Te Kaunihera-ā-Rohe o Taratahi
CARTERTON
DISTRICT COUNCIL

AGENDA

Policy and Projects Committee meeting

Date: **Wednesday, 28 February 2024**

Time: **9:00 am**

Location: **Carterton Events Centre**
50 Holloway St
Carterton

Cr S Cretney (Chair)
Cr S Gallon (Deputy Chair)
Mayor R Mark
Deputy Mayor D Williams
Cr B Deller
Cr R Cherry-Campbell
Cr L Newman
Cr S Laurence
Cr G Ayling
R Smith - Hurunui-o-Rangi Marae representative

Notice is hereby given that a Policy and Projects Committee meeting of the Carterton District Council will be held in the Carterton Events Centre, 50 Holloway St, Carterton on:

Wednesday, 28 February 2024 at 9:00 am

Order Of Business

1 KARAKIA TIMATANGA

Mai i te pae maunga, raro ki te tai

Mai i te awa tonga, raro ki te awa raki

Tēnei te hapori awhi ai e Taratahi.

Whano whano, haramai te toki

Haumi ē, hui ē, tāiki ē!

2 APOLOGIES

3 CONFLICTS OF INTERESTS DECLARATION

4 PUBLIC FORUM

5 CONFIRMATION OF THE MINUTES

5.1 MINUTES OF THE POLICY AND PROJECTS COMMITTEE MEETING HELD ON 22 NOVEMBER 2023

1. RECOMMENDATION

1. That the Minutes of the Policy and Projects Committee Meeting held on 22 November 2023 are true and correct.

File Number: **374322**

Author: **Robyn Blue, Democratic Services Officer**

Attachments: **1. Minutes of the Policy and Projects Committee Meeting held on 22 November 2023**

MINUTES OF CARTERTON DISTRICT COUNCIL POLICY AND PROJECTS COMMITTEE MEETING HELD AT THE CARTERTON EVENTS CENTRE, 50 HOLLOWAY ST, CARTERTON ON WEDNESDAY, 22 NOVEMBER 2023 AT 9:00 AM

PRESENT: Cr Steve Cretney (Chair), Cr Steve Gallon (Deputy Chair), Mayor Ron Mark, Deputy Mayor Dale Williams, Cr Brian Deller, Cr Robyn Cherry-Campbell, Cr Lou Newman, Cr Steve Laurence, Cr Grace Ayling (via videoconference from 9.15 am)

IN ATTENDANCE: Staff

Geoff Hamilton (Chief Executive), Solitaire Robertson (Planning and Regulatory Services Manager), Johannes Ferreira (Infrastructure Services Manager), Elisa Brown (Communications and Engagement Manager), Marcus Anselm (Communications and Engagement Coordinator) via videoconference, Robyn Blue (Democratic Services Officer)

1 KARAKIA TIMATANGA

The meeting opened with a karakia by Cr Steve Cretney.

2 APOLOGIES

MOVED

That apologies be received from Mayor Ron Mark and Ra Smith, and Grace Ayling for lateness.

Cr S Cretney / Deputy Mayor D Williams

CARRIED

3 CONFLICTS OF INTERESTS DECLARATION

There were no conflicts of interest declared.

4 PUBLIC FORUM

There was no public forum.

5 CONFIRMATION OF THE MINUTES

5.1 MINUTES OF THE POLICY AND PROJECTS COMMITTEE MEETING HELD ON 4 OCTOBER 2023

MOVED

1. That the minutes of the Policy and Projects Committee Meeting held on 4 October 2023 are true and correct.

Cr R Cherry-Campbell / Deputy Mayor D Williams

CARRIED

6 REPORTS

6.1 ROAD AND STREET NAMING POLICY

1. PURPOSE

For the Committee to adopt the updated Road and Street Naming Policy to reflect the addition of culturally significant names.

MOVED

That the Committee:

1. **Receives** the report.

Cr S Laurence / Cr L Newman

CARRIED

2. **Adopts** the updated Road and Street Naming Policy in **Attachment 1** with the amendments as noted.

Cr S Cretney / Cr B Deller

CARRIED

6.2 RESOURCE CONSENT UPDATE

1. PURPOSE

The purpose of this report is to update the Committee on the resource consents issued since the previous update.

MOVED

That the Committee:

1. **Receives** the report.

Cr S Cretney / Cr R Cherry-Campbell

CARRIED

6.3 MAJOR PROJECTS UPDATE

1. PURPOSE

To update the Committee on the progress of major projects.

MOVED

That the Committee:

1. **Receives** the report.

Cr S Cretney / Cr S Laurence

CARRIED

7 KARAKIA WHAKAMUTUNGA

The meeting closed with a karakia by Cr R Cherry-Campbell

The Meeting closed at 9.45 am

Minutes confirmed: ……

Date: ……

6 REPORTS

6.1 DECISION ON ENGLISH OAK - CARRINGTON PARK

1. PURPOSE

For the Committee to decide the outcome of the English Oak at Carrington Park.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Significance and Engagement Policy.

3. BACKGROUND

From our research and historical reports, it is believed the English Oaks at Carrington Park, were planted on 15 July 1904 as part of the Arbour Day event. At this event approximately three hundred trees were planted in Carrington Park by school children, the Mayor, councillors, and those who volunteered to assist.

From those plantings only 34 trees remain. These thirty-four 122 year old trees have local historical value being part of a significant community event.

Ka Pai Carterton contracted Paper Street Tree Company to provide a Tree Constraints Plan for the trees that stand within Carrington Park, as part of the design work for the proposed Carrington Park upgrade.

This report has provided us with valuable insight into the management plan for these historical trees.

Out of the 34 historical trees, 25 show a history of canopy loss from overextended limbs. This suggests that limb failure is likely in the foreseeable future, and the history of failure shows that is has also been the case to date. As trees are in a

group, where limbs are lost, adjacent limbs become more exposed to increased loads. Therefore, a higher proportion of limb loss will contribute to propensity for further limb failure. Intervention is required to ensure the appropriate level of duty of care is administered, and important community assets are preserved.

The Parks and Reserves team is working with an arborist to ensure a Tree Management Plan is in place. This will include an inspection regime, specifications for the work, management recommendations with priorities as to what order the works are to be carried out, and protection guidance for any development works. However, we envisage that with the age of these trees that we are going to start seeing significant issues appearing.

4. DISCUSSION

For the purpose of this report, we will specifically be discussing the English Oak that is between the skate park and the bike track:

The tree in question has been assessed by two professional arborist experts who have both described the tree as having structural integrity issues which have compromised its form, health and potential longevity.

The initial survey conducted by Paper Street Tree Company notes its condition was assessed and rated as having a 76% health rating and a 70% structural rating. Within the structural rating mechanical weaknesses were identified where the failure of 25% - 50% of the tree is foreseeable. Its value at the time of assessment was $68,932.00 and noted to be decreasing.

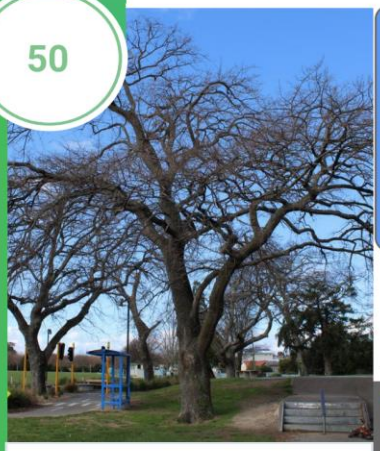
Also noted in their report was that the tree protection zone (TPZ) for this tree has been compromised (with hard surface encroachment) any further development within the TPZ would adversely affect the ongoing health of the tree.

PS ID Ref

50

Development considerations

PAPER STREET TREE COMPANY



English oak

TreeAZ

TreeAZ is a methodology for assessing the importance of trees in the urban environment. Trees that are important and worthy of being given significant weight in management decisions are categorised as A; trees that are less important are categorised as Z.

TreeAZ category	AA
Removal likely in the next 10yrs	
Definition	Trees or small groups which, that have been promoted to category AA because they exhibit notable attributes

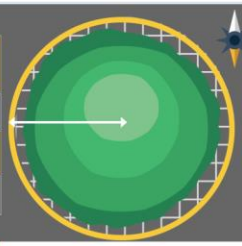
Species Notes

Issues to be aware of:	Capable of becoming a very large tree on sites that are not too exposed and open, therefore, requires lots of space.
Species notes:	

Tree Protection Zone (TPZ)

An estimate of the area around a tree that contains enough soil/roots for a tree to be preserved. Any works or modifications within these areas need to be strictly controlled, planned and carefully designed so as not to adversely affect retained trees. Tree protection cannot be successfully implemented after damaged has occurred; therefore, discussions during the design stages and prior to any works are critical if trees are to be successfully retained.

TPZ radius from trunk (m)	TPZ area (m2)
14	616



NOTES	Flag area of concern
Recent and historic ground modifications have taken place around tree . Extra care and design consideration is needed around these trees. Climate change predictions for the region is likely to have an impact on species as climate is likely to become more favorable for Mediterranean species (e.g., Turkey oak) therefore, maintaining and improving tree resilience will be important for long-term retention (e.g., maintaining and allowing for mulch surfaces).	
Tree tolerance for disruption (based on maturity species ability to tolerate disturbance and health):	Moderate

Next page for tree perfomance

Back to constraints plan

PS ID Ref

50

Value decreasing if no intervention is carried out

Tree performance

CURRENT CAVAT VALUE	Value ranking of trees surveyed
$68,932	12th
Total number of trees surveyed:	76
Estimated Co2e removed to date:	12.181t

76%	70%
HEALTH RATING	STRUCTURAL RATING
Moderate	A mechanical weakness where the failure of 25-50% of the tree is foreseeable

2.84%

Percentage of canopy coverage the tree provides

Public accessibility of tree	Tree Life Stage
Fully visible in or from a public place	Fully mature: Height and canopy growth plateaued. Some dieback may be present

Lifespan range of species	Estimated age
Trees of long life span (more than 150 years) with a slow growth rate	122

Positive Attributes	Part of local heritage. Highly likely to be one of the remaining trees from the 1904 Arbor Day community plantings
Level of significance	Local / District / Regional / National / International
Negative attributes	
Potential cultural Māori plant use	N/A

NZ Conservation status	NZ Conservation category	IUCN Red List of Threatened species
N/A	N/A	N/A

COMMENTS

Overextended limbs east and west. Rubbing limb resting on a lower limb with what appears to be a partial split in lower limb management work is required. A tree management plan is recommended for all historic trees within site. Developing a destination play space raises the risk profile and duty of care. Therefore, specific management strategies are needed to ensure high-value public assets are preserved and the appropriate level of duty of care is being applied.

History of failure
Moderate 25-50% of canopy loss
Structural area of concern
Canopy (general)
Type of mechanical weakness
Overextended limbs or lack of sturdy stem taper in stems or branches
Significance of mechanical weakness
Moderate, or 25-50% of tree likely to be affected
Likelihood of event occurring
Foreseeable
Weather factor likely for failure to occur
Storm
Targets beneath are of concern:
Public generators
Recommendation:
Management discussion

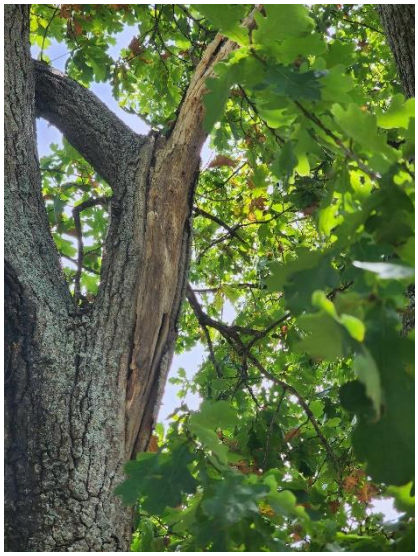
Back to constraints plan

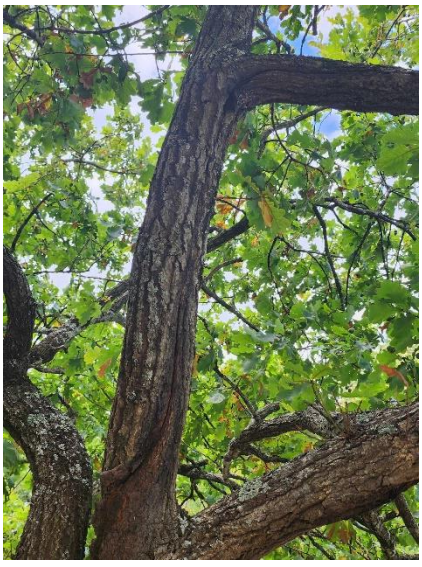
The Skate Park Group is currently undertaking their design work for the development of a new skate park (which will sit along side the Ka Pai Carrington Park detailed design). The Skate Park group had requested we consider removing this tree. At this time Officers advised that tree removal would not be an option, however we would seek an additional report to address the remedial work.

An additional report was undertaken from Wairarapa Treescaping on 14 November 2023. Their assessment supported the report from Paper Street Tree Company and recommended we undertake the remedy and maintenance works – specifically on the northern structural limbs overhanging the bike track, including a canopy lift over the skate park area to counterbalance any remedial works.

As recommended by both reports maintenance work was undertaken to remedy the immediate concerns. Through this maintenance work further structural and limb dieback issues were identified. The revised recommendations from the arborists are that:

- They do not believe formative pruning is required due to the severity of the structural integrity.
- Removing these structures will lose approximately 35% (if not more) upper canopy and will have a poor amenity appeal/value.
- With the tree situated where it is, and the new hazards now identified, the view of the arborists is that the removal of the English Oak tree would be the best option due to safety reasons.





This is likely to be an ongoing challenge with the remaining Oak trees in Carrington Park. The English Oaks have grown rapidly in New Zealand's more temperate climate. At 122 years old they are some of the oldest Oak trees in the Wairarapa. We are now discovering the fast growth suggests the trees are more prone to heavy limb failure. We should anticipate these symptoms may also appear in other Carrington Park Oaks.

5. OPTIONS

Option 1 – undertake pruning of the tree, understanding this will lose approximately 35% (if not more) of the upper canopy and have a poor amenity appeal/value. This does not guarantee the future survival of this tree and ultimately could result in the health of the tree continuing to decrease, with further structural maintenance required.

Option 2 – removal of this tree as is now recommended by the arborists. If this option is adopted, the wood will be reutilised – sold or donated to local organisation(s) for re-use in manufacturing or repairing timber furniture and products. Seedlings from this particular tree are already being grown and will be planted at a more suitable location once at an appropriate size.

6. NEXT STEPS

Next steps are dependent on the decision on the options. If option one is preferred, officers will action the pruning works.

If Option 2 is preferred, officers will action the tree removal, noting communication will be undertaken with the wider community of the works to be undertaken.

7. CONSIDERATIONS

7.1 Climate change

It is noted in the Paper Street Tree Company report that climate change predictions for the region are likely to have an impact on species as climate is likely to become more favourable for Mediterranean species (e.g. Turkey oak). Therefore, maintaining and improving tree resilience will be important for long-term retention (e.g. maintaining and allowing for mulched surfaces).

7.2 Tāngata whenua

Tāngata whenua have not had input into the decisions of this report.

7.3 Financial impact

Both options will be managed within existing Parks tree maintenance budgets.

7.4 Community Engagement requirements

Communication on the decision will be shared out to the community.

7.5 Risks

Risk to public safety – doing nothing is not an option for this tree. There is a 25 – 50% likelihood of mechanical weakness.

Risk to public perception – it is noted that the decision to remove this tree may cause public concern. We will attempt to mitigate this through our communications, press releases and engagement with park users.

7.6 Wellbeings

Social

The trees are a much-loved asset of Carrington Park, and as noted above the trees have local historical value being part of a significant community event. Seedlings from this tree will be planted in more suitable locations around the park, once big enough.

8. RECOMMENDATION

That the Committee:

1. **Receives** the report.
2. **Agrees** to Option 1, undertake pruning of the tree.

   OR

3. **Agrees** to Option 2, removal of the tree as recommended by the arborists.

File Number: **386097**

Author: **Glenda Seville, Community Services Manager**

Attachments: **Nil**

Te Kaunihera-ā-Rohe o Taratahi
CARTERTON DISTRICT COUNCIL

6.2 CONSENTS UPDATE

1. PURPOSE

To update the Committee on the consents that are currently progressing and highlight any risks for the other current consents.

To update the Committee on the Draft water management plan that needs to accompany the Kaipatangata consent renewal application.

2. SUMMARY

The main consents currently being worked on are the water race renewals and the Kaipatangata water take consent.

A number of expired consents have been on-hold pending further information, such as the landfill consent while council decides the sludge disposal route.

3. CONSENTS

The waters team manage 8 different consents these are summarised in the table below:

Consent	Expiry	Status	Risks
Kaipatangata Surface Water Take	2013	2012 application on-hold, reapplying with updated information for the natural resources plan	Low flow restrictions Request 20 years
Carterton Landfill	2016	2014 Application on-hold, providing further information for sludge disposal options	Restrictions of sludge disposal Unknown risk for unlined cell and what may be required for monitoring.
Frederick St groundwater take	30/9/2034	Current	Nitrate levels for drinking water
Taratahi Water Race	30/6/2023	2023 application – public notification expected soon	Restriction during low flow, amount of monitoring required Requesting 20 years, but may not get this
Carrington Water Race	30/6/2023		
Waingawa swamp cleaning	3/9/2023	Expired, included in the Water race consent application	
Wastewater discharge	17/1/2053	Current; multiple consents	Capacity for population growth

Stormwater	15/8/2027	Current; Monitoring consent to create stormwater management strategy	Roading run-off treatment

A draft CDC Water Demand Management Plan is attached for consideration by the Committee. This needs to accompany the Kaipatangata consent renewal application.

4. RENEWAL PROGRESS

There are currently three consents that are in different stages:

- A priority is the water race consents relating to responding to section 92 request for information. Public notification is expected to be in the next couple of months, but we will try to work with stakeholders to progress this. For example, initial discussions with Fish and Game and Iwi have been positive.
- The updated application for the Kaipatangata has been on hold since 2015 while different strategies developed by Council on use of Frederick St Water Treatment Plant and the Kaipatangata supply. These were included in the considerations in the alternative water supply project.
- Landfill consent for the closed landfill which is the monitoring of the groundwater around the site.

4.1 Kaipatangata Water Take Renewal

The application has been updated to reflect the updated natural resource plan which was finally finalised last year. NRP (operative) version requires consideration of the health needs of people for low flow conditions and a water management plan to be developed.

The application will be resubmitted by March, and then it is likely to go to public consultation. A draft water demand management plan is attached to the report.

Budget: $384,664 was transferred for the Alternative water source, of which $185,677 was available for consultant review and stakeholder engagement

4.2 Water Race renewal

A response to the section 92 information request was sent to Wellington Regional Council in February.

The application will be resubmitted by March, and then it is likely to go to public consultation.

Budget: $326,864 of which $39,042 was unallocated for stakeholder engagement and the hearing/negotiation process. The actual cost during this period is unknown and a risk.

4.3 Landfill Renewal

The initial application for the landfill (discharge of stormwater) was included as part of the wastewater treatment plant renewal, however delay of the pond desludging has resulted in this being put on hold.

The application will be discussed with Wellington Regional Council in March, with the update of plans for the desludging projects in the LTP, condition on the public consultation.

Budget: There is no specific budget for the consent, however $54,000 is available for the transfer station facility, but the reports have been previously included in the wastewater treatment budget due to the main use will be sludge disposal.

5. RECOMMENDATION

That the Committee:

1. **Receives** the report.
2. **Notes** the Draft CDC Water Demand Management Plan.

File Number: **385410**

Author: **Lawrence Stephenson, Waters Operations Manager**

Attachments: **1. CDC Water Demand Management Plan 2024** ⇩

Te Kaunihera-ā-Rohe o Taratahi
CARTERTON DISTRICT COUNCIL

Water Matters

Options for Water Demand Management

For Consideration by

Carterton District Council

2024 - 2054

Acknowledgement:

This document is based on a draft Water Demand Management Plan prepared by NZ Environmental Technologies Limited (2021)

Table of Contents

Executive Summary

The township of Carterton is located on the Wairarapa plains between the Tararua Ranges and the coastal Wairarapa hills, part of the dry eastern region of New Zealand's lower North Island. Carterton typically experiences warm and dry summers, with periodic drought. There are extended periods when water from natural sources is insufficient to meet the demands of all uses.

Climate change predictions are that the Wairarapa can expect to experience increased numbers of hot summer days, more droughts and a significant decrease in river flows by 2040[1]. Climate-induced changes in stream flows are expected to include lower flows, stream disturbance and sedimentation caused by more frequent storm events. Climate change may also affect groundwater availability and quality. Collectively, these changes have the potential to adversely affect the security of Carterton's community water supplies. To respond, Carterton is improving the resilience of its community water supply system. An important aspect of improving the resilience of the community water supply system is the management of water demand.

Water demand management means managing how much water is used and when it is used, to reduce peak demands that could contribute adversely to water shortage.

The benefits of water demand management include:

1. reduced costs for the community and individual users (less volume of water to abstract, treat, pump);
2. more water retained in the source (supports ecosystem health, mana and mauri of water bodies);
3. better sharing of water between existing uses and future economic uses;
4. reduced volume of stored water to meet peak demand;
5. deferred need (and cost) of securing new water sources and supply system;
6. reduced flows of used water to the wastewater network (less treatment and disposal costs);
7. enhanced resilience to climate-induced water shortage.

The purpose of this Document is to:

(a) present an analysis of historical and current water consumption,
(b) describe and assess the effectiveness of water conservation measures already in place,
(c) determine a water consumption target, and
(d) assist the Council to identify a strategy and actions the Council could adopt to achieve the water consumption target.

The purpose of this document is to outline the options available to Carterton District Council to minimise the total volume of water abstracted from surface water and groundwater sources and to improve efficiency in the distribution network. The intention is that the Council will hold a workshop to confirm the water consumption target and to determine the mix and timing of options to achieve that target. Once those matters are determined, this document will be refined and presented as the Council's Water Demand Management Plan.

The resulting Plan will accompany and support the Council's applications for renewal of water permits for the abstraction of stream water and groundwater for the community drinking water supply. The regional plan under which these permits will be considered requires applications to be accompanied by a water

[1] GWRC *Final Ruamahanga Whaitua Implementation Plan* (August 2018) – section 2.2.5.

management plan[2] that addresses reasonable demand for water, the *health needs of people* and the effectiveness and efficiency of the distribution network.

Since work on this Water Demand Management Plan began, the National Policy Statement for Freshwater Management (*NPS*) has come into effect[3]. Its single objective is *'to ensure that natural and physical resources are managed in a way that prioritises:*

(a) first, the health and well-being of water bodies and freshwater ecosystems
(b) second, the health needs of people (such as drinking water)
(c) third, the ability of people and communities to provide for their social, economic and cultural well-being, now and in the future.'

The NPS signals a completely new framework for managing freshwater resources compared with the regime under which Carterton's water supply system abstraction permits were originally consented. The Proposed Natural Resources Plan for the Wellington Region defines the '*health needs of people*' as *'the amount and quality of water needed to adequately provide for people's hygiene, sanitary and domestic requirements. It does not include:*

(a) water used outside, e.g. for irrigation, vehicle or house washing or hosing but not including water consumed by animals, or
(b) water used by industry as process water or cooling water.'

The '*health needs of people',* therefore, represents only a subset of the broader range of uses for which people currently use water. Hence the title of this document – '*Water Matters'*: the community's values for water and expectations for sustainable use of water are changing, and climate change will affect security of supply. The water supply system must be resilient to respond to these challenges.

The two most important factors which affect the Council's approach to future water demand management are ***population growth*** and ***peak demand***. By 2054, the population of Carterton is forecast to increase to 9,500[4]. Supporting this population growth will require substantial investment across all infrastructure sectors, including the water supply network. Water supply infrastructure must be sized to meet peak demand. Water demand management can add value by reducing overall total demand, and particularly peak demand, thereby extending the time until major capacity upgrades are required to accommodate peak demand.

This Plan sets out a suite of options and actions that could be implemented to achieve water consumption targets through to 2054. These are presented as **immediate actions**, **pilot actions**, **options to investigate** and **options to be deferred**:

Immediate Actions	Pilot Actions	Options to Investigate	Options to Defer
– Education/awareness – Improved water efficiency new dwellings	– Water audits and on-property leak detection for high-use non-residential consumers (rest homes, lifestyle	– Reducing outdoor water use – Source substitution with rainwater and greywater – School education	– Funding (or subsidising) the retrofitting of water efficient devices – Regulation of outdoor water use

[2] Schedule Q of the Natural Resources Plan (Operative Version 2023)

[3] On 3 September 2020

[4] A 36% increase on the 2023 water connection with 2.2 people per connection.

– Water treatment plant operational modifications – Investigate leakage & non-revenue losses – Leak detection & mains replacement (ongoing)	blocks, commercial & industrial users)	– Optimising smart meters – Individual groundwater bores on private properties	

Immediate and pilot actions are expected to generate 3-day peak demand savings of 0.5 million litres per day (*MLD*) and a reduction in associated increases, (due for example to pipe ageing and associated increased leakage). Further savings of up to 1 MLD (3-day peak demand) could be achieved by extending the immediate and pilot options, or by actioning the investigations or deferred options.

Demand management is a journey – not a single action. The journey involves changes to behavior, new technologies and different management practices. The success of water demand management relies on actions by the Council and by consumers. This Water Demand Management Plan is therefore a live document and should be reviewed every 3 years. Monitoring of water consumption patterns should include monitoring progress towards the overall target. This will enable the Plan to be re-focused on new or existing measures, and enable the targets achieved through to 2054.

1 Introduction

Carterton is located in the dry eastern region of New Zealand's lower North Island. The region typically experiences dry summers, with periodic drought and extended periods when naturally available water is not enough for all uses.

In the 19th century, to overcome water shortage, farming settlers dug extensive water races to transfer water from the foothills of the Tararua Ranges[5] across the plains to the eastern hills, to provide stock water for farming. Water has always been a precious resource in this part of the Wairarapa. Secure water supplies remain key to sustaining the health and wellbeing of the people of Wairarapa, including Carterton, and key to sustaining the district's and region's economy.

Climate change predictions are that the Wairarapa can expect to experience increased numbers of hot summer days, more droughts and a significant decrease in river flows by 2040[6]. Climate-induced changes in stream flows are expected to include lower flows, stream disturbance and sedimentation caused by more frequent storm events. Climate change may also induce changes in groundwater availability or quality. Collectively, these changes have the potential to adversely affect the security of Carterton's community water supplies.

To respond to these challenges, Carterton is improving the resilience of its community water supply system. An important aspect of improving the resilience of the community water supply system is the management of water demand.

This Water Demand Management Plan is the Council's first, and follows a 2008 *Water Conservation Contingency Plan*[7] and a 2010 *Water Demand Management Discussion Document*[8].

2 What is Water Demand Management?

Water demand management means managing ***how much*** water is used and ***when*** it is used, to reduce peak demands that could contribute adversely to water shortage. The benefits of water demand management include:

1. reduced costs for the community and individual users by reducing the volume of water that needs to be abstracted, treated and pumped through the network;
2. allowing more water to be retained in natural water sources to support ecosystem health and the mana and mauri of water bodies;
3. better sharing of available water between existing uses and future uses that support community and economic wellbeing;
4. reducing the volume of stored water required to meet peak demand;
5. deferring the need for, and cost of, securing new water sources and expensive upgrades to the water supply system;
6. reducing flows of used water to the wastewater network (thereby reducing the costs of treatment and disposal of wastewater);

[5] From two sources: one from the upper Mangatārere Stream and one from the upper Waingawa River.

[6] GWRC *Final Ruamahanga Whaitua Implementation Plan* (August 2018) – section 2.2.5.

[7] Prepared for the Council by NZ Environmental Technologies (2008)

[8] Prepared by the Council by EQOnz (2010)

7. enhancing the resilience of the community to climate-induced water shortage (and this can occur both during dry summer periods and during wet periods when high rainfall causes the water at the intake to be unsuitable for abstraction or causes flood damage to any part of the water take equipment).

Water demand management involves:

a) Reducing the total volume of water used.
b) Adjusting processes to increase the efficiency of water use by minimising the volume of water needed or substituting water from a different source for different uses;
c) Reducing water lost while being conveyed through the reticulated supply network;
d) Shifting the time of use of water to minimise water use during "traditional" peak periods;
e) Enhancing the ability of systems to continue to operate during periods of drought.

The water demand actions considered in this Plan address the particular characteristics and needs of the different sectors of water users served by Carterton's water supply system (urban domestic users, urban commercial uses, industrial users, community facilities, fire emergency and infrastructure network maintenance).

3 Carterton's Community Drinking Water Sources

Carterton draws its water from two sources within the Ruamāhanga River catchment shown on Figure 1:

- a surface water take from the upper Kaipatangata Stream (that flows from the Tararua foothills across the plains and joins the Mangatārere Stream, a tributary of the Waiohine River)[9]; and
- a groundwater borefield near Frederick Street, on the outskirts of Carterton[10].

Flows in the Kaipatangata Stream typically fall below an ecologically sustainable level for some periods during summer. The conditions of Carterton's water permit prevent abstraction when flows fall below the ecologically sustainable flow. This means that the groundwater borefield source is relied on for much of summer. Climate change is expected to mean even lower summer river flows and longer dry periods. Higher temperatures associated with climate change will also redefine acceptable low flow limits for ecological protection purposes. This will mean even longer periods without access to surface water in the future.

[9] WAR020050 granted 2013 (expired March 2013 – continues to be exercised, pending grant of replacement permit)

[10] WAR140259 granted 2014 (expires 2034)

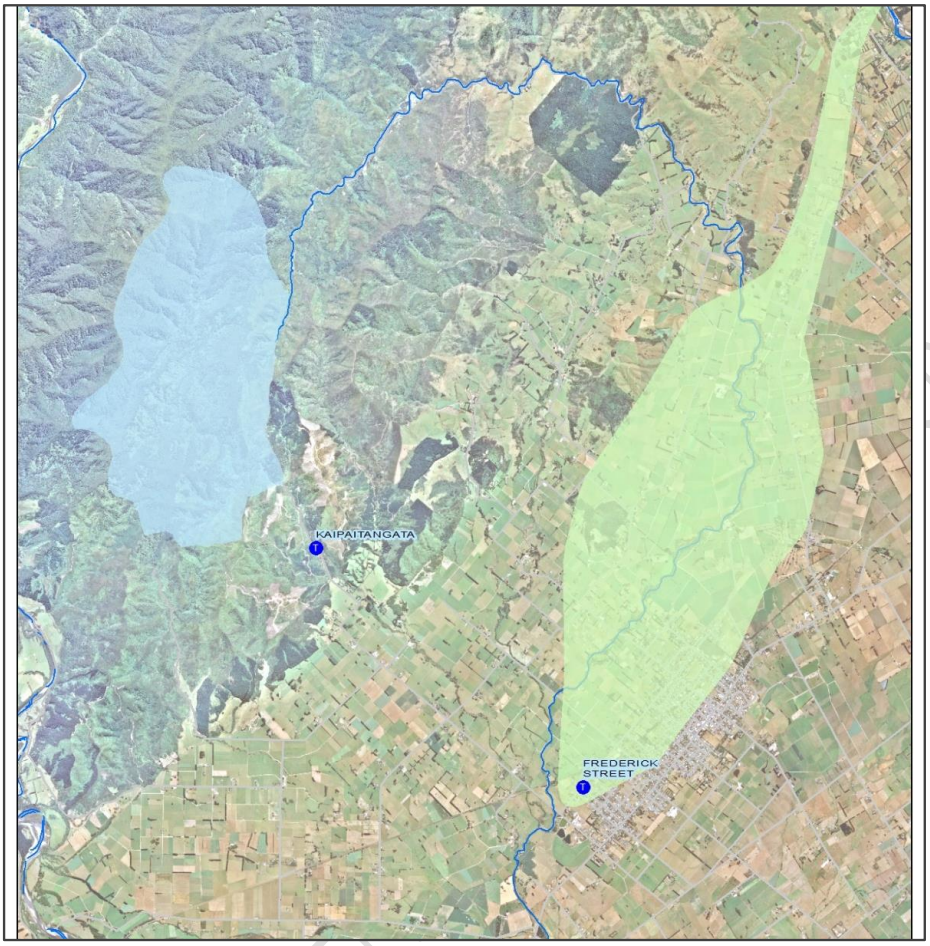


FIGURE 1: CARTERTON COMMUNITY DRINKING WATER SUPPLY SOURCES

4 National and Regional Policy Framework

The single objective of the National Policy Statement for Freshwater Management (*NPS*)[11] is (underlining emphasis added): *'to ensure that natural and physical resources are managed in a way that prioritises:*

(a) first, the health and well-being of water bodies and freshwater ecosystems
*(b) **second, the health needs of people** (such as drinking water)*
(c) third, the ability of people and communities to provide for their social, economic and cultural well-being, now and in the future.'

The expression '*health needs of people'* is not defined in the NPS. However, it is broadly understood to be limited to essential water use, including water required for cooking, cleaning and laundry.

[11] On 3 September 2020 (maybe updated with planned update 2023)

The expression is defined in the Natural Resources Plan (*NRP*) for the Wellington Region as *'the amount and quality of water needed to adequately provide for people's hygiene, sanitary and domestic requirements. It does not include:*

(a) water used outside, e.g. for irrigation, vehicle or house washing or hosing but not including water consumed by animals, or

(b) water used by industry as process water or cooling water.'

It is reasonable to expect, therefore, that the '*health needs of people'* refers to a much narrower range of uses than the broader range of uses for which people currently use water.

NRP Rule R.R1 provides for the taking of water from the Kaipatangata Stream as a restricted discretionary activity provided the take does not occur below the minimum flow, except where the take is for the health needs of people as part of a community drinking water supply. NRP Rule R.R1 provides for the taking of groundwater and connected surface water provided the cumulative abstraction does not exceed the allocation limit specified in Tables 7.3 and 7.5. Matters for discretion include the *reasonable and efficient use of water*, the amount and rate of water taken for the *health needs of people,* reductions in take at times of flow below the minimum flow, and effects on flows or water levels downstream and in associated wetlands. The relevant NRP objectives and policies seek to ensure there is sufficient water retained in rivers and streams to maintain ecosystem health,

NRP Policy P118 requires that the amount of water taken is ***reasonable*** and that abstracted freshwater is ***used efficiently***. The '***reasonable and efficient use measures***' that must be addressed for community drinking water supplies are listed in NRP Schedule 'Q' as:

(a) the reasonable demand for water, taking into account the size of the group or community, the number of properties that are to be supplied, the potential growth in demand for water, the sectors in the group or community that will use the water and the relative amounts that will be provided to each sector. Sectors in the community using water include:

- *households (domestic use)*
- *businesses (commercial use)*
- *industry*
- *hospitals, other facilities providing medical treatment, marae, schools or other education facilities, New Zealand Defence Force facilities or correction facilities*
- *public amenity and recreational facilities such as gardens, parks, sports fields and swimming pools*
- *sectors requiring water for the reasonable needs of animals or agricultural uses that are supplied by the community drinking water supply system*

(b) the amount of water required for the health needs of people and how the water supplier will manage water used by all sectors at times when restrictions are being placed on all consented uses of water (summer low flow periods), and

(c) the effectiveness and efficiency of the distribution network.

NRP Policy P118 provides that existing water users will have a period of four years from the operative date of the NRP to meet the above *reasonable and efficient use* measures. The NRP was operative since June2023. This Plan sets out how the listed *reasonable and efficient use* measures are to be addressed in the Carterton community water supply system over the next 30 years.

Naturally occurring surface water and groundwater sources in the Ruamāhanga catchment are largely fully allocated, in terms of existing uses vs long term sustainable yield. The *Ruamāhanga Whaitua Implementation Plan* (2018) notes[12] that a combination of tools, such as improved

[12] Chapter 8.3.2 of the 2018 *Ruamāhanga Whaitua Implementation Plan*

efficiency together with future storage and attenuation options, will improve reliability of supply and increase resilience for the community. No single mechanism will improve water supply reliability across the Whaitua. Multiple approaches need to be pursued, including improving water use efficiency and reducing peak demand. All users of water, including community drinking water supplies, will need to demonstrate that they are taking water for essential use, limiting non-essential use and using water efficiently.

There is no explicit provision in the NRP allocation framework for new future uses or for population growth within community drinking water supply areas. There is no spare water in the system. It cannot be assumed that future growth in water demand, based on historical inefficient consumption practices, can be met from available sources. To accommodate future growth in the catchment, all water users will need to find ways of making the limited resource stretch further. Water demand management can assist to make more efficient use of available water and defer investment in costly water supply upgrades.

Key Point:

The national and regional policy framework for consenting water takes will require that the volume of water taken is reasonable for the end use, that water is distributed and used efficiently and priority will be given to the health needs of water.

5 Purpose of this Water Demand Management Options Document

The purpose of this document is to outline the options available to Carterton District Council to minimise the total volume of water abstracted from surface water and groundwater sources and to improve efficiency in the distribution network. The options are described and evaluated in Chapter 9. The document also proposes (in Section 9.1) a water consumption target (expressed as litres per person per day). The intention is that the Council will hold a workshop to confirm the target and to determine the mix and timing of options to achieve the water consumption target. Once those matters are determined, this document will be refined and presented as the Council's Water Demand Management Plan.

A standard measure of water consumption is gross per capita consumption (being total volume of water entering the supply network divided by the number of people connected to the supply network). This Plan proposes a target for the reduction of gross per capita consumption, which can be used to monitor the effectiveness of the demand management tools adopted over time.

Development of this Water Demand Management Plan has been informed by the *Guide to Demand Management* (2008 and 2010 update) developed by the Water Services Association of Australia (WSAA). The WSAA Guide represents a best practice framework for water resource planning, including demand management.

Potential approaches to demand management were developed by considering existing information and best practice. This included bringing together previous demand management approaches used in Carterton and in other parts of the Wairarapa and New Zealand, best practice from overseas, and a review of how customers in Carterton use water.

6 The Carterton Water Supply System

Carterton District Council is responsible for delivering the 'three waters' infrastructure services to the community of Carterton (water supply, stormwater management and wastewater collection, treatment and disposal services). These are core services mandated by the Local Government Act[13]. The Council also operates two water race systems. This Water Demand Management Plan looks only at the reticulated Carterton urban water supply and does not consider the water races nor the northern Waingawa Industrial Area Supply (which are the subject of separate management arrangements).

6.1 Surface Water and Groundwater Takes

Carterton District Council's community drinking water network supplies treated potable water to the Carterton urban area and parts of the surrounding rural area[14]. The water supply system comprises assets that have a 2021 value of $7.83 million[15] and provides approximately 1 billion litres of treated drinking water annually to an estimated 5,500 consumers through 2795 metered connections.

The Carterton water supply system's two water sources comprise:

a) Surface water intakes in the upper Kaipatangata Stream, authorised to abstract a maximum 5,000m³ per day at a maximum rate of 80 litres per second (WAR020050), with a downstream treatment plant and two storage tanks for storing treated water (having a total storage capacity of 1,500 m³); and
b) Three usable bores at the Frederick Street groundwater borefield, authorised to abstract a maximum of 6,480m³/day at a maximum rate of 75L/s, with 500 m³ of treated water storage in two storage tanks near the borefield.

Actual average yield from the Kaipatangata Stream is significantly less than the permitted maximum 5,000m³ during summer (abstraction reduces or ceases as stream flow falls, to ensure the abstraction does not reduce flows below the ecologically sustainable minimum flow). For this reason, the system relies predominantly on water sourced from the borefield during summer dry periods. The sustainable yield from the borefield is estimated to be 4500m³.

Water treatment involves pH adjustment, UV disinfection and residual chlorination at both sources, with 2 stage filtration (direct sand and bag) also provided at the Kaipatangata Stream source. Additional fine (cartridge) filtration was trialled at the well-field source, but the trial was discontinued due to rapid filter clogging.

[13] Section 10 (1) (b) Local Government Act 2002: '*The purpose of local government is –*

(a) to enable democratic local decision-making and action by, and on behalf of communities; and

(b) to meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses.' 'Core services' are defined in section 11A and includes 'network infrastructure', which includes the provision of water (s. 197 (2)).

[14] There are some rural connections at the edge of the urban area.

[15] Section 5.3.3 Asset Value, CDC Infrastructure Strategy 2018-2048.

Key Point:

Carterton's water supply system is primarily reliant on the groundwater borefield, there is limited storage and the upgrade of bore 5 allows the full use on the 75L/s, this has not been used for long periods. It is unknown what prolonged abstraction will be on groundwater levels.

6.2 Water Reticulation

The water supply reticulation consists of approximately 60.6 kilometers of larger diameter watermains, including 8kms of 380mm diameter asbestos cement trunk main. For larger pipes servicing streets, pipe diameters vary from 100mm diameter to 380mm diameter, with 39% comprising 100mm diameter and a further 46% split approximately evenly between 150mm and 200mm diameter.[16]

6.3 Risks to the Water Supply System

The CDC Infrastructure Strategy 2018 – 2043 identifies the following risks to the Carterton water supply system[17]:

a) large parts of the reticulation are near the end of their theoretical useful life, increasing the risk of mains failure or leaks;
b) additional demand beyond current supply capacity is anticipated due to projected (planned) population growth and the effects of climate change;
c) re-consenting of the Kaipatangata Stream surface water abstraction is expected to place further restrictions on abstraction during stream low flow and high-water use demand periods (dry summers), placing increased reliance on bore water sources and storage;
d) continuity of supply is a risk during sustained drought periods, due to the effects of climate change and expected low flows in the Kaipatangata Stream during peak summer demand periods;
e) Carterton has increased storage capacity with the new storage tanks, but the 4,000m³ is emergency water storage;
f) all parts of the storage and reticulation network are vulnerable to damage in seismic events.

Key Point:

The risks identified for Carterton's water supply system underscore the importance of enhancing resilience in the system to maintain security of supply. Some water demand management measures can boost resilience.

[16] CDC Infrastructure Strategy 2018 - 2048

[17] Abridged from Table 14 of the CDC Infrastructure Strategy 2018 - 2048

6.4 Customer Base

The Carterton water supply system supplies potable water to a customer base including residential, commercial, industrial, institutional and agricultural users. The majority of water is used by residential customers as shown in Figure 2.

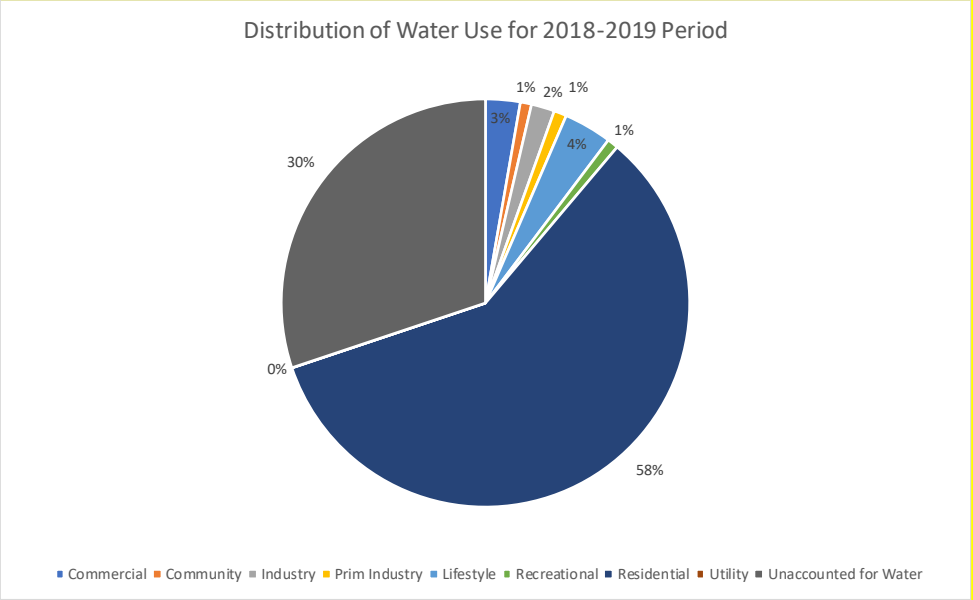


FIGURE 2: ESTIMATED VOLUMETRIC CONSUMPTION BY SECTOR (INCLUDING NON-REVENUE WATER)[18]

The non-residential users shown in Figure 2 include commercial, industrial and other non-residential type businesses and activities which use the reticulated potable supply. Figure 2 also shows 'non-revenue' water, which includes authorised water use that generates no revenue (e.g. Council's own use in parks and reserves and public toilets, infrastructure management e.g. mains flushing), water used in fire fighting and hydrant flow testing, unauthorised water use (illegal connections) and water lost through leaks in the reticulation network.

Key Point:

Consumption in Carterton is dominated by residential use of water – therefore increasing efficiency of use and reducing volumes used domestically has significant potential to reduce peak demand.

[18] Based on NZET analysis of 2018-2019 water meter records, and the consumer type allocation provided by CDC with those records. To YE 30 June

6.5 Population Growth

The population connected to the Carterton water supply network increased from 4,900 in 2008 to an estimated 5,950 in 2023 (an increase of approximately 22%). Between 2007 and 2016, 321 building consents were issued for new dwellings within the Carterton urban area[19]. The Council is planning for continued future population growth, as detailed in the 2017 Urban Growth Strategy. The Urban Growth Strategy adopts a 'high growth' projection, because growth rates over the past ten years correlate strongly with the Statistics NZ 'high' projection and there is continued strong interest in new residential properties in Carterton. Under a 'high growth' scenario, it is estimated 960 additional dwellings could be added to the Carterton urban water supply area by 2043. This compared to the water connections in 2023, which were 2943, and projected for the addition dwellings for 30 years. The water supply system will potentially need to service a total of at least 9000 consumers by 2054.

The Urban Growth Strategy considers the distribution of this growth across the Carterton District. It forecasts some urban expansion in the form of green field development but primarily aims to create a 'compact town'.

Carterton District Council's *Water Asset Management Plan* recognises that the increase in population along with reduced occupancy rates will increase the total water demand. Urban expansion could also increase the demand for water due to larger sections. However, the expected intensification of development in existing urban areas could result in reduced demand per capita, as outdoor water use should reduce.

[19] Table 3 CDC Urban Growth Strategy V2.

6.6 Volume of Water Supplied

Total annual water production for the two water sources, over the period 2006-2019 is shown in Figure 5 below. The data is per calendar year. During the 2018-2019 period, the Carterton water supply system used an average of 2.2 million litres of water per day (MLD). Until 2007, the rate of water use tended to increase in line with the increased population. Since 2007 total consumption has become more stable, following the introduction of water meters (as discussed in Section 6.6.2).

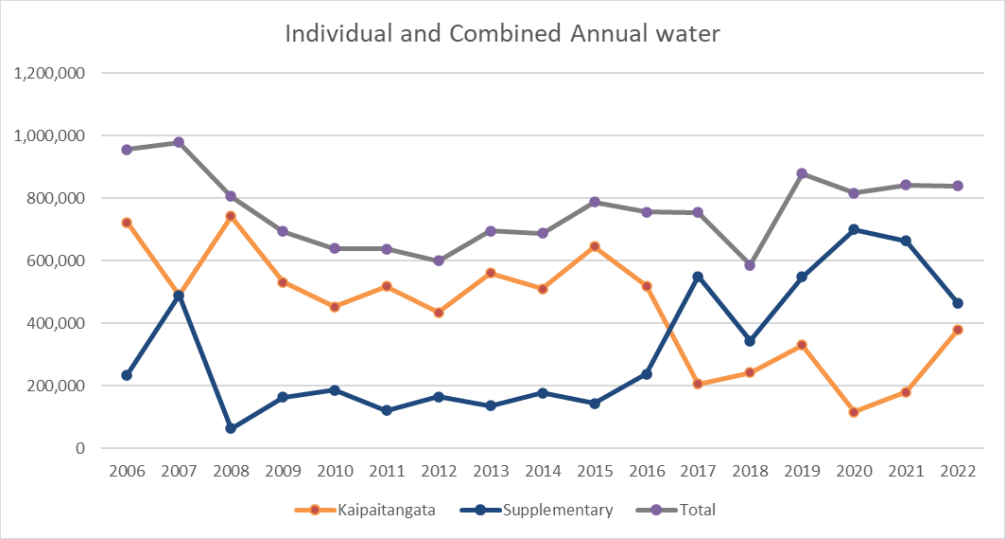


FIGURE 5: TOTAL ANNUAL WATER SUPPLIED TO CARTERTON PER CALENDAR YEAR SINCE 2006[20]

Key Point:

Carterton has already implemented a significant water demand management measure – by installing universal water metering (something that has not yet been implemented and remains challenging for other communities).

6.6.1 Peak and Annual Average Demand

An analysis of three-day rolling averages of water supplied for the financial years 2012 to 2022 identifies that each year follows a similar trend, with consumption increasing over the spring and summer months, from November through to March. There is generally a reduction in consumption during December, which corresponds with the Christmas period.

Table 1 below highlights the difference between ***average annual demand*** and ***peak demand***. The increase in average demand between 2012 and 2023 was 9.5% as can be seen in Figure 5, but

[20] Flow records taken from calibrated water meters on the outflow, (water produced), from the two CDC water treatment plants for the calendar year.

the increase in 3-day peak demand over the same period was 29.6% or 1MLD. With no peak demand restrictions, and the current modest storage capacity, the Carterton water supply system has to maintain capacity to meet this short term peak, even though this capacity is not required for the remainder of the year.

TABLE 1: ANALYSIS OF WATER SUPPLIED (3 DAY AVERAGE)

Financial year	Average (MLD)	Three-day peak (MLD)	% increase
2012	1.9	2.38	
2013	1.8	2.98	20
2014	2.1	3.00	1
2015	2.0	3.76	20
2016	1.9	3.71	-1
2017	2.0	3.71	0
2018	2.0	3.60	-3
2019	2.1	3.38	-7
2020	2.2	3.66	9
2021	2.3	4.06	11
2022	2.3	4.25	4
2023	2.1	2.94	-31

Key Point:

Demand management will have an impact on water consumption all year round, including by reducing *peak demand.* However, it is mainly by constraining *peak demand* that the need to fund new water sources or additional storage capacity can be deferred.

6.6.2 Per Capita Consumption

Gross per capita consumption (***Gross PCC***) is the total water supplied divided by the total connected population. Residential per capita consumption (***Residential PCC***) is the total volume of water consumed by residential consumers divided by the total connected residential population. Gross PCC is the key performance indicator that Carterton District Council should report on for consistency with other territorial local authorities, and as an overall measure of efficiency of water use. Residential PCC is better used internally to better understand how household water use is evolving compared to business water use.

The usually resident population of urban Carterton[21] grew from 4,210 in 2006 to an estimated 5,426 in 2023 (an increase of approximately 29%). Despite this population growth over that period, the increase in water demand has been controlled and has actually reduced, primarily

[21] Assumed to be the Carterton census area unit.

because of the introduction of metering. Figure 5 above shows how the total demand for water has reduced by 770 cubic metres per day over that period. This is reflected in the reduction in gross PCC from a historical high of 650 litres per person per day (2007) to the current 370 litres per person per day (shown in Figure 6).

There are a number of significant events and programmes that have influenced the reduction in per capita water use shown in Figure 6. These include the drought and the economic recession in 2008/09, ongoing leak detection and repair. The strongest driver of reduced consumption was the introduction of universal water metering throughout the Carterton urban supply area in 2007. This single measure resulted in a substantial, immediate, and sustained reduction in overall and per capita consumption.

The calculation of gross PCC for Carterton is based only on the number of customers connected to the reticulated supply. It does not include areas outside the urban area of Carterton (primarily the Waingawa Industrial Area) which, although within the Carterton District, are supplied from the separate Masterton District Council water supply system.

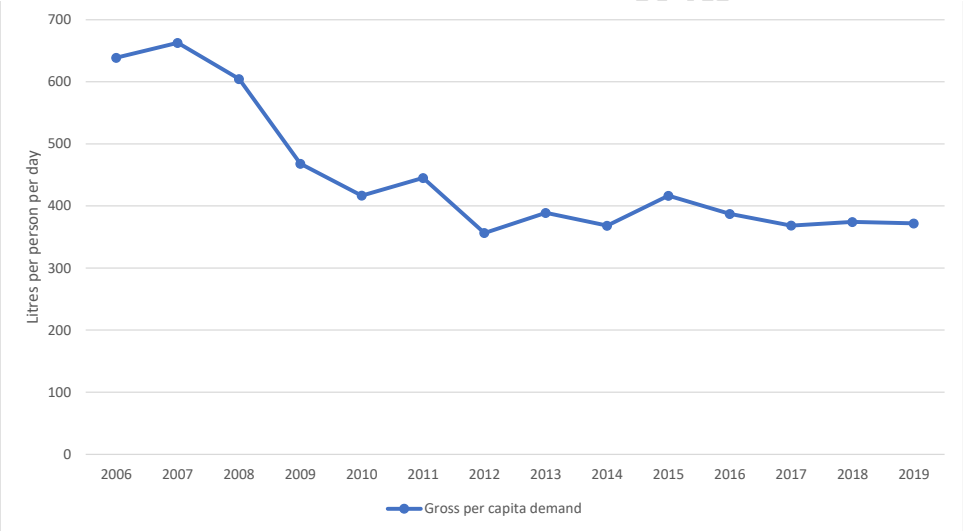


FIGURE 6: CARTERTON'S HISTORICAL GROSS PER CAPITA CONSUMPTION TREND 2006-2019 (LITRES PER PERSON PER DAY)

Gross PCC has stabilised at approximately 370 litres per person per day (Lpd) since 2017. This value is not expected to change unless further demand management initiatives are taken. This is the baseline assumption for the quantification of water savings associated with alternative water demand management initiatives discussed in section 9 of this Plan.

Key Point:

Gross per capita consumption (PCC) is recommended as the key performance indicator for reporting overall efficiency of water use. Per capita water consumption has stabilised since the introduction of water metering. Explicit water demand management initiatives will be required to achieve further per capita reductions.

6.6.3 Residential Per Capita Consumption

While gross per capita consumption is often used in New Zealand as a KPI for water supply, it is also important to assess demand across different water users. This allows a more thorough understanding of water use and opportunities for improving efficiency in the water supply system. Residential PCC is particularly important, as this indicates how much water the largest sector of users (households) is using. Non-residential sectors have very different dynamics from residential water users.

At 58% of volume consumed, (Figure 2), residential water usage is the largest use sector of the Carterton water supply system. Further reductions in residential demand are therefore likely to have the greatest impact on overall consumption, provided those reductions are sustained. Based on observations elsewhere[22] and a consideration of the typical use made of water in households, it is reasonable to expect that reducing domestic water use will also have the greatest impact in constraining growth in peak demand.

6.6.4 Non-Residential Per Capita Consumption

Figure 2 shows that metered water use assigned to non-domestic consumers over the 2018-19 period amounted to 12% of total usage, compared with 58% residential for domestic. It also shows that 30% of water is not accounted for. Non-residential use comprises[23]:

- **Commercial:** (3%) includes shops and offices e.g. 11 Broadway Insurance Company Offices (91 High Street North), The Olive Branch Restaurant. Commercial can be further sub-categorised into; general, multi -use, offices, retail, services, vacant, and wholesale.

- **Community:** (1%) examples include Carterton Playcentre, Masonic Lodge. This category can be further sub-categorised into education, halls, medical and allied, personal and property protection, and religious.

- **Lifestyle**: (4%) includes rural and larger peri-urban properties, for example; 95 Chester Road, 683 Dalefield Road, 3363 State Highway 2). Sub-categories are; single unit, multi-unit, vacant, and multi-use.

- **Recreational:** (1%) examples include the Carterton Golf Club and Wairarapa A and P Society showgrounds.

- **Primary Industry:** (1%) examples include a dairy farm at 51 Arcus Road and a stock finishing farm at 298 Chester Road).
- **General Industry**: (2%) examples include Masson Implement Company and Premiere Beehive. This category can be further divided into: Engineering, Food Drink and

[22] An assessment of peak daily demand in Tauranga City and implications for water supply management. https://www.waternz.org.nz/Folder?Action=View%20File&Folder_id=135&File=blakemore_r.pdf

[23] NZET analysis of CDC water meter readings 2018-19

Tobacco, Multi Use, Textiles leather and fur, Timber Products and Furniture, Depots, Yards, and other industrial.

Figure 7 below shows average per consumer water consumption by non-residential users for the 2018-19 Year to June period.

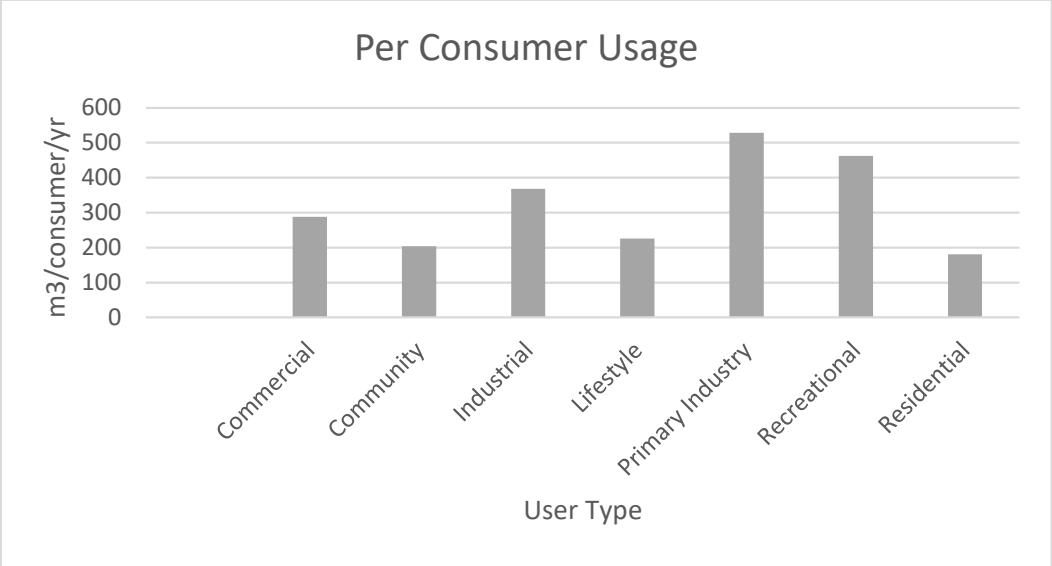


FIGURE 7: AVERAGE PER CONSUMER CONSUMPTION BY SECTOR 2018-19

Figure 7 illustrates that there is a disproportionately high individual usage for some non-residential users. In particular, the primary industry, recreational, and industrial sectors. The water supplied is treated potable water and there is a case that it should only be used for food preparation, drinking water, showers and on-site ablutions. Even if only used for these purposes, the high usage may be partly explained by the number of staff employed on site. For example, Premiere Beehive has a potable water supply connection to meet potable water needs (food preparation, drinking water, etc). With the large number of workers, that activity's per-connection consumption can be expected to be high. Premier Beehive's annual consumption is approximately 550m^3 per year, which is quite a high demand for potable purposes, given the worker numbers.

A review of 2018-19 flow meter data however shows very high consumption for a limited number of industries: NZ Dimenionsz Ltd (Paua World), Fond Foods, Gallon Buildings, and Parker Hilton, all have consumption volumes greater than 1,500m^3 per year. It may be that some or all of this use needs to be potable water quality. However, in some cases, it is possible that an alternative water source could be used, with a consequent reduced demand from Council's treated supply.

Detailed investigations of individual high-use premises will be required to determine if the water use is reasonable and efficient. A preliminary review of the volumes used by the lifestyle and community users indicates this may not be the case.

Demand management is a partnership between Carterton District Council and customers whereby both parties need to play an important role. It is important for Carterton District Council to put in place the framework for water efficiency, to which customers respond.

Key Point:

Annual water usage at some non-residential activities appears high. There may be scope for on-site efficiencies or use of alternatives to Council's treated potable supply to reduce demand on the reticulated system.

6.6.5 Influence of Pricing on Per Capita Consumption

All water supplied in the Carterton urban water supply area is metered and the price of water is the same for both residential and non-residential customers. Water is charged volumetrically at the rate[24] of $1.90 Per 1,000 litres for water use greater than 225m³ per connection. There is no charge for water use up to 225m³ per connection, and the annual water component included in property rates is $713.42 per connected property, and $356.71 where connection is available but not yet connected.

Some work has been undertaken to assess the price elasticity of water in Carterton (EQOnz Ltd, 2010). This work suggests that the price elasticity is low, particularly for residential customers. This means that the demand for water is relatively insensitive to the price of water. The decrease in water use following the introduction of metering is likely due to the annual limit on 'free' water. Having to pay per cubic metre for an individual's own actual water use has, elsewhere, proven to be a financial incentive for users to be more water-wise. Although metering and volumetric charging has helped to decrease water use in Carterton, the price of the water at the current rates charged does not appear to have a significant impact. This would likely change if water rates were to be increased significantly, for example, if necessary to fund water supply upgrades.

As an alternative to increasing the metered water charge, alternative methods for controlling usage include reducing the non-metered allocation or introducing differential charging. The NZ Water Industry Standard for a non-charged allocation is 200m³ per year. In the last 12-month metering period 11/2022 - 11/2023 for which data is available 476 of the 2,750 metered residential consumers used more than 225m³ of water and should have been charged at the metered rate for the additional usage. Typically, however, many of the very high users may have experienced an on-property water leak, and would have either been charged at a reduced rate or not charged at all for the excess water usage, at least for the first period during which this occurred. If the non-metered allocation was reduced to 200m³, 639 consumers would have had to pay a metered charge for actual use. The annual non-charged volume should be based on reasonable per capita consumption. For example, 200m³ per year averages as 548 litres per

[24] CDC 2020-21 Annual Plan.

day. Average household occupancy is 2.2 people per house. An allocation of 548 litres would be sufficient for smaller households but would likely not be sufficient for large families.

Under the Local Government Act, council charges such as water rates must be notified in the publicly notified annual plan. Any proposed pricing changes or reduction in non-metered allocation being considered would therefore need to be determined up to a year in advance of implementation.

Key Point:

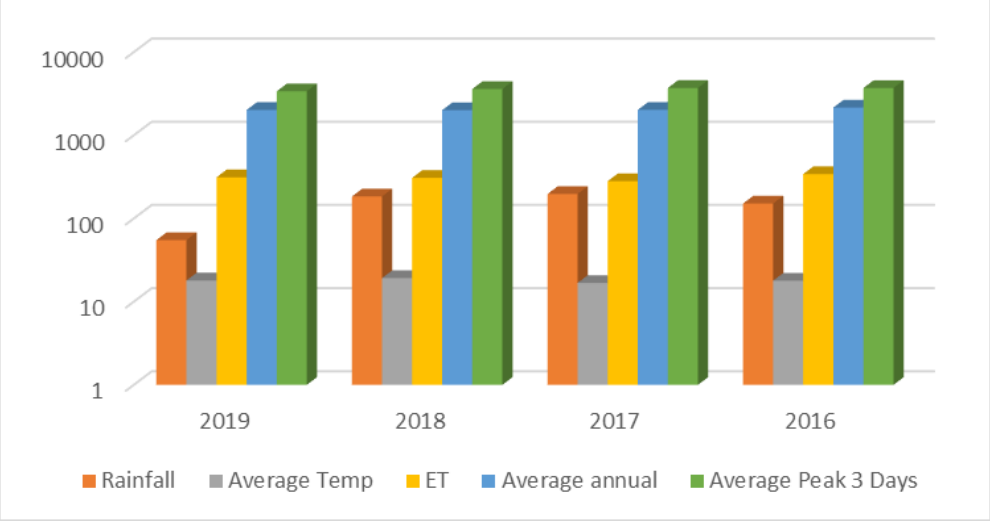
Changes to either the annual non-charged water volume or the charge rate for use greater than the annual non-charged may influence the efficiency of use and total demand for water.

6.6.6 Influence of Climate on Per Capita Consumption

Covec published a report in 2011 titled *Water Demand Drivers and Forecasting: Analysis of Demand Drivers in Auckland*. This report used a time-series analysis which identified the drivers of changes in total water demand over time in that city. The results indicated that climate variables (monthly mean temperature and soil moisture deficit) demonstrated the strongest statistical significance influencing water demand.

Figure 8 shows the effect summer rainfall has on subsequent annual and peak 3-day usage for Carterton. Although the data series is limited, summer rainfall in the 4 years plotted varied from 55 to 197mm (variation of almost 400%) yet annual average and annual peak 3 days consumption was relatively insensitive to this. This is likely due to the variability in calling for water use restrictions based on the particular year and the modification of consumption in response to water restrictions.

FIGURE 8: TOTAL SUMMER RAINFALL TEMPERATURE AND EVAPOTRANSPIRATION AND GROSS PCC 2016-19



The conclusion is therefore, for Carterton, with its current usage patterns, the use of water restrictions has effectively limited the influence that summertime rainfall has on total and peak water consumption.

Key Point:

For Carterton's current water use patterns, water restrictions have effectively limited the influence that summertime low rainfall has on total and peak water consumption. Restrictions are effective and should be maintained during water short periods.

6.6.7 The Importance of Monitoring Per Capita Consumption

Carterton District Council will continue to monitor and review consumption data (including gross PCC and residential PCC) to identify trends and will use this information to inform its approach to demand management.

6.7 Residential Water Use

To understand how water demand management measures could reduce residential water use, it is important to first understand how water is used around the home. From February to September 2008, the Building Research Association of New Zealand (BRANZ) monitored the water use of 51 randomly selected households in Auckland[25].

The study group included houses from 6 water authorities (local network operators), in the Auckland Region; Manukau, Central, North Shore, Rodney, Papakura, and Waitakere. Dwellings studied were from varying demographic groups and household sizes. Some houses had no outside water uses, whereas others used water for irrigation or filling swimming and spa pools. Two houses in the selection had swimming pools. One home had a broken pipe through the majority of the summer monitoring period, which made up most of this home's total uses. Some water end uses were found in every house (such as toilets, showers and taps), whereas washing machines, dishwashers, baths and other end uses were not found in all.

BRANZ monitored residential use in both the summer and winter periods to see how water use differs during the year, and to determine the breakdown of usage for both seasons.

Although Auckland is a large metropolitan city and Carterton is a small provincial town, there is unlikely to be a substantial difference in the core ways that water is used around the home (for example, in daily hygiene, cooking, laundry use). The results of the Auckland study were used to

[25] NZ Sustainable Building Conference 2010, Paper 51, Auckland Water Use Study – Monitoring of Residential Water End Uses.

help assess which domestic water efficiency options can best be used to reduce water use in Carterton.

Overall, the highest indoor water end use was the shower, followed by the washing machine and the toilet. Figure 9 shows the study results on how water was used and how it varied between summer and winter:

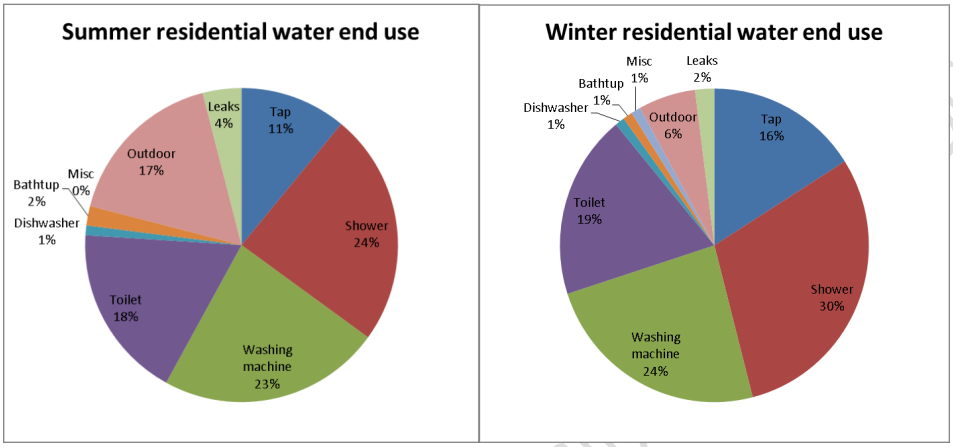


FIGURE 9: RESIDENTIAL WATER USE (2008 BRANZ STUDY – AUCKLAND REGION)

The highest water uses are reviewed further below, to understand the potential for further reductions in residential PCC. Dishwashers, bathtubs and 'miscellaneous' are considered minor water uses. A reduction of water use in these areas would not have a significant impact on overall water consumption.

Showers, toilets and taps were all ranked according to the *Water Efficiency Labelling Scheme* (***WELS***[26]) star rating. BRANZ has recommended that the WELS rating system should be reassessed for taps and showers as many systems currently installed have a high rating which reduces the incentive to improve efficiencies further. Currently the WELS scheme applies to the following:

- Clothes washing machines
- Dishwashers
- Lavatories
- Showers
- Taps
- Urinals.

There appears to be something of a disparity between the intent of the WELS scheme, presumably to favour the introduction and use of devices that have high water efficiency. There is little information available about the system, the definitions of what the different water

[26] https://www.mfe.govt.nz/fresh-water/we-all-have-role-play/choosing-water-efficient-products/water-efficiency-labelling

saving levels mean (which seems to have been left to fixture suppliers to define), and the level of water saving likely from commercially available devices.[27]

Having canvassed the commercial market, BRANZ report that 4-star and 5-star dishwashers and washing machines are readily available although some commercially available units have only 3 stars. There appears to be little relationship between the cost and water efficiency of these devices (which is a good thing - there is no cost penalty in using more efficient devices). The selection of more water efficient dishwashers and washing machines, can reduce household water use by up to 19,000 litres per year savings (or 20 litres per person per day) with most savings coming from the washing machine. The BRANZ Auckland study identified there were, on average, 0.35 washing machine loads per person per day, with an average per capita usage of 43 litres per person per day.

The same BRANZ web page endorses; better than 3 star showerheads, 5 star kitchen and bathroom tap ware, 4 star or better toilets, note a standard (for a new toilet) 6/3 Liter flush is a 3 star system whereas a more water efficient 4.5/3 Liter flush toilet. The same BRANZ source also provides some estimates on potential savings related to rainwater collection and reuse, (discussed later).

The BRANZ Auckland study, when applied to Carterton, has the following implications regarding individual water use fixtures:

Showers

The Auckland study found on average, showers were used less than once a day per person, with an average length of 6.6 minutes in the summer, 7 minutes in the winter and with an average flow rate of 8 L/min. A wide range of flow rates were recorded, ranging from 3L/min, up to a maximum of 20 L/min. In the Auckland case, focusing on low flow shower heads was not favored as the majority of homes were stated to have low pressure domestic hot water, (with low pressure systems usage is naturally relatively low). Based on discussions with Carterton-based plumbers however, Carterton has a greater proportion of high pressure water systems, (either gas, or originally installed or retrofitted main pressure). Many of these systems do not incorporate low flow shower heads. It is therefore likely that the average flow of Carterton showers is closer to the 13 L/min as recorded in many New Zealand and Australian cities and towns, and where a significant saving could be made with the adoption of low flow shower heads. Assuming (conservatively) 0.8 showers per day of 6.8 minutes duration, with a saving of 6.5L/minute in water usage, (a retrofitted low flow hand piece or rose will use approx 6Lpm[28]), the introduction of low flow shower heads would offer up to a substantial 32 litres per person per day reduction in water consumption[29].

Toilets

Most of the toilets analysed in the Auckland study would receive a WELS rating of zero, with only 6% of toilets being classed as two stars or better. Toilets use an average of 6.7 L/flush

[27] https://www.branz.co.nz/sustainable-building/up-spec/water-management/

[28] Pers comm Methven taps help line Keri low flow hand piece or rose, flow 5.7Lpm at min 15m feed head.

[29] https://www.wellingtonwater.co.nz/your-water/drinking-water/looking-after-your-water/water-conservation/water-conservation-inside/showers/

and are flushed just less than five times per person per day. Replacing inefficient toilets could have a significant impact on water demand. Discussion of Carterton toilets with local plumbers indicates there are a significant number of dwellings with older style cysterns which use 12 litres of water per flush. In such circumstances, at say 4.8 uses per day and a potential saving of (12-4 = 8L per flush), such older systems would save 38 litres per person per day. Even with more modern systems replacement with a 4-star system would achieve in the order of 13 litres per person per day.

Taps

Indoor taps, similar to showers, have a high efficiency with over 80% having a WELS 6-star rating. Flow restrictions would have a minimal effect in water savings, as although some taps are capable of high flows, they are not often used this way.

Leaks

Dripping taps and other fittings, as well as leakage from the supply pipe between the meter and the house can have a significant impact on water use if undetected or ignored, and when fixed has the potential to provide significant savings. Known as private leaks as of 2023 CDC lose approximately 11.3% of all produced water to leaks of this nature.

Outdoor Use

Outdoor use is dependent upon the season, with higher water use in summer. Only a small number of households were responsible for the high usage and were those households with both a swimming pool and a spa pool. The single highest outdoor usage was irrigation, which contributes to peak demand.

Key Point:

There are devices available that can improve the efficiency of water use in the home – this has the potential to reduce peak and average annual demand for water by Carterton's largest water use sector (residential use).

6.8 Non-Residential Water Use

Figure 10 shows the distribution of non-residential water use for the 2018-2019 period:

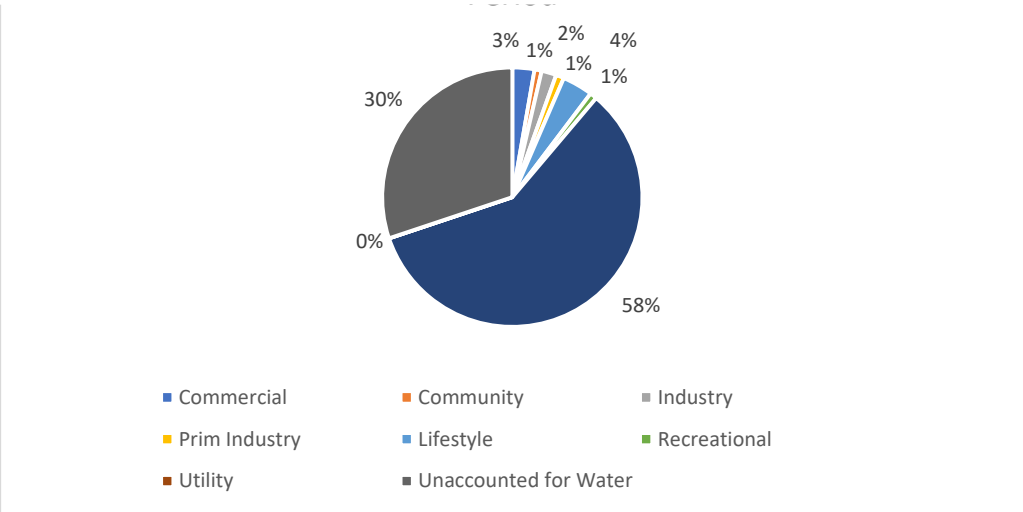


FIGURE 10: DISTRIBUTION OF NON-RESIDENTIAL WATER USE FOR CARTERTON

Further detailed analysis was carried out to estimate the proportion of non-residential water use in each of the subsectors[4].

[3] A limitation of this data is that many smaller accounts were excluded from this assessment. This is likely to have excluded many Commercial users such as retail stores or supermarkets, and hence commercial demand may be greater than suggested by these results.

[4] The accuracy of these estimates was again affected by which users were included in the original dataset. A number of users were also removed during data processing due to meter reading inaccuracies, which is also likely to have influenced the distribution of water between subsectors.

7 Benchmarking

It is useful to benchmark water consumption, to compare differences over time and between different geographical areas. This section compares Carterton's water consumption with the gross PCC and residential PCC figures achieved elsewhere in New Zealand and internationally.

Comparison of gross PCC figures is complex, as the figure includes industrial, commercial and other uses which are not consistent between cities. While benchmark comparisons give an indication of how well the Carterton supply system is doing, actual PCC is influenced by a range of measures, including climate, presence of absence of metering, pricing and demand management initiatives. For this reason, it is important to treat any comparisons of PCC with caution.

7.1 New Zealand Comparisons

7.1.1 Water New Zealand National Performance

The Water New Zealand *2016/2017 National Performance Review* benchmarks financial and non- financial performance measures, one of which is water consumption. The reported "domestic PCC" of a range of local authorities is shown in Figure 11 below. The water supply authorities are grouped as: 'large', 'medium', and 'small sized', with Carterton falling into the 'small' category.

Carterton's residential PCC is currently approximately 210L/c/d, and gross is 370L/c/d. Figure 11 shows that Carterton's PCC figure is in the middle of the range of "small" New Zealand towns included in the comparison.

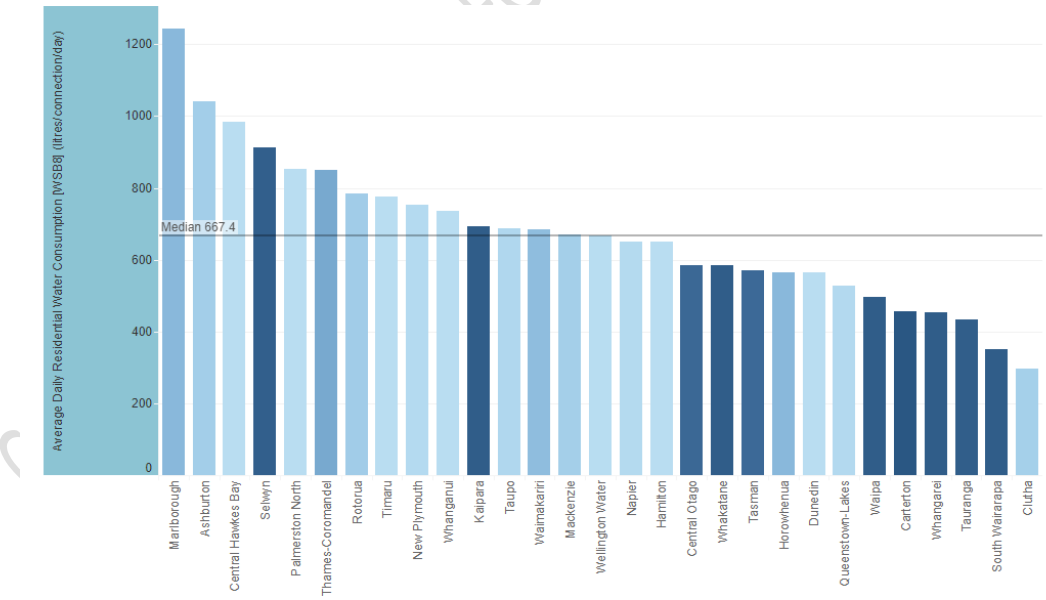


Figure 11: Local authorities' domestic PCC (Water New Zealand, 2021/2022)[30]

[30] Water New Zealand National performance Review 2016/17 Volume 1. …Figure 8.2.2 "average daily residential water use" probably a mix of domestic and gross PCC as not all reported systems have 100% metering.

Water NZ also reviews and publishes[31] residential charges for water usage. The current chart shows an overall average charge across all system sizes of $353/yr. When the comparison is made with similar smaller supplies, this average seems to remain consistent, although a small number of supplies report higher charges with a maximum reported of $980/yr for Clutha.

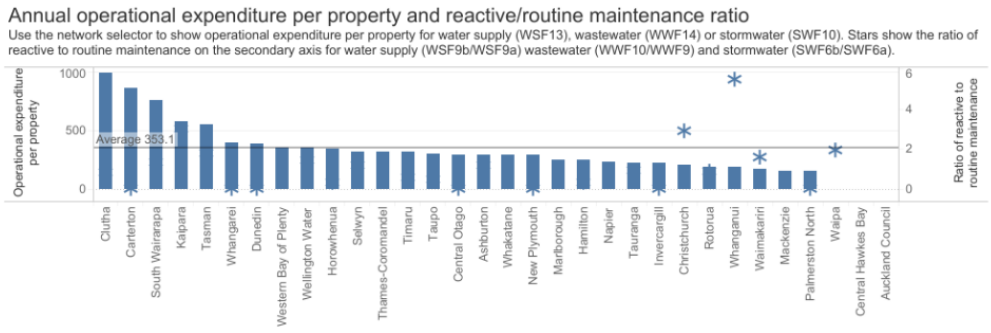


FIGURE 12: AVERAGE ANNUAL RESIDENTIAL WATER CHARGES

7.1.2 Auditor General

As noted above, it is difficult to draw reliable conclusions from comparisons of gross PCC because individual PCC reflects a wide range of demand and external influences. Residential PCC, although harder to measure, provides more insight about water use. This is calculated by dividing the total residential consumption by the total connected population.

The Auditor General of New Zealand published a performance audit report in 2010 titled *Local authorities: Planning to meet the forecast demand for drinking water.* It conducted audits of eight local authorities to determine whether they are managing potable water supplies effectively in order to meet future demand. The results of this audit showed that Nelson City Council and Tauranga City Council have residential PCC's of 180 L/p/d and 198 L/p/d respectively. As of 2023 Carterton's residential demand is slightly higher than both of these local authorities with a residential consumption of 225.5 L/p/d.

Key Point:

While care must be taken in comparing per capita demand, Carterton's current average residential per capita demand is in the middle of the New Zealand range but higher than other comparable local authorities and higher than centres that have implemented universal water metering.

[31] https://www.waternz.org.nz/charges

7.2 Commercial Use Comparison

A study by BRANZ (Roberti, 2013) analysed the water use of a dataset of 5,725 properties. This study aimed to create benchmarks for water use per floor area (m^2) for office and retail buildings.

The study found that.

- Building use and size are the key influences on water use within retail and office buildings
- Building age does not appear to have a significant effect on water use
- General office buildings used less water per m^2 of floor area than retail buildings
- Within the office building class, smaller office buildings tended to use less water per m^2 than larger office buildings
- Conversely, smaller retail buildings used more water per m^2 than larger retail buildings.

The study observed that non-residential water use tends to be dominated by a number of very large users, which is what has been observed with the Carterton dataset, as discussed earlier in section 6.6.4.

7.3 Water Loss

Following a review of various publications on water losses, Carterton District Council has adopted a total water mass balance approach to understand and account for the water from the point of production through to transportation and delivery to the consumer. This approach is consistent with international best practice.

Carterton District Council's approach uses a water mass balance approach, with specific emphasis on calculating non-revenue water and real losses. The mass balance approach is shown in Figure 13. It identifies the total water produced, incorporating the transmission network losses. Water is then categorised into water consumed that generates revenue and an unbillable component, known as non-revenue water. The non-revenue water is further defined into the following four categories:

1. Authorised use that is not billable i.e. firefighting, operational pipe flushing.
2. Meter under-reading i.e. inaccuracy inherent in all meters.
3. Unauthorised consumption i.e. illegal usage
4. Real losses i.e. water leaking from the network reticulation

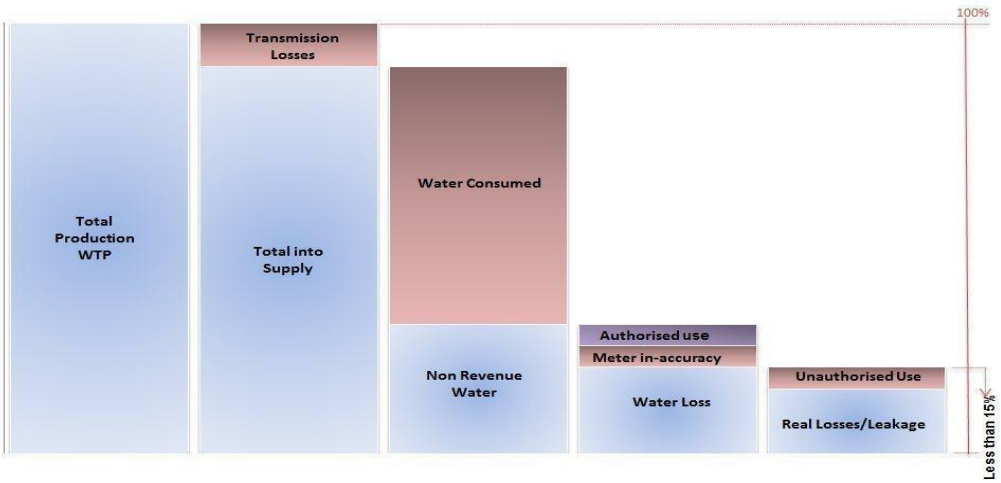


FIGURE 2:WATER MASS BALANCE

Non-revenue water is the water that has been consumed but has not been invoiced or paid for. There can be a few reasons for this:

- Some water is used for operational purposes, flushing pipes during works on the water network, and firefighting and hydrant testing, which is assessed to be 0.5% of the water produced
- Unauthorised use (for example, illegal connections) which is assessed at approximately 0.1% of the water produced
- Meter inaccuracy (when they age, water meters tend to under-record water use) estimated to be approximately 3% - 5% of the water produced and not metered.

The remaining non-revenue water is leakage from reticulation pipes, pumps and from pipework and fittings on private properties. 27% of water produced is lost via leaks in reticulation.

The 2019 Water Asset Management Plan sets a target limit of real losses from the water supply network of (maximum) 45% for all years through to 2028, national average loss is 20%. The Council has implemented initiatives to reduce water losses. These include:

- Developing a meter consumption reporting database that allows actual meter consumption analysis
- Pro-active leak detection, using techniques such as night flow testing, acoustic noise logging and ground survey to identify leaks
- Validation of assumptions relating to fire fighting and operational flushing usage
- Testing programme for domestic and commercial meters

- Meter replacement programme
- Pressure management and pressure reduction
- Reducing unbilled revenue, through ground survey and smart metering
- Undertaking benchmarking against other comparable utilities.

Key Point:

Some loss of water is inevitable in a reticulated supply system. However, minimising unaccounted-for water is important in maintaining the efficiency of the supply system and will help reduce the cost of treatment, storage and supply.

8 Future Challenges

The challenges facing the Carterton community's water supply system are that:

- Carterton's water supply system comprises surface water and groundwater takes but is primarily reliant on groundwater during dry summer periods;
- The supply system has limited storage capacity and there is a limit on the sustainable yield from the borefield;
- Carterton is planning to grow and the population reliant on the water supply system is expected to grow by 39% to approximately 9,500 by 2054;
- The alternative water supply study by WSP concluded that the consented amount was sufficient for the future needs, assuming there were no further restrictions during the reconsenting of the Kaipatangata water take;
- Effective water demand management could help moderate year-round and peak demand and defer the time by which such new sources will need to be funded;
- The policy framework for consenting groundwater and surface water takes is expected to require clearer demonstration that the volume of water abstracted is *reasonable* for the end use and that it is used efficiently, throughout the network, from source to end use with minimal waste;
- Carterton's per capita water use is higher than comparable towns in New Zealand (and, notably, residential per capita water use is higher);
- Carterton's water use is dominated by residential water use – reductions in per capita residential use are achievable and will make a significant difference to the volume required to be sourced, treated and pumped through the network;
- There are risks within the water supply system that make Carterton vulnerable during water short periods and underscore the need for greater resilience within the system;

- Annual water usage at some non-residential activities appears high. There may be scope for on-site efficiencies or use of alternatives to Council's treated potable supply to reduce demand on the reticulated system;

- Some loss of water is inevitable in a reticulated supply system – Carterton implements measures to reduce this loss and these need to be maintained to maximise efficiency and minimise waste within the system.

9 Responding to the Challenges

9.1 Setting a Target

As earlier noted, gross per capita consumption (PCC) is recommended as the key performance indicator for reporting overall efficiency of water use. The 2019 Water Asset Management Plan sets a target average daily water consumption of 400 litres per person per day (i.e. gross per capita consumption). This is high relative to comparable local authorities in New Zealand and high relative to *current* gross PCC (370 litres per capita per day). A more realistic, reasonable (and achievable) target would be 280 litres per capita per day. This would require a 25% reduction in water consumption. This order of reduction is necessary in order to have any meaningful impact on peak water demand and water supply system investment.

The following sections of this Plan consider a range of water demand management initiatives and the impact they could have in reducing water consumption towards the 280L/c/day target.

Recommendation (1) for Consideration by Council:

That the CDC set a gross per capita consumption target of 280 litres per person per day, to be achieved by 2027.

9.2 Current Demand Management Practices

9.2.1 Education and awareness

Carterton District Council provides customers with information on how to save water around the home (indoor and outdoor), at school and at work. The water conservation advisory pages on Carterton District Council's website also provide tips and hints, including how to detect a water leak.

During the 2018 summer billing period, an information insert was included with customer invoices to remind customers about how to save water at home, particularly outdoors. This was also provided with non-residential customers' invoices.

Additional information currently provided or generated by Carterton District Council includes:

- Display stands and communications messaging at community events
- Advertisements in local newspapers about how to save water are also published, particularly during periods when water restrictions are in place
- Surveys to identify how customers use water outdoors.

9.2.2 Demand Management in Carterton District Council's Operations

Carterton District Council is one of Carterton's largest water users, with more than 2900 points of use across the town. Activities include the management of parks and reserves and amenity planting areas, the swimming pool, properties owned and occupied by Carterton District Council and premises leased to community organisations. Baseline consumption for these activities has not yet been established, therefore the quantification of the potential for savings has not yet been calculated, though the garden watering is done using a separate bore in Memorial park, and this usage is not used in the water balance.

9.2.3 Metering and pricing

All water is charged on a volumetric basis (that is, total annual volume). This is best practice for demand management. Volumetric charging allows customers to appreciate the value of water and wastewater services. The Council is planning to fund the replacement of all existing water meters with 'smart meters' that will enable more responsive management of water supply in sub-catchments within the supply system and better information about when water is used and when leaks occur. 'Smart meters' will also enable more responsive invoicing so that invoices provide end users with better information about when they use water and how they can use water more efficiently or use less volume.

9.2.4 Leak Detection

Council funds routine leak detection throughout the supply network, focusing on specific geographic areas each financial year.

9.3 Water Demand Management Options

Carterton District Council has investigated a number of additional demand management initiatives, based on reviews of Council's own current activities and demand management initiatives and industry guidance sourced from New Zealand, Australia and the United Kingdom. Options have been considered by user sector:

- Residential (options to reduce water use in the home)
- Non-residential (options that promote water efficiency in businesses, industry and community facilities)
- Sector-wide options (applicable for both residential and non-residential sectors)
- Carterton District Council operations.

9.3.1 Residential Demand Management Options

Unless specifically stated, all of the options listed below are expected to reduce demand at both average and peak demand:

Res. 1: Enhanced education and awareness of water efficiency and water conservation
Res. 2: A dedicated Water Advice helpline or in-home consultations by a water efficiency adviser
Res. 3: Encouraging the retro-fitting of water efficient devices within existing properties (for indoor and outdoor water use)
Res. 4: Requiring evidence that tapware and devices installed in new buildings achieves a minimum efficiency rating
Res. 5: Adjusting the annual volumetric supply cap or the unit rate charged for water used in excess of the annual volumetric cap
Res. 6: Minimising outdoor water use (by providing information and education programmes on water use efficiency and promoting the retro-fitting of water efficiency tapware and irrigation equipment (focusing on peak summer demand)
Res. 7: Source substitution using rainwater storage tanks (for new dwellings) – this is expected to be of limited benefit during dry periods when there is little rain to harvest (and there is potential for perverse outcomes if people use reticulated water to fill storage tanks)
Res. 8: Source substitution by re-use of greywater (for new dwellings)

9.3.2 Non-Residential Demand Management Options

All options are expected to reduce both average and peak demand unless stated otherwise:

Non-Res. 1: Education and awareness of water efficiency and water conservation
Non-Res. 2: Adjusting the unit rate charged for water supplied
Non-Res. 3: Spot checks and audits of high users and on-site leak detection investigations
Non-Res. 4: Water-wise education for schools
Non-Res. 5: Promoting water efficiency and the retro-fitting of water efficient devices in schools and other community facilities (including activities within Council-owned premises)

9.3.3 Sector-Wide Options

These demand management options can be applied to both residential and non-residential consumers:

All 1: Investigate charging regimes which target peak demand
All 2: Promote the use of indoor water efficiency / WELS rated devices

9.3.4 Carterton District Council Operational Options

These options are specific to Carterton District Council:

CDC 1: Continue network-wide leak detection investigations and investigate other non-revenue losses identified with the aim of eliminating those wherever practicable

CDC 2: Investigate and implement water use reduction and efficiencies in Carterton District Council's own operational activities (including Council office and depot operations, parks and reserves management, infrastructure maintenance)

CDC 3: Investigate and implement water loss reductions and enhanced efficiency in the wastewater treatment and disposal processes

CDC 4: Pump pressure reduction and management within the distribution network

9.4 Option Assessment

Demand management involves a mix of tools to reduce demand across different customer types. It is not the case that a single option will meet the demand management target. The assessment therefore considered:

(a) The potential water use savings, especially during the peak demand period
(b) The ease of implementation, including cost-effectiveness
(c) Carterton District Council's ability to either implement the option or assure its implementation.

The cost-benefit of demand management is inherently complicated to measure, as an evaluation of present and future costs and benefits is difficult. Some studies are available which have measured the costs and benefits, notably those based on in-depth research in the UK. The Local Government Act[32] requires Carterton District Council to adopt prudent stewardship, efficient use of resources and cost-effective service delivery. Accordingly, the assessment also considers the extent to which the demand management options can improve efficiency and provide value for money.

The options are considered in the following groupings:

(a) Options suited to **immediate implementation**
(b) Options that lend themselves to a **pilot programme** to assess how they can be best implemented
(c) Options that require **further investigation**

To enable the options to be compared, an estimate of the potential water savings has been made. Where aspects of the options are already being implemented, these estimates are based on observed data. Otherwise, the estimates are based on information from published data or guidance documents. These water use savings are based on the estimated daily savings in MLD. The figures quoted are the savings in the year 2054 for an assumed population of 9,500.

For some options the estimated savings increase year on year as an expanding group of customers is targeted. The effect of other options is expected to be more of a step change, such as a reduction in leakage from the distribution network or elimination of an illegal non-revenue loss.

[32] Section 14 (i) (g) and (h), in adopting a sustainable management approach, considering the needs of future generations

TABLE 2: WATER DEMAND MANAGEMENT OPTIONS

Options for Immediate Implementation	Options to be Piloted	Options to be Further Investigated
Res. 1 Enhanced education & awareness **Res. 2** Water advice line or water efficiency adviser **Res. 4** Requiring minimum water efficiency devices in new dwellings **Non-Res. 1** Education & awareness **Non-Res. 2** Adjusting the unit charge for water **CDC 1** Continue leak detection & non-revenue loss investigation **CDC 2** Water use reduction in CDC operations **CDC 3** Water loss reductions in wastewater treatment process **All 2** Promote the use of indoor water efficient WELS rated devices	**Non-Res. 3** Spot checks and audits of high users	**Res. 6** Minimising outdoor water use **Res. 7** Source substitution using rainwater harvesting and storage tanks **Res. 8** Source substitution using greywater recycling **All 1** Investigate charging regimes to target peak demand **CDC 4** Pump pressure reduction and pressure management

9.4.1 Assessment of Options for Immediate Implementation

This section summarises the assessment of options that were identified as potential 'immediate' actions. These include actions that Carterton District Council is already doing and have a potential for expansion or options that clearly have the potential to save large volumes of water and which should be implemented as soon as practicable. These options, summarised in Table 5, have the potential to save approximately 0.5MLD of water by 2054, compared with the overall target reduction of 0.8MLD. Estimates of savings are based on a number of assumptions, including the potential uptake. Assumptions are explained in Appendix B. These potential savings will be reviewed as more data become available.

TABLE 5: RECOMMENDED IMMEDIATE ACTIONS

Option	Rationale, Issues, Implementation Costs, Benefits, Value for Money	Potential Water Savings in 2025
Res. 1 Enhanced education & awareness	✓ Some initiatives currently in place – potential for enhancement ✓ Low level of complexity, low implementation cost ✓ Enables water conservation and efficiency initiatives by customers themselves (CDC as 'agent' rather than 'actor') ✓ Good value for savings expected	?? MLD
Res. 2 Dedicated water advice helpline or water efficiency adviser	✓ Pilot programme already in place – potential for expansion ✓ Moderate budgetary cost (staff resource, time, logistic support) ✓ Good value for savings expected	?? MLD
Res. 4 Requiring minimum water efficiency rated devices in new dwellings	✓ High potential for water savings – Statutory (RMA) process required to introduce the requirements	?? MLD

	× Potentially complex set-up – Ongoing staff resources required to enforce	
Non-Res. 1 Education & awareness	✓ Limited information currently directed at non-residential water consumers ✓ Low level of complexity, low implementation cost ✓ Enables water conservation and efficiency initiatives by customers themselves (CDC as 'agent' rather than 'actor') ✓ Good value for savings expected	?? MLD
Non-Res. 2 Adjusting the unit rate charged for water supplied	✓ Moderate potential for water savings ✓ Trade waste charge already in place (could be associated with this) ✓ Low complexity to implement × Potential cost disincentive for economic activity	?? MLD
CDC 1 Continue leak detection and non-revenue water loss investigation	✓ System and equipment already established and available ✓ Modest annual cost – Potential water savings should plateau (once significant leaks are detected and addressed) ✓ Potential to expand the programme. ✓ Good value for savings expected. Possible savings of $110,000 with no leaks.	?? MLD
CDC 2 Water use reductions in CDC operations	✓ Within CDC's direct control ✓ Builds on initiatives already underway ✓ CDC leads by example ✓ Potential operational cost savings ✓ Modest cost – Complexity depends on extent of reduction required ✓ Good value for savings expected	?? MLD
CDC 3 Water loss reductions in wastewater treatment process	✓ Within CDC's direct control ✓ Builds on initiatives already underway ✓ CDC leads by example ✓ Potential operational cost savings ✓ Modest cost ✓ Modest savings and good value for the savings expected	?? MLD
All 2 Promote the use of indoor water efficient WELS rated devices	✓ Some initiatives currently in place – potential for enhancement ✓ Low level of complexity, low implementation cost ✓ Enables water conservation and efficiency initiatives by customers themselves (CDC as 'agent' rather than 'actor') ✓ Good value for savings expected	?? MLD

9.4.2 Assessment of Options to be Piloted

The options summarised in Table 6 are those that could be piloted. They could result in savings, but the actual processes and implementation costs are unknown. Hence a pilot programme is recommended to enable the approach, implementation costs and estimated savings to be tested.

TABLE 6 OPTIONS TO BE PILOTED

Option	Rationale, Issues, Implementation Costs, Benefits, Value for Money	Potential Water Savings
Non-Res. 3 Spot checks and audits of high users	✓ There is high potential for water savings from: o Food processing & packaging o Institutions o Manufacturing & processing o Beverage processing o Commercial accommodation – This would be a new initiative and require some establishment and logistic costs and specialism – Would require specialist knowledge of sector-specific operations and potential for water efficiencies/conservation	?? MLD

9.4.3 Options to be Investigated

The options that were identified as requiring further investigation before making a firm decision whether to implement them or not are summarised in Table 7. Further investigations will enable more information to be collected or reviewed.

TABLE 7: OPTIONS TO BE INVESTIGATED

Option	Rationale, Issues, Implementation Costs, Benefits, Value for Money	Potential Water Savings
Res. 6 Minimising outdoor water use	✓ Includes improving awareness of outdoor water use efficiency and conservation and promoting the retro-fitting of water efficient devices and retirement of inefficient equipment and practices ✓ Focuses on reducing demand during peak summer periods	?? MLD
Res. 7 Source substitution using rainwater harvesting and storage tanks	✓ Could help reduce peak demand × Would require careful management to prevent perverse outcomes e.g. people filling tanks from the reticulated supply (as has happened elsewhere) × Cost barriers to implementation × Risks of cross-contamination of the reticulated supply can be overcome by requiring installation by only accredited installers – Best accompanied by rates rebate scheme acknowledging the lesser reticulated water used × Complex set-up requirements and on-going enforcement and inspection costs – Uncertain cost effectiveness	?? MLD

Res. 8 Source substitution using greywater recycling	✓ Could help reduce peak demand × Would require careful management to prevent adverse health effects (surmountable using one-directional flow valves) × Cost barriers to implementation × Risks of cross-contamination of the reticulated supply can be overcome by requiring installation by only accredited installers – Best accompanied by rates rebate scheme acknowledging the lesser reticulated water used × Complex set-up requirements and on-going enforcement and inspection costs – Uncertain cost effectiveness	?? MLD
Non-Res. 4 Water use education for schools	– Uncertain cost effectiveness – Uncertain water savings	?? MLD
Non-Res. 5 Promote water efficiency and retro-fitting of water efficient devices in schools and other community facilities	– Scope of activities is uncertain – Extent of water savings is uncertain	?? MLD
All 1 Investigate charging regimes to target peak demand	× Changes to the charging structure are potentially controversial × Potentially conflicts with LGA requirement to provide water at minimum cost ✓ Could potentially provide the 'stick' to supplement the 'carrot' initiatives involving education and promotion of water efficiency – Uncertain cost effectiveness – Uncertain water savings	?? MLD
CDC 4 Pump pressure reduction and pressure management	✓ Typically reduces water use and non-revenue water losses × High investment needed – complex set-up – Potential costs and benefits are specific to each geographic area managed	Unknown
Res. 5 Adusting the annual volumetric cap or the unit rate charged for residential consumers	× Changes to the charging structure are potentially controversial × Potentially conflicts with LGA requirement to provide water at minimum cost ✓ Could potentially provide the 'stick' to supplement the 'carrot' initiatives involving education and promotion of water efficiency – Uncertain cost effectiveness – Uncertain water savings	?? MLD

9.4.4 Potential Water Saved

Figure shows the potential savings which may be made by implementing the immediate and pilot actions (in 2054 $)

A review of the effectiveness of water demand management initiatives, and new technologies and approaches, is recommended in 2025. This will enable progress against the demand management target to be evaluated. The updated Plan will determine which of the pilot studies or other options that have been investigated should be implemented, in order to meet the overall target by 2054.

10 Implementation and Evaluation

10.1 Annual Reporting and Key Performance Indicators

Ongoing review and analysis of consumption data and trends is essential to inform this demand management programme in the future. Carterton District Council will review and publish the following key performance indicators on an annual basis:

- An estimate of residential per connection consumption
- Commentary on any trends as they emerge
- Benchmark these results both nationally and internationally.

Other actions are specific to each of the ongoing demand management options or projects. For those that are underway, a review of performance should be carried out on an annual basis or at the end of the project. This should include:

- A summary of the option or project
- The key actions developed
- Any information about the water saved and the cost (either expenditure or staff time).

Key performance indicators relevant to each option will be developed at the start of the project. This will include relevant water saving and cost information, together with any other relevant objectives. This will enable information to be collated to support the development of cost benefit analysis and hence better inform future updates of this Plan.

10.2 Monitoring and Evaluation

Figure 14 shows the planning cycle which will be used as the basis for the review of this Water Demand Management Plan. It is a cycle of continual improvement. It begins with the audit stage of benchmarking current performance that has been completed. This audit should be conducted at regular intervals to demonstrate the changes and improvements that have been implemented and for comparison against benchmarks.

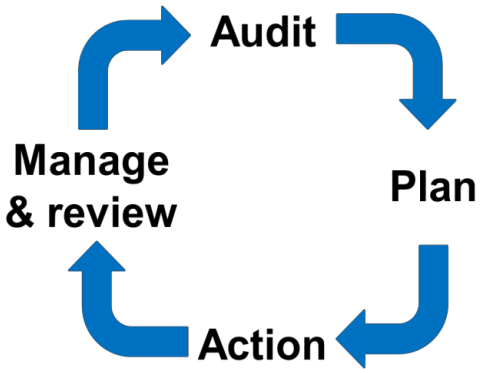


FIGURE 3: PLANNING CYCLE

As part of the demand management planning cycle, it is recommended that Carterton District Council intends to review this Plan on a three-yearly cycle. This review will include:

- Analysis of progress against the demand management target
- A review of the demand management options that have been implemented and their effectiveness at contributing to the target
- Progress that has been made towards piloting and investigating other potential options
- An assessment of which further options need to be implemented or expanded to meet the target in the future.

The review of this Plan will enable Carterton District Council to identify the demand management measures that will ensure customers save water in the most cost-effective manner.

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6.3 MAJOR PROJECTS UPDATE

1. PURPOSE

To update the Committee on the progress of major projects.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Significance and Engagement Policy.

3. BACKGROUND

The Infrastructure Services Team delivers multiple projects as part of the delivery of the Long-Term Plan.

4. DISCUSSION

4.1 Wastewater Treatment Plant Reservoirs

We are pleased to report that all construction defects have been completed and the reservoirs are now fully operational. The adjustments to the concrete blocks at the Reservoir outlets were completed by Ordish and Stevens just before Christmas 2023.

It was therefore with great satisfaction that CDC finally received the Code of Compliance Certificate for the construction of the reservoirs on 24 January 2024.

The installation of the last 4 buoys in Reservoir 1 was outstanding due to extraordinary delays in delivery from an overseas supplier. This has now been resolved and the buoys were installed towards the end of January. The reservoirs are now fully operational.

4.2 High Street North Rider main construction

Work on the High Street North Rider main and the lateral connections were completed on 13 February 2024. This project will have a significant (positive) impact on CDC's 3 waters operation budget. The benefits of this project are as follows:

- No laterals that cross the live lane – meaning that there will be less load and vibration on the lateral and main connection, which in turn will result in an extended asset life.
- The laterals that are being removed are past their expected life.
- The pavement can be renewed without the restriction on shallow laterals. Lateral depths range from 250mm to 300mm, meaning that there is not much room for building the required pavement.
- The pavement will not have to be dug out for new laterals or maintenance.
- Future maintenance will be outside of the live lane resulting in a significant saving in temporary traffic management.

The work was delivered within the approved annual plan budget.
Items that have a significant financial impact were:

- Underground services – There were 6 utility services directly in the area of our trench, meaning that hydro-vacuuming was required to excavate the trenches. This was more expensive than traditional trenching, but the safest way to dig and prevent damage to telephone, power, and fibre cables.
- Temporary Traffic Management – TTM makes up roughly 40% of the cost estimate and affects by every activity on site. Although TM has an effect on costs it is also an area of opportunity to potentially have a saving if the time on site can be reduced.

Underground services visible in footpath

4.3 Sewer Network Renewals

After considering various options to renew the High Street North Sewer Main it was decided to defer the renewal of this section due to the estimated costs. The estimated cost for this section exceeded the current and anticipated next financial year's budget combined.

For the next LTP cycle we will focus our attention to priority 1 sites that are not on state highway. This will result in getting more meters of critical pipe network renewed due the significant cost difference in temporary traffic management cost.

Subsequently, he next sewer renewal site is on Lincoln Road between Belvedere Road and Victoria Street. We aim to start construction within the next 6 weeks.

4.4 Brooklyn Street Water Main Renewal Design

Design for the replacement of the water main on Brooklyn Street, between High Street South and Lincoln Road has been started. This will be the next water reticulation renewal project after High Street North. The route of this pipe replacement will require the pipe to be laid under the railway track. A steel sleeve will be drilled under the tracks after which the pipe will be installed through the sleeve.

4.5 Dalefield Road Pump Station

Staff are pleased with the way in which this project was delivered. The project was delivered on time and within budget whilst delivering on the outcomes that we aimed to achieve. The project team consisted of Max Tarr Infrastructure Engineers ltd., Egis NZ and CDC officers. Key drivers to the successful outcome can be attributed to:

a. Detailed project scope definition and design. The infrastructure team worked collaboratively between Operations, Asset Development and Projects to ensure that the final product would be operationally sound.

b. Procurement process – A thorough procurement process was followed using a Price Quality Evaluation method. This allowed the evaluation team to consider the tenderers relevant experience, track record and broader outcomes.

c. Contract management – The team delivered the project in line with NZS 3910 with all parties staying within their defined roles.

d. Sufficient time and budget – The time allowed for the delivery of the entire project was sufficient while having a very firm targeted completion date. The fact that the budget was approved based on the preferred design and tender outcomes, meant that quality was not compromised.

We endeavour to continue to follow this approach in future to ensure the best outcomes for our community.

4.6 Climate change mitigation – Solar Project

The primary focus of this project is to reduce Carterton's annual operational cost through the investment of better of funding. The climate change benefits are a secondary outcome.

As part of our procurement process, we received two compliant tender submissions on 14 November. The tender evaluation team has identified Hoskins Energy Systems from Carterton as the preferred tenderer. Hoskins' proposed methodology will require a resource consent as a discretionary activity. We have engaged Incite – A Wellington resource management consultancy, to prepare the resource consent application.

4.7 Dalefield Road Sewer

CDC has been waiting for Downer to return to the site to remedy surface defects on the trench reinstatement as identified in the post construction walk over.

This work was done on 12 February 2024.

4.8 Lincoln Road dual water main

CDC have similarly been waiting for Downer to return to site to do surface repairs to the trench areas identified in the post construction walk over.

This work was done on 13 February 2024.

4.9 Valve testing

Detection Services have completed their survey of the Council's valves on 15 Jan 2024. Their report was submitted 23 Jan 2024 and is currently being evaluated. It is important to have an updated condition assessment of the underground valves to enable Council to prioritise repairs and spending as well as having a clear understanding of the risks associated with possible failure of these assets.

Failure of valves can lead to:

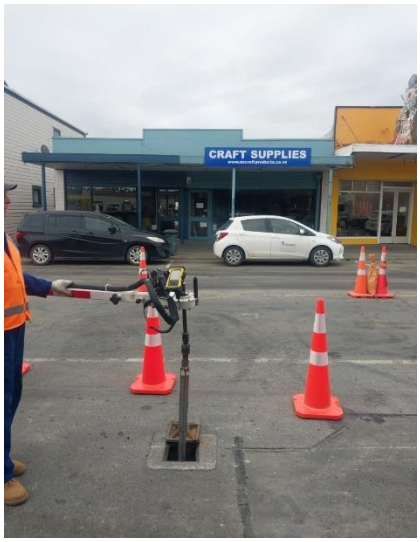
- underground water loss
- loss of water to residents
- damage to roads and other infrastructure
- loss of or, no available water for fire-fighting purposes

The results of this exercise were as follows:

Total amount of valves in Carterton	**348**
Total valves exercised	**269** = 77%
Unable to exercise	**79** = 23%
Leaking Valves	**31** = 9%

The data shows that while there are a large number (79) of inoperable valves, whilst 77% of CDC valves are in working condition. This information will now be used to update asset data and inform forward work planning.

1 Aerial view of CDC valves assessed by Detection Services




Valve testing in progress

5. NEXT STEPS

The Infrastructure Services Team will continue to deliver on these projects and ensure the Committee is informed on progress.

6. CONSIDERATIONS

6.1 Climate change

Climate change is considered in project planning and development as required.

6.2 Tāngata whenua

This report is a regular update which is of interest to all members of our community, including iwi and hapū. However, there are no particular areas of interest or concern contained within this report that require specific iwi or hapū input.

6.3 Financial impact

The financial matters in the report are covered within existing budgets.

6.4 Community Engagement requirements

There are no community engagement requirements required for this report.

6.5 Risks

Project risks are being managed and mitigated as and when required.

7. RECOMMENDATION

That the Committee:

1. **Receives** the report.

File Number: **384333**

Author: **Christo Heyns, Project Manager**

Attachments: **Nil**

6.4 WAINGAWA PROCESS WATER PROJECT

1. PURPOSE

For the Committee to be updated on the project progress and consider future of the Waingawa Process Water Project.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Significance and Engagement Policy.

3. BACKGROUND

Following endorsement by the Policy and Projects Committee, on 13 September 2023 Council approved unplanned expenditure for the Waingawa Process Water Project (WPWP). The Policy & Projects Committee endorsed the project on the basis that the project would proceed progressively, achieving specific deliverables at each milestone.

4. DISCUSSION

As the project progressed through the milestones more information has become available which has changed the risk profile of the project deliverables negatively. An update on the various milestones follows:

4.1 Policy and Project Committee endorsement - Endorsed 16 August 2023

4.2 Mana Whenua support and formally endorsed the project – Mana Whenua's support for this project will be critical when applying for the GWRC resource consent for the bore and will be required for the physical works to proceed. Meetings have been held with both Kahungunu ki Wairarapa and Rangitāne Iwi representatives. Both were supportive of the concept and will confirm their individual official position following further deliberation internally.

4.3 Council approval of unplanned capital expenditure drawn from Reserves, with loans required – Approved 13 September 2023

4.4 Masterton District Council (MDC) $250,000 contribution – On 13 September 2023 MDC agreed to provide funding to the project of up to $250,000 on terms that do not disadvantage Masterton ratepayers. Following the adoption of this resolution, MDC officers proposed to treat the funding as a loan to CDC, which was not in line with the request for capital funding. The way MDC fund this request is not a matter for CDC. Management continues to progress on the basis funding will be in line with our request – i.e. capital funds, and not a loan.

4.5 Kānoa approved $1,750,000 of grant funding – Approved.

4.6 JNL agreed to a 10-year supply agreement – To date, JNL has not committed to a long-term take agreement. JNL has however indicated that they were not in agreement with the original proposed take of 65,000 m^3 and were thinking more

towards 35/45,000 m³. This was noted as one of the more significant risks identified.

4.7 Master plan design and construction estimate to be completed – The design and estimate has been completed – The updated estimate is noted under Item 7.3 Financial Impact.

4.8 Concrete Tank condition assessment – The condition assessment that was completed recommended further Geotech and concrete reinforcement assessments which will have an impact on the cost estimate. The updated estimate is noted under Item 7.3 Financial Impact.

4.9 Detailed design for procurement – not started.

4.10 Resource consent for the bore supply – not started.

4.11 Risk Assessment

Further to the milestones discussed above, the project team is actively managing the associated risks.

An updated risk assessment follows:

a) Co-funding from Kānoa is fixed and therefore CDC will own the risk of project cost overruns or variations. - *This risk has been validated after Kānoa confirmed that there will not be support for the increased cost estimate.*

b) The final design exceeds the initial project estimate. - *This has occurred not only due to design but also further requirements like the proposed Geotech and concrete testing.*

c) Tendered prices exceed the initial/design estimate.

d) Affordable Waters Reform – CDC will lose our in-house Three Waters Operations team currently used for all for waters maintenance and operations activities. – *This is unlikely to occur now.*

e) GWRC Resource Consent for the bore water take may take longer than anticipated, cost more than expected, or be widely notified. – *highly likely to be required based on the bore assessment.*

f) Due to proximity of the wetlands the final bore location may be a considerable distance from the tank. - *highly likely to be required based on bore assessment.*

g) Bore supply could have "take" restrictions during summer. *Unlikely to be clarified until we have submitted a resource consent to GWRC.*

h) Water tank proximity to the earthquake fault line. *No further update.*

i) Bore water quality is still unknown and may require treatment / filtering if not suitable for non-potable purposes. *No further update.*

j) The proposed bore site is in a known contaminated site, where bulk storage of hydrocarbons, mineral acids, and the treatment of hides historically took place. *No further update.*

k) It is not known whether there is sufficient power supply to the site for the pump station. *No further update.*

l) JNL uses roughly 70% of current Waingawa potable water supply from MDC. A significant reduction in demand from JNL (e.g. a rainwater roof capture system,

a reverse osmosis plant) will have a significant impact on CDC's ability to recover the cost of this investment - *Refer to Item 4.6.*

m) Success of establishing a bore – based on the bore assessment there are numerous risks associated with the establishment of a bore in this area that could compromise our ability to take water. *Geotech reports suggest establishing a borehole is likely to result in a further cost escalation.*

4.12 Cost Estimate and Funding

Due to various considerations the estimated cost to complete has increased to $2,767,679. It is noted that the detailed design and tender processes will further refine and confirm final cost estimates.

Based on the estimates the project is proposed to be funded as follows -

1. $1,750,000 - Kānoa
2. $ 102,000 - CDC (Waingawa Reserves funded)
3. $ 915,679 - CDC Loan – funded through Process Water Charges

4.13 Cost Benefit analysis

Whole life cost over 50 years (excluding depreciation, inflation, or growth).

1. Establishment cost	$2,767,679
2. Operational cost - $26,640/annum	$1,332,000
3. Interest on Loan - $530,234 (10 yr x $53k/annum) - $398K	$332,004
Whole life cost	**$4,431,683**
Revenue (assumed $1.00 / CUM) $ 57,500p.a. x 50	$2,875,000
Benefit / burden	**($1,556,683)**

5. CONCLUSION

Three critical elements of this project have changed, and all of them have adverse impacts for CDC.

Firstly the cost to construct the infrastructure have increased from $2.5m to $2.77m. Kanona is not prepared to support any costs increases, meaning it is likely all of the increase will fall on Carterton ratepayers increasing our funding demand from $500,000 to $767,679.

Secondly the anticipated revenue earned from JNL has been scaled back due to their revised raw water demand forecasts. Additional risks remain with JNL installing rainwater collection and reverse osmosis systems on site, which will further reduce demand for process water.

The revenue assumptions over the 50-year project life does include additional customers connecting to the Process Water reticulated network. Combined with JNL, we have assumed demand for Process Water will average 57,500cum p.a. compared to 60,000cum at the outset of the project.

Thirdly the geotechnical report has indicated risks with drilling a bore on site due to the earthquake fault line and hinted at further cost escalation with moving the bore to an alternative site.

Due to these changes and some new risks being identified, it is now unlikely that the project outcomes can be successfully delivered without significant increase in the project budget. The increase in investment required, and reduced revenue

mean this investment is now uneconomic, even before additional risks or cost escalations are considered.

Based on a 50-year view and with no time value calculation, the cost and risk associated with this project outweighs potential financial benefits.

Management notes that once the network is installed it will need to be maintained, and depreciation will need to be funded beyond year 10 (when the loan is repaid) at a rate of around $50k p.a. These costs will be in addition to those outlined above.

The project will deliver non-financial benefits, such as the environmental effect from reduced chlorine treatment of potable water; lower demand for potable water during summer months; and the potential to better manage fire risk at the Industrial Park are difficult to measure. These benefits will not be seen by Carterton ratepayers in the immediate future, nor will they show on our balance sheet.

6. NEXT STEPS AND PROGRESS

Option 1

The Projects & Policy Committee:

Note – the updated milestones.

Note – the updated risks.

Recommend to Council to approve an increase in the project budget to $767,769.

Recommend to Council an increase in the total loan funding.

Option 2 – **(Preferred Option)**

The Committee recommends Council terminate the project with immediate effect.

7. CONSIDERATIONS

7.1 Climate change

Reducing the volume of water treated will have a positive impact on climate change. The environmental impact of the new bore hole will be assessed through the resource consent application.

7.2 Tāngata whenua

The matters in the report might be of interest to Māori. Mana whenua participation is critical for the project's success. Engagement on concept plans with Hurunui-o-Rangi has occurred. Further engagement with mandated iwi organisations has occurred following endorsement from Committee to proceed with the detailed design work.

7.3 Financial impact

Based on the initial high-level estimates, in the first 10 years CDC's investment and operational expenses will be recovered through water charges to users.

Over the whole of life of the project, or 50 years, the project will result in a net deficit of $1,556,683.

Further financial risks are associated with the risk assessment as most of the identified risk will have a financial impact.

7.4 Community Engagement requirements

Community engagement is not required for the decisions in this report.

7.5 Risks

Please refer to Item 4.11 under Risk Assessment.

8. RECOMMENDATION

That the Committee:

1. **Receives** the report.
2. **Recommends** that Council terminates the project with immediate effect.

File Number: **385252**

Author: **Johannes Ferreira, Infrastructure Services Manager**

Attachments: **Nil**

6.5 RAUMĀHANGA ROADS MAINTENANCE CONTRACT

1. PURPOSE

For the Committee to be informed on the Raumāhanga Roads maintenance contract.

2. SIGNIFICANCE

The matters in this report are not considered to be of significance under the Significance and Engagement Policy.

3. BACKGROUND

Ruamāhanga Roads (RR) is business unit that was established though a multi-party funding agreement between South Wairarapa and Carterton District Council.

Under the agreement, both councils contribute roading staff that works across both councils. Through their procurement process RR engaged Fulton Hogan as the maintenance contractor.

4. DISCUSSION

Contract

The RR contract is a based on the New Zealand Standard 3917 general conditions of contract. This type of contract is intended for use when contracts are let for maintenance and renewal works where the contract is intended to run for a defined period, as opposed to a contract for a defined scope of work.

Basis of Payment

The basis of payment for this contract is on a *measure in value* principle based on tendered scheduled rates. This means that the volumes of work delivered are equal to the approved LTP budget divided by the various unit rates.

Contract specifications define the detail included in scheduled items.

Preliminary and general cost include items such as programming, quality control and asset management.

RAMM (Road Asset Management & Maintenance system)

RAMM is the asset management system used by most councils and NZTA to manage roading assets. RAMM holds all asset information, network faults, works programme and financial management (estimates, claims and maintenance cost history). Faults are continuously recorded through network inspections, service request and high-speed data collection.

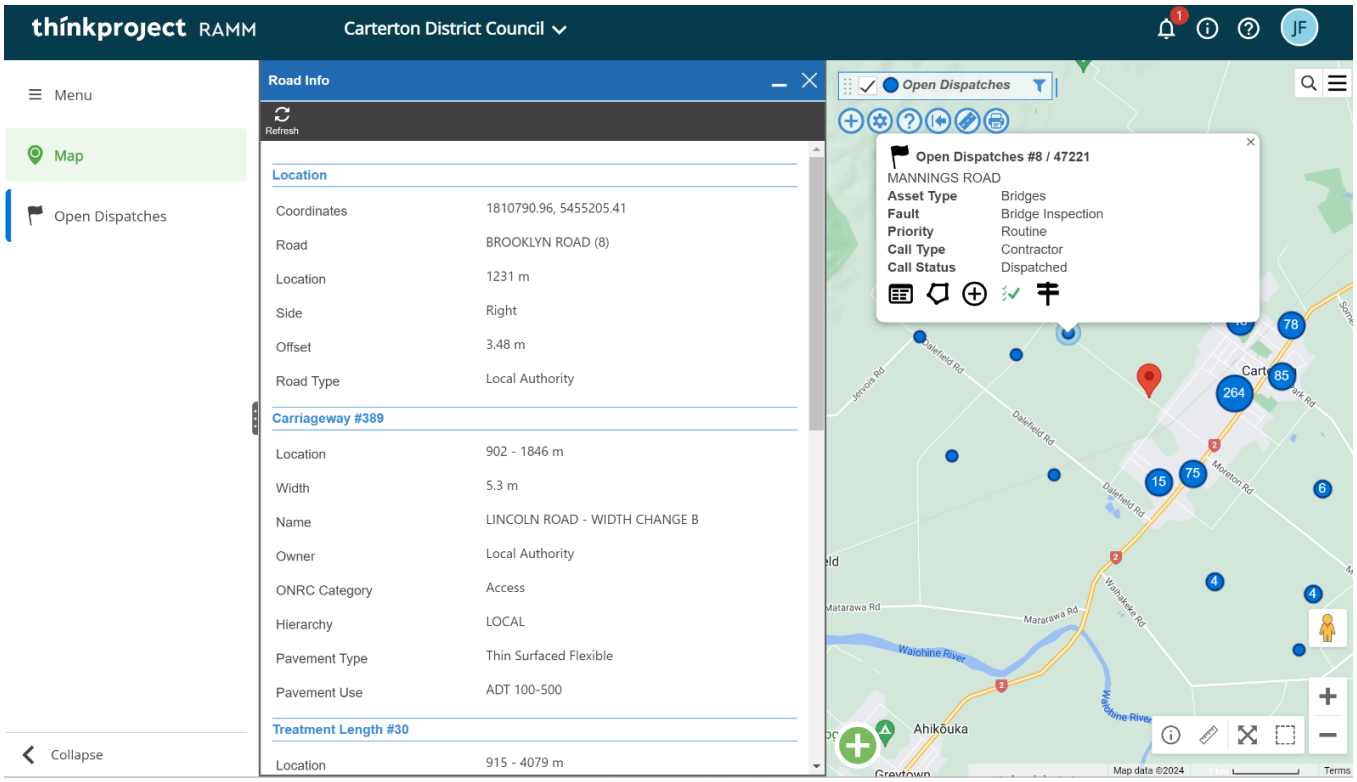


Image – Screen shot of RAMM showing asset information and faults.

Programming of physical works

The process of how physical works are managed under this contract:

1. Fulton Hogan is required to present RR officers with a monthly programme in RAMM. The programme identifies the specific physical works to be completed as well as the estimated cost. The programme is developed from the faults data base.
2. RR officers review and approve the programmed estimates prior to commencement of the work. The programme can be revised and reprioritised by RR officers. This ensures that council is always in control of budgets and priorities.
3. Following approval of a programme Fulton Hogan will complete the work. Any variation to the approved programme during the month needs to be approved by RR Officers.
4. Fulton Hogan then submits their monthly claim through the same system (RAMM).
5. RR officers then review and audit the claim. The review includes confirmation of works completed, review of approved estimates vs the claim and the quality of the works.

RR officers continuously manage the network's physical demands within the boundary of approved budgets. This is achieved through a risk-based approach.

Performance and Contract Evaluation (PACE)

PACE has been introduced into the contract to enable both parties to monitor the performance of the Contractor. If the PACE score is unsatisfactory, a performance improvement plan is required under the contract.

The process considers:

- Health And Safety
- Financial management
- Collaborative approach

- RAMM Management
- Management of Sub-contractors
- Quality of Workmanship
- Progress of making good defects
- Customer satisfaction

5. NEXT STEPS

To enable a better understanding of the Raumāhanga Roads contract, RAMM and work programming on our roading network, Management suggest an interactive workshop for Councillors, which would also be open to the public. If this is of interest, it will likely occur in late March / April.

In the meantime, Management will continue to work with Fulton Hogan to maintain and renew the roading network, whilst managing their performance against the agreed work programme.

6. CONSIDERATIONS

6.1 Climate change

This matters in this report do not have climate change considerations.

6.2 Tāngata whenua

The matters in the report might be of interest to Māori, however there are no decisions with an impact on Māori in this report.

6.3 Financial impact

The RR contract is delivered through existing approved LTP budgets and receives a 51% subsidy from NZTA Waka Kotahi.

6.4 Community Engagement requirements

The matters in this report are not considered to be of significance under the Significance and Engagement Policy.

6.5 Risks

There are no risks associated with the matters in this report.

6.6 Wellbeings

Decisions related to social, cultural, environmental and economic wellbeings are not being considered in this report.

7. RECOMMENDATION

That the Committee:

1. **Receives** the report.

File Number: **386553**

Author: **Johannes Ferreira, Infrastructure Services Manager**

Attachments: **Nil**

6.6 RUAMĀHANGA ROADS AND CORRIDOR ACCESS

1. PURPOSE

For the Committee to be updated on Ruamāhanga Roads and Corridor Access activities.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Significance and Engagement Policy.

3. BACKGROUND

The report relates to activities in January 2024.

4. DISCUSSION

Overall expenditure of the approved roading budget is on with majority of renewals planned for next few months. We are managing network demand within the individual working categories.

4.1 Sealed road pavement maintenance

Sealed Road pavement maintenance is 16% overspent due to significant network demand.

In the January 2024 Programme, we fixed 20 potholes in the network, and edge break failures on Te Whiti Rd, Te Wharau Road, Mt Holdworth Rd and Haringa Rd were repaired. We inspected 128 km of sealed roads in the network, and all roads that we inspected were programmed based on the routine maintenance inspection category.

Pavement repairs on Hughes line

Edge break repairs on Te Wharau Rd

4.2 Unsealed road maintenance

Unsealed road maintenance is 76% spent in relation to Waka Kotahi NZTA budgets.

Unsealed road inspection and grading were the major categories of the job completed by the contractor. During January 2024 we graded 116 km of unsealed roads. We also inspected 37 km of unsealed roads during in January 2024.

4.3 Drainage maintenance

Drainage Maintenance was 30% spent in relation to Waka Kotahi NZTA budgets. We inspected 66 drainage assets on the network. We didn't do any drainage maintenance in January.

4.4 Structure's maintenance

The structure's maintenance is 26% spent in relation to Waka Kotahi NZTA budgets. In January, we inspected 10 bridges on Moffats Rd, Tea Creek Rd, Matarawa Rd, Waiohine George Rd, Watersons Line, and Thomas Rd.

4.5 Environmental maintenance

Environmental Maintenance is 43% spent in relation to Waka Kotahi NZTA budgets. In January, there wasn't any spillage on our roads.

4.6 Traffic services Maintenance

Traffic services were 17.45% spent in relation to Waka Kotahi NZTA budgets.

Sign inspection and asset data updating are continuing every month and minor streetlight maintenance is continuing.

We inspected 82 signs on the network, and 3 signposts were replaced on Te Kopi Road and Cobden Rd. One sign was replaced on Borlase Rd due to its poor condition. All the activities including the asset health were updated in the RAMM database.

Sign post replaced on Te Kopi Rd

4.7 Footpath maintenance

Footpath maintenance is 76% spent in relation to the Waka Kotahi budget allocation.

In the January programme a pothole was repaired on a footpath on Wyndham Rd.

CAPEX EXPENDITURE

Expenditure reports are again set against the Waka Kotahi budget allocations which are approved for the financial year 2023/2024 and 24% of the CAPEX budget spent.

4.8 Unsealed Road Metaling

Unsealed Road Metaling was 25% spent in relation to the Waka Kotahi NZTA budget allocation. No work was completed in this category in January 2024.

4.9 Drainage renewals

Drainage Renewals was 41% spent in relation to Waka Kotahi NZTA budget allocation.

No work was completed in this category in January 2024.

4.10 Pavement rehabilitation

Pavement rehabilitation was 9% spent in relation to the Waka Kotahi NZTA budget allocation.

Pavement rehabilitation on Wiltons Road is planned for March 2024.

4.11 Traffic service renewals

Traffic Service Renewals is 51% spent in relation to Waka Kotahi NZTA budget allocation.

In January one sign was replaced on Park Road.

4.12 Footpath renewal

Footpath Renewal is at 85% spent in relation to Waka Kotahi NZTA budget allocation.

No work was completed in this category in January 2024.

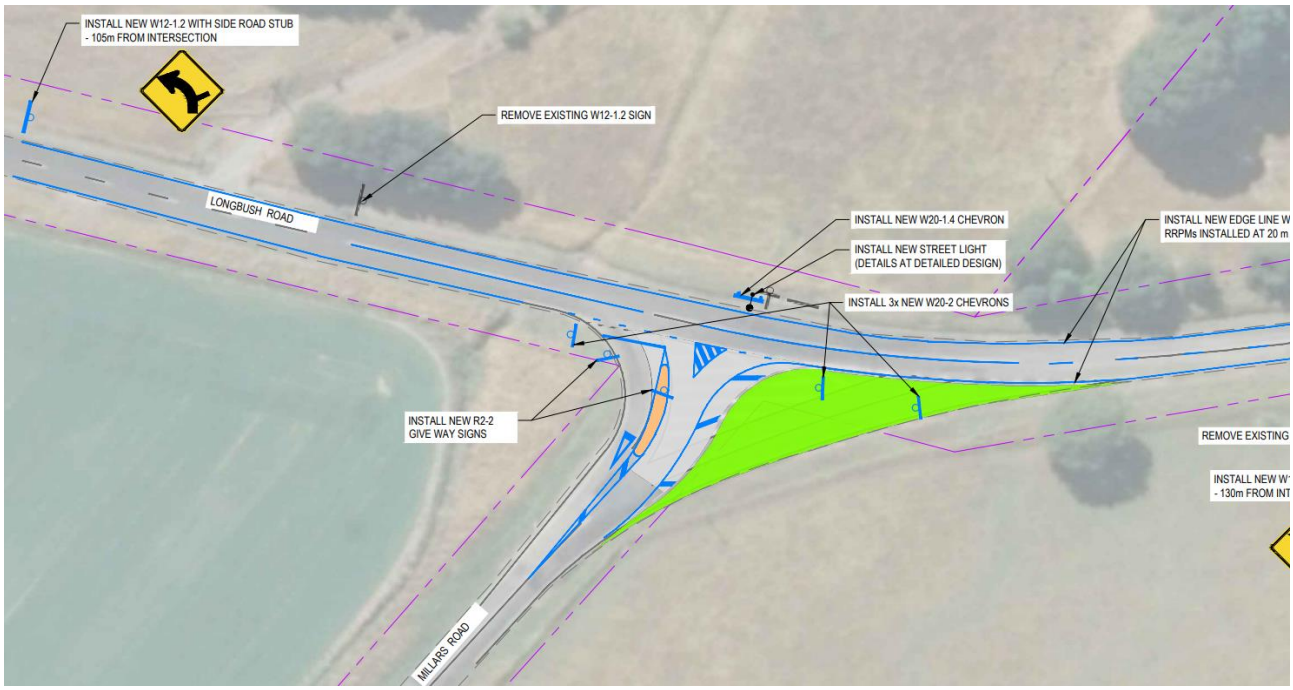
4.13 Sealed road resurfacing

Sealed Road surfacing is 86% spent in relation to Waka Kotahi NZTA budget allocation. No seal road surfacing was undertaken in January.

4.14 Low-Cost Low Risk (LCLR)

Longbush Road and Millers Road Safety improvements

The team is currently working with professional service providers and contractors on options to improve the general road safety and road user behaviour at the intersection. The concept under review will include bringing a lane adjustment and raised concrete islands. The team is optioneering a solution of not more than $50,000 to remain within existing approved LCLR budgets.



LCLR Forward works programme.

- Hughes Line culvert extensions are planned for March 2024
- Wiltons Road widening in March 2024 as part of the pavement rehabilitation work.
- Brooklyn Road footpath extension to Lincoln Road April – June 2024.

4.15 Emergency event works

More Dropout repairs were completed on Te Wharau Rd and Clifton Grove. The team is currently focusing on Glendburn Road which will be used as a detour when we are doing repairs on Te Wharau between Glendburn and Flat Point Roads.

4.16 Service requests

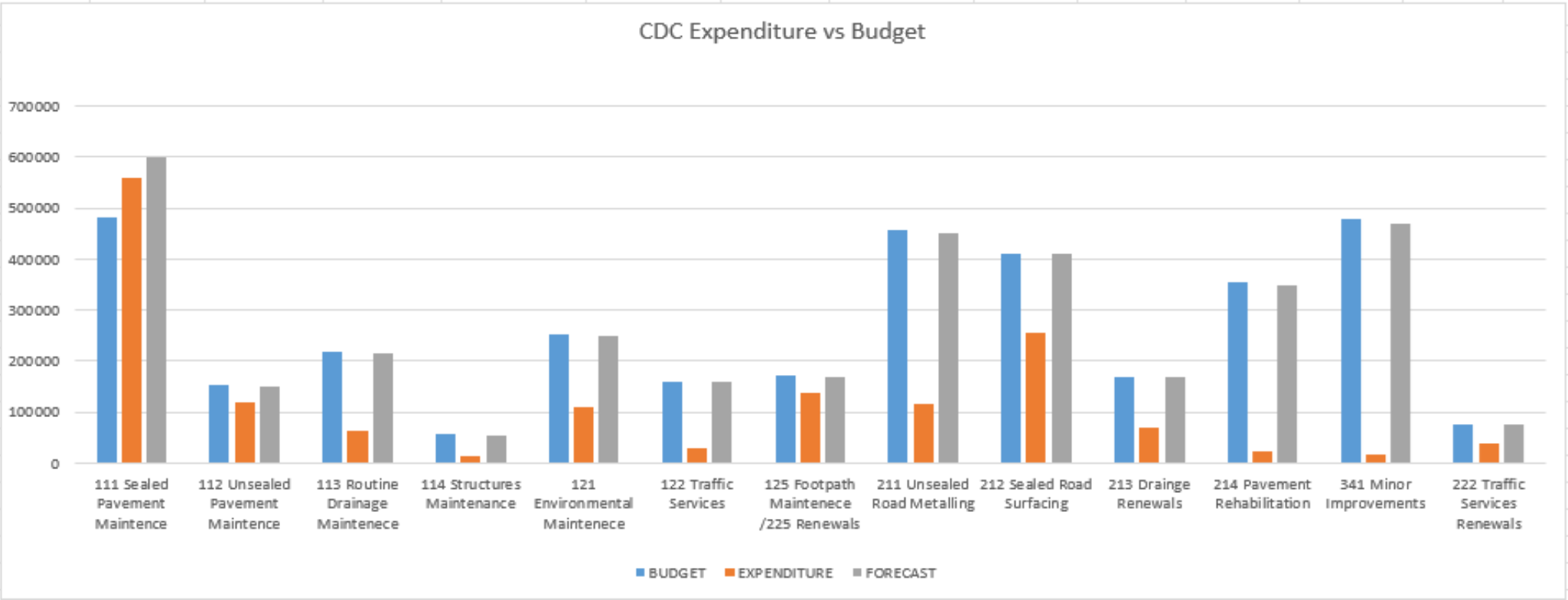
In January we received 18 Service requests for Roading.

4.17 Corridor Access

In January we received 17 corridor access requests (CAR) and issued 16 work access permits (WAP).

Since the introduction of the new fee structure for Corridor Access, we have managed to recover most of our costs from private users. Historically this burden was carried by rate payers.

4.18 Total Expenditure to date and Forecast



5. CONSIDERATIONS

5.1 Climate change

This report does not have any climate change implications.

5.2 Tāngata whenua

This report is a regular update which is of interest to all members of our community, including iwi and hapū. However, there are no particular areas of interest or concern contained within this report that require specific iwi or hapū input.

5.3 Financial impact

All of the roading activities are completed under approved budgets, and this report does not have any additional financial impacts.

5.4 Community Engagement requirements

There are no additional community engagement requirements resulting from this report.

5.5 Risks

This report is a regular update. It contains no specific or identified risks which would require further attention or action.

6. RECOMMENDATION

That the Committee:

1. **Receives** the report.

File Number: **386581**

Author: **Johannes Ferreira, Infrastructure Services Manager**

Attachments: **Nil**

6.7 RESOURCE CONSENT UPDATE

1. PURPOSE

The purpose of this report is to update the Committee on the resource consents issued since the previous update.

2. SIGNIFICANCE

The matters for decision in this report are not considered to be of significance under the Significance and Engagement Policy.

3. BACKGROUND

The Terms of Reference for the Policy and Projects Committee include the oversight of the implementation of the Wairarapa Combined District Plan. The resource consents issued since the last report, from 11 November 2023 to 16 February 2024, are included in Attachment 1.

4. CONSIDERATIONS

4.1 Climate change

N/A

4.2 Tāngata whenua

N/A

4.3 Financial impact

N/A

4.4 Community Engagement requirements

Not applicable as consultation requirements for resource consents are prescribed under section 95A-95B of the Resource Management Act 1991.

4.5 Risks

N/A

5. RECOMMENDATION

That the Committee:

1. **Receives** the report.

File Number: **385841**

Author: **Solitaire Robertson, Planning and Regulatory Services Manager**

Attachments: **1. Resource Consents update to 16 Feb 2024** ⇩

Attachment 1: Resource Consent Decision summary for the period 11/11/2023 to 16/02/2024

SUBDIVISION CONSENT DECISIONS

1. **230085: Controlled Activity, 2-lot Rural subdivision**

   Date of decision – 17/11/2023.

   Resource consent was sought to undertake a 2-lot subdivision of the site at 1839A Longbush Road, Gladstone. The site will be accessed via existing right of way from Longbush Road. The proposal met all controlled activity standards for a Rural (Primary Production) subdivision under Rule 20.1.1(a). The site contains 'highly productive land' however consent must be granted due to Controlled Activity status.

   Consent was **granted** with conditions.

2. **230078: Controlled Activity, 5-lot Residential subdivision**

   Date of decision – 29/11/2023

   Resource consent was sought to undertake a 5-lot subdivision of the property at 67 Lincoln Road, Carterton. Proposed Lots 1-4 will be 500-540m^2, with a balance Lot 5 being 2.33ha. All lots will be accessed directly via Lincoln Road. The subdivision will create lots suitable for residential development. The proposed allotments easily meet minimum standards of the District Plan and was processed as a Controlled Activity under Rule 20.1.1(a).

   Consent was **granted** with conditions.

3. **230099: Controlled Activity, 10-lot Rural subdivision**

   Date of decision – 4/12/2023

   Resource consent was sought to undertake a 10-lot subdivision in two stages of Lot 1 and 2 DP 351518, on Tiffin Road, Carterton. Proposed lots will be between 1.1-4.6ha in area. All lots will be vacant and can easily accommodate conforming development. Access to Lots 10 and 3 would be directly from Tiffin Road. Lots 6-9 will be accessed from a 10m wide Right of Way from Tiffin Road. Lot 1 -2 and 5 would share a Right of Way, while Lot 4 would be accessed from the unnamed legal road. The Rights of Way will be constructed to the required standard.

   The proposed allotments easily meet minimum standards of the District Plan and was processed as a Controlled Activity under Rule 20.1.1(a). The majority of the site is made up of LUC III soils and the proposal will further fragment productive land within this area of Carterton however as the District Plan provides for density of the lots proposed and this application must be granted.

   Consent was **granted** with conditions.

4. **230079: Discretionary Activity, 4-lot Rural subdivision and amalgamation**

Date of decision – 4/12/2023

Resource consent was sought to undertake a 4-lot subdivision of 152 Andersons Line (being Lot 2 DP 81642, Lot 2 DP 465753, and Lot 6 DP 513478) and for Lot 6 DP 513478 to be issued its own title. As part of the proposal Lot 2 DP 81642 will be amalgamated with the adjoining Lot 1 DP 81642. There is Flood Hazard Area along the stream in the eastern corner and the channel or overland flow path in the western corner of the site. Due to this hazard feature, the proposal is elevated to a Discretionary status under Rule 20.1.5(i). The proposal meets all other controlled activity standards.

Consent was **granted** with conditions.

5. 230080: Discretionary Activity, 6-lot Rural staged subdivision

Date of decision – 4/12/2023

Resource consent was sought to undertake a 6-lot subdivision in two stages of 152 Andersons Line (being Part Section 425 Taratahi DIST). Stage 1 will establish Lots 1 and 2. Stage 2 will establish Lots 3-7, with the final lots being between 4.0-6.5ha. The Mangatarere Stream flows along the eastern and southern boundary, with the Flood Hazard area associated with this feature. Due to this hazard feature, the proposal is elevated to a Discretionary status under Rule 20.1.5(i). The proposal meets all other controlled activity standards.

Consent was **granted** with conditions.

6. 230095: Discretionary Activity, 3-lot Industrial subdivision

Date of decision – 4/12/2023

Resource consent was sought to undertake a 3-lot subdivision of the property at 3 Pakihi Road, Waingawa. The lots will be between 2585-3520m^2. As the site is within the Waingawa Industrial Area Structure Plan area, the WCDP automatically elevates any subdivision that is consistent with this to a Discretionary Activity under Rule 20.1.5(d). The proposed lot sizes offer opportunities for a range of future activities within the zone and can easily accommodate compliant development in the future.

Consent was **granted** with conditions.

7. 230097: Controlled Activity, 7-lot Residential subdivision

Date of decision – 13/12/2023

Resource consent was sought to undertake a 7-lot subdivision of the properties at 59 and 67 Victoria Street, Carterton. The proposed subdivision simply aligns legal boundaries with the existing character and fencelines on the subject site. The shed on Lot 1 is unable to meet requirements under Rule 5.5.2(d)(ii). Following discussions between Council and the agent, it was suggested that s87BA (boundary activities) of the Resource Management Act 1991 be

utilized. Lot 6 (72m^2) does not meet minimum lot size standards however given this lot is to be amalgamated and has been created to simply align legal boundaries with the existing fence line, this non-compliance will be overlooked. Overall, this application was processed as a Controlled Activity. The proposal creates paper changes only with no additional development proposed. There will be no visual change to the site and therefore no effects on the surrounding residential character and amenity.

Consent was **granted** with conditions.

LANDUSE CONSENT DECISIONS

1. **230096: Controlled Activity, relocation of four buildings**

   Date of decision – 27/11/2023

   Land use consent was sought for the relocation of four buildings to the site at 40 Dorset Road from Brittons Bulls Yard. The buildings being a single storey twin bay villa, single storey hobby room, a two-bay farm shed, and a garage. The proposal meets all permitted standards (setbacks etc.) for dwellings and accessory buildings within the Rural (Primary Production) Zone. The building report notes that the buildings are suitable for relocation.

   Overall, the activity is consistent with the objectives and policies of the District Plan and any effects were considered to be less than minor.

   Consent was **granted** with conditions.

2. **230098: Controlled Activity, repairs and maintenance to building frontage in Carterton Character Area.**

   Date of decision – 4/12/2023

   Land use consent was sought to reinstate the veranda and at the same time undertake a number of required maintenance work at 25 High Street North, after sustaining damage. The proposed exterior work includes;

   - Damaged façade and associated elements to be demolished.
   - Construct new footing and nib.
   - Construct new timber framed wall.
   - Construct new veranda.
   - New cladding.

   The work is not exactly “like for like” but is very close and in keeping with the historic form of the building. Overall, the activity is consistent with the objectives and policies of the District Plan and any effects were considered to be less than minor.

   Consent was **granted** with conditions.

7 KARAKIA WHAKAMUTUNGA