programme is expected.

As part of our infrastructural resilience approach, we intend to implement our risk based wastewater renewal programme over the next 10 to 20 years. Priority will be given to the critical wastewater assets (above and below assets). There has been less progress with preparing our risk based wastewater renewal programme since 2018 than expected due to internal resourcing constraints. There has been good data cleansing of the assets recorded in our asset management system, which will input into the renewal programme.

Providing for growth and changes to levels of service

Regional wastewater treatment approach
There are significant challenges with the future wastewater treatment plant upgrades, which will be required as resource consents expire. This is because a higher degree of treatment will be required before water can be discharged (based on the initial conditions for the Ngatea upgrade) and we also need to allow for population growth.

Higher environmental standards will need to be met as a result of the National Policy Statement on Freshwater Management 2020 and Waikato Regional Council's Plan future Plan Changes. We have consents for our plants expiring throughout the 2021 Long Term Plan period. We have assessed the draft Ngatea wastewater treatment plant discharge consent and believe if similar conditions are applied to our other six treatment plants in the district, the costs will be significant and may not be affordable for our community.

We are working with our neighbouring councils in the Waikato Region due to the significant cost implications. We have a view that we should take a coordinated approach within the region and work collaboratively with the Regional Council and / or Government to allow for a pragmatic way of dealing with the impact of the changes facing wastewater treatment. We continue to seek a collaborative all of catchment solution with our neighbouring councils that is both affordable for the communities and environmentally beneficial.

Wastewater Strategy development
To address the significant wastewater issues that we are facing, we are developing a clear strategy on the treatment and discharge of wastewater within our district over the next 50 years. The increasing requirements for environmental protection, coupled with growth will require significant investment. Our proposed Wastewater Strategy is critical for ensuring that we make cost effective decisions to meet the various compliance requirements as well as being affordable for our community.

At a local level we are considering the catchment offset approach as the most environmentally effective and affordable way for our community to address the interrelated issues. It will be considered as part of the Wastewater Strategy. Overseas studies show that smart farming practices provide better return on the capital investment for the environment than costly plant upgrades.

Managing risk and asset performance

We are starting to better understand the performance of our wastewater networks. Our initial focus has been targeting the catchments that have the most infiltration and inflow of ground and stormwater, including the wastewater manholes located in Waihi East area and historical known hotspots such as Taylor Avenue, Paeroa.

Field work was completed for Waihi East and identified leaky wastewater manholes. Flow monitoring and inflow and infiltration desktop analysis for these networks has been completed to allow us to better understand the implications on network capacity.

More intense and frequent rainfall are expected due to climate change. This will likely result in greater inflow and infiltration into our wastewater network with more frequent wet weather overflows. This will impact the performance of our wastewater networks.

Asset condition and performance

The district's predominate wastewater pipe material is poly vinyl chloride at 44% followed by asbestos cement at 30%.

There is growing concern for ageing glazed earthenware pipes in the Paeroa and Kerepehi networks (15%). The earthenware pipelines have concrete joints and cannot move with ground movement as a result of the changes in seasons, water table levels and extreme rainfall events. This results in service failures before the expected end of the asset life. Failure trends indicate that these pipe materials are at the end of their useful life. Council is in the process of developing a business case for the assessment and renewal of these pipes.

We have had recent failures of our wastewater trunk mains serving Paeroa. A project is underway to upgrade these lines.

An assessment has been undertaken to better understand the current state of the wastewater pump stations including existing pumps, condition and electrical switchboards. A renewal programme is underway and a significant investment programme is expected.

Asset performance of Council's wastewater network is assessed in terms of overflows and infiltration and inflow as follows:

- Dry weather overflows – A dry weather overflow is an uncontrolled wastewater discharge that is not associated with a rain event. We are currently working to connect all of our pump stations to the supervisory control and data acquisition system (SCADA) over two years. This will allow remote operation and functionality, and enable Council to more accurately monitor and report failures. This will help us to effectively reduce dry weather overflows from entering the environment and improve reporting to the Regional Council.
- Wet weather overflows - The Regional Council is also taking more punitive measures regarding wet weather overflows. Without significant capital investment, these incidents will not be reduced and even after such expenditure may still overflow when there is flooding as gully traps are inundated. A wet weather overflow has limited environmental effect as it is diluted and the need to address this is being tested. We will continue to work with the Regional Council to resolve this.
- Infiltration and inflow - infiltration and inflow is the term used to describe groundwater and stormwater entering a dedicated wastewater system resulting in it becoming overloaded and overflows occur. We will firstly address our public wastewater network performance issues such as cracked pipe materials and leaky manholes. We know that the private wastewater system such as laterals are leaky as well, but we will address this at a later stage.

Significant infrastructure issues for the wastewater activity and the principal options for managing these issues are detailed in the following table. The highlighted option preferred as the most likely scenario has been identified. Some issues may have more than one option recommended as the preferred.

Significant issues and options

Significant issue	Principal options for managing the issue	Implications of the option	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
Implications of the Government's Three Waters regulation (Taumata Arowai) and changes to legislation are likely to result in higher standards for water treatment and compliance costs.	3. Continued regional approach by collaborating with neighbouring councils to determine and implement good practice for compliance. **Option 1 is preferred as the most likely scenario (short term)**	• Implications from water regulation reforms are happening at a rapid pace. • There are likely to be increased costs to address health/safety concerns / issues.	✓ Budget are unknown but expected to be significant.	Unknown	Unknown	High There will likely be major imposed structural changes unless neighbouring councils cluster together.
	4. Increased focus on compliance and reporting for meeting consent conditions and drinking water standards. This involves getting appropriate systems set up. **Option 2 is preferred as the most likely scenario (short term)**	• This will impact our internal resourcing under the current legislation, even before the impacts of the proposed Water Services Bill are fully understood. • A dedicated compliance resource (shared for three waters) has been identified to address the increasing quality management.	✓ Medium cost for an additional resource (shared for 3 waters)			High
Implications of the Government's Three Waters Service Delivery Reform	3. Aggregation of water supplies into semi-regional, regional, multi-regional or national suppliers will be on an "Opt-Out" voluntary basis, however aggregation appears inevitable and thus proactive collaboration with the DIA and other Councils is regarded appropriate. 4. The Council may choose to "opt out" of the aggregated water supply, however the	• This will result in the Council transferring the assets and service delivery of the three waters. • The Council will lose approximately 35% of its income resulting in a significant reduction of staff and stranded overheads. • There is likely to be a medium term increase in the cost of delivery for this service.	✓ Full effect unknown but expected to be significant.			

Significant issue	Principal options for managing the issue	Implications of the option	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
	government may act to prevent this in future. **Option 1 is the most likely scenario (only option)**					
Significant challenges with the future wastewater treatment plant upgrades as consents expire. Interrelated issues to consider include growth, Waikato Regional Council's future Plan changes, the National Policy Statement for Freshwater Management 2020, and a higher degree of treatment required for resource consents (based on the initial conditions for Ngatea upgrade).	1. Establishing the catchment offset approach as the most environmental effective and affordable way for our community to address the interrelated issues. Developing a clear strategy on the treatment and discharge of wastewater within our district. **Option 1 is preferred as the most likely scenario (medium term)**	• Addresses issues holistically. • Requires greater stakeholder management to gain acceptance on new and innovative approach. • Sustainable investment that addresses the four well beings. • Maybe greater impact on the environment until investment is made.	✓ Within either years 1-20, 11-20, and 21 to 30 and costs as per the plant upgrades above.	✓	✓	High
	2. Meet new resource consent conditions on a plant by plant basis.	• The upgrades may not have substantial positive environmental improvements and be unaffordable for the district given the limited funds available. • Meets minimum resource consent requirements.	✓ Budgets are known and significant.	✓ Significant	✓ Significant	High
Greater infiltration of the wastewater network is expected with more rainfall in a single event as a result of climate change.	1. Develop a targeted inflow and infiltration programme to prioritise the catchments, this will inform the Wastewater Strategy. **Option 1 is preferred as the most likely scenario (medium term)**	• We will firstly address public wastewater network performance issues such as cracked pipe materials and manholes. • We know that the private wastewater system such as laterals (pipe that connects the property to the public sewer main) are a large source of infiltration and inflow as well, but we will address this at a later stage. • Cost effective programme to focus on most overloaded parts of our networks.	✓	✓		High
	2. Respond ad hoc to network overflow hotspots.	• The Regional Council is also taking a harder line regarding wet weather overflows. We may be prosecuted. • Pipeline capacity reduced with additional loading during storm events.	✓ Budgets are known	✓ Known	✓ Known	High (Regional Council may prosecute)

Table 5: Significant issues and options for wastewater

Wastewater expenditure forecasts

Figure 8 presents the expenditure forecast for wastewater which are based on the following assumptions:

- That the application of the National Policy Statement on Freshwater Management 2020 and the Government's suite of legislative changes to improve ecological heath will require us to upgrade our wastewater treatment plants as the consents expire to meet a higher environmental standard.
- Legislation with the three waters reform will have a significant impact on this activity and at a rapid pace.
- Resources will be available so we can deliver our capital works programme.
- We will provide services at the levels forecast in our Wastewater asset management plan and 2021 long term plan.

Over the next 30 years it is expected that Council's major capital expenditure items include:

- Renewal of pump stations based on site assessments ($1.9 million in first ten years).
- Upgrades of wastewater plants to meet higher environmental standards in the first 13 years of this strategy ($44.7 million).
- District wide pipe renewal programme to address poor pipe materials ($6.8 million in first ten years).

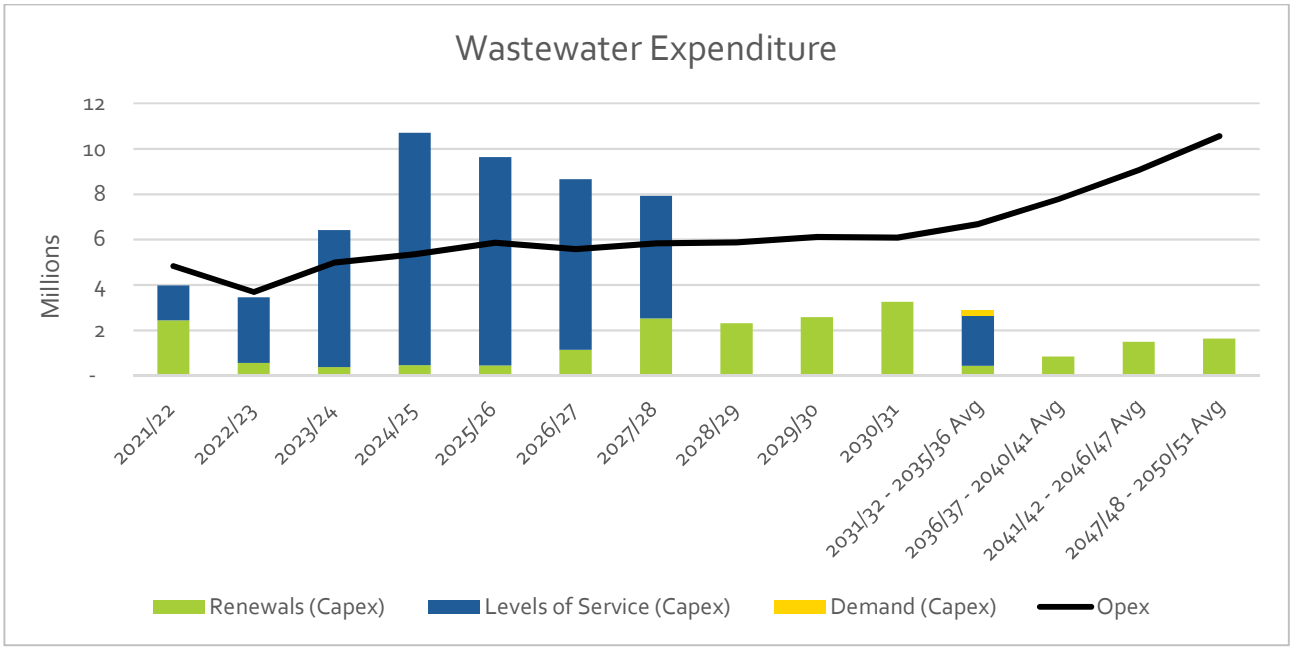


Figure 8: Wastewater expenditure (inflated)

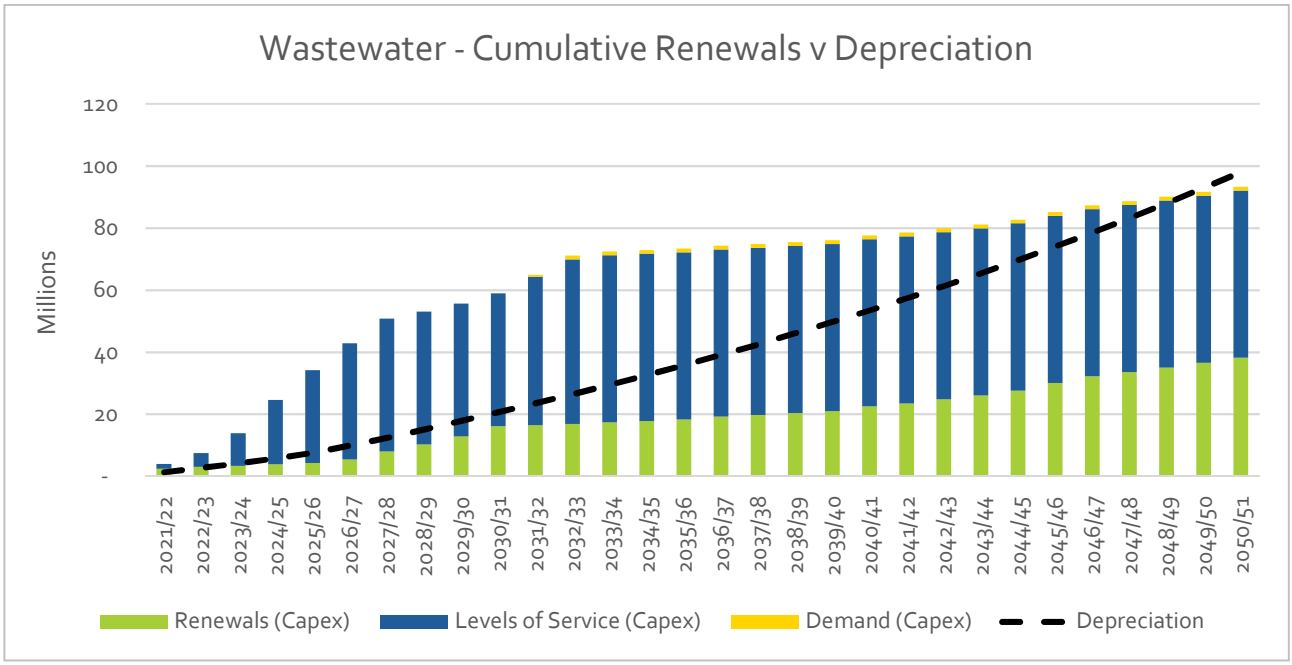


Figure 9: Wastewater renewals and depreciation (inflated)

Our forecast renewals are lower due to the replacement of the treatment plants in the first 15 years of the plan, as shown above. These replacements do not show in this renewal profile as the primary driver of the replacement is increased environmental requirements which is a level of service increase, rather than a renewal.

Funding this activity

We fund our wastewater services through a combination of a targeted pan charge rate (85-100%) of our operational costs) and trade waste fees and charges (0-15%). As with all our activities, our policy on funding capital expenditure is to utilise sources of funds in the following order:

1. Grants and subsidies.
2. Development/financial contributions.
3. Depreciation.
4. Reserves – past surpluses.
5. Borrowing – internal.
6. Borrowing – external.

Stormwater

Background

Stormwater is the runoff of rainwater from a rain event, which requires management and disposal using various drainage systems. We have 95 kilometres of urban stormwater pipes and 30.5 kilometres of open watercourses (drains). The stormwater systems service ten urban areas (including Kaiaua).

The stormwater systems eventually discharge into the Waihou or Piako Rivers, with the exception of the Kaiaua and Whiritoa systems which discharge directly to the sea. Stormwater from Waihi, Mackaytown, Karangahake and Waikino flows by gravity directly to the Ōhinemuri River then to the Waihou River. Paeroa and Ngatea stormwater discharges to the Ōhinemuri, Waihou and Piako Rivers respectively (via Waikato Regional Council's flood protection assets). The communities of the Wharekawa Coast either discharge to a number of streams or directly to the Firth of Thames

Strategic stormwater challenges

Asset information and knowledge

Traditionally the stormwater activity is mainly a reactive service which is typical for district councils nationally. We have limited asset information and knowledge of our stormwater network. Condition surveys have generally only been undertaken in response to an issue. We intend to move to a programme of planned condition surveys to help us better understand the state of our stormwater assets.

Increased levels of service

There are strong interrelationships between the transport and stormwater activities for stormwater management. Road catch pits can be retrofitted with devices to capture sediment and other large pollutants from stormwater runoff. Nationally good environmental outcomes have been achieved with this stormwater quality solution.
We know that we need to become more proactive in our stormwater management, including stormwater from our transport network for good environmental outcomes, and not just for meeting compliance requirements such as discharge consent conditions and the National Policy Statement on Freshwater Management 2020. This may mean the activity will require a higher level of funding than in the past.

We will be developing a strategy jointly with our internal Transport Team to reduce the pollution running off our local roads. We may require land to locate the new stormwater quality assets (for example soft plantings to filter stormwater and hard devices to capture sediment). There will also likely be consequential operational expenditure required for this higher level of service for stormwater quality management than in the past. We will seek external funding with Waka Kotahi to support our proactive stormwater quality management.

Preparing for climate change

We are developing our understanding of the impacts of climate change for the district for the next 20-30 years. Climate change will affect our district over the medium to long term in line with projections provided by the Ministry for the Environment for the Waikato Region as noted in Part One. For the stormwater activity, this means for our district and the Waikato Region:

- Flooding – more heavy rainfall will increase the risk of inland flooding in the west of the region and in the river catchments in the Coromandel.
- Rising sea levels and storm surge – will increase the risk of saltwater intrusion in low lying coastal areas.

The higher intensity rain events are more likely to cause inundation as the network was not designed to cope with these higher intensities. There are also uncertainties such as the minimum floor levels for some low lying areas in Paeroa that may have limited freeboard against more frequent higher intensity storms. In the longer term stormwater flows in the townships located on the Plains (including Ngatea, Turua and Waitakaruru) may not be able

to be drained to the river by gravity through floodgates due to sea level rise and may require additional pumping from existing pump stations.

We will continue to monitor trends in the performance of our stormwater network, particularly flooding risk to residential properties, with the more intense and frequent storms. New stormwater infrastructure is designed with an allowance for a 20% increase in rainfall intensity (based on a Council resolution) which equates approximately to the RCP8.5 Scenario subsequently developed. We design our infrastructure to take into account climate change projections and the risk of climate change weather related events. At this stage, the financial implications of adapting to the effects of climate change are uncertain for the stormwater activity and they will be refined in subsequent strategies and plans as investigations are progressed.

Future challenge -discharge standards

Our consents for discharging stormwater into waterways expire in 2023. We have started preparing the evidence to support our applications. We know that there will be higher requirements than we currently have including treatment and more comprehensive monitoring. This will require us to be more proactive in stormwater quality management than our current practices. The Regional Council will expect us to incorporate green infrastructure in our new subdivisions and also retrospectively in our existing urban areas.

At this stage we do not know what the minimum discharge standards will be. This will be influenced by the Government's suite of proposed legislative and regulation changes to improve the freshwater ecological health including the National Policy Statement for Freshwater Management 2020 and the proposed National Environmental Standards for Freshwater (2019).

Asset condition and performance

The district's primary stormwater pipe material is concrete at 84% of the network followed by poly vinyl chloride at 10.8%. Condition surveys have only been undertaken in response to an issue to date. We intend to move to a programme of planned condition surveys to help us better understand the state of our stormwater assets.

Asset performance of our stormwater network is assessed in terms of capacity constraints (flood protection) and stormwater quality. We currently have no recently recorded flood incidences in our district where there is risk to life or safety, or frequent and repeated damage to property. We know that this may change with the impact of climate change but there are many uncertainties as noted above.

There were no flood events reported or habitable floors flooded recorded in 2018/19 or 2019/20 as a mandatory performance measure.

Significant infrastructure issues for the stormwater activity and the principal options for managing these issues are detailed in the following table. The highlighted option preferred as the most likely scenario has been identified. Some issues may have more than one option recommended as the preferred.

Significant issues and options

Significant issue	Principal options for managing the issue	Implications of the options	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
Implications of the Government's Three Waters Reform and changes to legislation to improve the freshwater ecological health including strengthening the stewardship of wastewater and stormwater with regional councils remaining primary regulators. The initial focus for the three waters reforms for stormwater will be collecting performance information as relatively limited data currently exists, and promoting best practice. The Government may also set minimum standards for stormwater discharges after the initial phase of collecting performance information.	1. Continued regional approach by collaborating with neighbouring councils to determine best service delivery model. **Option 1 is preferred as the most likely scenario (medium term)**	• Implications from the water reforms on service delivery happening at a rapid pace. • Implications of freshwater legislation/standard changes are unknown, but may result in more changes to discharge standards when resource consents expire. • Council needs to opt into the reform programme to be eligible for Government's funding package.	✓ Budget is unknown but expected to be significant.	✓ Unknown	✓ Unknown	High There will likely be major structural changes unless neighbouring councils cluster together.
	2. Increased focus on compliance, monitoring and reporting for meeting consent conditions. This involves getting appropriate systems set up. **Option 2 is preferred as the most likely scenario (short term)**	• This will impact our internal resourcing under the current legislation, even before the impacts of the proposed Water Services Bill are fully understood. • A dedicated compliance resource (shared for three waters) has been identified to address the increasing quality management requirements.	✓ Medium costs for an additional resource (shared for 3 waters)			High
Effect of climate change on stormwater infrastructure to cope with capacity.	1. Continue to allow for a 20% increase in rainfall intensity when we design new stormwater infrastructure (based on Council resolution), typically larger capacity. However, investigate climate change projections, particularly what this means for rainfall intensity.	• Pipes will be increased in capacity to cope with projected climatic variations as they are replaced or new infrastructure is installed.	✓ Low cost and included within project costs	✓ Low cost	✓ Replacement of end of life infrastructure to comply with new design requirements	Low We have time to identify and respond to changes

Significant issue	Principal options for managing the issue	Implications of the options	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
	Option 1 is preferred as the most likely scenario (ongoing)					
	2. Develop Catchment Management Plans to help better understand predicted habitable floor flooding.	• Identify predicted habitable floors that may flood in future and how Council will mitigate this (may not necessarily be large pipe solution).	✓ Medium cost within existing budget for plan development in next 5 year	✓ Unknown costs if multiple habitable floors identified	✓	
Expectations from stakeholders to be more proactive in stormwater quality management than our current practices.	1. Develop a joint strategy with our internal Transport Team to reduce road runoff pollution and achieve good environmental outcomes. Undertake a stocktake of what stormwater quality assets we have to establish our baseline. **Option 1 is preferred as the most likely scenario (medium term)**	• Road catch pits can be retrofitted with devices to capture sediment and other gross pollutants from stormwater runoff. However, there are not just capital but also ongoing operational costs that need to be considered before adopting this approach. • We will seek external funding with Waka Kotahi to support our proactive stormwater quality management.	✓ Medium costs requiring additional budget and potentially external funding	✓ Medium costs	✓ Medium costs	Medium
	2. Identify opportunities to implement stormwater treatment solutions and develop a proactive programme for stormwater treatment	• Install stormwater treatment devices both proactively and retrospectively	✓ Medium costs requiring additional budget	✓ Medium costs	✓ Medium costs	Medium

Table 6: Significant issues and options for stormwater

Stormwater expenditure forecasts

Figure 10 presents the expenditure forecast for stormwater which are based on the following assumptions:

- The Government's Three Waters Reform and changes to legislation to improve the freshwater ecological health, higher expectations from the Regional Council, and co-governance of the rivers will drive the need to improve water quality.
- We will be required to retrospectively install measures to treat stormwater particularly from road run off to acceptable levels prior to discharging to the receiving water body.
- Legislation with the three waters reform will have a significant impact on this activity and at a rapid pace.
- We will continue to replace end of life infrastructure with infrastructure sized to accommodate climate change.
- Resources will be available so we can deliver our capital works programme.
- We will provide services at the levels forecast in our Stormwater asset management plan and 2021 long term plan.

Over the next 30 years it is expected that our major capital expenditure items include:

- Stormwater quality improvements to meet higher standards and improve ecological health ($1.5 million from 2031/32 to 2050/51).
- Obtaining new resource consents ($270,000 in next three years).

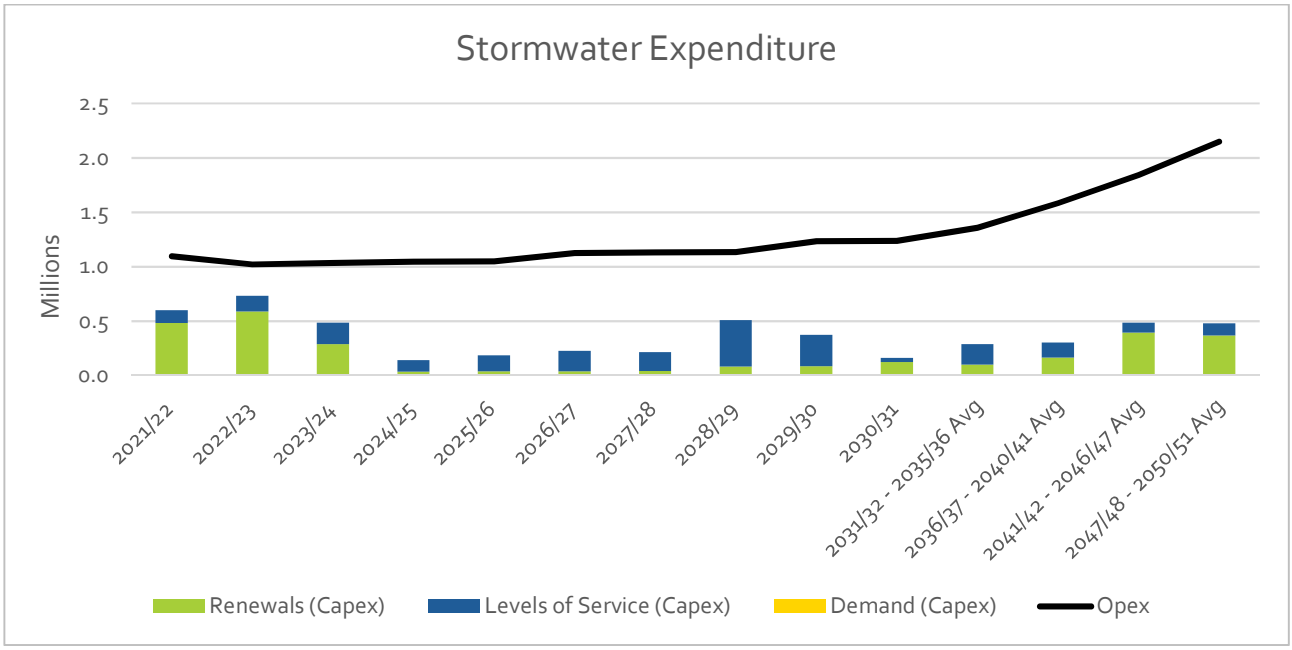


Figure 10: Stormwater expenditure forecast (inflated)

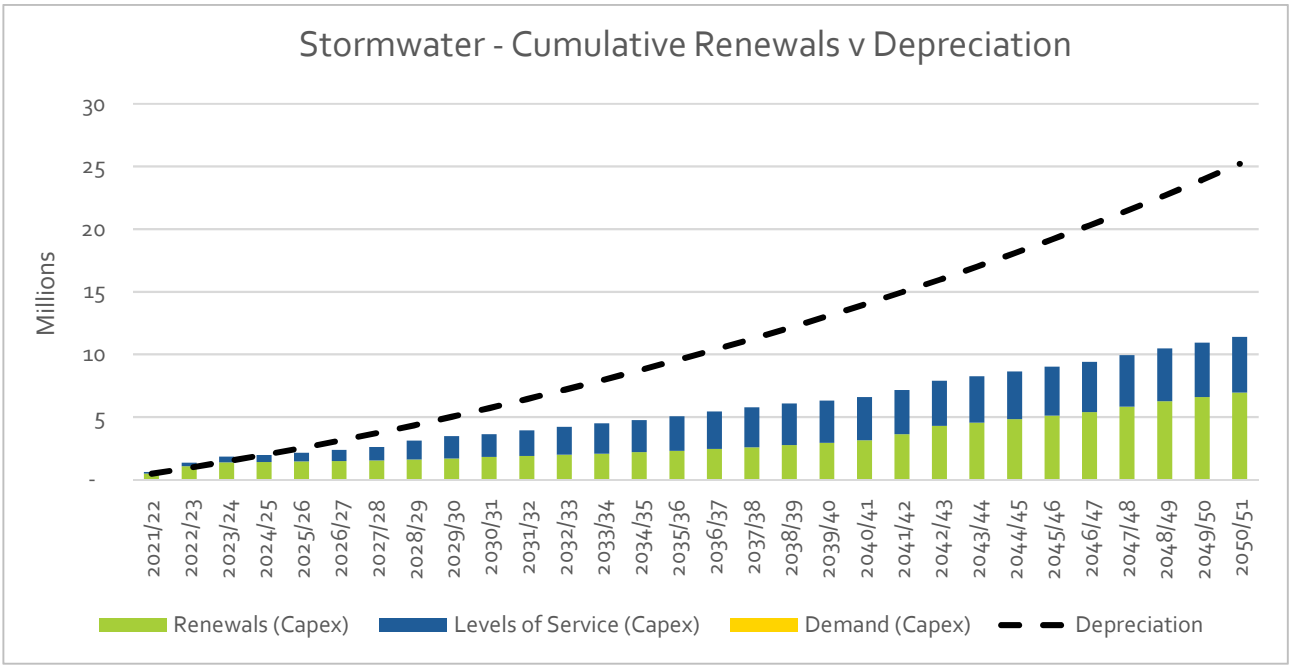


Figure 11: Stormwater renewals and depreciation (inflated)

We expect that our stormwater pipe network will see an increasing need to undertake replacements as the existing infrastructure reaches end of life or in response to an adaptive approach to climate change. The main impact of this replacement is likely to occur in the latter years of the 30 year timeframe of this strategy, as shown above.

Funding this activity

We fund our stormwater services through rates. The rates include a capital value-based district rate (15% of our operational spend) and a capital value-based targeted rate (85%). As with all our activities, our policy on funding capital expenditure is to utilise sources of funds in the following order:

1. Grants and subsidies.
2. Development/financial contributions.
3. Depreciation.
4. Reserves.
5. Borrowing – internal.
6. Borrowing – external.

Land Drainage and Flood Protection

Background

Land drainage and flood protection involves collecting runoff from the rural catchment areas of our district and discharging it directly to river or sea outlets. Drainage schemes are designed to ensure that water does not lie on the ground for more than three days for an event of approximately a 10% annual exceedance probability (AEP – the equivalent of a 1 in 10 year event). The activity aims primarily to ensure the productive capability of pastoral land (over 47,000 ha).

The majority of the flood protection service in the Hauraki District is provided by the Regional Council except in the northwest part of the district (Waitakaruru to Miranda) where it is provided by Hauraki District Council. Flood protection assets provide direct protection from river and tidal flooding and include stopbanks, floodgates and pump stations.

The drainage service is provided by Council in five drainage districts. We have 650 kilometres of rural land drains and 50 kilometres of primary stopbanks, 5 pump stations (1 for flood protection and 4 for drainage). Settlements, or parts of settlements that sit alongside these land drains include Ngatea, Kopuarahi, Kerepehi, Patetonga, Netherton, Turua, Oronga, Waitakaruru and parts of Paeroa. These settlements, or those parts of these settlements that sit alongside the land drains have a higher level of risk if the land drains are not able to meet capacity during storm events.

Strategic land drainage and flood protection challenges

Network extension

Work is underway to establish a drainage district called the Pūkorokoro Drainage District. It will both provide protection to the farmers and allow for the establishment of wetlands. Process is still underway to reach an agreement.

Maintaining level of service

The current level of service for pasture protection is no ponding after three days from an approximately 1 in 10 year event (10% Annual Exceedance Probability (AEP)) or less. This means farmers have no ponding on their paddocks after storm events for normal farming use after three days. This is a historical service level and was based on a pragmatic approach to remove the excess runoff from the paddocks (using 1 and ½ inch runoff in one day as the basis).

Our stopbanks experience ongoing settlement due to consolidation of the soil layers under the weight of the stopbanks. The central Plains area has experienced the most ground settlement from farm cropping and peat oxidation and this rate is expected to continue. There is greater change in ground settlement than expected from sea level rise due to climate change impact for this activity.

We will continue to maintain the stopbank heights to ensure the pastures are protected from flooding and available for normal farming most of the time. We do this by inspections, drone surveys, and periodic top ups of the stopbanks.

Preparing for climate change

Climate change impacts, such as sea levels rise, will impact the land drainage and flood protection function. The flood gates may not open long enough to drain the land adequately due to sea level rise and with the land subsiding. This will mean a greater reliance on pumping of the floodwaters to keep the paddocks dry.

Rainfall events are likely to become more intense and frequent due to climate change impacts. However, it is the total rainfall volume that is the main concern for the land drainage and flood protection activity. Under the different

scenarios from a number of sources (NIWA, Waikato Regional Council and Intergovernmental Panel on Climate Change), the total rainfall volume is not predicted to increase significantly long term, however the intensities of rainfall events will and the incident of drought events.

We are collecting evidence so we can understand any material change on the land drainage and flood protection activity due to climate change impacts. This includes monitoring rainfall events at sites in our district.

Due to the potential effects of climate change costs may need to increase in the medium-term for increasing the pumping as the existing flood gates cannot drain adequately, and consequent additional electricity costs. Longer term, the service levels for flood protection assets (owned by the Regional Council) may reduce if pumping systems are required as gravity drainage becomes ineffective (likely 50 years plus horizon).

Future challenges –improving freshwater quality

The National Policy Statement on Freshwater Management 2020 requires higher standards of stewardship for our water bodies. In future, existing farmland may need to be purchased by Council and wetlands established upstream of floodgates / pump stations to improve freshwater quality before it is discharged.

There are now stringent resource consent conditions for the clearing of drains, including undertaking fish studies. These are costly and may not be workable for these modified streams. We will work towards long term consent conditions for the complete land drainage network.

The Resource Management (Stock Exclusion) Regulations 2020 are part of the Government's Action for Healthy Waterways package to set higher standards for the nation's waterways. The regulations require exclusion of stock from lakes and wide rivers, natural wetlands identified in regional or district plans, and on low slope land. The Government's freshwater reforms to clean up the nation's waterways have been released. We will be working through the implications of these reforms with our community through the Drainage Committees. The focus is on stopping and reversing decline to waterways which are heavily impacted by drainage practices.

Asset condition and performance

We have improved the knowledge of the state of our land drainage and flood protection assets through:

- Undertaking drone and ground surveys of the stopbanks.
- Ongoing identification of any defects as part of monthly inspections of the pump stations.

Asset performance of our drainage and flood protection assets relates to the flood protection provided to protect the district's arable land. There was no ponding for more than three days reported in 2018/19 and 2019/20 for this performance measure for protecting pasture.

We have defined our critical assets that are important to our community for this activity as stopbanks, flood gates, and pump stations.

Significant infrastructure issues for the land drainage and flood protection activity and the principal options for managing these issues are detailed in the following table. The highlighted option preferred as the most likely scenario has been identified. Some issues may have more than one option recommended as the preferred.

Significant issues and options

Significant issue	Principal options for managing the issue	Implications of the option	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
Impacts of sea level rise associated with drainage efficacy. When pastoral land is inundated it is unusable. If ponding occurs for an extended period or if the water is saline, pasture can die off.	1. Increased pumping and re-grading. 2. Continue to monitor stopbank height to maintain existing service levels. Periodically top up stopbanks. **Option 2 is preferred as the most likely scenario**	• In the medium term, more pumps and pumping would be required as the water table rises. This will mean increased energy and operating costs. • Flood gates will become submerged and ineffective. • Long term impacts include loss of viable productive pastoral land. This would have wide reaching impacts on the economy of the district.	✓ Low cost within existing budget (currently being raised)	✓ $0.75m Stopbank raising every 10 to 15 years	✓ $0.75m Stopbank raising every 10 to 15 years	High We have time to identify and respond to changes
The Government's Action for Healthy Waterways package sets higher standards for the nation's waterways. Potential impacts include conversion of farmland into wetland to improve freshwater quality.	1. Work with industry to influence Government on a practical and financially viable framework to improve the waterways. **Option 1 is preferred as the most likely scenario**	• In future farmland may need to be retired and converted to wetlands to improve freshwater. This would likely be a significant cost, which is unknown at this stage.	✓ Unknown	✓ Unknown	✓ Unknown	High

Table 7: Significant issues and options for land drainage and flood protection

Land drainage and flood protection expenditure forecasts

Figure 12 presents the expenditure forecast for land drainage and flood protection which are based on the following assumptions:

- Climate change will result in a sea level rise and may require greater reliance on pumping of the floodwaters to keep the paddocks dry.
- Stopbank raising is required every 10 to 15 years to maintain the existing service levels. This is reflected in our capital expenditure forecasts below.
- Resources will be available so we can deliver our capital works programme.
- We will provide services at the levels forecast in our Land Drainage and Flood Protection asset management plan and 2021 long term plan.

Over the next 30 years it is expected that our major capital expenditure items include:

- Stopbank reconstruction at $6 million (from 2031/32 to 2050/51).
- Development of fish passages in pumps and flood gates, and gaining consent as part of the freshwater improvements at $500,000 (over 30 years).

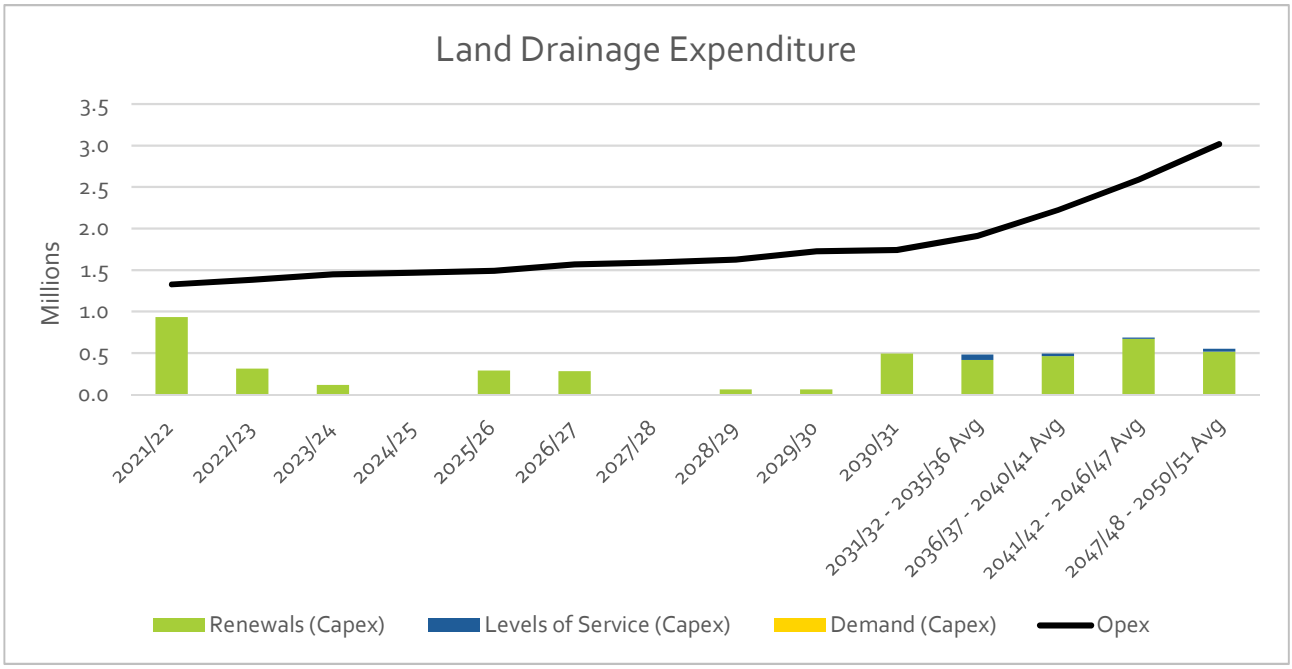


Figure 12: Land drainage and flood protection expenditure (inflated)

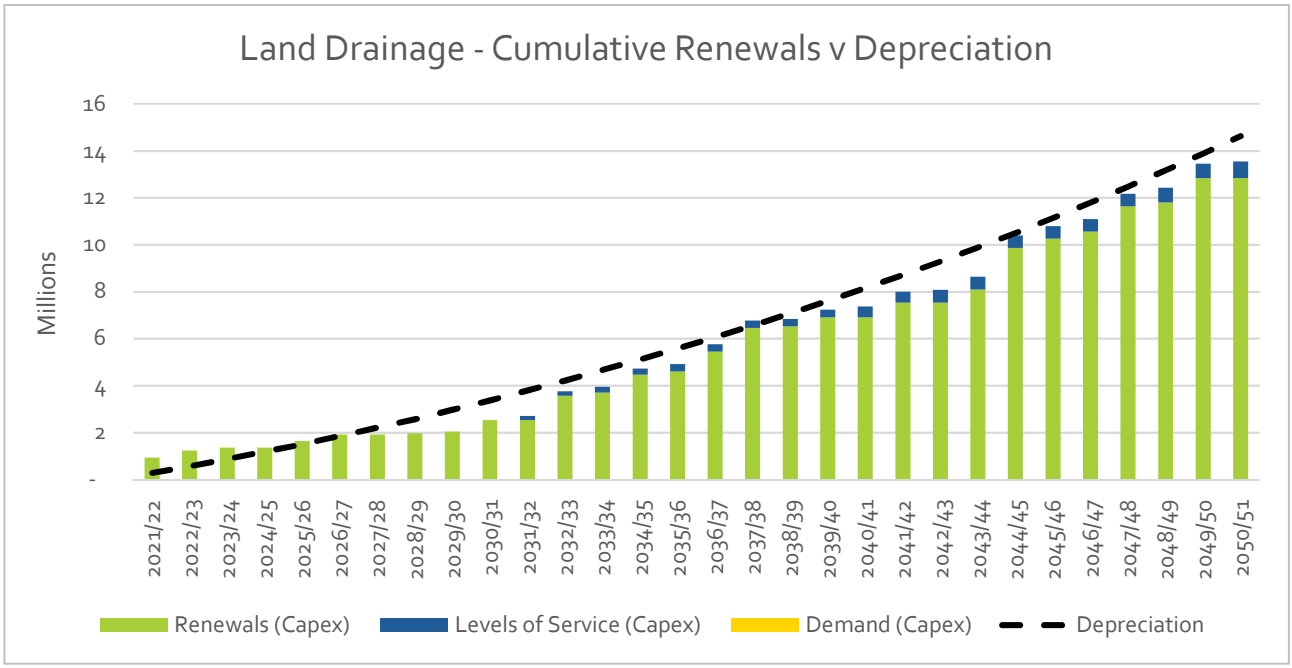


Figure 13: Land drainage and flood protection renewals and depreciation (inflated)

We expect that our stop banks will need topping up every 10 to 15 years. The top-ups shown in Figure 12 are described as renewals.

Funding this activity

We fund our land drainage services through rates. The rates include a land-value based targeted rate (85% of our operating spend) and a capital value-based district rate (15%). Flood protection is funded the same way. As with all our activities, our policy on funding capital expenditure is to utilise sources of funds in the following order:

1. Grants and subsidies.
2. Development/financial contributions.
3. Depreciation.
4. Reserves.
5. Borrowing – internal.
6. Borrowing – external.

Land Transport - roads and footpaths

Background

We provide 620 kilometres of roads (506 kilometres sealed and 114 kilometres unsealed), approximately 163 bridges and 114 kilometres of footpaths in our district. The land transport activity provides essential infrastructure to connect our communities.

Strategic land transport challenges

Renewing infrastructure

Sustainable resurfacing programme

We know that we need to invest more in resealing our roads. We need to keep ahead so there is not an unsustainable deficit that is unaffordable for our future ratepayers. An assessment of the seal life of road pavements shows that 28% of our network is older than the design life compared to an industry acceptable level of 10 to 15% (refer to Figure 14). There is also a large cohort with an expected remaining life of five years.

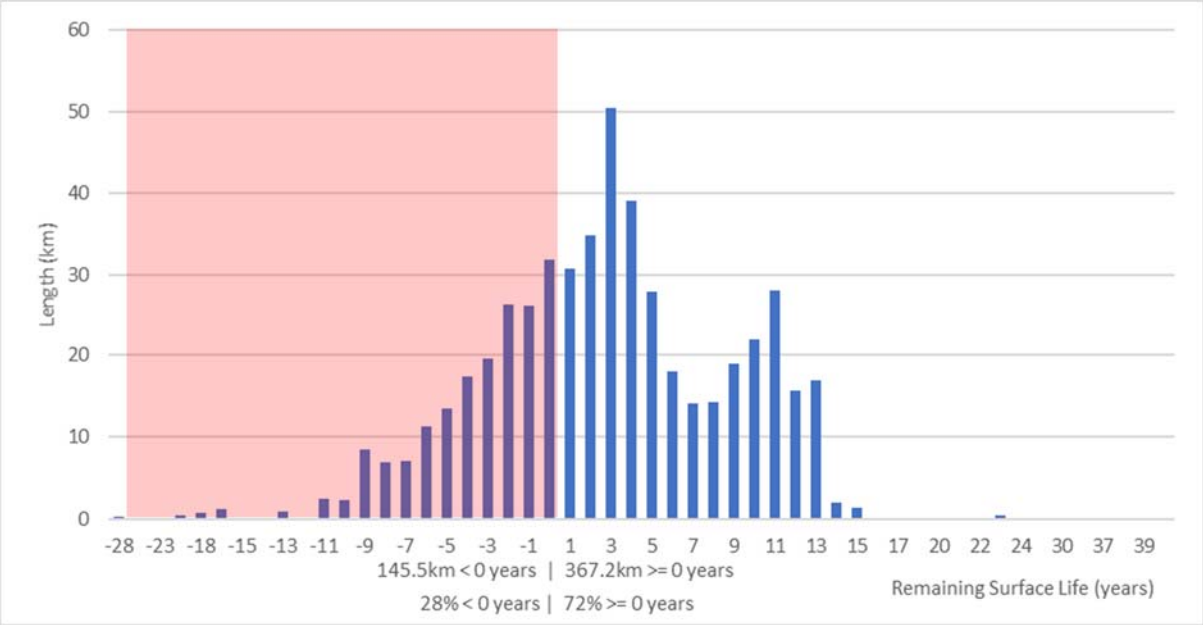


Figure 14: Remaining surface life distribution

Source: Hauraki District Council, RAMM Database (as at January 2020)

We have been gathering data to develop an evidence-based pavement intervention strategy to better inform future investments for the sealed network. Current initiatives include:

- Validating the performance of sealed pavements built on different soil types, particularly on peat subgrades (known soft subgrade soils are organic soils, gley soils and ultic soils as shown in Figure 15).
- Starting a high speed data gathering programme to detect cracking in the surfacing of our roads across the district over the next two years. This will be a major gain in network knowledge and be used for the long term modelling for predicting surfacing deterioration.
- Site verification to areas of concern to compare trends in sealed pavement deterioration.

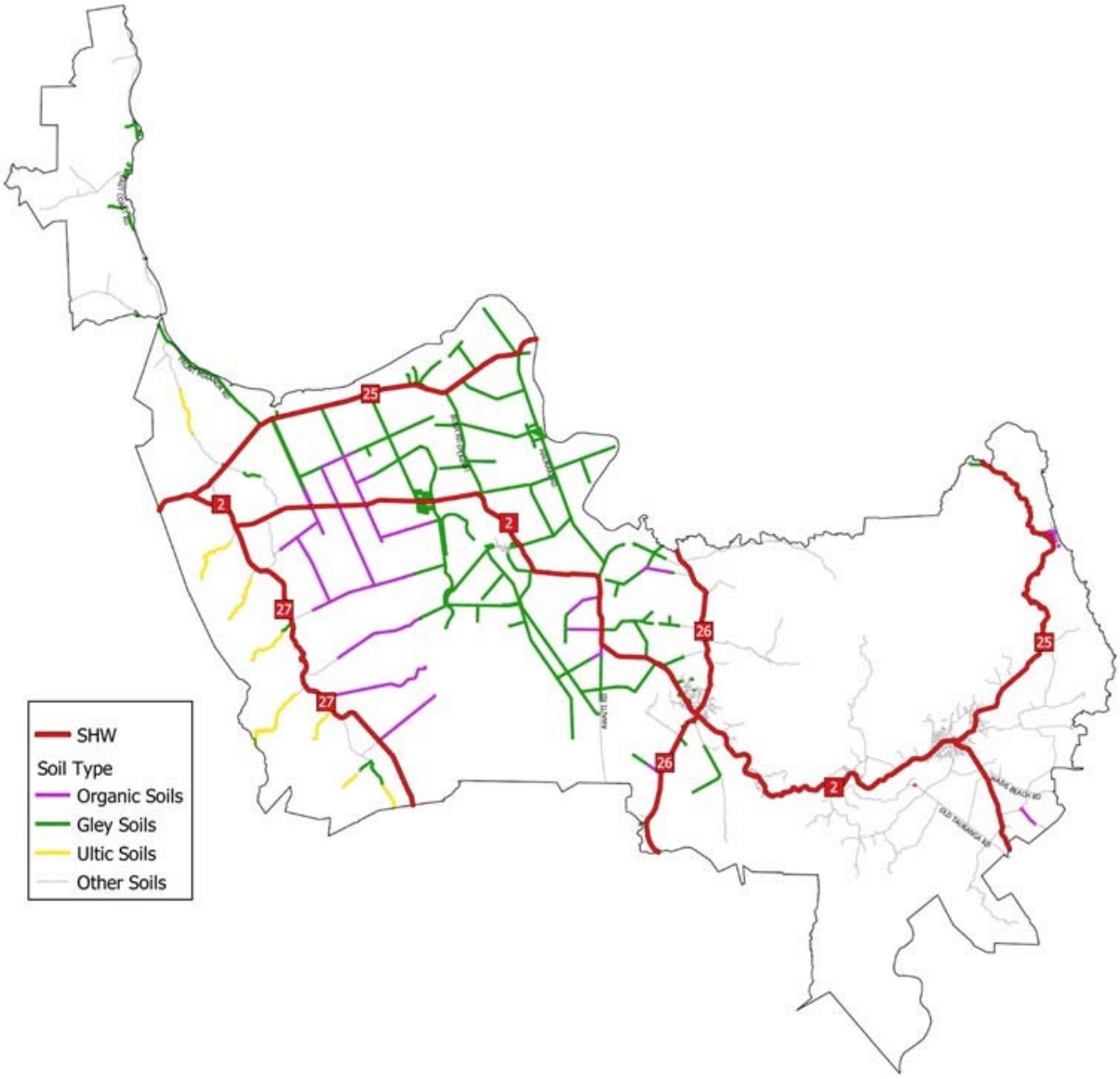


Figure 15: Soft subgrade soils within the district
Source: RATA (as at March 2020)

An increased investment in reseals is required to address the large amount of aged sealed assets (overdue). In mid-2021 we received notification from Waka Kotahi New Zealand Transport Agency that it would not be in a position to provide subsidy for the full schedule of projects we had allowed for the first three years of our long term plan. This means we will not be able to complete as many reseals and rebuilding of roads as we'd like in the first three years and have kept our reseals and rehabilitation budget at the same level it was in our 2018-28 long term plan for years 1-3. This is likely to result in a reduced level of service as rehabilitation of roads is deferred. We plan to bring the percentage of backlog down to 15% (from 28%) from year four with a higher level of investment.

We have undertaken high level analysis of different reseal profiles (five profiles in total) in advance of the long term modelling outputs. An optimised profile has been identified and has informed this strategy and 2021 long term plan. The preferred profile is developed base on the actual seal lives achieved, which reduces the backlog to 15% in five years and requires 8.3% reseals per year. This requires an increase in investment levels higher than the adopted 2018 long term plan budget. We have adopted a different reseal strategy for managing the pavements on the soft subgrade soils.

Ageing bridge profile
We now have better understanding of the state of our bridge network. Bridges are critical assets of our transport network, so we need to ensure that they are in good condition. We have inspected the district's bridges to assess the

asset condition and record the construction dates. The condition survey has informed the development of the forward works programme. There is a greater level of bridge components that need replacing than the 2018 long term plan budget allowance.

Providing for growth and changes to levels of service

Road safety
There is an increased focus on road safety nationally and the New Zealand Government has released its proposal for the new road safety strategy, Road to Zero. The focus areas include infrastructure improvements and speed management, vehicle safety, work related road safety, road user choices and system management.

A network wide safety assessment has been completed and the top eleven crash roads have been identified. Most crashes were generally found to have occurred on open (rural) roads, at intersections, at busy sections of road with no street lighting, or due to direct roadside hazards. We will focus our safety investment on these top worst roads to gain the maximum benefits. Options include reducing speed or physical engineering improvements. We are currently working through the process of implementing a widespread speed limit reduction throughout the district.

High speed roads that do not provide adequate recovery areas are particularly of concern. There is a greater chance of drivers not able to rectify errors quickly on these roads resulting in accidents. To address this, we will also be reviewing the road safety policies and allowing for physical engineering interventions at targeted sites as required.

Increasing accessibility and network connectivity
There is inadequacy in the provision of purposeful infrastructure to support our communities to be better connected, especially within our rural network. The district's aged population is increasing, and we need to ensure that our transport network is accessible for them as well as disabled people. An ageing population will drive more urban development and associated need for infrastructure. The One Network Framework is being developed nationally to provide a common language to reflect the role transport corridors play in the movement of people and freight across all transport modes, the social spaces they provide, and their role in providing access to adjacent land. We have created a budget and allowed for local public transport options to be explored.

Asset improvement and creation will be a focus area in the medium to long term in our urban areas with high footpath usage and aligns with our focus on the social and economic wellbeing of our communities and healthy environment. Our approach to shared space and footpath widths will likely change once the One Network Framework is completed and implemented nationally.

Managing risk and increasing resilience

People resilience – We have focused on building our people resilience first to enable us to strengthen our infrastructure resilience. This approach has allowed us to build asset knowledge and develop consistent decision-making processes. We have done this by the following initiatives:

- Increased our in-house knowledge of the transport network performance with bringing technical asset management in house.
- Set up an in-house Project Management Office to coordinate work programmes.
- Ongoing support from Waikato Regional Asset Technical Accord for data management.
- Formed relationships with selected consultants for periodic specialist support.
- Enhanced collaboration with the Road Maintenance Contractor to have robust communication protocols and procedures, and appropriate signage for keeping the network resilient.

Infrastructure resilience - There are parts of our transport network that are vulnerable and susceptible to weather related events and rising sea levels. Areas of concern include the boundary with Auckland region, the Wharekawa Coast and maintaining lifeline routes (key transport routes) across our district. Our initiatives to strengthen our transport infrastructure resilience are listed below.

- The priority is ensuring that the key routes for the district remain available and safe for road users after weather related events. The current focus is on pro-active maintenance before storm events and being ready to respond.

- We have increased our awareness of our transport network risks in relation to sea level rise and have identified four susceptible road sections.
- The Wharekawa Coast 2120 project has been set up through a joint working party (Council, Regional Council and iwi) to holistically plan for the future of the communities of the Coast. Natural hazard assessments have substantially been completed. The next step is to undertake a risk assessment process.
- We will undertake scenario planning to establish the lifeline routes across our district including local roads and state highways particularly across the flood susceptible Plains. We will identify critical bridges and culverts, the potential impacts of stopbank failure, and safe routes.

Future challenges – stormwater quality

It is recognised that stormwater runoff from the transport network pollutes the waterways. There is increased emphasis on the quality of stormwater runoff from roads. We will need to consider green infrastructure that provides treatment and slows down the stormwater flows.

We will work with our internal Water Services Team on developing solutions and educate our community about stormwater management. This infrastructural issue needs to be addressed and we are in discussions with Waka Kotahi regarding funding. The Productivity Commission has identified this as a national issue. We intend to lobby Waka Kotahi with other Road Controlling Authorities to contribute to the cleaning up of the stormwater runoff for improved environmental outcomes.

Asset condition and performance

Performance and condition across the various land transport asset classes is as follows:

- Pavements:
    - Sealed road performance – The overall state of the sealed network is assessed in many ways but ride quality is commonly used as can be compared nationally. The ride quality for the urban network had been trending downwards. The network will continue to deteriorate with current investment levels. Sensitivity analysis is planned to determine required investment levels.

      It is known that the pavements deteriorate more rapidly on the Hauraki Plains due to the known soft subgrade soils (refer to Figure 15). Analysis of maintenance costs against pavements on different soil types is helping inform the intervention strategy.

    - Sealed road condition – Figure 14 shows the remaining life of pavement surfaces. Surfaces with zero or negative seal life imply that the surfaces have expired and require renewals. This shows that 28% of our sealed network is older than the design life. Unsealed road condition – The overall condition of the unsealed road network is measured by monthly visual inspections. The condition is generally considered good but varies throughout the year due to heavy rain, periods of dry weather and heavy vehicle loads.

    - Critical road condition – Waka Kotahi's One Network Classification is used to categorise the criticality of roads with a consistent framework nationally. Peak roughness refers to bumps in roads and how smooth the drive is. While the peak roughness for some categories exceeds the Waikato Region maximum (for 2019/20), we have generally performed well when benchmarked at national level.

    - Road safety – The number of serious injuries and fatalities has remained relatively static from 2017/18 to 2019/20 (three year average of 1 fatality and 4.33 serious injuries) and remains a major focus. The top 11 crash roads have been identified in the Land Transport activity management plan.

- Bridges:
    - Bridge condition – Most of the bridges (approximately 80%) are between 30 and 65 years old so about midway towards the end of the asset life. Asset condition is regularly assessed with inspections and surveyed every second year. The data from these two site inspection processes are currently not recorded in the asset management system due to system limitations. There are plans to assess the bridge structure at asset component level as part of a national pilot to address this.

    - Bridge performance – It is important that our bridge network is accessible to heavy vehicles that support the district's economy. The number of heavy vehicles is increasing particularly milk tankers. We plan to undertake a detailed capacity assessment of all our bridge structures, starting with timber deck bridges. We will then develop a prioritised programme based on traffic volume. .

- Footpaths – Most footpath assets are relatively new or close to midway through their asset life (depending on the material type) at between 12 to 18 years old. There is a proportion that have exceeded their asset lives, mostly for footpaths of asphaltic concrete material. Over 90% of the footpaths are rated as in excellent or good condition. However there has been a decrease in excellent condition and increase in good condition since 2008.

- Road drainage – Most drainage asset classes are quarter to halfway through their asset life.

Significant infrastructure issues for the land transport activity and the principal options for managing these issues are detailed in the following table. The highlighted option preferred as the most likely scenario has been identified. Some issues may have more than one option recommended as the preferred.

Significant issues and options

Significant issue	Principal options for managing the issue	Implications of the options	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
Sustainable resurfacing programme may be unaffordable for our community.	1. Continue with the existing resurfacing programme based on the default seal lives in the RAMM database (baseline scenario for chip seal resealing only).	• Resurfacing may be undertaken too early or too late as based on theoretical seal lives. • Backlog may be created that cannot not be addressed.	✓ $1.6 million per annum	✓ $1.6 million per annum	✓ $1.6 million per annum	High
	2. Identify the optimised profile for different reseal profiles based on current information available. **Option 2 is preferred as the most likely scenario (short to medium term).**	• An optimised programme may still not be affordable particularly with the economic recession.	✓ $1.7 million per annum	✓ $1.9 million per annum	✓ $1.9 million per annum	High
	3. Gathering data to develop evidence based pavement intervention strategy. Run long term model to determine the optimised profile. **Option 3 is preferred as the most likely scenario (long term).**	• Takes time for data gathering and long term modelling for predicting surface deterioration. • Long term view based on multiple treatment options with sensitivity analysis for different investment levels.	✓ To be determined	✓ To be determined	✓ To be determined	High
Inadequate provision of purposeful infrastructure to support our communities to be better connected, especially within in our rural network.	1. Allocate funding for improving non-vehicular transport routes including walking, cycling and mobility impaired forms of travel and prepare an annual programme of works to prioritise initiatives. **Option 1 is preferred as the most likely scenario (short term).**	• Works will be prioritised. • Provides greater transport options. • Meets our customer expectations.	✓ $700k per annum (O & M and capital) (subsidised)	✓ To be determined	✓ To be determined	Medium
	2. Review strategies and maintenance programmes for footpaths and shared spaces once the One Network Framework is completed and implemented nationally.	• Improves network connectivity. • Aligned with national strategic direction as set out in the Government Policy Statement.	✓ Budget impacts unknown	✓ Budget impacts unknown	✓ Budget impacts unknown	Medium

Significant issue	Principal options for managing the issue	Implications of the options	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
	Option 2 is preferred as the most likely scenario (medium term).					
Impacts on roading infrastructure from climate change. Parts of the transport network are vulnerable and susceptible to weather related events and rising sea levels.	1. Continue with proactive maintenance before storm events and being ready to respond. **Option 1 is preferred as the most likely scenario (ongoing).**	• More slips are likely if recent rainfall events are indicative of the increased rainfall. • The Plains area is predominantly peat soils which are susceptible to increases and decreases in water which impacts on our renewals and maintenance plans as road surfaces need to be replaced more often.	✓ Low cost within existing budgets			High
	2. Undertake scenario planning to establish the lifeline routes across our district including local roads and State Highways particularly across the flood susceptible Plains. **Option 2 is preferred as the most likely scenario (medium term).**	• Critical bridges and culverts identified and associated strategies developed to mitigate risk. Safe routes identified for emergency event planning.	✓ Low cost within existing budgets			High
Increase in heavy vehicles in district and sub region impacting bridge structures. Uncertainty of bridge load bearing capacity.	1. Continue with weight restrictions and speed limits for four identified bridges with load bearing capacity issues. **Option 1 is preferred as the most likely scenario (ongoing).**	• Bridge failure and / or permanent damage if restrictions are not complied with by heavy vehicle operators. • Damaged bridge closed reducing network accessibility. • Ongoing weight restrictions. •	$6 million (O & M)			High
	2. Undertake detailed capacity assessment of bridges where traffic volume is high. Prioritise the approach for remaining	• Reduces uncertainties about bridge capacities and knowledge.	✓ $2.2 over 10 years (renewals)			High

Significant issue	Principal options for managing the issue	Implications of the options	Years 1–10	Years 11–20	Years 21–30	Risk (H/M/L)
	bridges and complete analysis district wide. **Option 2 is preferred as the most likely scenario (medium term).**					

Table 8: Significant issues and options for land transport

Transportation expenditure forecasts

Figure 16 presents the expenditure forecast for roads and footpaths which are based on the following assumptions:

- Waka Kotahi will continue to provide us with subsidised funding for the road network over the next 30 years under the current rates and criteria.
- Resources will be available so we can deliver our capital works programme.
- We will continue to fund at the levels in the long term plan and ten year forecasts stated in our long term plan.
- We will provide services at the levels forecast in our Land Transport activity management plan and 2021 long term plan.

Over the next 30 years it is expected that our major capital expenditure items include:

- $1.5 million to reseal our roads each year over the next ten years.
- $2 million to undertake pavement rehabilitation each year for the next five years, and $1 million each year from then onwards.
- Low cost, low risk roading improvements at $6.8 million over the next ten years.
- Bridge structural component replacements at $0.2 million each year for the next three years, and $0.1 million each year from then onwards.
- Accessibility improvements including walking, cycling and mobility impaired forms of travel ($0.2 million each year over the 30 years of this strategy).

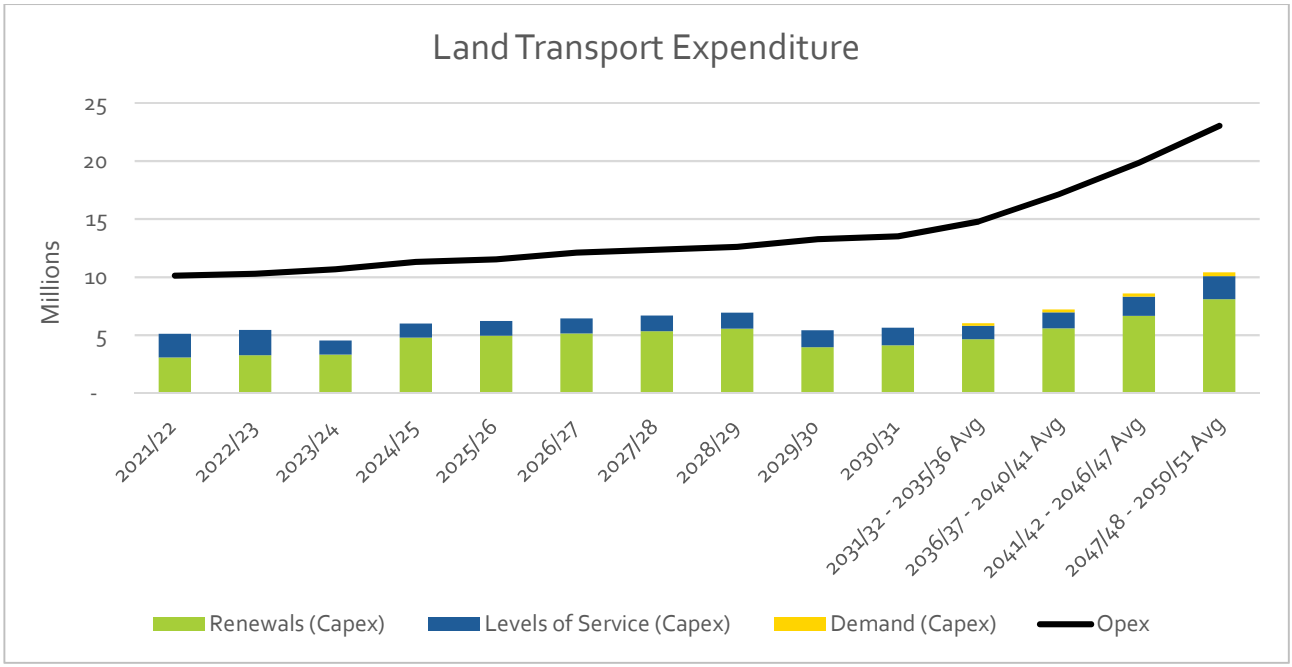


Figure 16: Roads and footpaths expenditure forecast (inflated)

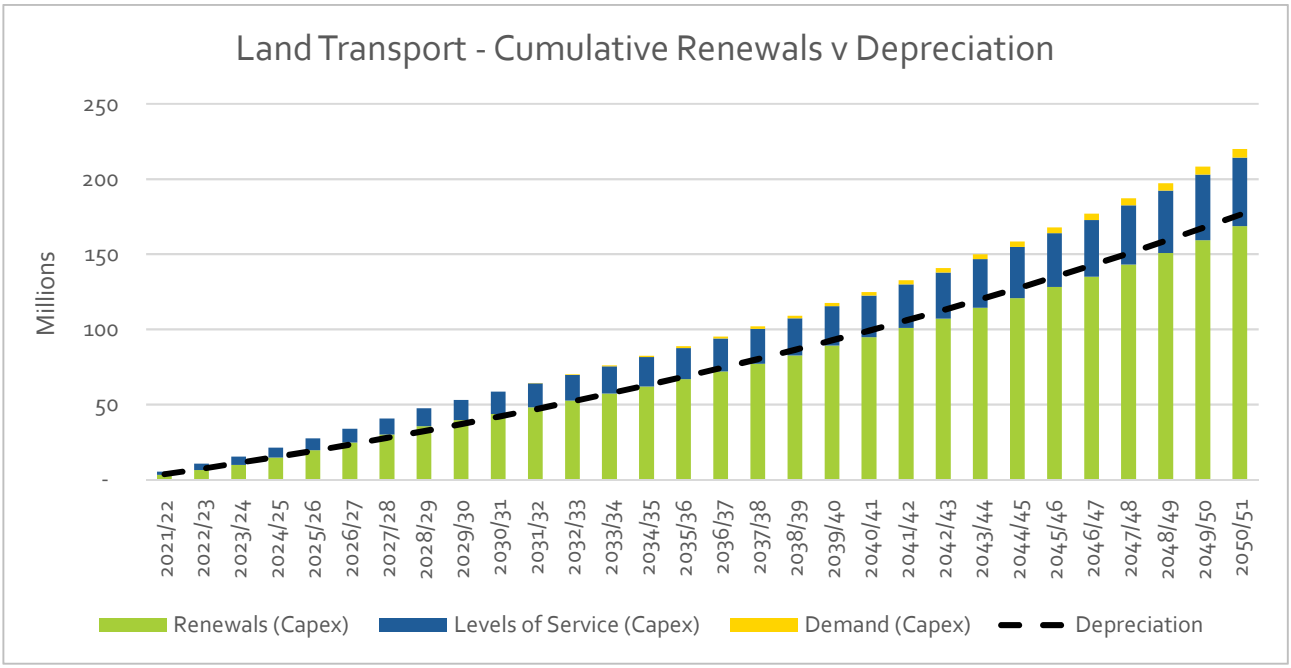


Figure 17: Roads and footpaths renewals and depreciation (inflated)

The forecast road and footpath renewals are maintained to generally match the annual depreciation of the network as shown above.

Funding this activity

We fund our land transport services from a range of sources:

Activity	Operating funding	Capital funding
Carriageways and bridges	60-85% Subsidies 15-40% Rate – Capital Value Roading	1. Waka Kotahi subsidy 2. Development/financial contributions 3. Depreciation 4. Reserves 5. Borrowing – internal 6. Borrowing – external
Footpaths	60-85% Subsidies 15-40% Rate – Uniform Annual Charge - Ward	
Lighting	60-85% Subsidies 15-40% Rate – Capital Value Roading	
Network management	60-85% Subsidies 15-40% Rate – Capital Value Roading	None
Amenity	95-100% Rate – Capital Value Roading 0-5% Fees and Charges	1. Waka Kotahi Subsidy 2. Development/financial contributions 3. Depreciation 4. Reserves 5. Borrowing – internal 6. Borrowing – external
Public transport	100% Rate - Capital Value Roading	None
Local public transport	50-100% Rate - Capital Value Roading 0-50% Fees and charges	None
Safety	100% Uniform Annual General Charge	1. Waka Kotahi subsidy 2. Development/financial contributions 3. Depreciation 4. Reserves

Activity	Operating funding	Capital funding
		5. Borrowing – internal 6. Borrowing – external
Stock underpass subsidies	100% Rate - Capital Value Roading	None
Carparks	90-100% Ward – Annual Charge 0-10% Fees and Charges	1. Development contributions/financial contributions 2. Depreciation 3. Reserves 4. Borrowing – internal 5. Borrowing – external
Town centre upgrades	60% Rate – Uniform Annual Charge – Ward 20% Rate – Capital Value – Ward Business 20% Rate – Annual Charge – Ward Business	1. Depreciation 2. Reserves 3. Borrowing – internal 4. Borrowing – external

Part Three - Financial Summary

Our strategy for our infrastructure is dominated by the impacts of the three waters reforms, increasing environmental standards, managing risks and increasing infrastructure resilience, preparing for climate change, and a sustainable resurfacing programme.

We expect over the next 30 years that the most significant investment in infrastructure will be resealing our roads and upgrading our wastewater treatment plants to meet higher environmental standards. We need to keep ahead with investing in resealing our roads so there is not an unsustainable deficit that is unaffordable for our future ratepayers. There will be a higher degree of treatment required for wastewater discharges due to resource consenting requirements, Regional Council's Plan Changes, the National Policy Statement for Freshwater Management 2020, the need to reduce carbon emissions, as well as to cater for growth. The cost estimates are significant and may not be affordable for our community.

Financial assumptions

We've already noted some of our general planning assumptions in Part One of our strategy and they can be viewed in more detail in the Long Term Plan 2021-31. In summary, our key financial assumptions are:

- The need for significant expenditure in the long term to meet requirements for the management of three waters and implement water reform requirements.
- We will maximise the useful and economic lives of our assets.
- We will use risk management practices to maximise assets and the management of risk of a critical asset failing.
- Waka Kotahi will continue to provide subsidised funding to the Council for the road network over the next 30 years under the current rates and criteria.
- The Council will continue to have a development contribution policy in place.
- Future water supply, wastewater and stormwater consent conditions will be more restrictive and will cost more to comply with, implement and monitor.
- There will need to be significant expenditure in the long term to meet higher environmental standards for wastewater and stormwater discharges.
- There will need to be significant expenditure in the long term to meet requirements for the management of three waters and implement water reform requirements.
- Resources will be available so we can deliver our capital works programme. We're assuming that on average, costs of major capital works will not vary significantly from costs estimated at the concept stage, subject to general inflation trends.
- We will provide services at the levels forecast in our activity / asset management plans and 2021 long term plan, except for the upgrade to wastewater treatment plants and other infrastructure upgrades driven by higher environmental standards (as noted above).

Funding depreciation

Figure 18 shows renewals versus annual depreciation for the combined assets. This shows that the forecast renewal expenditure for all activities broadly matches depreciation over the 30 year period (or slightly less), except in the last 5 years where there is a large amount of reticulation infrastructure coming to the end of its life. The gap is mainly due to wastewater renewals less than annual depreciation as the primary driver of the replacement is increased environmental requirements (levels of service) rather than a renewal.

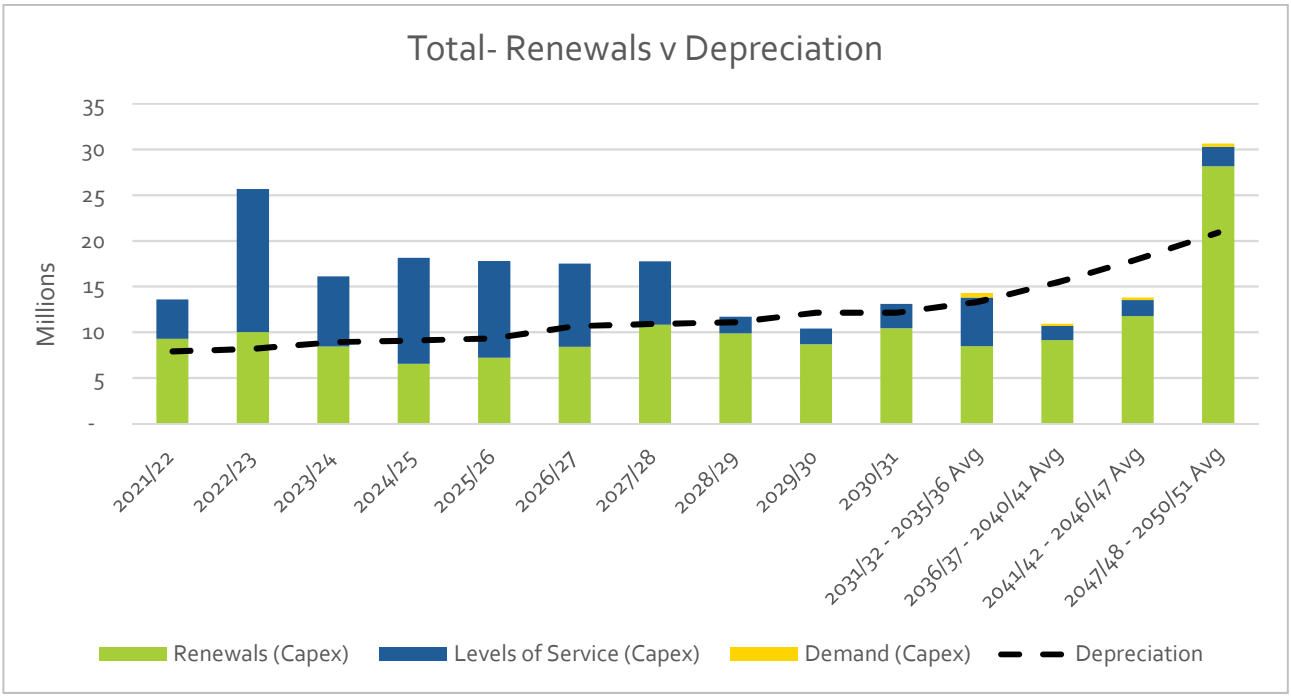


Figure 18: Combined renewals and depreciation (inflated) 2021-2051

Financial forecasts

In delivering the infrastructure services and addressing the identified issues outlined throughout this strategy, we expect to spend the operating and capital expenditure as set out in Table 9 over the 30 year period.

Infrastructure activity	Operational expenditure	Capital expenditure
	($)	($)
Water supply	384,101,939	124,811,001
Wastewater	224,621,153	97,999,762
Stormwater	45,790,750	25,220,858
Land drainage and flood protection	64,096,166	14,629,728
Land transport	492,150,116	176,262,691
Total	**1,210,760,124**	**438,924,039**

Table 9: Expected total operating and capital expenditure (inflated values)

The financial information presented in our strategy includes inflation, except for the graphs which present the renewal and depreciation expenses.

Figure 19 shows the most likely scenario for the total operating and capital expenditure for combined assets over the 30 year period 2021 to 2051.

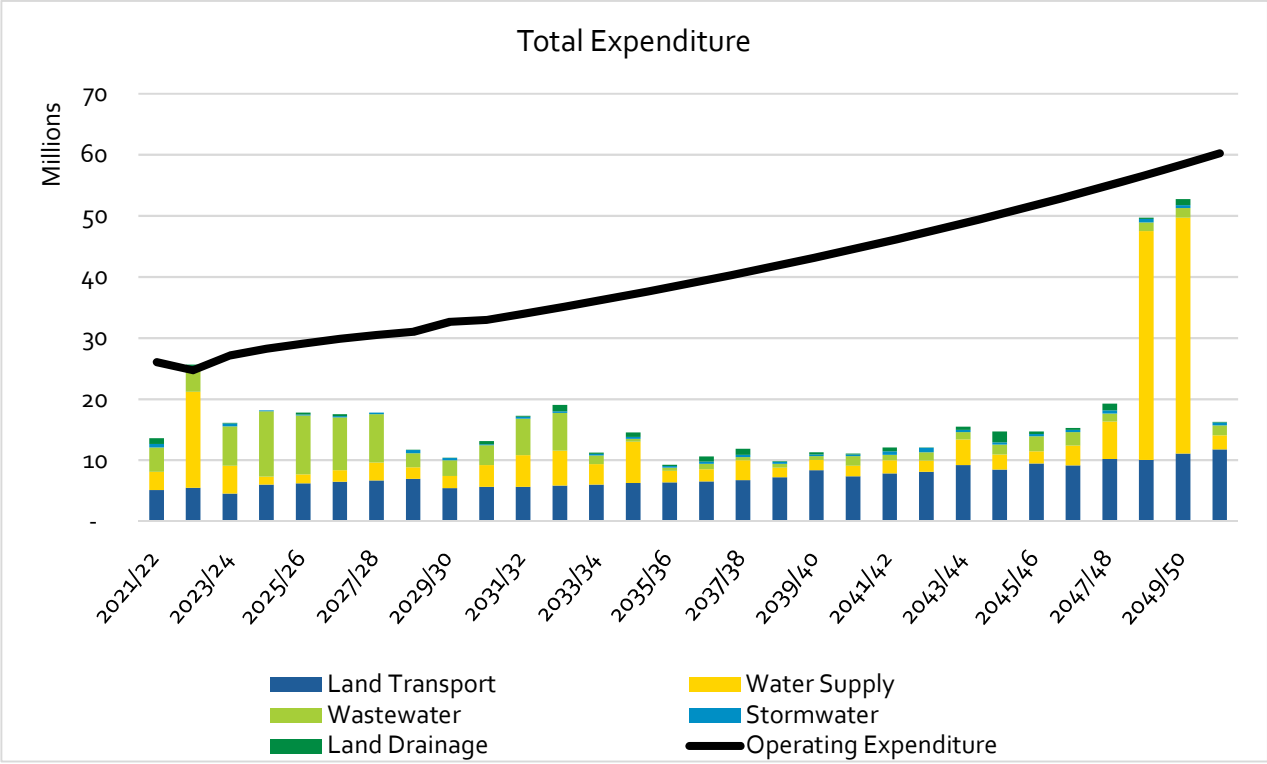


Figure 19: Total combined infrastructure operational and capital expenditure forecasts (inflation adjusted) 2021-2051

Over the next 30 years it is expected that:

- Operational expenditure accounts for 70% of the total expenditure.
- Planned expenditure on renewals across all infrastructure activities is generally constant at about $12.8 million per annum but increases in the last five years.
- Capital expenditure on levels of service improvements is focused on higher environment standards and obtaining resource consents for water supply, wastewater and stormwater.

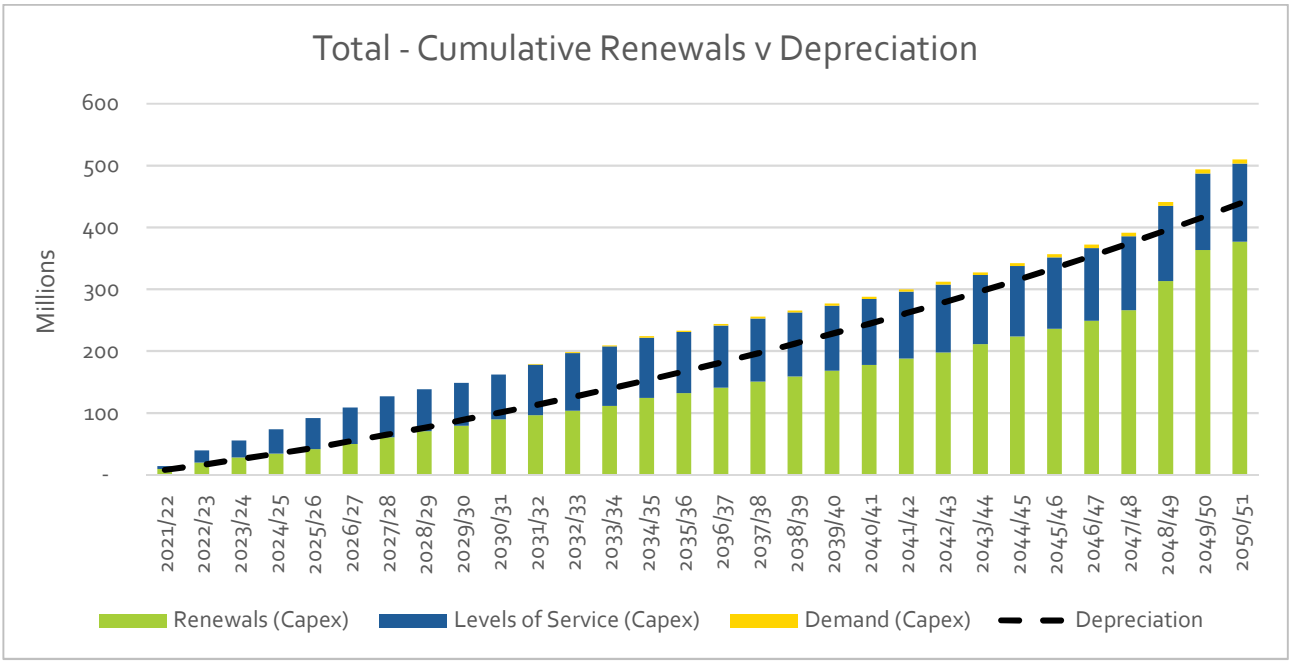


Figure 20: Total cumulative renewals and depreciation forecasts 2021-2051 (inflated)

Funding implications

There are significant funding implications from significant capital expenditure in this first ten years to meet higher environmental standards and to ensure our road network preserved. We are proposing significant rates increases over the next ten years, particularly an 8.3% increase in roading rates and a 5.2% increase in wastewater rates. This will have a significant impact on the affordability of rates for a number of our ratepayers. This is discussed in more detail in our Financial Strategy.

Summary of our Significance and Engagement Policy | He whakarāpopototanga o te kaupapa here whai pūtake me te tūhonohono

Purpose of the policy

Our significance and engagement policy enables us, along with our communities, to identify the level of significance attached to particular issues, proposals, assets, decisions and activities. The policy informs us about whether further requirements will need to be met if a decision is considered significant. This, for example, might mean making an amendment to our long term plan, or going through an audit process for particular policies. The policy also provides clarity about how and when communities can expect to be engaged in the decisions we make.

Engagement with the community is needed to understand the views and preferences of people likely to be affected by or interested in a proposal or decision. An assessment of the degree of significance of proposals and decisions, and the appropriate level of engagement, will be considered in the early stages of a proposal before decision making occurs and, if necessary, reconsidered as a proposal develops. In general, our policy is that the more significant an issue, the greater the need for community engagement.

What's significant and when you can expect to be engaged

For issues requiring a decision, we'll take into account the following matters when assessing the degree of significance of proposals and decisions, and the appropriate level of engagement, on a case by case basis:

- Whether there is a legal requirement to engage with the community.
- The level of financial consequences of the proposal or decision.
- Whether the proposal or decision will affect a large portion of the community.
- The likely impact on the current and future social, economic, environmental, or cultural well-being of the district.
- Whether the proposal will have significance to Maori cultural values and their relationship to land and water.
- Whether the proposal affects the level of service of a significant activity.
- Whether community interest is high.
- Whether the likely consequences are controversial.
- Whether community views are already known, including the community's preferences about the form of engagement.
- The form of engagement used in the past for similar proposals and decisions.

We have also set some thresholds to help us assess the extent that our proposals or decisions are significant. This includes the transfer of ownership or control, or abandonment of a strategic asset (listed below). These thresholds are set out in our full policy.

We'll use the special consultative procedure and consult in accordance with the principles of consultation, as set out in section 82 and 83 of the Local Government Act 2002 (LGA 2002), where we're required to do so by law. For such consultation, we will develop information fulfilling the requirements of the LGA 2002, will make this available to the public, allow for feedback to be received for a period of up to four weeks, and will consider all feedback prior to making decisions.

If we make a decision that is significantly inconsistent with this policy, we will clearly identify the inconsistency, the reasons for the inconsistency, and any intention we have to change the policy to accommodate the decision.

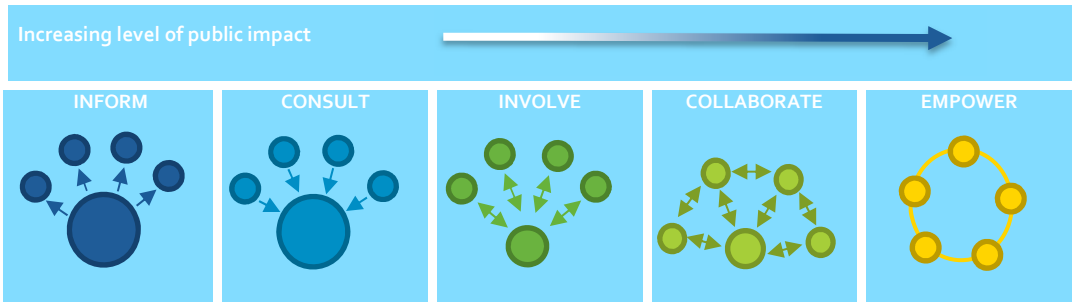
Our strategic assets

The following is a list of our strategic assets:

- The Hauraki District Council roading network as a whole;
- The Hauraki District Council land drainage network as a whole;
- The Hauraki District Council wastewater network as a whole;
- The Hauraki District Council water network as a whole;
- The Hauraki District Council urban stormwater network as a whole;
- Memorial halls in Ngatea, Paeroa and Waihi;
- Elderly Housing.

How you can expect to be engaged

Differing levels of engagement may be required during the varying phases of decision-making on an issue, and for different stakeholders. It will not always be appropriate or practicable to conduct processes at the 'collaborate' or 'empower' end of the spectrum. Many minor issues will not warrant such an involved approach. Time and money may also limit what is possible on some occasions.



	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
What it involves	One-way communication providing balanced and objective information to assist understanding about something that is going to happen or has happened.	Two-way communication designed to obtain public feedback about ideas on rationale, alternatives and proposals to inform decision-making.	Participatory process designed to help identify issues and views to ensure that concerns and aspirations are understood and considered prior to decision-making.	Working together to develop understanding of all issues and interests to work out alternatives and identify preferred solutions.	The final decision making is in the hands of the public. Under the LGA 2002, the Mayor and Councillors are elected to make decisions on behalf of their constituents.

View our full significance and engagement policy more information. This is available at http://www.hauraki-dc.govt.nz/our-council/policies/