SOUTH WAIRARAPA DISTRICT COUNCIL
Kia Reretahi Tātau

ASSETS AND SERVICES COMMITTEE

Agenda 2 February 2022

NOTICE OF MEETING

Under the COVID-19 RED traffic light setting, this meeting will be held via video conference and will commence at 12.30pm. All members participating via video conference will count for the purpose of the meeting quorum in accordance with clause 25B of Schedule 7 to the Local Government Act 2002. This meeting will be live-streamed and will be available to view on our YouTube channel.

MEMBERSHIP OF THE COMMITTEE

Councillors Brian Jephson (Chair), Garrick Emms, Rebecca Fox, Pip Maynard, Alistair Plimmer and Mayor Alex Beijen.

Open Section

A1. Apologies

A2. Conflicts of interest

A3. Public participation

As per standing order 14.17 no debate or decisions will be made at the meeting on issues raised during the forum unless related to items already on the agenda.

A4. Actions from public participation

A5. Extraordinary business

A6. Minutes for Confirmation: Pages 1-6

***Proposed Resolution**: That the minutes of the Assets and Services Committee meeting held on 15 December 2021 are a true and correct record.*

***Proposed Resolution**: That the public excluded minutes of the Assets and Services Committee meeting held on 15 December 2021 are a true and correct record.*

B. Decision Reports

B1. Tauherenikau River Crossing Water Pipeline Repair Pages 7-72

C. Information and Verbal Reports from Chief Executive and Staff

SOUTH WAIRARAPA DISTRICT COUNCIL
Kia Reretahi Tātau

ASSETS AND SERVICES COMMITTEE
Minutes from 15 December 2021

Present:	Councillors Brian Jephson (Chair until 3:00pm), Garrick Emms (Chair from 3:00pm), Pip Maynard, and Alistair Plimmer.
Also in Attendance:	Cr Colin Olds.
In Attendance:	Stefan Corbett (Group Manager Partnerships and Operations), Russell O'Leary (Group Manager Planning and Environment), Tim Langley (Roading Manager), Bryce Neems (Amenities and Waste Manager), Katrina Neems (Chief Financial Officer), and Suzanne Clark (Committee Advisor). Wellington Water: Angela Penfold, Jeremy McKibbin, Susanna Cullen, Gary O'Meara, and Adam Mattsen.
Conduct of Business:	Due to COVID-19 restrictions this meeting was held via video conference and live streamed to Council's YouTube channel. All members participating via video conference count for the purpose of the meeting quorum in accordance with clause 25B of Schedule 7 to the Local Government Act 2002. The meeting was held in public under the above provisions from 2:30pm to 3:47pm except where expressly noted.

Open Section

A1. Apologies

ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2021/34) to receive apologies from Cr Rebecca Fox and Mayor Beijen

(Moved Cr Plimmer/Seconded Cr Maynard) Carried

A2. Conflicts of Interest

There were no conflicts of interest declared.

A3. Public Participation

There was no public participation.

A4. Actions from Public Participation

There were no actions from public participation.

A5. Extraordinary Business

Cr Jephson advised that Cr Olds would brief members on the Waiohine Floodplain River Management Plan hearings.

A6. Minutes for Confirmation

ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2021/35) that the minutes of the Assets and Services Committee meeting held on 27 October 2021 are a true and correct record.

(Moved Cr Maynard/Seconded Cr Plimmer) Carried

B Information and Verbal Reports from Chief Executive and Staff

B1. Partnerships and Operations Report

Mr Corbett and Mr Langley answered members' questions on the increase and accessibility of aggregate for roads, the potential effect on Council's roading contract, and managing community expectation regarding rising costs.

Members' thanked Council officers for organising the Hinekura community meeting.

Members' discussed engagement with the community regarding the Greytown Wheels Park Project.

Cr Jephson left the meeting at 3:00pm.

Deputy Mayor Emms assumed the Chair.

Cr Jephson returned to the meeting at 3:01pm.

Mr Corbett advised that an update report on the Featherston Wastewater Project was being prepared and answered members' questions regarding the water meter trials and the Papawai wastewater line replacement noting the intention to release public communications.

Cr Jephson left the meeting at 3:09pm.

Members' discussed reformation of the wastewater community liaison groups, water metering anomalies and potential issues with consenting water races noting that a report would be prepared in the New Year.

Cr Jephson returned to the meeting at 3:20pm.

ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2021/36):

1. To receive the Partnerships and Operations Report.

(Moved Cr Emms/Seconded Cr Plimmer) Carried

2. Action 628: Prepare media communications about the Papawai wastewater line renewals explaining the original scope, why this has changed, and what the program now involves; S Corbett

B2. Action Items Report

ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2021/37) to receive the Action Items Report.

(Moved Cr Jephson/Seconded Cr Emms) Carried

B3. Global Stormwater Consent

Ms Penfold answered members' questions relating to NZTA's responsibility for roading impact to the environment, the timeline for lodging the consent noting that engagement with the Māori Standing Committee and Rangitane would be in the New Year, the impact and outcome to South Wairarapa water races once monitoring had been completed.

Lodging consent was budgeted within the Long Term Plan however funding for monitoring would still need to be added to years two and three of the Long Term Plan.

ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2021/38) to receive the Global Stormwater Consent Report.

(Moved Cr Plimmer/Seconded Cr Maynard) Carried

Secretary note: The update from Cr Olds on the Waiohine Floodplain River Management Plan hearing was not presented at this meeting.

C Public Excluded Business

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

Report/General Subject Matter	**Reason for passing this resolution in relation to the matter**	**Ground(s) under Section 48(1) for the passing of this Resolution**
Confirmation of Public Excluded Minutes of 27 October 2021	Good reason to withhold exists under section 7(2)(a), section 7(2)(g), section 7(2)(h) and section 7(2)(i)	Section 48(1)(a)

This resolution (A&S2021/39) is made in reliance on Section 48(1)(a) of the Local Government Official Information and Meetings Act 1987 and the particular interest or interests protected by section 6 or section 7 of that Act which would be prejudiced by the holding of the whole or relevant part of the proceedings of the meeting in public are as follows:

Reason for passing this resolution in relation to the matter	Ground(s) under Section 48(1) for the passing of this Resolution
The withholding of the information is necessary to protect the privacy of natural persons, including that of deceased natural persons.	Section 7(2)(a)
The withholding of the information is necessary to maintain legal professional privilege	Section 7(2)(g)
The withholding of the information is necessary to enable any local authority holding the information to carry out, without prejudice or disadvantage, commercial activities	Section 7(2)(h)
The withholding of the information is necessary to enable the Council to carry out, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations)	Section 7(2(i)

(Moved Cr Plimmer/Seconded Cr Jephson) Carried

Confirmed as a true and correct record

……..(Chair)

……..(Date)

SOUTH WAIRARAPA DISTRICT COUNCIL
Kia Reretahi Tātau

ASSETS AND SERVICES COMMITTEE
Public Excluded Minutes from 15 December 2021

Present:	Garrick Emms (Chair), Councillors Brian Jephson, Pip Maynard, and Alistair Plimmer.
Also in Attendance:	Cr Colin Olds.
In Attendance:	Stefan Corbett (Group Manager Partnerships and Operations), Russell O'Leary (Group Manager Planning and Environment), Tim Langley (Roading Manager), Bryce Neems (Amenities and Waste Manager), Katrina Neems (Chief Financial Officer), and Suzanne Clark (Committee Advisor).
Conduct of Business:	Due to COVID-19 restrictions this meeting was held via video conference and live streamed to Council's YouTube channel. All members participating via video conference count for the purpose of the meeting quorum in accordance with clause 25B of Schedule 7 to the Local Government Act 2002. The meeting was held under public excluded provisions from 3:46pm to 3:47pm except where expressly noted.

Open Section

A1. Apologies

ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2021/34) to receive apologies from Cr Rebecca Fox and Mayor Beijen

(Moved Cr Plimmer/Seconded Cr Maynard) Carried

C Public Excluded Business

The general subject of each matter to be considered while the public is excluded, the reason for passing this resolution in relation to each matter, and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for the passing of this resolution are as follows:

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The withholding of the information is necessary to enable any local authority holding the information to carry out, without prejudice or disadvantage, commercial activities	Section 7(2)(h)
The withholding of the information is necessary to enable the Council to carry out, without prejudice or disadvantage, negotiations (including commercial and industrial negotiations)	Section 7(2(i)

(Moved Cr Plimmer/Seconded Cr Jephson) Carried

C1. Minutes for Confirmation

ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2021/40PE) that the public excluded minutes of the Assets and Services Committee meeting held on 27 October 2021 are a true and correct record.

(Moved Cr Jephson/Seconded Cr Plimmer) Carried

Confirmed as a true and correct record

……..(Chair)

……..(Date)

Tauherenikau River Crossing – Pipe Repair

Purpose

To inform members of the condition issues and risk associated with the existing water pipeline crossing the Tauherenikau River and recommend options for urgent remedial works.

Recommendations

Officers recommend that the Committee:

1. Receive the 'Tauherenikau River Crossing – Pipe Repair' Report.
2. Recommend to Council to delegate to the Chief Executive the authority to authorise activation of the contingency plan, as outlined within this report, in the event of a catastrophic failure of the pipeline,
3. Recommend to Council to accept the risk of a pipeline failure and the associated costs impacts of that failure, as outlined within this report.
4. Recommend to Council to approve repair option 3, as outlined within this report, and instruct staff to undertake a repair and temporary pipe protection of the Tauherenikau River pipeline under urgency.
5. Recommend to Council to approve the expenditure of unbudgeted funds of up to $600,000, funded as outlined within this report, to complete the urgent repair.
6. Recommend to Council to instruct WWL to provide a project scope for long term renewal option for the pipeline and report back to the Committee with a price range and timeframe for delivery of a detailed design.

1. Executive Summary

Featherston's drinking water supply is fed through a single 300mm diameter pipe that crosses the Tauherenikau River. This pipeline was identified as a high-risk asset and as such WWL Limited (WWL) staff have been undertaking regular monitoring to ensure its ongoing operation. In December 2021 WWL staff identified a joint failure and washout risk on the section of pipe that crosses the river. Since then, WWL staff have been delivering a higher level on monitoring of the pipeline and a contingency plan prepared and delivered to Council, to address the risk of the potentially imminent failure.

Due to the critical nature of the pipeline and the significant consequence of failure, WWL staff have developed a number of options to undertake immediate remedial and repair works. This work has included estimated costs and risks associated with each option.

Due to the high risk that the pipe will fail, there is priority on remedial works being undertaken as soon as possible. Should these works not be completed there is a near certainty of asset failure. This would require Council to implement the emergency response plan outlined in the report.

Failure of the pipeline crossing also presents several public health and environmental risks, including, but not limited to, losing the ability to provide safe and consistent supply of drinking water to Featherston community. To address this risk, the recently developed emergency response plan would need to be activated. Whilst the response ensures a minimal level of service is delivered and public health is protected, it will result in an operational expenditure of anywhere between $850,000 to $6,500,000 depending on the nature and length of the outage, and river conditions.

Of the options presented in the paper, Option 1, the "Do Nothing" option is not recommended due to this high certainty of pipe failure and the significant risks to public health from loss of supply and potential contamination to water supply.

Option 2, repair of the leaking joint and installation of sacrificial bed protection, is also not recommended due to the limited life expectancy associated with the solution.

Option 3, the repair of the leaking joint and provision of more substantial rock and concrete protection, is the recommended option for the short term. This option would see the leak repaired and the pipeline crossing void filled with rock protection including concrete for temporary pipe protection. This work may a consent under the Resource Management Act 1991 (RMA) with a process running in parallel with the repair works.

If the recommendations are accepted, WWL will proceed to carry out works in Option 3 under urgency, as soon as practicable.

In association with option 3, it is also recommended that Council proceed with detailed optioneering outlined in Option 4 to replace the existing pipeline and minimise the ongoing risk of washout.

This report recommends endorsement to Council for additional budget to fund an expenditure upwards of $600,000 for the urgent repair and reinforcement as outlined in option 3 within the report.

2. Background

Featherston's water supply is sourced from Waiohine water treatment plant in Greytown and reticulated to the town via a 10-kilometre long 300mm trunk main. Given that the trunk main is the sole source of water supply to the town, it has deemed as high risk and regular inspections of critical sections of the pipe were instigated some time ago.

On 3 December 2021, WWL staff identified a water leak on the exposed pipeline that crosses the Tauherenikau river. Historic information revealed that this pipeline was originally buried beneath the riverbed and over a relatively short period of time, riverbed degradation has exposed the pipeline. A rock dam constructed about 200m upstream from this pipeline for supplying a local water race is likely to have exacerbated the degradation of the river in this reach resulting. This issue needs to be considered in any long-term solution.

Figure 1 - Pipeline crossing the Tauherenikau river

The leak is located on a pipe joint that is exposed at low river flow. It is vulnerable to ongoing damage from the river which is an active waterbody. This natural river activity could potentially cause a pipe burst at that location. Further inspection has also identified at the exposed steel pipeline is also currently undermined and as such is vulnerable to failure in a flood event.

Figure 2 - Leak on the pipe

Figure 3 - Washout of rocks that supported the pipe

As the pipeline is the only one that carries drinking water to Featherston its failure will result in complete loss of drinking water to the town. The loss of this supply would not only create a significant public health risk, but also impact significantly on residents and business within the wider community.

Given the critical nature of this pipeline, WWL have developed a number of options to repair in the short term and replace the pipeline crossing the river in the long term. WWL have also developed a comprehensive contingency plan which was shared with Council prior to Christmas.

The current operational and capital budgets allocated to WWL are inadequate to support any remedial works on this pipeline.

3. Discussion

WWL staff have completed a full analysis of repair options for the pipeline. This analysis was based on 4 potential options, being:

Option 1:	Do Nothing
Option 2:	Repair the water leak and refill rocks under the pipe
Option 3:	Repair the water leak and provide additional protection to the pipe from damage
Option 4:	Replace the existing pipeline with a new one

These four options are outlined in summary in the Options Section below and in more detail in the attached Options Paper (attachment 1).

There are a number of salient points to bring to the Committee attention in regard to this issue and prior to considering the options, which are as follows:

- Failure on the pipeline crossing the Tauherenikau river presents significant public health and environmental risks including losing the ability to provide safe and consistent supply of drinking water to Featherston community.

- Staff recommend immediate remedial actions to mitigate the risks associated with failure on the pipeline by undertaking repair on the existing leak and protecting the pipe in the short term and while summer weather conditions permit, and replacement of the vulnerable pipeline in the longer term.

- Early engagement with Greater Wellington Regional Council has occurred. These discussions have focused on proposed repair options including any emergency repairs that would be required in case of unforeseen failure.

- Early engagement with the local iwi has commenced on the basis of discussing the proposed options.

- Early engagement with Taumata Arowai to discuss the public health risks associated with this activity and will continue to engage throughout the works.

- Discussions with the adjacent landowners regarding gaining access to the pipeline and will continue to engage to discuss any impeding access to private land.

- A communications plan is being developed in collaboration with WWL regarding this event. A draft communications plan is attached in Appendix 3.

3.1 Contingency plan if pipeline fails

A contingency plan was delivered by WWL prior to Christmas to ensure that should the pipeline fail over the break; all parties would be prepared to respond.

The background and main elements of the plan are outlined below:

- In the event the pipeline crossing the Tauherenikau river fails, Featherston's water storage tank has approximately 4 hours of water storage to allow for remedial works to occur. It is highly likely that Featherston will run out of water and potentially contaminate the water supply from cross contamination with river water.

- A contingency plan has been developed to supply drinking water to Featherston in such an extreme event. The plan involves transporting water from Greytown into Featherston using water tankers. More detail in Appendix 1.

- Water tankers will be stationed at designated locations where the community can fill up containers for drinking water purposes. Additional water tankers will be required to rover around Featherston especially for the critical customers and businesses.
- Schools will be required to shut down in such an event. Featherston medical centre and fire service will be supplied with dedicated tankers to maintain continuity of service.
- The entire community of Featherston will be required to boil any water prior to drinking to eliminate any risks associated with cross contamination.
- Alternatively, WWL are investigating if it is feasible to reinstate emergency supply from the Boar Bush dam supply for purposes other than for drinking water, for the purposes of firefighting and hygiene particularly if required for an extended period due to unfavourable river conditions.
- In this scenario, once the pipeline has been repaired and the water storage tank has been fully recovered, WWL will need to flush, disinfect, and undertake extensive and costly flushing and water testing on Featherston's network to ensure the water quality meets the drinking water standards.
- The boil water notice would only be lifted once the system has been adequately cleansed from any contaminants with the potential of not supplying drinking water to the community for multiple weeks.

3.2 Options

There are four options for Council to consider. As summary of the options and a risk assessment is shown in table 1, Section 3.8.

3.3 Option 1 – Do nothing

- This option is based on accepting existing impeding risks and relying on executing the emergency contingency plan as described in Section 3.1.
- This option is not recommended due to significant risks to public health from loss of supply and potential contamination to water supply.
- The emergency remedial works may or may not be as robust as it would be if planned, resulting in inefficient use of capital and operational funding.

3.4 Option 2 – Repair the water leak and refill rocks under the pipe

- This option involves repairing the water leak on the pipeline and refilling the current void beneath pipeline caused by the wash out.
- This option focuses on addressing the immediate pipeline failure risks including the leaking fitting.
- The leaking pipe will be repaired with a new fitting that wraps around the existing pipe in a way that could eliminate the need for temporarily turning the water off and not impacting water supply to the Featherston community.

- Refilling rocks under the pipeline is likely to provide short term protection from failure until the rocks get washed away again due to the forces of water in the river especially during a flood event.
- Based on a preliminary assessment and informal discussions with Greater Wellington Regional Council, the proposed methodology would be deemed to be a permitted activity and therefore not expected to require lodgement of a resource consent.

3.5 Option 3 – Repair the water leak and protect the pipe from further damage

- This option recommends repairing the water leak using the fitting as described in Option 2.
- The scope of works in this option is expanded further to provide additional protection to the existing pipeline from damage.
- Includes encasing the exposed pipe with concrete and placing large rocks along the pipeline.
- The concrete will provide additional protection to the pipe from rocks and debris that are transported by the river while the large boulders will slow down the forces of water that caused a void under the pipe in the first place.
- A portion of the existing pipeline which is approximately 15m is already concrete encased however will need to be repaired as it has suffered some damage over time.
- The activities proposed under this option are not expected to meet the conditions of the Proposed Natural Resources Plan, 2019 and will therefore require lodgement of a resource consent or a retrospective consent if done under emergency works.
- The works proposed in this option have increased construction risks associated with managing concrete and controlling dewatering within a waterway to allow successful implementation of the work.
- While this option is expected to provide temporary protection to the pipeline, there is no guarantee due to the ongoing river degradation from the rock dam upstream of the pipe crossing or any potential flash flooding.

3.6 Option 4 – Replace the existing pipeline with a new one (Recommended)

- Option 4 recommends replacing the existing pipeline with a new pipeline that crosses the Tauherenikau river.
- The new pipeline can be designed either to pass under or over the Tauherenikau river.

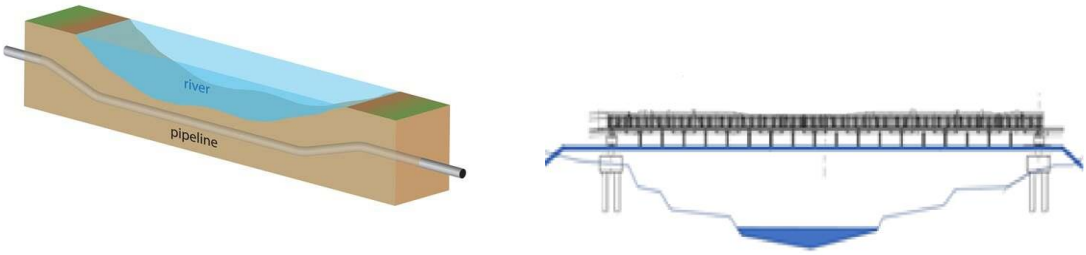

Figure 4 - Options to cross Tauherenikau river with a new pipeline

- To go under the river, the new pipeline will need to be constructed at some depth below the current riverbed levels. The rock dam (for the water race intake) about 200m upstream of the pipe crossing is expected to continue to degrade the riverbed which means the new pipeline will likely become exposed again in the future and depth of installation needs to consider this.
- To go over the river, the new pipeline will need to be supported by some form of bridge structure that could span anywhere between 100-150m in length.
- Alternatively, the new pipeline can cross the Tauherenikau river using the existing Wairarapa rail line bridge, however this would require laying approximately 2.5km of additional pipeline to and from the bridge.
- Replacement solutions require further optioneering, site investigation and engineering design to determine the most efficient and effective way to install a new pipe crossing the Tauherenikau river.

3.7 Preferred Option

Staff preferred option is immediately instigating option 3 under urgency to address the short term and immediate risk, followed by commencing planning for option 4 as soon as practicable.

3.8 Summary of options

Table 1 - Summary of options

Decision Parameters	Option 1	Option 2	Option 3	Option 4
Scope	Do nothing	Repair the water leak and refill rocks under the pipe	Repair the water leak and protect the pipe from further damage	Replace the existing pipeline with a new one
Technical Outcomes				
Addresses pipe leak	☐	☒	☒	☒ (Not immediately)
Addresses washout	☐	☐	☒	☒ (Not immediately)
Provides protection	☐	☐	☒	☒ (Not immediately)
Risk of washout in the short term	Extreme	High	Moderate	Low
Consenting and other stakeholders (Preliminary)				
Proposed Natural Resources Plan (PNRP)	Completed as emergency works with retrospective consent obtained following emergency repair.	Likely to be a permitted activity	Unlikely to be a permitted activity and will need a resource consent	Unlikely to be a permitted activity and will need a resource consent
Mana Whenua and Iwi		Options yet to be discussed. Preference to be confirmed	Options yet to be discussed. Preference to be confirmed	Options yet to be discussed. Preference to be confirmed
Fishing and Gaming NZ				
Residual Risks Scores				
Construction Risks	Extreme (400)	High (210)	High (280)	High (210)
Environmental Risks	High (280)	Moderate (120)	Moderate (140)	Moderate (80)
Public Health Risks	Extreme (350)	High (300)	High (200)	Moderate (140)
Reputational Risks	High (280)	High (210)	Moderate (140)	Moderate (140)
Health and Safety Risks	High (280)	High (210)	High (210)	Moderate (140)

4. Consultation

4.1 Engagement with Iwi

WWL have undertaken early engagement with Rangitāne o Wairarapa regarding this matter. Contact with Ngāti Kahungungu ki Wairarapa is yet to occur and will be done as soon as possible.

WWL acknowledges the importance of the river environment to the local Iwi and intend to undertake further discussions with Rangitāne once the Council authorise the preferred option.

5. Legal Considerations

Council has a legal responsibility to undertake any works in accordance with the Resource Management Act 1991.

Works associated with immediate failure of the pipeline can result in discharge of chlorinated water in high volumes and debris within the river including potential of river erosion. Any construction works will be undertaken in compliance with existing Regional Freshwater Plan and Proposed Natural Resources Plan.

Council has a responsibility to provide freshwater to its community. An event of failure on the pipeline crossing the Tauherenikau river could result in loss of supply in excess of 6 weeks. Other alternative methods to supply water to Featherston includes putting in place a boil water notice until remedial works are completed, and supply is confirmed to be safe for drinking use.

Any private property access and/or easements will need be to be sourced as a result of any remedial works.

Any Health and Safety risks associated with the remedial works will need to be managed adequately.

6. Financial Considerations

Due to this being an unforeseen emergency response, this report looks to request additional operational and capital expenditure to fund immediate response with the understanding that additional costs may be incurred if the pipeline was to fail unprecedently and an emergency response plan will be required to be executed.

To deal with the risk of pipeline failure, WWL recommends a combination of Option 3 and commencement of more detailed optioneering for Option 4 as the preferred option to manage the high-risk items to the council and the community.

There is no allowance for any works on this pipeline in the current Long-Term Plan. Council to assess whether this event can be funded through re prioritising existing council LTP fund or require additional LTP budget which will impact the rating plan.

Estimated construction costs (No pipeline failure during construction)				
Operational Cost	**N/A**	**$200K-$300K**	**$250K-$300K**	**$200K-$300K**
Capital Cost			**$250K-$300K**	**$2 million - $7million**
Total Cost		**$200K-$300K**	**$500K - $600K**	**$2.2 million – 7.3million**
Emergency contingency costs due to pipeline failure during construction				
Emergency Contingency Plan (operational cost)	**$100K/day for 1-6 weeks $700K – 4.5million**			
Emergency Repair to pipeline (capital cost)	**$150K - $2million**			
Total Cost	**$850K – 6.5million**			

7. Climate Change Considerations

This project increases greenhouse gas emissions but is necessary because the public health associated with the pipeline's failure outweigh the impacts due to greenhouse emission. Further consideration to reduce greenhouse emissions will be made during the design development phase.

8. Supporting Information

- This activity is intended to provide safe and healthy drinking water to the Featherston community.
- A risk assessment register has been completed for each option and attached in Appendix 2.

9. Next Steps

If the recommendations are accepted, WWL will proceed immediately in carrying out works in Option 3 in the short term.

In the medium term, WWL will proceed with detailed optioneering for Option 4 to replace the existing pipeline and minimise risk of washout.

If the recommendations are not accepted, Council understand the residual risks and consequences of not undertaking any immediate remedial works but will still have to implement an emergency response plan when required as outlined in the report.

10. Appendices

Appendix 1 – Emergency Response Plan

Appendix 2 - Risk Assessment of Options

Appendix 3 – Communications Plan (Draft)

Contact Officer: Stefan Corbett, Group Manager Partnership and Operations
Reviewed By: Harry Wilson, Chief Executive

Appendix 1 – Emergency Response Plan

Wellington Water

Operational Response Plan

Tauherenikau River Pipe Crossing failure

24th November 2021

Our water, our future.

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Document Control

REVISION SCHEDULE							
Current Status			DRAFT				
No	Date	Description	Prepared by	Checked by	Reviewed by	Approved by	
0.1	30/04/2021	Draft – Lifeline	Michael Sawirs				
0.2	14/05/2021	Draft – Using Boar Bush	Michael Sawirs				
0.3	18/06/2021	Draft – CIR treatment Stations	Michael Sawirs				
0.4	24/06/2021	Draft – CIR and Emergency Response	Michael Sawirs				
0.5	24/11/2021	Updated following WWL meeting	Sarah Perera, Quan Nguyen	Peter Evans Hannah Edmond			

Key Contacts

WWL Operations staff

WWL Customer Planning Engineer – John Baines
027 249 9003 John.Baines@wellingtonwater.co.nz

WWL Network Controller – Sam Lister
021 998 553, Sam.Lister@wellingtonwater.co.nz

WWL Communications lead – Samantha McCluskey
021-306256, Samantha.McCluskey@wellingtonwater.co.nz

Stantec Project Manager – Steven Shortt
027-272-2394 Steven.Shortt@stantec.com

Background

Featherston's water network is supplied by a transmission main from the Waiohine Water Treatment Plant. At the location where the pipeline crosses the Tauherenikau river, the riverbed is approximately 40-50m wide, with the pipe exposed for around 23m of this crossing. Of the exposed section, approximately 15m of pipework is concrete encased, with the remaining 8m exposed steel pipe. This poses a resilience risk to water supply to Featherston and therefore a contingency plan has been developed for the instance where pipe failure occurs.

From what can be observed, the steel pipe appears to be in good condition, with some outer protection that has been damaged, exposed steel is bright and not showing signs of metal corrosion or rust. It appears that the steel pipe is a spirally welded pipe with no visible joints. The pipe alignment still looks true, with no bows or sags apparent.

The anticipated time and mode of failure is likely to be following a significant rain event and due to impact from debris in the river. It is noted that observations of this catchment have shown fast response times with water levels dropping rapidly following a flood event. While the risk of pipeline failure has been deemed minimal (Stantec – Initial findings memo) an emergency response and contingency plan is required to ensure risks associated with water supply disruption are managed. This contingency plan is only for the interim period ahead of a long-term upgrade solution.

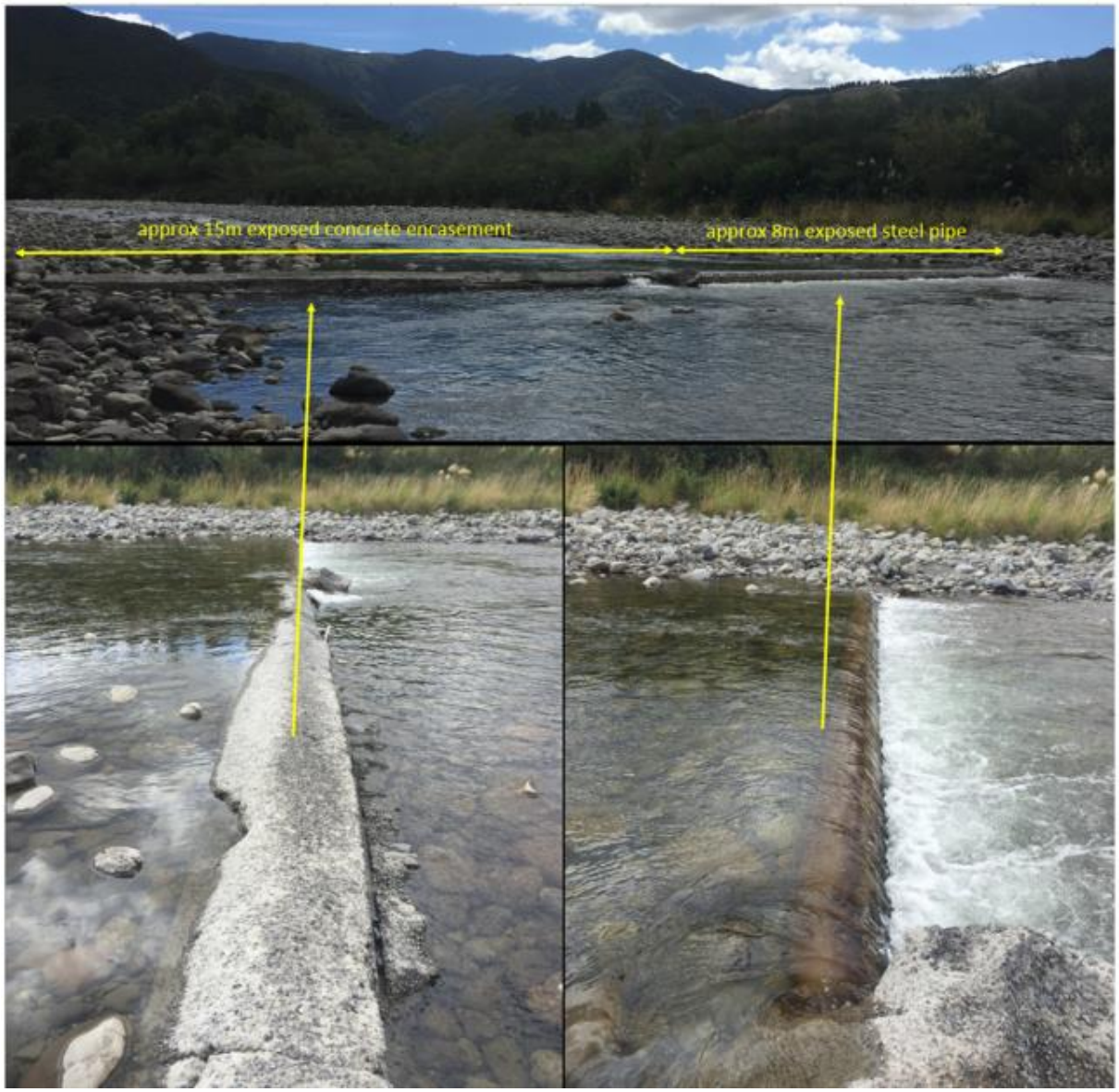


Figure 1: Current situation Tauherenikau River pipe crossing (image taken from the Initial Findings Tauherenikau River Crossing Memo prepared by Stantec, dated 24/03/2021)

Network Background and Options

Overview of SWDC Water Supply

South Wairarapa District Council supplies reticulated water to its three urban communities in Featherston, Greytown and Martinborough. In the event of pipeline failure across the Tauherenikau River, it is anticipated that only Featherston supply will be impacted, as network supply to Greytown and Martinborough are supplied by separate pipelines. It should be noted that a break on the river crossing may cause issues at the Waiohine WTP which is a source for Greytown, but this can be managed separately.

The Featherston scheme was initially installed in 1965 and serves a population of 2,599 (2019) with 36 Kilometres of watermain. The network serves residential, commercial, industrial and community users in Featherston.

There are 3 main water sources of water for the urban population of Featherston:

- Waiohine River (Emergency take won't be impacted with river crossing failure, but supply will be disrupted)
    - Water is abstracted from four bores located adjacent to the Waiohine River.
- Bore Bush Gully Catchment (Emergency take won't be impacted with river crossing failure)
    - A catchment area of approximately 3 km^2 supplies runoff to an earth dam. The reservoir behind the earth dam contains approximately 40 days storage and includes a settling pond immediately upstream. Water flows by gravity from the reservoir to the Bore Bush Holding Tanks. It is noted that this reservoir is not currently in an operational condition.
- Taits Creek Intake Weir (Emergency take will be impacted with river crossing failure)
    - A concrete intake weir is located across Taits Creek to the north of Featherston. The weir is designed to divert water from the creek into a 300mm gravity trunk main which supplies water to the holding tanks. This source is currently operated as an emergency supply only.

Anticipated Network Demand

To develop a contingency plan that is fit for purpose, the anticipated water demand of Featherston township needs to be considered.

As typical of all water supply networks, the water usage is very much seasonally dependent. Because the likely mode of failure for the river crossing pipeline is debris impact during a storm event, where the river level is expected to be high, it is reasonable to carry out planning on the basis that this contingency plan is most likely to be enacted in the winter months (July to November), where significant storms are more likely to occur. However, it is noted that this could occur at any time, until a permanent upgrade solution is implemented.

Table 1 summarises the daily demand statistics for Featherston city over the last 3 quarters from July 2020 to April 2021.

Table 1: Daily Demand Statistics for Featherston City 2020 to 2021.

City	Daily Demand Minimum (m^3/d)	Average Demand (m^3/d)	Maximum Daily Demand (m^3/d)	Minimum Night flow (L/s)	Average Night flow L/s)
Featherston Q1 1/07/2020 to 1/10/2020	1176.4	1412.2	1704	-	12.6
Featherston Q2 1/10/2020 to 1/01/2021	1360.3	1545.8	1817.7	-	13.3

Featherston Q3 1/01/2021 to 1/04/2021	1108.7	1608.4	2052.7	9.2	10.7

The flowrate adopted for this contingency plan is 1360.3 m3/day (15.74 L/s). This is the highest observed daily minimum demand in a quarter in Featherston for the 2020 to 2021 financial year. Given in an emergency, it is expected that water consumption will be less than what is generally used for day-to-day activities. As this flowrate has been achieved by the town in the past, providing potable water at this flowrate meets the basic essential demands of the town's population.

The above flow rate is encapsulating all types of water usage. In an emergency response, it is more practical to consider what the bare minimum requirements would be.

In 2017-2019, an estimate of the water usage per sector in Featherston township was developed. The results are as follows:

Table 2: estimate water usage per sector for Featherston township (2017-2019)

Sector	**Featherston water usage percentage (2017-2019)**
Households (domestic use)	54.2%
Estimated network leakage (night-time flows)	41%
Businesses (commercial use)	1.5%
Industry	1.6%
Community facilities – medical and education facilities	0.5%
Community facilities – recreational (pools, parks etc)	0.8%

From the usage sector breakdown, if potable water is supplied directly to the town, bypassing the network, network leakage and recreational usage can be neglected.

In terms of recreational usage, given the disruption associated will be significant, it is understandable that recreational, industrial, and business activities will have a lower priority and water supply for essential living and resilience requirements will be the highest priority.

If the network is bypassed for potable water supply (considering domestic, medical, and educational use only), the water supply requirement is expected to be 744m^3/d (8.6 L/s).

However, if the local network is utilised, the water supply requirement is expected to be 1,302 m3/d (15.07 L/s), which factors in a network leakage of 41% of the Featherston's total water usage. It should be noted that the South Wairarapa District Council Water Management Plan 2019 states that the leakage was planned to be addressed with the renewal of 2.1 km of reinforced concrete mains in the 2019-2020 financial year. It is unclear whether the works have been undertaken, therefore the resultant reduction in leakage has not been considered in the design flow for conservatism. Given

the high percentage of estimated leakage in Featherston (41%), if the works have not been undertaken, it is strongly recommended that leakage reduction be prioritised for Featherston.

Potential Options for Emergency Response

Option 1: Community infrastructure resilience (CIR), portable river source abstraction and treatment stations. (NOT VIABLE).

- Wellington Water has developed a resilience plan for water supply provision in the event of a major earthquake. Part of this plan includes the use of container housed surface water treatment stations.
- This station is designed to fit in one standard shipping container and the flow capability is dependent on the water source and associated acceptable abstraction rates. This information is difficult to ascertain for potential water sources in the Featherston region.
- The maximum capability of these surface water treatment stations is 5.8L/s. As considered above, the Featherston supply requirement has been determined to be 11.5 L/s. At least 2 stations would be required to meet the anticipated water supply demand.
- This option would require the supply and install of two treatment units, and foundation pads, which would need site specific design. Furthermore, the water quality, and available quantity from the river is unknown rendering this option not viable.

Option 2: Bore Bush Gully Catchment (NOT VIABLE).

- A catchment area of approximately 3 km^2 supplies runoff to an earth dam. The reservoir behind the earth dam contains approximately 40 days storage and includes a settling pond immediately upstream. Water flows by gravity from the reservoir to the Boar Bush Holding Tanks, which can then be fed into the existing potable water network in Featherston Township. This water would be fed in with minimal treatment and would be considered raw.
- Investigations undertaken have ruled out the use of this emergency water source for the following reasons:
    - The existing pipework is in very poor condition and has not been maintained
    - Water quality issues associated with algal growth in the catchment area which are an unknown potential risk.
    - Even if the water is used for sanitary aspects and not considered for consumption, introducing this water to the existing networks runs the risk of contamination for the wider network.
    - Even with a boil water notice in place, the cost, complexity, and time associated with disinfecting the network following the event far outweigh the benefits of use.

Option 3: Tait's Creek Intake Weir (NOT VIABLE).

- A concrete intake weir is located across Tait's Creek to the north of Featherston. The weir is designed to divert water from the creek into a 300mm gravity trunk main which supplies water to the holding tanks. This source is currently operated as an emergency supply only.
- In the last few years, condition assessments on the emergency supply have shown that the pipework has severely deteriorated.
- landslips in the area that have damaged the 300mm gravity trunk main and have caused sections to washout. It is unknown whether these faults have been repaired.

- Furthermore, the water would be introduced to the network as raw water and so has the same risk of contamination as utilising the Bore Bush emergency supply.

Option 4: Manual Transportation and distribution

- Water network reticulation upstream of the river crossing (downstream towards Featherston) will remain in service following an event. Manual transportation could be utilised and carting water from Greytown to Featherston is an option.
- Two options are available for distribution:
    1. Distribution points, portaloos, and temporary wash and shower stations would need to be setup across Featherston.
    2. Utilisation of the network with temporary booster pump stations, and either bladders or using the existing reservoir.

Option 5: Temporary Lifeline Supply. (Not preferred)

- In the initial findings' memo, it was recommended that materials and equipment for a lifeline supply should be kept in stock. The intention was to preinstall 80mm saddles to enable a bypass of the original pipeline. Then connect a simple 80mm HDPE pipe suspended across the river crossing.
- Because the failure is likely to be when the river is in flood, undertaking emergency repairs to suspend a pipe across the river may be impractical, expensive, and poses a health and safety risk to the Contractor.
- Furthermore, to achieve adequate stability and secure the pipeline across the bridge, it is likely sheet piles either end of the river would be required in addition to a steel fibre cable tensioned and braced to the pipeline to prevent sagging and deflection.
- This option is not preferred if more consistent manual distribution can be utilised.

Recommended Emergency response Option.

From the options discussed above, only two viable options remain. The option to manually transport water from Greytown to Featherston is preferred due to reliability and reduced risk. This could be carried out using distribution points, portable toilets, temporary wash stations in the immediate term (day 1-7). However, preference is for this to be directly pumping into the network using booster pump stations to utilise the existing network for distribution.
Temporary lifeline supply has been discounted, as it is intended that repairs to the existing pipeline can be carried out during the response phase, and whilst manual transportation is being implemented to provide a more robust short-term solution.

Extent of Scope covered within this document

The emergency response proposed by this contingency plan is strictly associated with the initial emergency response following wash out of the pipeline. The plan addresses how to provide potable water for Featherston township in the first 0-30 days following event. This plan does not cover considerations associated with recommissioning the network after permanent repairs, undertaking the permanent repair solution, or addressing the long-term resilience risk for Featherston township.

It should also be noted that this contingency plan does not go into detail with respect to chlorination commissioning requirements, it is recommended that a treatment Engineer looks at this aspect in detail. This is further emphasized as the network is anticipated to remain static for an extended period of time following pipe failure, with the potential for some sections to empty due to high leakage (previously estimated to be ~40%), which invalidates the key assumption that chlorine is always flowing through the system, thus the residual chlorine levels will be very low. A boil water notice will be in place for the duration of the emergency response.

The emergency response has been prepared with two options for distribution utilizing the existing network. Although a high-level assessment has been performed to estimate the footprint of the temporary pump setup and truck turning bay, it should be noted that no detailed design has been undertaken to verify that the temporary arrangement to utilize network distribution is constructable and operable. The bulk water distribution costs are estimated to be $16,800/day for 4 trucks. It is recommended that an additional truck is on standby to allow for unforeseen delays or issues which may arise at the time of the emergency. This will bring the total cost of the trucks to $21,000/day.

The approximate total cost of implementing this emergency response plan for the first 7 days is $155,400 excluding Wellington Water direct operational costs and costs of work and land for creating the turning bay

The estimated total cost of operating the network as per the emergency plan for a period of 30 days is approximately $630,000 excluding Wellington Water direct operational costs and costs of land and work for creating the turning bay (considering additional bulk water costs utilising the existing network arrangement).

Response Plan (Detail)

Trigger for Emergency Response: The outlet from the treatment plant has a flow meter. If the river crossing was to wash away, the trigger for emergency response will be the high flow rate alarm (greater than 30 L/s). It is understood that, currently, the outlet from Waiohine treatment plant does not contain an ASV (auto shutoff valve).

The following section details the planned response with respect to the failure of the Tauherenikau River crossing water supply line. Refer to Appendix 2 for an overarching plan of key locations: Isolation valves (Figure 2), recommended immediate response pumping setup location options (Figures 4, 7, and 8), and recommended reservoir pumping setup location options (Figures 9 and 10).

1. Isolate pipeline at both the Greytown and Featherston side by shutting off the valves, as per locations below. This may need to be opened at some point after the alarm to identify location of failure.
   In parallel: communications to Featherston Township issued as per communications requirements section below.

Figure 2: Isolation valves for river crossing pipeline (Wellington Water GIS 23/11/2021)Refer to Appendix 2 for location with respect to the Featherston town.

2. Inspections to be carried out to locate failure. It should be noted that this may require valves to be reopened to confirm location of failure if not visible on initial inspection. (Note repair of this failure is assumed to be carried out in parallel to this contingency plan, but is not detailed in this plan)
3. Water tankers to be engaged to transport water from Greytown to Featherston, fill up and drop off, and proposed route locations below. Bulk Water Transport Ltd (https://bulkwater.co.nz) is a local supplier that has assisted Wellington Water in the past. Contact details bulkwater@extra.co.nz Glen – 0272868098.
4. The proposed pick-up location for the tankers is shown in Figure 3, at 151 Woodside Road. This has been selected as a location with a hydrant, which is close to the Waiohine Water Treatment Plant, without a requirement for gravel roads or crossing the railway line. It is

noted that this should be confirmed at the time of implementation, with an alternative location being 10 Underhill Road.

5. The trucks will be required to operate on a consistent cycle – 4 trucks with a capacity of 26m^3 per truck. The anticipated cost is $16,800/day (24-hour day). The anticipated demand per hour is 54.5 m^3. The trucks can complete a full trip (including time to empty and fill the tanks) in 1.5 hrs – if 4 trucks are continuously running, 62m^3 will be supplied to Featherston every hour.
6. Wellington Water have two pump sets on standby, each with three pumps, which can provide approximately 20 L/s of flow at 40m of total head when both sets are running simultaneously. Four potential locations have been identified which may be suitable to setup the water supply distribution pumps in an emergency, identified in Figures 4, 6, 7, and 8. All four locations are at an elevation where adequate head can be provided for up to 74m RL if the two pump sets (six pumps) are utilised and running simultaneously in parallel. Properties above the elevation of 74 m RL will have a reduced level of service or are assumed to have their own water supply. Otherwise, they will be required to collect water manually from a distribution point. Approximately 18 properties which lie above 74m RL may be impacted.
7. Of the four locations, the hydrant outside 62 Johnston Street appears to be the most suitable location for the pump boosters (Figure 4). There is space for the pump set up in the berm of the road at the hydrant. Although some of the pump set up will encroach onto the road, there is ample space on the other side of the road for vehicles to pass through. Traffic management will be required for the duration the pumps are set up there. The water trucks could be able to use the Featherston Recycling Station south of the recommended pump location (60 Johnston Street) for turning.
8. Other potential sites for the pump set up for emergency water supply include the berms outside: 81 Underhill Road (Figure 7), and the reserve south of 10 Harrison St West (Figure 8). For the two alternative options, private driveways can be utilised to turn for the return trip to refill.

Figure 3: Recommended fill location for water tankers circled in red (151 Woodside Road). (Asset data from Wellington Water Open Data Portal (23/11/21). Aerial from LINZ - South-wairarapa urban 2021 0.075m & others 2020-2021)

Figure 4: Recommended drop off location for water tankers in blue (berm outside 62 Johnston Street). Approximate hydrant location in orange. Recycling yard south of the recommended site to

be used for truck turns. (Asset data from Wellington Water Open Data Portal (23/11/2021). Aerial from LINZ – South-wairarapa urban 2021 0.075m & others 2020-2021)

Figure 5: Proposed Route for water tankers to and from 151 Woodside Road and 62 Johnston Road, estimated to be 13 minutes one way with no traffic. (Aerial from LINZ – South-wairarapa urban 2021 0.075m & other 2020-2021)

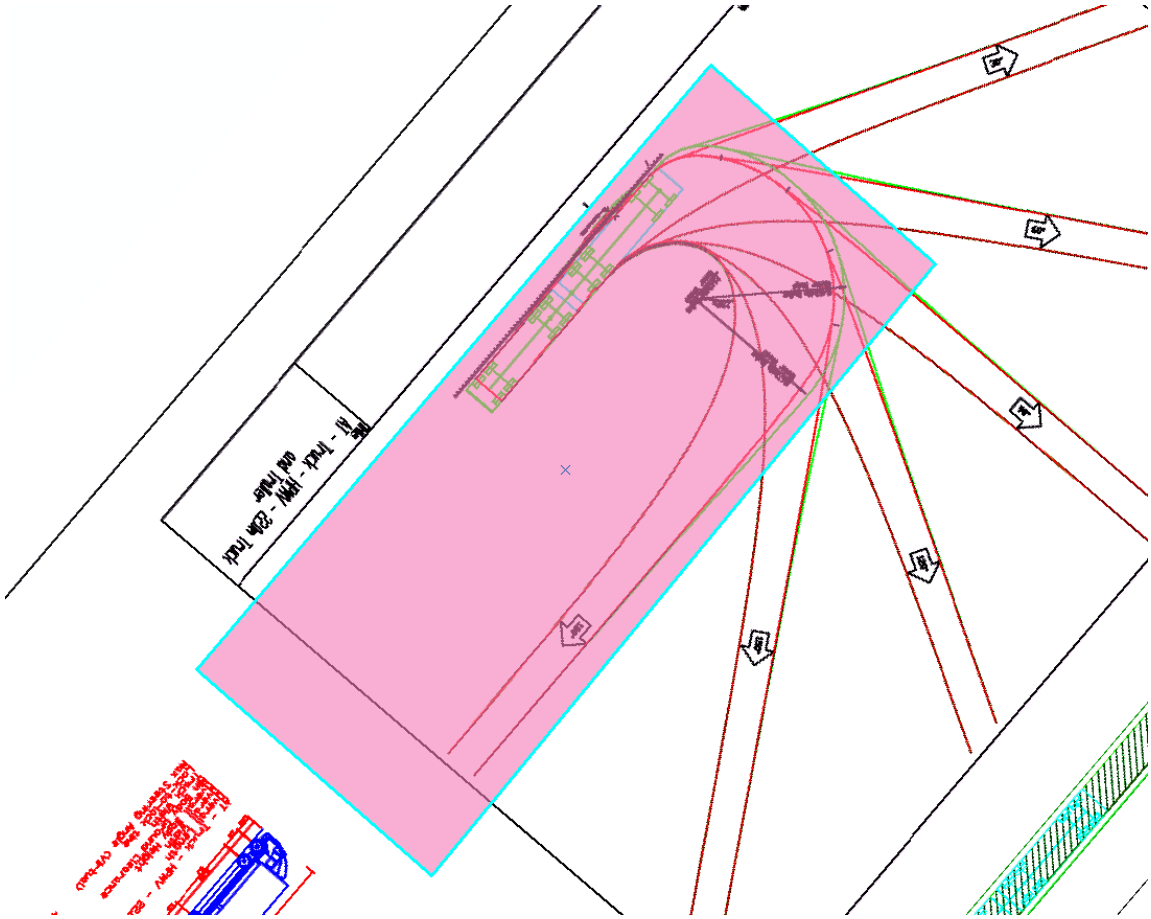


Figure 6: Approximate water truck turning circle and high-level turning bay area (1500m^2, 23m x 65m)

Figure 7: Possible water pump setup location at 81 Underhill Road in blue and subsequent proposed turning bay area in the reserve in pink (1320m^2, 22m x 60m). Approximate hydrant location in orange. (Asset data from Wellington Water Open Data Portal (23/11/2021). Aerial from LINZ – South-wairarapa urban 2021 0.075m & others 2020-2021)

Figure 8: Possible water pump setup location outside the reserve south of 10 Harrison Street West in blue with approximate hydrant location in orange. It is proposed to use the private driveway north of the site for the water truck to return to refill. (Asset data from Wellington Water Open

Data Portal (23/11/2021). Aerial from LINZ – South-wairarapa urban 2021 0.075m & others 2020-2021)

9. Traffic management approvals would be required to allow for smooth transitioning of water drop off from trucks and public throughfare. The total footprint for the temporary pump set up is estimated to be 248m^2 (31m x 8m), which includes two 20m^3 water bladders, and the two trailer mounted pump sets, estimated to be 5 metres wide and 16.5m long when side by side.
10. In addition to the pump set up, adequate space needs to be provided for the water delivery trucks to enter the site, park up to deliver the water to the pump system, and turn and exit to make the return trip to refill. The minimum area required is estimated to be 1,320m^2 (22m x 60m), which may increase depending on where the turning area is located, how far the turning bay is from the road, and site restrictions. Refer to Figure 7 for the water truck's estimated turning circle and area.

11. Wellington Water's operations team will be setting up the temporary arrangement which is anticipated to be set up within 24-48hrs. To enable this, the following equipment is required:
    a. Two 20,000L bladders connected in series to continue providing water to the town while there is no truck connected to the pumps (it is recommended another spare 20,000L bladder be kept on standby in case of a bladder failing),
    b. Two trailer-mounted pump sets (emergency pump sets owned by Wellington Water consisting of 3 pumps each) to provide sufficient head for reticulation (approximately 40m of head, which includes static head of approximately 20m, 10m servicing head, and an allowance of 10m head loss. Given the complexity of the network, it is recommended that the head loss in the network is verified by undertaking water supply modelling.).
    c. Lay flat hose to connect from pumps to a nearby hydrant.
    d. Chlorine dosing trailer.

A reservoir is situated at Boar Bush Gully Road at approximately 97m RL. Wellington Water's Regional Water Stormwater Wastewater App suggests that the reservoir has a capacity of 455m^3, which is enough capacity to provide approximately 8 hours and 20 minutes of water to the Featherston community at a flow rate of 15.1 L/s with no recharge. Utilising this reservoir for gravity distribution provides relief to the pump system and means that the pumps and trucks will not be running 24/7. This allows the trucks to be serviced and fuelled up, while also giving the truck drivers a break and allow for shift changes.

The arrangement to enable network distribution using the reservoir tanks upstream of Featherston at Boar Bush Gully Road requires a different set up and location than that of the immediate response plan because there isn't enough head provided by the temporary pumps in parallel to utilize the Bore Bush reservoir for gravity distribution. Vehicular access to the reservoir is also not currently suitable for the water trucks. Given the proposed required tanker movements, the recommended location for the pumps to transfer flows to the reservoirs is the hydrant outside 81 Underhill Road which provides a direct pipe route to the reservoir, reducing head losses which would be incurred at the sites further away. The location is shown in Figure 10.

When the two pump sets are in series, the pumps can provide approximately 22.5 L/s at 60m of head. At 22.5 L/s, the pumps will be able to fill an empty reservoir in approximately 17 hours and 10 minutes while also providing 15 L/s to the town.

The pump station set up would be similar to that of the immediate response, albeit the pumps will be in series rather than parallel to each other, to provide adequate head to recharge the reservoir, and the bladders will not be required

Traffic management will be required, and a detailed assessment should be carried out. The tankers would be supplying water to this revised location. At a high level, the anticipated footprint for the temporary arrangement is expected to be 31m by 8m as shown in Figure 9. Given the limited space within the berm of the road, it is recommended that a portion of the reserve southwest of 81 Underhill Road is utilised for the pump setup, so the road capacity is not reduced. Underhill Road is a no-exit street which makes it difficult for the water delivery trucks to turn and exit after emptying. It is estimated that the space required to make a 180 degree turning movement is 1500m^2 (22m x 60m), indicative area illustrated in Figure 6 in pink. There is ample space in the grassed lots northeast of the proposed pumpstation which could be utilised for a turning bay to be constructed, as shown in Figure 7. This would require land acquisition. There are also a number of driveways north east of the proposed pump location where the water trucks can do a three point turn for the return trip to refill.

This response plan incorporates Wellington Water's desire to utilise the two standby pump sets in an emergency. However, there is a risk of system failure when pumping up to the reservoir in series. If one pump fails, then the entire system is compromised as the head required to reach the reservoir at the design flowrate would not be provided. Although using the two standby pump sets is possible, it is recommended that the two pump sets remain at the proposed immediate emergency pumping site outside 62 Johnston Street. While these pumps are providing immediate water supply to the town as per the response plan, Wellington Water can enquire with local suppliers if there is a suitable potable water pump which can supply the required flow and head to recharge the reservoir. This option minimises the time where the town will be relying solely on the bladders or have no water supply when the pump system is relocating to the site outside 81 Underhill Road. The pumps can then be used at 62 Johnston Street if the reservoir system is to fail.

Figure 9: Proposed location for network reticulation distribution arrangement via pumping to reservoir, and approximate extent of pump setup in orange. (Asset data and aerial from Wellington Water Regional Water Stormwater Wastewater App (23/11/2021)

Another alternative location for pumping up to the reservoir is at the hydrant outside 14 Boar Bush Gully Road, illustrated in Figure 10. The hydrant is located within a vegetated area, which will require clearing to be able to have the pump arrangement in this location. Construction of a turning bay is also necessary to allow for the truck to make the return trip to refill. For this option, it is proposed to utilise the existing road, widening the hardstand to allow enough space for the water trucks to do a 180-degree turn. The proposed turning bay location and pump setup is illustrated on Figure 10. This option requires clearing of the vegetation and engineered design for the construction of the turning bay and platform for the pumping arrangement as there are steep falls at the hydrant location.

Figure 10: Alternative location of pumping set up to pump to Boar Bush Gully Reservoir outside 14 Boar Bush Gully Road. Pump arrangement highlighted in blue, and turning bay highlighted in pink. (Asset data from Wellington Water Open Data Portal (23/11/2021). Aerial from LINZ – South-wairarapa urban 2021 0.075m & others 2020-2021)

Residual Risks

- If the transport route from Greytown to Featherston is impacted, then water would need to be sourced from Te Marua water treatment plant in Upper Hutt Kaitoke. This would increase the travel duration and likely mean additional trucks would need to run.
- If both Greytown to Featherston and Upper Hutt to Featherston is impacted, train freight of water would need to be considered.
- Firefighting service provision has not been considered within this contingency plan. It is likely additional tankers would be required as contingency – this would require further consideration and planning.
- This contingency plan will require updating following completion of proposed long-term solution.
- It is strongly recommended that an ASV and associated telemetry is installed at the treatment plant on the outlet pipe ASAP.
- Contamination risk during filling and emptying of the water tankers, or temporary equipment has not been strictly considered. It is assumed that chlorine testing will be carried out as each truck arrives to ensure that sufficient residual chlorine is available. It is understood that there are currently no temporary chlorine dosing trailers, however a project is in progress in developing new trailers. It is recommended that once these trailers are ready, that the contingency plan is updated to include reserve trailers onsite to cover the need of potentially re-dosing during filling.
- A detailed layout of the temporary arrangement for utilising network reticulation has not been considered in detail. Understanding the footprint on site will enable a detailed traffic management assessment to also be carried out.
- It will take time to collect all the equipment and setup the various sites, it is assumed that there will be sufficient existing reservoir storage that can provide for the needs of the community while the response is enacted.
- Water source quality at Waiohone has not been considered. In a storm event that could wash out the river crossing, the quality of source water at Waiohone could also be affected. Further consideration should be undertaken to ensure there is a suitable alternative should abstraction from the Waiohone river be not suitable.
- The reservoir in Featherston township could theoretically be used directly to facilitate network distribution, however has not been used in the current methodology. The biggest constraint with this is the size of the water tanker trucks and the existing accessway to the reservoir. If a turning bay was created at the reservoir, then this contingency plan could be amended. An access track upgrade up to the reservoir would be required to enable using the reservoir directly for reticulation. A detailed investigation of the access track, topography, and the trafficability requirement should be undertaken, costs associated with upgrading access to the reservoir should be compared with the anticipated cost of operating this response for 30 days (estimated at $630,000 not including WWL operational labour time).
- Bulk water transport has been the preferred supplier for transportation of water in the past for Wellington Water. There is a risk that during an emergency they may not be available. An alternate supplier is Jbs – contact details are as follows → John@jbs.co.nz 021-750920.
- It is assumed that all emergency equipment such as bladders, stands, hose, and fittings are readily available at the established CIR islands in UHCC. It is recommended that an audit schedule should be developed such that audits are undertaken on a 12 monthly basis to verify that all required equipment is available.
- A large percentage of the flow demand of the town is attributed to leakage (41%). It is recommended that the works on the Featherston network is investigated to determine if the renewal works stated in the South Wairarapa District Council Water Management Plan 2019

were carried out. If not, it is highly recommended that leakage reduction be prioritised for Featherston. This will dramatically reduce the flow demands of the town.

- Filling location in Greytown has been chosen based on adequate space for the trucks to be able to turn around, and pipe size for adequate flow delivery. It is recommended than an assessment of the road condition is undertaken, and if necessary, a transport team is engaged on standby should road rehabilitation be required.
- From a high-level investigation, there are no known elderly or rest homes in Featherston township. Specific consideration with respect to water supply and wastewater service provision would need to be considered if there are rest homes in Featherston. It is likely dedicated onsite bladders would be required, this in addition to toilet and shower facilities.
- The trigger for emergency response is a high flow alarm from the treatment plant telemetry. If a power outage was to occur, it is likely the response time will be significantly delayed. A secondary alarm is recommended as there is no ASV on the outlet. Furthermore, the longer isolations are delayed after failure, the less storage in reservoir in Featherston.
- The condition of the reservoir has not been considered in this contingency plan.
- Fittings/valves/tees/pipes etc will most likely not be ready off the shelf items for the recommended pump setups outlined in this response plan (series/parallel). It is highly recommended that these components are procured as soon as possible so that the pump system can be readily implemented in an emergency.
- The response plan has assumed the water trucks consist of the water truck with a storage volume of 13 m3 and a water tank trailer providing an additional 13 m3 of storage. The truck and trailer set up may make it difficult for maneuvering. Another potential option is to only have the trucks transporting the water. 8 to 9 trucks would be required rather than 4 to compensate for the volume lost. The amount of available water trucks need to be investigated if this is preferred.

Communications Requirements

Initial communications to the wider public to provide the following key messages:

- A major flood has damaged the water supply network in Featherston.
- Boil water notice in place.
- You can use showers, toilets, and water supply domestic utilities as normal – with low pressure anticipated. Please minimise water usage as much as possible.

After Permanent repair is complete:

- Disruption to the water supply network in Featherston has been resolved, boil water restrictions are no longer in place.

Emergency Response Management

This section outlines the response expected and by who should the risk of road failure or flooding eventuate.

Roles and Responsibilities

Wellington Water COG team will follow WWL's escalation process in the response to a failure of the Tauherenikau river crossing. The Emergency Management Team (EMT) will be engaged to manage the response.

Refer Woogle for current escalation process and EMT structure - https://woogle.wellingtonwater.co.nz/site/emer/SitePages/Home.aspx.

Wellington Water contacts are:

- WWL Customer Planning Engineer – John Baines
  027 249 9003 John.Baines@wellingtonwater.co.nz
- WWL Network Controller – Sam Lister (021 998 553) Sam.Lister@wellingtonwater.co.nz
- WWL COG Service delivery representative – Steve Watt (021-507-440)
  Steve.watt@wellingtonwater.co.nz

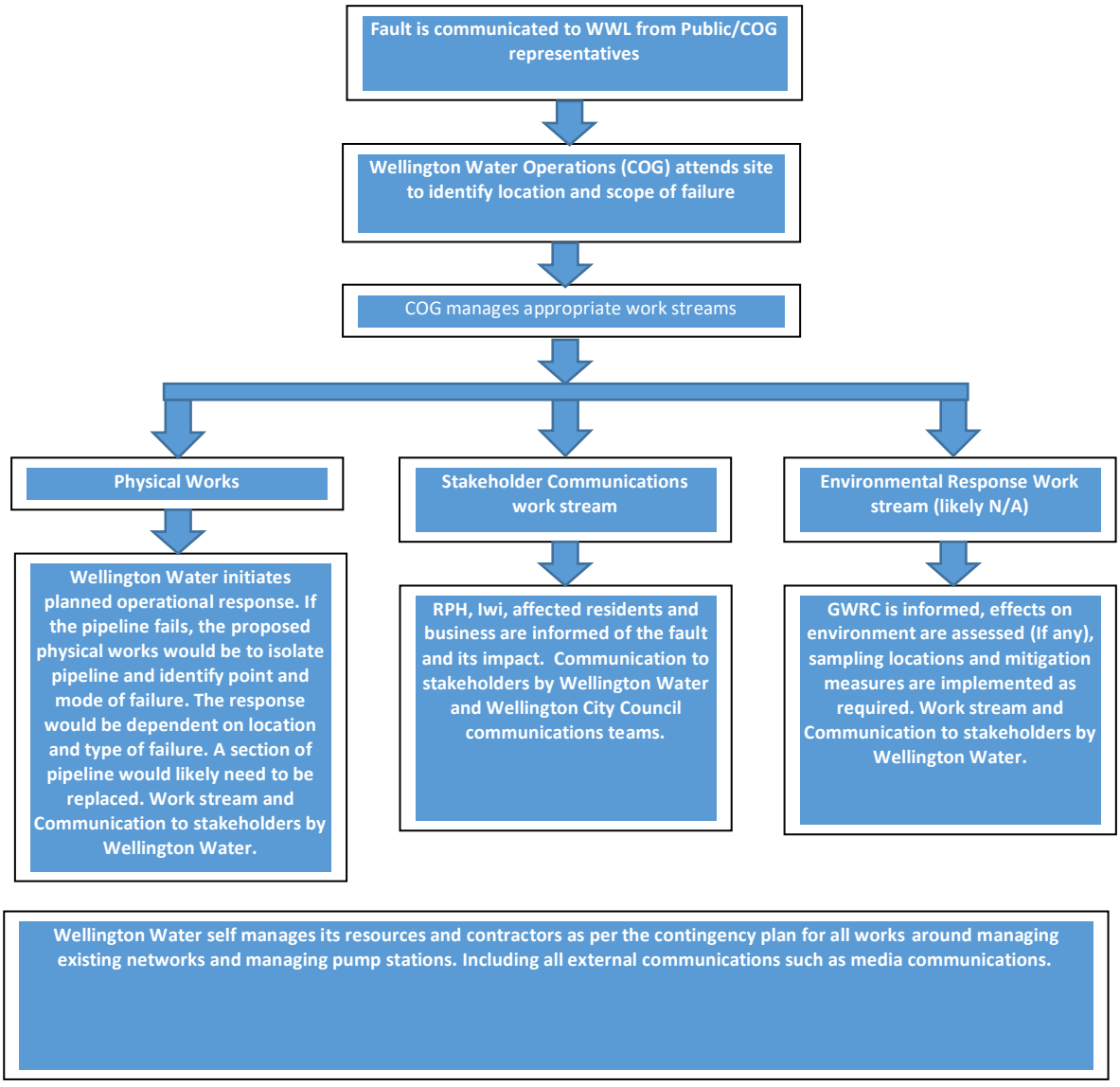
The above roles will require additional input from a variety of WWL team members, contractors, consultants, and stakeholders as tasks are defined. WWL would appoint an Incident Controller to manage the event should the EMT be activated.

Operational Response

The Wellington Water Network Controller may initiate the EMT. Overall structure will be established in line with standard response management Infrastructure Service Continuity Plan. The Incident Controller will establish the team resources as required.

The initial pre-planned operational response to a major failure or flooding event is outlined in the Incident work stream flow chart below.

Incident Work stream Flowchart

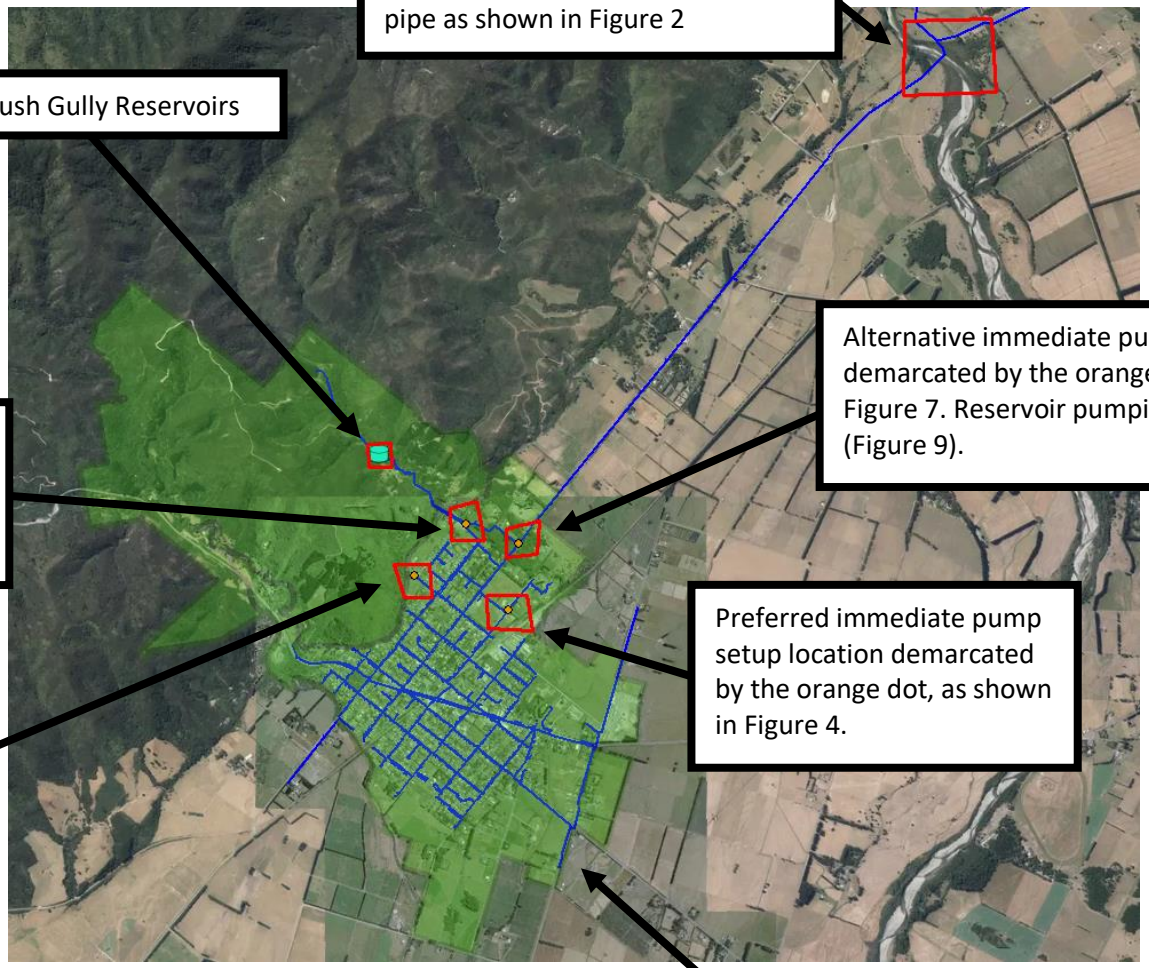


Below is a step-by-step guide of the flow chart above.

Appendix 1 – Operational response summary steps Post Failure

	Remedial Actions
Primary Response:	1. Operational first responder (WWL COG) **(Brandon Dittmer)** i. Attend the site within 2 hours to provide a situation report/awareness. b. Operational first responder (WWL COG) ***(Brandon Dittmer)*** to call: i. Emergency Response Manager **(*John Baines)*** 2. Emergency Response Manager calls: a. Water Carting representative b. Operations crew representative to isolate pipeline **c.** Comms representative **(*Samantha McCluskey)*** i. Implement Comms plan: WWL Communications would begin with stakeholder's which will be ongoing via the WWL Communications team d. The WWL COG team will manage work streams relating to repairs, communications, environmental management, and other supporting activities: i. Appropriate repair will be selected and approved by the WWL COG and Wider Project team ii. Site Specific Health and Safety, Quality, and Environmental considerations are to be documented. iii. Repair to be completed. Any required resources to be mobilised to site. iv. Reinstatement and cleaning crews to be mobilised. **e.** Comms **(*Samantha McCluskey)*** i. Communications to be completed with affected parties.

Appendix 2 – Location Plan



Appendix 2 - Risk Assessment of Options

Safety in Design H&S Risk Assessment

Administration

Project Name	Tauherenikau River Crossing - Repair 21/22
Project No. (if applicable)	OPC101202

Assessment Date	12/01/2021	**Asset Type**	Water - Pipe	**Location / Site Name**	Tauherenikau River, Bucks Road Featherston
Designer	Ruslaan Riyaz	**SID Process Step**	Initial H&S Risk Assessment (Step II)		

Wellington Water

Safety in Design Process Decisions

Opex: Technical Input Required? (Step III)	Yes
Design Meeting Required? (Step V)	
Record decision reasoning for Step V:	
More Detailed Assessment (e.g. Hazop) Required? (Step VIII)	
Record decision reasoning for Step VIII :	

Safety in Design Stakeholders

Name	South Wairarapa District Council (SWDC)	**Role**	Asset Manager
Name	Ruslaan Riyaz	**Role**	Operator
Name		**Role**	Operator
Name		**Role**	Operator
Name		**Role**	
Name		**Role**	
Name		**Role**	
Name		**Role**	
Name		**Role**	
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Name		**Role**	
Name		**Role**	
Name		**Role**	

If additional stakeholders are required, select the row above and insert new row. Record Name and Role as per Safety in Design Process.

Supporting documentation

Raw risk						Risk management								
Specific Asset Reference (if applicable)	Risk Source (Hazard)	Risk Description	Raw Consequence	Raw Likelihood	Raw Risk Rating	Control Measure	Control Type	Control Description	Control Justification (if not eliminated)	Control Owner	Residual Consequence	Residual Likelihood	Residual Risk Rating	Risk Owner
SWDC_PWP000018	Pipe coupling	River bed load (rocks, logs etc) coming in contact with damaged coupling resulting in pipe failure at that joint	Substantial 100	Possible 4	Extreme 400	Minimise	1. Engineering Control	Recommend installation of proprietry repair coupling around the existing coupling to improve durability of the joint (Option 2)	Risk of pipe failure cannot be eliminated through repair	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager
					N/A	Minimise	1. Engineering Control	Recommend encasement of exposed steel pipeline with concrete (Option 3) to protect the pipe and the joint from bed load impact	Risk of pipe failure cannot be eliminated through repair	Operator	Substantial 100	Highly Unlikely 2	High 200	Asset Manager
SWDC_PWP000018	Bed scour beneath the pipeline	Scouring of pipe bedding resulting in failure of pipeline due to lack of foundational support	Substantial 100	Possible 4	Extreme 400	Minimise	1. Engineering Control	Recommend re-filling the existing void beneath the pipeline with rock from river beach (Option 2). Recommend monitoring the scour hole monthly or after every major flood event and add additional rocks if required to support the pipeline	Risk of pipe failure cannot be eliminated through repair	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager
					N/A	Minimise	1. Engineering Control	Recommend placement of Class C rip rap apron downstream of the pipe crossing to dissipate the energy causing bed scour (Option 3)	Risk of pipe failure cannot be eliminated through repair	Operator	Substantial 100	Highly Unlikely 2	High 200	Asset Manager
	Natural Events	Natural events such as floods and earthquake resulting in pipe failure in the river	Substantial 100	Unlikely 3	High 300	Minimise		No controls proposed for unforeseen natural events - Wellington Water to continue monitoring pressure in the pipeline to detect failure as early as possible and execute emergency response plan/contingency plan if required	An earthquake event is impossible to predict or control.	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager
SWDC_PWP000018	Tauherenikau river pollution	Release of chlorinated water in high volumes (but low concentrations) and debris polluting the river as a result of pipeline failure	Moderate 40	Possible 4	Moderate 160	Minimise		No controls for this unforeseen event - Wellington Water to continue monitoring pressure in the pipeline to detect and isolate the failure as early as possible to minimise the discharge of chlorinated water into the river.	Risk of pipe failure cannot be contolled unless remedial words are undertaken	Operator	Moderate 40	Possible 4	Moderate 160	Asset Manager
SWDC_PWP000018	Contamination of water supply	Cross contamination from untreated river water entering through the damaged coupling incase of a sudden pressure drop (surge, pipe failure elsewhere etc.), contaminating Featherston's water suply	Substantial 100	Unlikely 3	High 300	Minimise	1. Engineering Control	Minimise point of entry for river water to enter pipeline. Repairing the coupling as per Option 2 will minimise this risk. Also recommend servicing/replacing the pressure control valve on the inlet to Boar Bush reservoir as it appears to be causing negative pressure surge at the en dof the tank filling cycle.	Risk of pipe failure cannot be contolled unless remedial words are undertaken	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager
SWDC_PWP000018	Contamination of water supply	Cross contamination from untreated river water entering the pipeline due to loss of internal pressure during the repair works.	Substantial 100	Possible 4	Extreme 400	Minimise	1. Engineering Control	Proposed solutions recommend repair fittings that can be installed in live/pressurised conditions to prevent river water ingress	Risk of pipe failure cannot be contolled unless remedial words are undertaken	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager
SWDC_PWP000018	Loss of water supply	Pipeline failure goes undetected as a result of the failed magflow at Waiohine WTP resulting in depletion of water in Boar Bush reservoir. No water supply to Featherston for both drinking and sanitation purposes affecting public health	Substantial 100	Possible 4	Extreme 400	Minimise	1. Engineering Control	A data logger has been installed on a hydrant outside 32 Boar Bush Gully Road to detect any sudden and unusual drop in pressure on this line. The logger is set to trigger an alarm at 2 low setpoints to allow time for WWL operator to respond	Risk of pipe failure going undetected cannot be eliminated through this control	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager

Specific Asset Reference (if applicable)	Risk Source (Hazard)	Risk Description	Raw Consequence	Raw Likelihood	Raw Risk Rating	Control Measure	Control Type	Control Description	Control Justification (if not eliminated)	Control Owner	Residual Consequence	Residual Likelihood	Residual Risk Rating	Risk Owner
SWDC_PWP000018	Loss of water supply	Pipeline failure unable to be repaired in limited timeframe (4 hours) resulting in depletion of water in Boar Bush reservoir. No water supply to Featherston for both drinking and sanitation purposes affecting public health	Substantial 100	Possible 4	Extreme 400	Minimise	2. Adminstration Control	To minimise public health risk, Wellington Water will execute the emergency response plan if repair is unable to be completed within limited timeframe. The response plan involves supplying water to Featherston using water tankers and mobile pumps (Refer to Mott MacDonald Report)	Risk of pipeline failure causing depletion of reservoir cannot be eliminated through repair	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager
SWDC_PWP000018	Loss of water supply to critical customers	Pipeline failure resulting in depletion of water in Boar Bush reservoir. No water supply to Featherston's critical customers such as schools, medical centre, fire service and business that rely on water to operate safely	Substantial 100	Possible 4	Extreme 400	Minimise	2. Adminstration Control	WWL and SWDC will ask all schools in Featherston to shut down in such an event (as per Comms Plan). Medical Centres and fire service will be provided with dedicated water tankers to prevent disruption to these service	Risk of pipeline failure causing depletion of reservoir cannot be eliminated through repair	Operator	Substantial 100	Highly Unlikely 2	High 200	Asset Manager
SWDC_PWP000018	Loss of water supply to critical customers	Pipeline failure resulting in depletion of water in Boar Bush reservoir. No water supply to any home dialysis patients in Featherston affecting the patient's treatment regime.	Substantial 100	Possible 4	Extreme 400	Minimise	2. Adminstration Control	At the time of undertaking this assessment, no home dialysis patients are known to reside in Featherston. However this could change anytime. In th event of a pipeline failure, Wellington Water as part of its emergency response plan will contact the district health board to either relocate any home dialsysis patients into care or provide bottled water to the patient for treatment.	Risk of pipeline failure causing depletion of reservoir cannot be eliminated through repair	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager
SWDC_PW009719	Water quality	Disturbance of sediment due to depletion of water from Boar Bush reservoir, increasing turbidity of drinking water in the network	Major 70	Possible 4	High 280	Minimise	1. Engineering Control	Recommend setting up water tankers in Featherston for drinking water collection within 1-2 hours and isolate the reservoir before it depletes signficantly	Disturbance of sediments cannot be eliminated due to signifcant drop in pressure in the network expected in this event.	Operator	Major 70	Unlikely 3	High 210	Asset Manager
					N/A	Minimise	2. Adminstration Control	Recommend engaging with the local community to spread awareness of the event and request to conserve water to maxmiise the sotrage in the reservoir. Wellington Water are actively working on reducing the network leakage rates to minimise unproductive loss of water form the network in such an event.	Disturbance of sediments cannot be eliminated due to signifcant drop in pressure in the network expected in this event.	Operator	Major 70	Unlikely 3	High 210	Asset Manager
	Contamination of water supply	Loss of system pressure downstream of the reservoir resulting in cross contamination of water network from foreign matter entering pipelines (groundwater, water pipes below leaking sewers etc.). Contamination of water supply would result in the spread of widespread illness	Substantial 100	Possible 4	Extreme 400	Minimise	2. Adminstration Control	Recommend maximising water storage in the reservoir and system pressure by reducing demand through community awareness. Failing above, recommend advising the community not to drink tap water and instead collect water from water tankers. A boil water notice wil be required to be issued to minimise public health risk	Loss of system pressure cannot be eliminated through repair	Operator	Substantial 100	Unlikely 3	High 300	Asset Manager
Construction Risks														
	Water - Being In, Near, Or On Tauherenikau river	Drowning	Major 70	Unlikely 3	High 210	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend not entering river following a storm event. Recommend restricting river access to only those that are required to enter Recommend not entering or traversing water of unknown depth Recommend designating a specific walkway through the riverbed to access the repair site and making safe by removing tripping hazards (guide rope across river) Recommend defining personnel no-go zones – i.e. areas that are deeper Recommend working team of minimum 2 people when working around or on water.	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Major 70	Highly Unlikely 2	Moderate 140	Contractor

Specific Asset Reference (if applicable)	Risk Source (Hazard)	Risk Description	Raw Consequence	Raw Likelihood	Raw Risk Rating	Control Measure	Control Type	Control Description	Control Justification (if not eliminated)	Control Owner	Residual Consequence	Residual Likelihood	Residual Risk Rating	Risk Owner
	Water - Being In, Near, Or On Tauherenikau river	Strong river current can make individuals lose footing and be swept away resulting in severe injury	Major 70	Unlikely 3	High 210	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend not entering river following a storm event. Recommend restricting river access to only those that are required to enter Recommend workign team of minimum 2 people when working around or on water. Recommend wearing gum boots with good grip	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Major 70	Highly Unlikely 2	Moderate 140	Contractor
	Water - Being In, Near, Or On Tauherenikau river	Driving machinery in running water or leaving it unattended resulting in loss of machinery in flowing water	Major 70	Unlikely 3	High 210	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend not drivng plant in deep waters. Recommend minimising the number of times machinery crosses the river Recommend removing all plant and equipment form the river bed and banks at the end of each shift. This is likely to be a consent condition	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Major 70	Highly Unlikely 2	Moderate 140	Contractor
	Water - Being In, Near, Or On Tauherenikau river	Contact with contaminated river water	Moderate 40	Unlikely 3	Moderate 120	Minimise	3. PPE	For the Contractor undertaking the works - Recommend wearing water resistant clothing (waders or similar) to minimise skin contact with water.	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	Slips/Trips/Falls	Uneven terrain and slippery surfaces in running water could result in injuries due to falls	Moderate 40	Unlikely 3	Moderate 120	Minimise	3. PPE	For the Contractor undertaking the works - Recommend wearing good grip footwear Recommend designating a specific walkway through the riverbed to access the repair site and making safe by removing tripping hazards (guide rope across river)	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	Tauherenikau river pollution	Fuel spillage from machinery/plant polluting river	Moderate 40	Unlikely 3	Moderate 120	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend refuelling of machinery atleast 10m away from the channel as per the PNRP,2019 Recommend undertaking daily pre-start checks and report any fuel leakages in plants to site supervisor so that it can be replaced.	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	Tauherenikau river pollution	Dewatering chlorinated water impacting river habitat	Moderate 40	Unlikely 3	Moderate 120	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend reducing the level of residual chlorine when dewatering the pipeline using sodium thiosulphate solution mixed on site	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	Tauherenikau river	Sediment disturbance from driving machinery in running water	Moderate 40	Unlikely 3	Moderate 120	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend minimising the number of times machinery crosses the river	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor

Specific Asset Reference (if applicable)	Risk Source (Hazard)	Risk Description	Raw Consequence	Raw Likelihood	Raw Risk Rating	Control Measure	Control Type	Control Description	Control Justification (if not eliminated)	Control Owner	Residual Consequence	Residual Likelihood	Residual Risk Rating	Risk Owner
	River diversion	Failure of river diversion caused due to scouring from river flow resulting in water to enter dry work site	Major 70	Unlikely 3	High 210	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Works are recommended to be undertaken in the summer period i.e., between December – March, to reduce the risk of exceeding the capacity of the temporary diversion. Monitoring the weather forecast for suitable conditions is also recommended prior to establishing on site	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
					N/A	Minimise	1. Engineering Control	For the Contractor undertaking the works - In shallow water depths, lining the waterside face of the bund with geotextile is recommended to prevent washout	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	River diversion - Scouring of banks	Reduction in channel width causing increase in river flow velocity and scour of banks along the length of the diversion	Moderate 40	Unlikely 3	Moderate 120	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommended that reasonable steps are taken to protect the vegetation along the riverbank during the works i.e., not destroy or traverse machinery other than designated areas. Works are recommended to be undertaken in stages such that the temporary diversion isolates no more than 50% of the overall channel width to carry moderate flows as the original channel.	Works in the river cannot be eliminated at this stage due to the location of the fault on the piepline. Futher long term design development is recommended to consider solution that eliminates work within the Tauherenikau river channel	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	Vehicles And Mobile Equipment	Vehicle or plant on site collides with worker(s) - particularly on unstable terrain causing serious injury or death	Major 70	Unlikely 3	High 210	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend using spotters to be used whenever plant or vehicles are in use.	Risk cannot be eliminated through repair	Contractor	Major 70	Highly Unlikely 2	Moderate 140	Contractor
	Manual Handling Or Body Stress	Injury from manual handling of materials	Moderate 40	Unlikely 3	Moderate 120	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend using plant for moving materials and equipment where possible and 2 person lift where required	Risk cannot be eliminated through repair	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	Tools And Equipment (Powered Or Hand)	Injury from incorrect use of tools and equipment	Moderate 40	Possible 4	Moderate 160	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend that tools and equipment are only used by appropriately trained staff and as per the manufacturer's instruction. Recommend checking that tools and equipment have been maintained and serviced regularly	Risk cannot be eliminated through repair	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	Working Remotely Or Isolated	Site is located in a remote location with no cellphone coverage impacting an indivdual's ability to readily seek help if injury, illness, violence or another emergency occurs while at work	Major 70	Unlikely 3	High 210	Minimise	2. Adminstration Control	Recommend use of radio communication devices Recommend working team of minimum 2 people.	Risk cannot be eliminated through repair	Operator	Major 70	Highly Unlikely 2	Moderate 140	Operator
						Minimise				Contractor	Major 70	Highly Unlikely 2	Moderate 140	Contractor
	Pipe damage	Accidental damage to the pipeline during repair works	Substantial 100	Unlikely 3	High 300	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend not operating heavy machinery near the pipeline, hand dig if deemed practical to minimse any impacts on the pipeline.	Risk cannot be eliminated through repair	Maintainer	Substantial 100	Highly Unlikely 2	High 200	Contractor
Option 2 - Coupling repair - Risks specific to option														
	Repair fitting size	Repair fitting does not fit around exisitng pipe coupling resulting in network shutdown to remove the damaged coupling. Loss of pressure as a result of shutdown could draw contaminants into the pipeline and depletion of Boar Bush reservoir if not completed within limited timeframe (4 hours)	Substantial 100	Possible 4	Extreme 400	Minimise	1. Engineering Control	The outside diameter of the coupling and pipeline have been measured on site with callipers. The repair solution proposes some modifications to the existing coupling to fit within the repair fitting.	Risk cannot be eliminated through repair	Operator	Substantial 100	Unlikely 3	High 300	Contractor

Specific Asset Reference (if applicable)	Risk Source (Hazard)	Risk Description	Raw Consequence	Raw Likelihood	Raw Risk Rating	Control Measure	Control Type	Control Description	Control Justification (if not eliminated)	Control Owner	Residual Consequence	Residual Likelihood	Residual Risk Rating	Risk Owner
	Pipe misalignment	Movement of pipeline while exposing the coupling for repair causing failure of pipeline	Substantial 100	Unlikely 3	High 300	Minimise	1. Engineering Control	The repair solution propses a temporary pipe support system to minimise the liklihood of movement during the repair works	Risk cannot be eliminated through repair	Operator	Substantial 100	Highly Unlikely 2	High 200	Contractor
Option 3 - Coupling repair and pipe protection - Risks specific to option														
	Concrete spill	Concrete spill polluting the river	Moderate 40	Unlikely 3	Moderate 120	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend pouring concrete on a day with no rain forecast to minimise washout risks Recommend maintaining some clearance (1-2) from edge of temporary cofferdam and edge of concrete pour to minimise the risk of spilling concrete over the diversion	Risk cannot be eliminated through repair	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
	Resource consent	Breach of any consent condition resulting in infringements and negative impact on relationship with GWRC	Moderate 40	Unlikely 3	Moderate 120	Minimise	2. Adminstration Control	For the Contractor undertaking the works - Recommend that site supervisor monitors compliance with consent conditions and notify any breaches in a timely fashion.	Risk cannot be eliminated through repair	Contractor	Moderate 40	Highly Unlikely 2	Moderate 80	Contractor
Option 4 - Pipe replacement (To be developed further based on design solution)														
	Contamination of water supply	Loss of pressure as a result of shutdown to connect new pipeline resulting in ingress of contaminants in the pipeline	Substantial 100	Possible 4	Extreme 400	Minimise	1. Engineering Control	Recommend live / hot tapping solutions to connect new pipeline to existing.	Risk canot be eliminated unless hot tapping solutions are considered to be pratical and cost effective	Designer	Substantial 100	Unlikely 3	High 300	Asset Manager
	Limited timeframe to connect new pipeline to existing	Depletion of Boar Bush reservoir if cut in not completed within limited timeframe (4 hours)	Substantial 100	Possible 4	Extreme 400	Minimise	1. Engineering Control	Recommend live / hot tapping solutions to connect new pipeline to existing.	Risk canot be eliminated unless hot tapping solutions are considered to be pratical and cost effective	Designer	Substantial 100	Unlikely 3	High 300	Asset Manager
Emergency response plan														
	Water tankers	Inadequate disinfection of water tankers prior to establishment resulting in widespread illness within the community using the water tanker	Substantial 100	Unlikely 3	High 300	Minimise	2. Adminstration Control	Recommend that Wellington Water use water tanker supplier that is listed as an approved water carrier by Taumata Arowai. This will provide confidence that the supplier will have adequate systems in place to ensure that the tankers disinfected prior to deploying it to site	Risk cannot be eliminated as water tankers are th eonly way to supply the communiy with drinking water in an emergency event	Operator	Substantial 100	Highly Unlikely 2	High 200	Asset Manager
	Traffic Or Pedestrian Movement		Major 70	Unlikely 3	High 210								N/A	
	Noise	Operation of emergency pump station within residential areas	Minimal 1	Unlikely 3	Low 3	Minimise	1. Engineering Control	The pump unit have been housed within a shed structure to dilute the noise generated from its operation. Noise from diesel generator may be unavoidable. Recommend use of noise shields. For Contractor undertaking the works, hearing protection is recommended to be worn as required.	Noise is unavoidable, however exposure can be managed safely through application of administration controls and the use of appropriate PPE.	Operator	Minimal 1	Highly Unlikely 2	Low 2	Contractor
	Communications	Boil Water notice not advertised adequately causing multiple illness within community	Substantial 100	Unlikely 3	High 300	Minimise	2. Adminstration Control	Recommend use of large VMS board on SH2 (Fitzzherbert St) and other main streets of Featherston to advertise the boil water notice	Risk is unavoidable and can only be managed with effective communication and engagement with the public	Operator	Substantial 100	Highly Unlikely 2	High 200	Operator
	Level of service	Emergency response plan is unable to meet minimum level of service for pressure and water quality resulting in negative pubilc image	Moderate 40	Possible 4	Moderate 160	Minimise	2. Adminstration Control	Recommend engaging with the local community to spread knowledge and reiterate the unforseen nature of the event.	Risk is unavoidable and can only be managed with effective communication and engagement with the public	Operator	Moderate 40	Unlikely 3	Moderate 120	Operator
	Loss of business	Loss of income for businesses that rely on water supply resulting in financial claims	Major 70	Possible 4	High 280	Minimise	2. Adminstration Control	The emergency response plan caters for businesses that rely on water should the emergency repair take more than a week to implement.	Risk is unavoidable and can only be managed with effective communication and stakeholder management.	Operator	Major 70	Unlikely 3	High 210	Operator
	Media	Negative publicity from loss of water supply to Featherston or widespread community illness caused as a result of this event	Major 70	Possible 4	High 280	Minimise		No specific controls recommended other than to maintain trasparency with the media	Risk is unavoidable	Asset Manager	Major 70	Highly Unlikely 2	Moderate 140	Asset Manager

Specific Asset Reference (if applicable)	Risk Source (Hazard)	Risk Description	Raw Consequence	Raw Likelihood	Raw Risk Rating	Control Measure	Control Type	Control Description	Control Justification (if not eliminated)	Control Owner	Residual Consequence	Residual Likelihood	Residual Risk Rating	Risk Owner
	COVID-19	Large scale congregation of community at water distribution points resulting in the spread of COVID-19 virus	Major 70	Unlikely 3	High 210	Minimise	2. Adminstration Control	Recommend compliance with Wellington Water's COVID-19 protocols relevant the alter level/traffic light setting at the time of implementation. Recommend encouraging the community to wear face coverings when congregating at the distribution points and set up a signboard with QR code for scanning. Recommend promoting social distancing where site space allows	Risk is unavoidable	Operator	Major 70	Highly Unlikely 2	Moderate 140	Operator
	External stakeholders	Negative impact on relationships with Taumata Arowai, Greater Wellington Regional Council and local Iwi as a result of of this event.	Major 70	Unlikely 3	High 210	Minimise		No specific controls recommended other than to maintain trasparency with the external stakeholders	Risk is unavoidable	Asset Manager	Major 70	Highly Unlikely 2	Moderate 140	Asset Manager
	Health, Wellbeing, Stress, Fatigue	Limited timeframes and widespread disruption naturally impacting the well being of ground staff, resulting in injuries and loss time due to any illness	Moderate 40	Possible 4	Moderate 160	Minimise	2. Adminstration Control	Recommend adequate resources are available to undertake the works without excessive time pressure Presence of robust emergency response plan is expected to alleviate stress from workers repairing the pipeline	Risk is unavoidable but can be managed with adequate controls	Operator	Moderate 40	Unlikely 3	Moderate 120	Operator
					N/A								N/A	
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					N/A								N/A	
					N/A								N/A	

Appendix 3 – Communications Plan (Draft)

Tauherenikau River Pipe Crossing Failure

Last updated: 22 Dec 2021
Communications Lead: Vanessa Macfarlane
Project Lead: Tim Harty

Background

The pipeline that supplies drinking water to Featherston is leaking on the section that crosses the Tauherenikau river.

Featherston's water network is supplied by a transmission pipe from the Waiohine Water Treatment Plant. Where the pipeline crosses the Tauherenikau river, the section of pipe that is exposed is approximately 23m long. Of the exposed section, around 15m of pipe is concrete encased and the remaining 8m is made up of steel pipe. A break in a coupler on the exposed section was identified on 03 December 2021.

The leak only became visible when the river level was low. The area of the pipe around the leak suggests this may have been leaking undetected for some time and not visible due to river levels. However further inspection of the pipe is needed in order to undertake a full assessment of the leak and the work needed. This cannot be completed until river levels are low enough, which may take some time given the high volume of rain experience across the region through December.

The Featherston network serves a population of approximately 2,500 people with 36 kilometres of watermain. The network serves residential, commercial, industrial, and community users.

The three main water sources for Featherston are:

- Waiohine River – current
- Taits Creek Intake Weir – emergency supply only
- Bore Bush Gully Catchment – not in commission

In the event of pipeline failure across the Tauherenikau River, Featherston supply will be cut off completely. Supply to Greytown and Martinborough will not be impacted as they are supplied by separate pipelines.

When Wellington Water notified Council earlier this year of the section of exposed pipe that crosses the river, the risk of pipe failure was categorised as low. As a result of this categorisation, weekly monitoring of this section of pipe has been conducted. Monitoring has been elevated to daily since the broken coupler was identified.

An automated pressure alarm has been installed on the pipe downstream of the leak to monitor the pressure in the pipe. If the pressure drops too low this will trigger the alarm to our on call staff in the area as it could indicate that the leak has worsened or failed completely.

A contingency plan for this scenario has been refined and a repair plan is being created. A long-term upgrade solution will remain in draft until Wellington Water is directed by South Wairarapa District Council to progress a plan.

High community impact

As the Waiohine River is currently the only source of drinking water for Featherston, a critical break in the pipe or a temporary suspension of services while the coupler is repaired will have significant impact on the

community. That paired with the holiday season, will mean that any work on the pipe during Dec/Jan will mean extra consideration needs to be given to our communications and engagement throughout this project.

Water will have to be brought into town with tanker trucks and pumped into tanks at various locations from where it will be pumped into the reticulation system. This water will be classed as non-drinkable and residents and business will have to fill up their own water containers at the tanks and greatly reduce their water use.

Scenarios

Given the difficulty around access to the pipe while river levels are high, the project team has identified three scenarios that they are planning for and working through:

1. Assessment and planning (our current scenario)
2. Emergency repair and implementation of contingency plan (only if needed)
3. Planned pipe repair (ideal scenario, which would take place after Christmas to avoid as much disruption to the community as much as possible)

Each scenario needs a targeted and tailored approach to communications. We are currently at scenario one. Any change in scenario would require a change in approach, which are outlined below.

Scenario 1 – Assessment and planning

In this scenario, we are still unable to access the pipe for a full inspection, but we have installed a pressure drop alarm to help us monitor the situation and be alerted if the leak worsens. The pipe remains intact, but full contingency and repair planning is underway, so we are prepared if the condition of the pipe worsens and we need to undertake emergency repair.

In scenario 1, we ensure that we have all the resources lined up, confirmed that our contingency plan can be activated at short notice and are keeping SWDC and iwi well informed of our actions and allow them to make informed decisions about next steps.

We are currently in scenario 1 as of Thursday, 27 January 2022.

Communications objectives:

- Ensure South Wairarapa District Council are well informed of the contingency and repair plans.
- Ensure Iwi partners are well informed of the contingency and repair plans.
- Ensure we are able to get access onto necessary properties to undertake the work.
- Understand the needs and level of resilience among certain landowners that may have a high reliance on the water supply e.g. farmers.
- Provide confidence in our procedures.

Audiences and channels

In scenario 1 there isn't a need to be proactively communicating with the wider community as there is no immediate action we need from the community. Instead, we will be engaging with those on a need-to-know basis.

Audience	What do we want them to know / do / understand	Channels to reach them
SWDC – officers and councillors	• Wellington Water has a contingency plan and repair plan • The pipe is being monitored daily • A pressure-drop alarm has been installed	• Weekly email updates • Councillors' webinar in Dec • Meeting with Comms team
Iwi	• Wellington Water has a contingency plan and a repair plan • The pipe is being monitored daily • A pressure-drop alarm has been installed • We will work with you in our planning to ensure that we are taking all the appropriate steps	• Weekly calls to update iwi
Key property owners where we need access to their property to check the pipe/undertake work	• The pipe has a small leak, and we need access to their property to undertake repair work	• Face-to-face engagement / door knocking
GW	• We will continue to talk to you as we undertake our planning. • If we need to undertake an emergency repair we will let you know and work with you.	• Regular updates via operational team
Farmers or other landowners who have a higher reliance on water	• The pipe has a leak, and we are assessing their needs and what resilience measures they have in place should supply fail	• Face-to-face engagement / door knocking

Key messages

We will use the below key messages during scenario 1:

- We are unable to access the pipe for a full inspection, but we have installed a pressure drop alarm to help us monitor the situation and be alerted if the leak worsens.
- The pipe is holding up, but full contingency and repair planning is underway, so we are prepared if the condition of the pipe worsens, and we need to undertake emergency repair.
- We need approval from SWDC before we can activate the contingency plan or undertake any repair work.

Scenario 2: Emergency repair and implementation of contingency plan

In this scenario, the leak on the pipe has worsened before we are able to repair it, the pipe fails, and we have five hours of storage before water supply to Featherston is cut off.

Scenario 2 means we will be activating our contingency plan, either in full or part (depending on the scale of failure) and undertaking an emergency repair of the pipe. Tankered water would be supplied by Wellington Water and made available to residents while the repair was underway.

We will be in emergency response mode. We will work closely with South Wairarapa District Council to communicate to the community to let people know the water supply is cut off and work is being done immediately to repair the pipe and restore normal services.

Wellington Water would send two fully vaccinated, with valid Vaccine Passes, members of the comms team to Featherston to provide on- the-ground communications and engagement support.

We would make use of all the channels at our disposal to get the word out there as quickly as possible. This would include signage in public areas, engagement with businesses, door knocking, community meetings, media briefings and engagement, social and digital channels, and paid advertising. We would consult with the South Wairarapa District Council General Manager Communications & Engagement as we undertake these communications and rely on the team's local knowledge and understanding on what communication channels work best.

Communications objectives:

- Ensure community know that water supply to Featherston only is off and why.
- Give clear guidance on what they need to do to access tanked water that will be supplied by Wellington Water.
- Support the community to manage their water use.
- Give the community confidence that we are working urgently to repair the pipe.
- Manage mis and disinformation.
- Provide confidence in our procedures.

Audiences and channels

Audience	What do we want them to know / do / understand	Channels to reach them
SWDC – officers and councillors	• The pipe has failed. We need to activate our contingency plan and undertake an emergency repair. • Our crews have supplied tank water to residents and have set up water stations at central locations in Featherston. • We will work with the council to deliver water to	• Regular updates (calls or emails) throughout the day on how the repair work is going. • Early heads up on any issues so the council can make well informed decisions.

	those who are unable to visit the water stations or need extra support. • Our crews are working to urgently repair the leak so we can get the water supply back to Featherston as soon as possible.	
Iwi	• The pipe has failed. We need to activate our contingency plan and undertake an emergency repair. • Our crews have supplied tank water to residents and have set up water stations at central locations in Featherston. • We will work with the council to deliver water to those who are unable to visit the water stations or need extra support. • Our crews are working to urgently repair the leak so we can get the water supply back to Featherston as soon as possible. • We are focused on minimising impact on the river environment, whilst ensuring the repair is completed as quickly and as safely as possible.	• Weekly calls on how the repair work is going. • Early heads up on any issues so iwi can help us make well informed decisions.
GW	• We will continue to talk to you as we undertake our planning. • If we need to undertake an emergency repair, we will let you know and work with you.	• Regular updates via operational team
Residents	• The pipe has failed. We need to activate our contingency plan and undertake an emergency repair. • Our crews have supplied tanked drinking water to residents and have set up	• Media • Signage in public areas • Social media and digital • Face-to-face / door knocking • Community meetings • Advertising (radio, print and social)

	water stations at central locations in Featherston. • We will work with the council to deliver drinking water to those who are unable to visit the water stations or need extra support. • Our crews are working to urgently repair the leak so we can get the water supply back to Featherston as soon as possible.	
Businesses	• The pipe has failed. We need to activate our contingency plan and undertake an emergency repair. • Our crews have supplied tank water to residents and have set up water stations at central locations in Featherston. • Let us know if you have a water tank at your business and we can work with you to fill this up. • Our crews are working to urgently repair the leak so we can get the water supply back to Featherston as soon as possible. • Should the leak not be repairable in a set time, targeted water supply points can be installed so businesses can operate	• Media • Signage in public areas • Social media and digital • Face-to-face / door knocking • Community meetings • Advertising (radio, print and social)
Other public agencies and services	• The pipe has failed. We need to activate our contingency plan and undertake an emergency repair. • Our crews are working to urgently repair the leak so we can get the water supply back to Featherston as soon as possible. • While this work is underway, we can still supply you water. Just let us know what your needs	•

	are and we can work to support.	

Key messages

Messages to use if the repair can be completed within a few hours:

- Wellington Water is urgently responding to a damaged pipe in Tauherenikau River that provides Featherston with drinking water. Water supply to Featherston is cut off and water tanks are bringing supplies to the town while workers fix the damaged pipe and restore services.
- The water will be back on as soon as possible, until then, please fill up containers with water from one of our tankers at XXX. Water tankers are available between the hours of XXX and XXX. Each household should fill up XXX per person per day.
- Avoid running your dishwasher, washing machine, or any appliances that use water. It is best not to use water from your hot water cylinder either as the cylinder may get damaged if the water level gets too low. Do not flush your toilet, use XXX.
- We understand that this has caused significant disruption and we'd like to thank everyone for their continued patience as we work to urgently repair the pipeline.

Once repair has been completed:

- Wellington Water and South Wairarapa District Council would like to thank the community of Featherston for their patience and understanding while we worked to restore water to the town.
- We have now successfully repaired the pipe by replacing XXXXX.
- The water supply is now turned back on. We recommend turning on your cold tap slowly and let it run for a few minutes to clear any air bubbles that may have entered the system. Air can cause the water to turn a milky colour, but this will not affect the taste and should clear quickly.

Messages to use if the repair will take a few days, week or more:

- Wellington Water is urgently responding to a damaged pipe in Tauherenikau River that provides Featherston with drinking water. Water supply to Featherston is cut off and water tanks are bringing supplies to the town while workers fix the damaged pipe and restore services.
- The water will be back on as soon as possible, until then we will be supplying you water from Greytown. This involves trucking water from Greytown and pumping it through to the mains. During this time, there will be increased traffic on SH2 between Greytown and Featherston.
- The water from Greytown can be used for showers, dishes and flushing the toilet but it is not safe to drink unless you boil it for 1 minute.
- Please keep your water use to a minimum if possible.
- We understand that this has caused significant disruption and we'd like to thank everyone for their continued patience as we work to urgently repair the pipeline.

Once repair has been completed:

- Wellington Water and South Wairarapa District Council would like to thank the community of Featherston for their patience and understanding while we worked to restore water to the town.
- We have now successfully repaired the pipe by replacing XXXXX.
- The water supply is now turned back on. We recommend turning on your cold tap slowly and let it run for a few minutes to clear any air bubbles that may have entered the system. Air can cause the water to turn a milky colour, but this will not affect the taste and should clear quickly.

Scenario 3: Planned pipe repair

In this scenario, the pipe has held up during the Christmas and New Year period and are undertaking a planned repair on the pipe in early/mid Jan 2022. During this scenario will be proactively communicating with the community ahead of time to inform them the water supply will be cut off temporarily and clearly outline how they will access water while we undertake this important work.

Communications objectives:

- Ensure community know that water supply to Featherston only is off and why.
- Give clear guidance on what they need to do to access tanked water that will be supplied by Wellington Water.
- Support the community to manage their water use.
- Manage mis and disinformation.
- Provide confidence in our procedures.

Audiences and channels

Audience	What do we want them to know / do / understand	Channels to reach them
SWDC – officers and councillors	• We are undertaking planned repair work on the pipe. • During this time, we will need to turn off the water supply and provide drinking water to community as per our contingency plan. • We will be communicating and engaging with community through this whole process so they are clear on what they need to do. • We will continue to keep you updated.	• Regular updates (calls or emails) on how the repair work is going. • Early heads up on any issues so the council can make well informed decisions.
Iwi	• We have engaged with you throughout the planning of our repair work. • We will work with you as we undertake this repair work and ensure all appropriate steps are taken. • We are focused on minimising impact on the river environment, whilst ensuring the repair is	• Weekly calls on how the repair work is going. • Early heads up on any issues so iwi can help feed into our decision making.

	completed as quickly and as safely as possible.	
GW	• We will continue to talk to you as we undertake our repair work.	• Regular updates via operational team
Residents	• We are undertaking some repair work on the main drinking water pipe that supply's Featherston. • While we are completing this work, water supply will be cut off but we will be supplying drinking water through tankers in central locations. • We are working as quickly as possible to complete this work. • We will continue to keep you updated on our progress.	• Media • Signage in public areas • Social media and digital • Face-to-face / door knocking • Advertising (radio, print and social)
Businesses	• We are undertaking some repair work on the main drinking water pipe that supply's Featherston. • While we are completing this work, water supply will be cut off but let us know your water needs and we can work with you to continue to provide you with water as much as possible. • We are working as quickly as possible to complete this work. • We will continue to keep you updated on our progress.	• Media • Signage in public areas • Social media and digital • Face-to-face / door knocking • Advertising (radio, print and social)
Social Service Providers	• We are undertaking some repair work on the main drinking water pipe that supply's Featherston. • While we are completing this work, water supply will be cut off but let us know your water needs and we can work with you to continue to provide you with water as much as possible.	• Media • Signage in public areas • Social media and digital • Face-to-face / door knocking • Advertising (radio, print and social)

	• We are working as quickly as possible to complete this work. • We will continue to keep you updated on our progress.	

Key messages

Messages to use if the repair can be completed within a few hours:

- Wellington Water is undertaking repair work on the pipe in Tauwherenikau River that provides Featherston with drinking water. While this work is underway water supply to Featherston is cut off and water tanks are bringing supplies to the town while workers fix the damaged pipe.
- The water will be back on as soon as possible, until then, please fill up containers with water from one of our tankers at XXX. Water tankers are available between the hours of XXX and XXX. Each household should fill up XXX per person per day.
- Avoid running your dishwasher, washing machine, or any appliances that use water. It is best not to use water from your hot water cylinder either as the cylinder may get damaged if the water level gets too low. Do not flush your toilet.
- We understand that this has caused significant disruption and we'd like to thank everyone for their continued patience as we work to urgently repair the pipeline.

Once repair has been completed:

- Wellington Water and South Wairarapa District Council would like to thank the community of Featherston for their patience and understanding while we worked to restore water to the town.
- We have now successfully repaired the pipe by replacing XXXXX.
- The water supply is now turned back on. We recommend turning on your cold tap slowly and let it run for a few minutes to clear any air bubbles that may have entered the system. Air can cause the water to turn a milky colour, but this will not affect the taste and should clear quickly.

Messages to use if the repair will take a few days, week or more:

- Wellington Water is urgently responding to a damaged pipe in Tauherenikau River that provides Featherston with drinking water. Water supply to Featherston is cut off and water tanks are bringing supplies to the town while workers fix the damaged pipe and restore services.
- The water will be back on as soon as possible, until then we will be supplying you water from Greytown. This involves trucking water from Greytown and pumping it through to the mains. During this time, there will be increased traffic on SH2 between Greytown and Featherston.
- The water from Greytown can be used for showers, dishes and flushing the toilet but it is not safe to drink unless you boil it for 1 minute.
- Please keep your water use to a minimum if possible.
- We understand that this has caused significant disruption and we'd like to thank everyone for their continued patience as we work to urgently repair the pipeline.

Once repair has been completed:

- Wellington Water and South Wairarapa District Council would like to thank the community of Featherston for their patience and understanding while we worked to restore water to the town.
- We have now successfully repaired the pipe by replacing XXXXX.

- The water supply is now turned back on. We recommend turning on your cold tap slowly and let it run for a few minutes to clear any air bubbles that may have entered the system. Air can cause the water to turn a milky colour, but this will not affect the taste and should clear quickly.

Media FAQs

Where is the leaking section of pipe?

The pipeline that supplies drinking water to Featherston is leaking at the section that crosses the Tauherenikau river.

Where does the pipe supply water to?

The pipeline supplies drinking water to Featherston.

Why isn't Wellington Water fixing the pipe now?

We need to complete a full assessment of the pipe before we can begin repair work.

Due to the unusually high volume of rain experienced throughout the region this month, we need to wait until river levels are low enough to carry out the inspection and begin repairs.

How will you know if the condition of the pipe gets worse?

We are monitoring the pipe daily and we've fitted an automated pressure alarm to monitor the pressure in the pipe. If the pressure drops too low, it will trigger the alarm to our on-call staff.

What is the current condition of the pipe?

The pipe is functioning, and we are prepared to carry out emergency repairs if required.

How long have you known about this leak?

Some concrete casing came away from the section of the pipe in March. Following an assessment, the risk of the pipe failing was categorised as low.

We monitored the pipe weekly and drafted a contingency plan.

A leak was found on 3 December, and the pipe has been monitored daily since then.

The contingency plan has been updated, and we are now expecting to begin repair work in late January.

When will the pipe be repaired?

We aim to repair the pipe in late January when the water levels of Tauherenikau river have subsided.

Is the drinking water being contaminated?

No, the pressure prevents anything from entering the pipe.

Risks and mitigation

Risks	Mitigation
Public expressing concerns/anger about disruption or service/lack of information and transparency	Kept well informed and clear expectations set about the likely impacts. Issues escalated to XXX where appropriate. We monitor all commentary and feedback from the community and respond to their questions in a timely manner.
Local businesses expressing concerns about disruption to services	Kept well informed and clear expectations set about the likely impacts. Issues escalated to XXX where appropriate. We monitor all commentary and feedback from the community and respond to their questions in a timely manner.
Frustrated business/tenants/property owners/general public complain to media	Early engagement with media, businesses and stakeholders ensuring a base of understanding and contact channels are established. We monitor all commentary and feedback from and respond to media questions in a timely manner.
South Wairarapa District Council or Wellington Water's reputation is damaged	Engage with the media early and have clear and authentic information released to our key stakeholders, affected parties and the public.

Measurement

We will measure the effectiveness of our communications through a variety of mechanisms:

- Commentary and feedback from the community and our stakeholders
- Level of accurate or inaccurate information being shared by the public / community
- Engagement on social media
- Website traffic and click throughs
- Attendance at public meetings
- Media sentiment

If needed, we will adapt our approach according to what our data is telling us.

Roles and responsibilities

Communications

What	Who
Letter drops	Wellington Water
Door knocks	Wellington Water
Advertisements	Wellington Water
Social Media	Wellington Water & SWDC
Media enquires/proactive media	Wellington Water
Social Services engagement	SWDC
Water deliveries	SWDC
Community meetings	Wellington Water & SWDC

Team Leads Wellington Water

What	Who	Contact
Spokesperson	Laurence Edwards	021 306 493
Comms Lead	Vanessa MacFarlane	027 308 4648
Iwi Liaison	Alex Van Paassen	027 232 1677
Community Engagement	Emma Anderson	021 373 984
SWDC Liaison	Gary O'Meara Jeremy McKibbin	027 434 8850 / 021 435 631

Team Leads SWDC

What	Who	Contact
Spokesperson	Stefan Corbett	027 358 4099
Welfare	TBC	
Comms lead	Sheil Priest	027 252 2863
Community engagement	Sheil Priest TBC	

Iwi Leaders

What	Who	Contact
Māori Standing Committee	Narida Hooper	021 314 180 mscchair@swdc.govt.nz
Māori Standing Committee	Andrea Rutene	[redacted]
Rangitāne o Wairarapa	Horipo Rimene	horipo@rangitane.iwi.nz DDI 06 3700608 Mobile 0276919103

Christmas and New Year on call

During the Christmas and New Year period the following people will be on call for communications.

Wellington Water Comms Christmas Roster

Date	Type	On call	Ph
24-Dec	Xmas Eve - Fri (office open)	Grace Christison	021 302 259
25-Dec	Xmas Day - Sat	Grace Christison	021 302 259
26-Dec	Boxing Day - Sun	Vanessa MacFarlane	021 302 259
27-Dec	Xmas Day Observed	Vanessa MacFarlane	021 302 259
28-Dec	Boxing Day Observed	Julia Hoffman Wall	021 302 259
29-Dec	Annual Leave	Julia Hoffman Wall	021 302 259
30-Dec	Annual Leave	James Ford	021 302 259
31-Dec	Annual Leave	James Ford	021 302 259
1-Jan	NY Public Holiday - Sat	Emma Anderson	021 302 259
2-Jan	Public Holiday - Sun	Emma Anderson	021 302 259
3-Jan	NY Day Observed	Tayla Gaskin	021 302 259
4-Jan	2nd Jan Observed	Tayla Gaskin	021 302 259
5-Jan	**Office reopens**		

South Wairarapa District Council Comms Christmas Roster

Date	Type	On call	Ph
24-Dec	Xmas Eve - Fri (office open to midday)	Catherine	027 248 8402
25-Dec	Xmas Day - Sat	Sheil Priest	027 252 2863
26-Dec	Boxing Day - Sun	Sheil Priest	027 252 2863
27-Dec	Xmas Day Observed	Sheil Priest	027 252 2863
28-Dec	Boxing Day Observed	Sheil Priest	027 252 2863
29-Dec	Annual Leave	Sheil Priest	027 252 2863
30-Dec	Annual Leave	Sheil Priest	027 252 2863
31-Dec	Annual Leave	Sheil Priest	027 252 2863
1-Jan	NY Public Holiday - Sat	Sheil Priest	027 252 2863
2-Jan	Public Holiday - Sun	Sheil Priest	027 252 2863

3-Jan	NY Day Observed	Sheil Priest	027 252 2863
4-Jan	2nd Jan Observed	Sheil Priest	
5-Jan	**Office reopens**		

AGENDA ITEM C1

OFFICERS' WATER REPORT

Purpose of Report

To update councillors on activity and progress within the three waters operations and capital projects.

Recommendations

Officers recommend that the Committee:

1. Receive the Officers' Water Report.

1. Water Manager Commentary

Network faults are down compared to last December, as WWL continue to keep on top of the backlog of reported faults. Consumer satisfaction is at a yearly high of 83%.

Wellington Water's SLA quarterly performance dashboard for Q2 FY21-22 to be included in the next Assets and Service Committee report, March.

2. Wellington Water operational performance

The start of summer continues to see the expected seasonal increase in water network faults being reported to Council. The total number is down on last December which is helped by keeping on top of the backlog of reported faults. Wastewater faults continue to be a theme for Featherston, due to pipe condition and some areas of high ground infiltration for example Fitzherbert Street.

The network service crews have noticed a recent trend in water leaks appearing adjacent to previous repairs on water laterals, requiring full lateral replacement. This appears to be due to the degrading condition of lateral service pipes which make up approximately 50% of all water leak faults. To comply with regulations, a high number of recent jobs have also required a traffic management contractor for sites located on intersections and narrow roads.

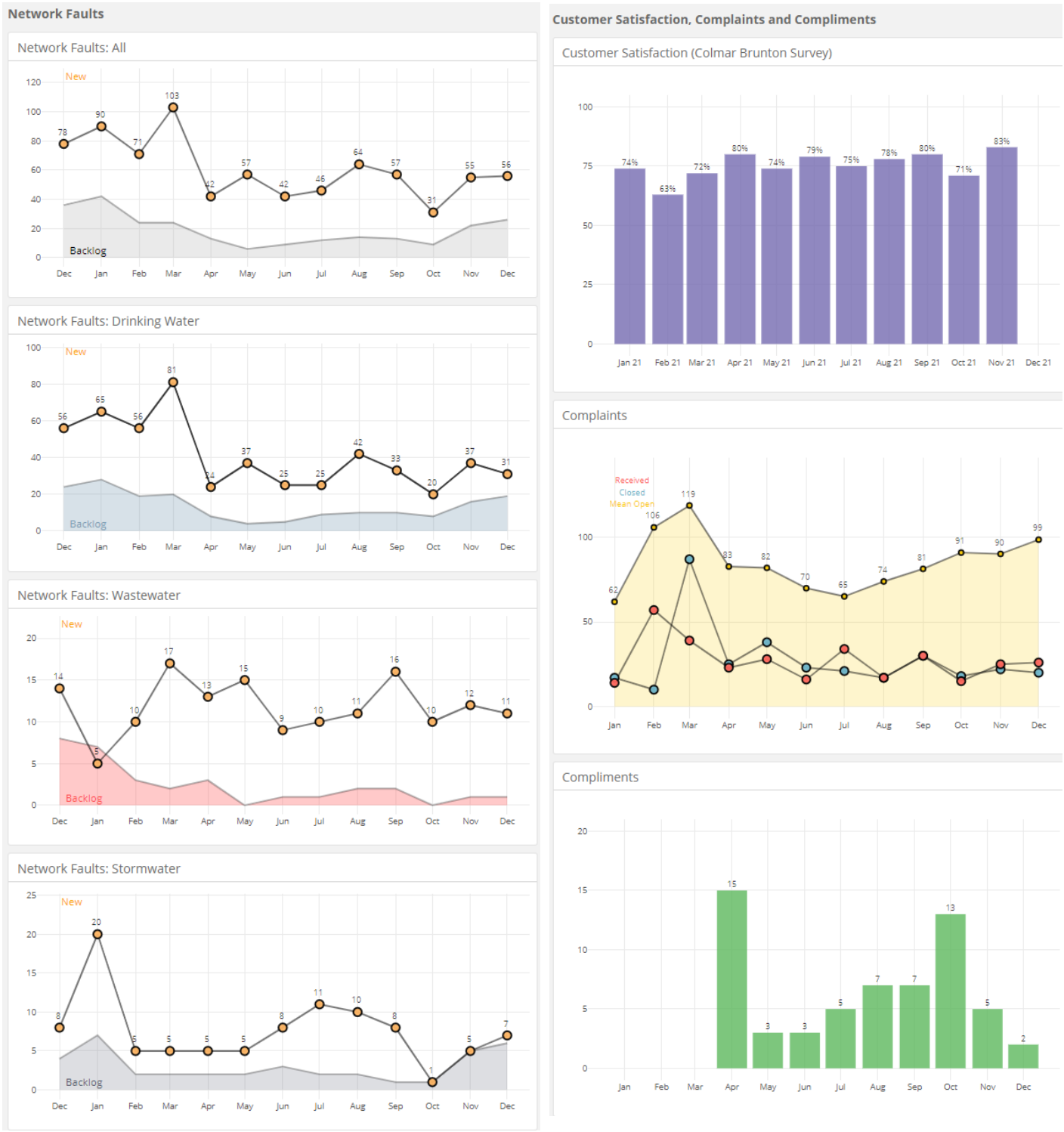


Figure 1. SWDC Customer service request dashboards, January

2.1 Operational response events

On the 31st December 2021, the community of Greytown were advised that they may notice a possible blue tinge to their drinking water. This was due to a pump fault on the pH balancing system at the Memorial Park water treatment plant.

The blue tinge can result from within homes that primarily have copper plumbing. The community were advised that there was no public health risk although advised to run their taps until the water becomes clear, as standard advice from the Ministry of Health for all homeowners.

A replacement pump was sourced by the Wellington Water treatment plant team, and the fault was resolved early January 2022.

2.2 Tauherenikau river pipeline leak

Please refer to additional report.

3. Reducing leakage across the South Wairarapa

A robust method for estimating water losses based on night flow data has been developed and automated to provide daily updates for each of the three towns. Losses across South Wairarapa over December are estimated to have been around 57%. Losses over the past six months for each town and the region are presented in Figure 2.

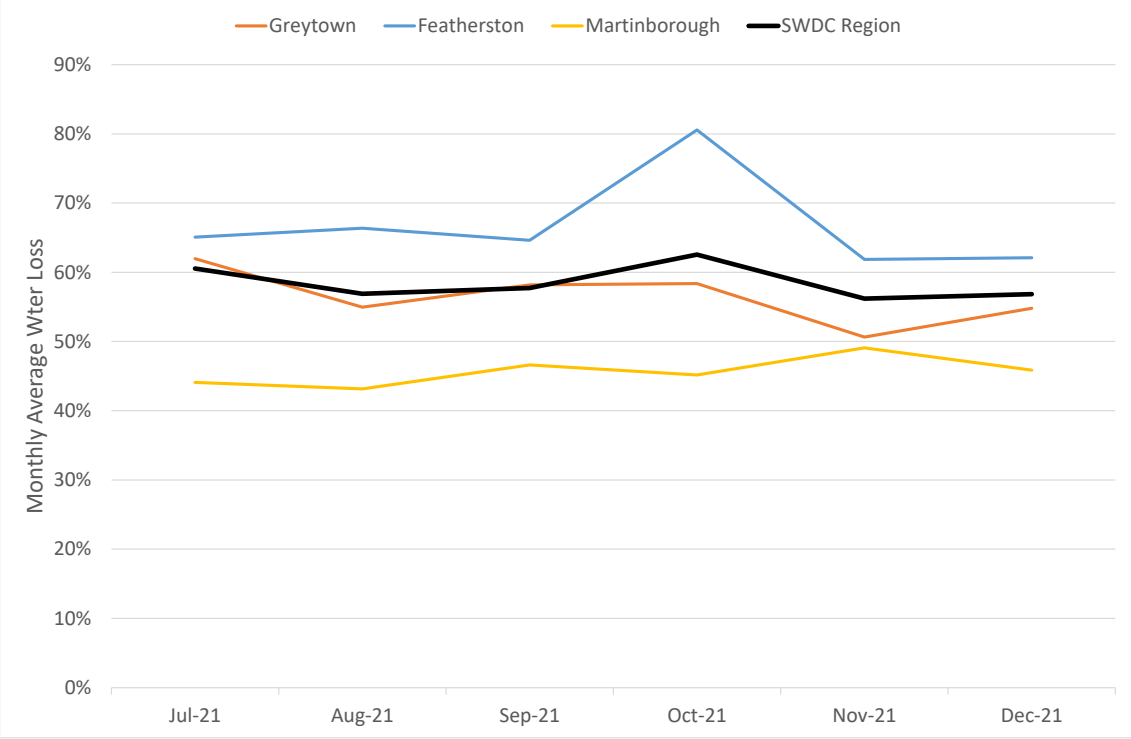


Figure 2 Monthly average water losses by town and across the region.

The level of water loss is higher than would be expected and suggests that there may be some night time usage that we are not accounting for in the calculation, potentially from high use non-residential customers, or from unmetered or even unauthorised

connections. Assumptions related to night time usage used in the calculation were drawn from a thorough analysis that brought together customer meter data, including high resolution data collected for network modelling purposes, and property locations. As more data and information come to hand, we can build them into the analysis and have greater confidence in the outputs.

Whilst water loss expressed in percentage terms seem high, the impact of leaks can have on night flows and water losses is demonstrated by recent leak repairs made in Featherston. Figure 3 shows the trend of night flows for each of the three towns. There is a significant drop in Featherston night flow around 6 January, which coincides with the repairs of a leak on a 100-mm main Birdwood Street and a leaking connection on Boundary Street. These two leaks appear to have been contributing some 6 L/s or about 37% of observed night flows.

Aside from this positive change and some fluctuations in Martinborough over November/December, Figure 3 shows night flows have been reasonably stable. Should we observe sustained increases we will seek to initiate leak detection surveying.

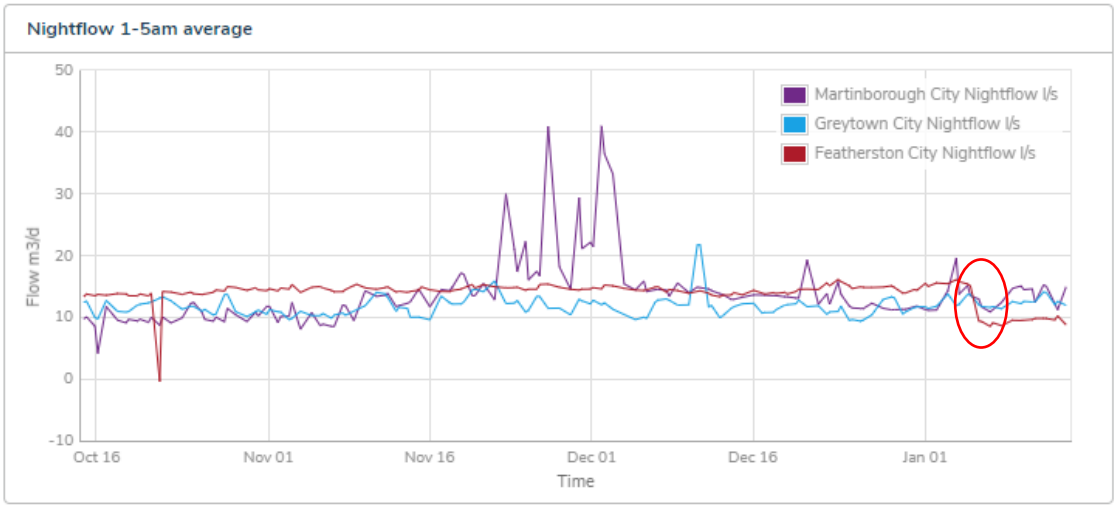


Figure 3. Night flow 3-month trend. Note the drop in night flow on the Featherston curve (circled in red) resulting from a mains leak repair.

4. Water Capex delivery programme

4.1 Executive Summary

The capital programme is tracking ahead of budget to-date and remains on target for a forecast delivery range of $5 - $7 million. The timing of the Christmas break was unfavourable for the final commissioning work of the new treated water reservoir at Waiohine which has now been pushed into the new calendar year. Once brought into service, will need to be celebrated as a significant achievement for increasing the supply resilience and NZ drinking water standards compliance for the Featherston and Greytown communities.

4.2 Waiohine Water Treatment Plant upgrade

The final December shutdown to bring the new treated water reservoir into service revealed a small number of items that required closing out, before this can be done. The water quality testing completed for the final stages of the commissioning have shown no issues with the E coli and chlorine testing.

Operational manuals have been documented and training of the treatment plant operators has been successful in the lead up to bring the new reservoir into service which is now forecast for early February.

Work is underway on Stage 3 for the permanent pH dosing system upgrade. The permanent dosing system will align with the Memorial Park WTP system and will allow the decommissioning of the older soda ash system, removing operational and certification issues.

4.3 Memorial Park water treatment plant upgrade

The electrical fit-out on the containerised treatment plant has been completed and is currently being stored. Tendering activities are underway where contract award is forecast in March. Construction remains scheduled for start Q4 FY21-22.

4.4 Greytown smart meter trial

The installation programme commenced on 13 December 2021 and has progressed well despite the wet weather pre-Christmas. In December, approximately 40 meters were installed where all were connected to the network without issue. There was one incident of loss of water pressure which was promptly resolved by the contractor on site. A large shipment of 140 meters arrived at the Wellington Water depot on the 6th of January, and work begun installing these at the start of the new year.

A change in the manufacturer's vibration sensors design is expected to cause a 2 to 3 month delay for a remaining 50 meters. To ensure the project collects as much network leakage data during the trial period, an additional 50 base meters (provided by the manufacturer free of charge) will be installed initially and swapped by the meters with vibration sensors at a later date. Targeted customer communication will be carried out by Wellington Water for these customers.

Customer home water-usage reports will be available from early January 2022, for those who have signed up for the online portal throughout the trial period. The remaining customers will have access to their home usage reports upon request.

4.5 Papawai Rd wastewater upgrade

Construction site works and road reinstatement has been completed along Papawai and Pa roads. Some minor construction is being done at the final outfall pipeline within the wastewater treatment plant, to optimise the flow control and new inlet flow meter. This is forecast to be completed within Q3.

The remaining pipeline not upgraded within this financial year, has been documented and put back into Wellington Water's strategic prioritisation framework for future investment allocation. We will be putting out some public communications on this shortly.

4.6 South Wairarapa global stormwater consent

This consent has been lodged with Greater Wellington. Wellington Water will attend the next Māori Standing Committee to seek their feedback in February.

4.7 Featherston water main renewals

The Featherston water main renewals project has delivered outcomes that will reduce water supply outages and minimise water loss from the water network. The project has renewed water mains of poor condition that have experienced a high number of historic pipe breaks.

The works are largely complete with 723m of water main completed and connected into the existing network. Typically, trenchless drilling technology has been used, which has reduced the requirement for costly reinstatement.

However, as part of our routine quality assurance testing that is undertaken on all projects we have identified a potential durability issue with some fittings used on the pipeline which is being investigated, which means further work will be required to remedy this. These additional works are expected to be complete before the end of February 2022 and residents have been updated.

4.8 Featherston wastewater treatment plant upgrade and consent

Wellington Water continues to work with Council Officers on the proposed shortlist of options to manage Featherston's Wastewater. A discussion paper providing additional information on the likely consentability and affordability of the options was provided to Council by Wellington Water in December 2021 and we continue to work with them to confirm this shortlist.

5. Appendices

Appendix 1 – Water Programme Report

Contact Officer: Stefan, Group Manager Partnerships and Operations

Reviewed by: Harry Wilson, CEO

Appendix 1 – Water Programme Report

SWDC Assets and Services Committee	**Programme** Water
Meeting 2/2/2022	**Period** Jan-22

	Finance	Delivery	H&S	Stakeholders	Risk profile	Commentary
Overall Programme Status (RAG)						The capital programme actuals to-date is tracking ahead of budget, however still tracking within full year forecast range of $5-7m. Covid-19 continues to pose a risk due to impacts on suppliers and possible future outbreaks. Commissioning work to bring the new reservoir at Waiohine into service nears completion, which is to be celebrated as a significant achievement for increasing the supply resilience for the Featherston and Greytown communities.
Major Projects						
Featherston WWTP	**$500k***	**Jul 20 - Jun 2025**				
Develop and implement a suitable wastewater solution for Featherston						Wellington Water continues to work with Council Officers on the proposed shortlist of options to manage Featherston's Wastewater. A paper providing additional information on the likely consentability and affordability of the options was provided by Wellington Water in December 2021 and we continue to work collaboratively confirm this shortlist.
Upgrade/Renewal Projects						
Papawai Road WW Upgrade	**$2.2m**	**May 2021 - Dev 2021**				
Growth - upgrade pipe	↑				↑	Construction works have been completed on Papawai and Pah roads. Minor works being completed on the inflow meter to the wastewater treatment plant in January.
Waiohine Water Treatment Plant (WTP)	**$1.3m**	**Dec 2020 - June 2022**				
b) Treated water storage commissioning						The December shutdown to bring the new reservoir into service revealed a small number of items that required addressing. These have been closed out and final commissioning work is being completed on the 3-day bug testing, FAC and final system change over. The new reservoir is expected to be in service the first week of February.
c) Chlorine dosing safety improvements						Chlorine dosing upgrades are complete.
d) pH dosing system upgrade		↓				A temporary dosing system currently remains in place. A caustic soda dosing system has been recommended as the permanent solution. Work has begun on the system design where physical works is now forecast for FY22-23.
Memorial Park WTP upgrades	**$850k**	**Nov 2020 - 2022**				
Stage 2: Replace bore pump, new housing container, additional pipework and run to waste						
Stage 3: Chemical dosing, electrical equipment, UV and filter upgrades						The fabricated container is now being safely stored. Contract award is forecast for March. Site works for the permanent treatment plant remains scheduled for construction start Q4 FY21-22.
Memorial Park wastewater renewal	**$350k**	**Nov-21**				

Swimming pool and club house laterals relocation	↑					The renewal of the swimming pool wastewater lateral is complete.
Electrical surge protection	**$30k**	**Jun-22**				
Installation of electrical surge protection at treatment plants						Work plans have been developed for each treatment plant sites. Surge protection work is forecast to be complete prior to June 2022.
Donald St WW pump station renewal	**$100k**	**FY 22-23**				
Renewal of the pump station, Featherston						Project is currently within the detailed design phase. The construction contract award is currently expected to take place in Q4.
SWDC Global stormwater consent	**$96k**	**Jun-22**				
Global stormwater consent for Featherston and Greytown, NRP compliance						The application has been lodged and the next step is to obtain feedback from the Maori Standing Committee.
Greytown WWTP system improvements	**$150k**	**FY 22-23**				
H&S improvements to UV pump station						Work is expected to commence shortly on the preliminary design. Project only planned to reach design by the end of the financial year.
SWDC-led Projects						
Water Race User Survey	**n/a**	**Dec-20**				
Survey Water Race users and related stakeholders on use						Wellington Water have received a copy of the survey results and have been asked by SWDC to review in the context of providing some strategic guidance back to SWDC Officers. Meeting to occur in Q3.
Longwood Water Race Consent	**n/a**	**Dec-20**				
Gain consent for continued use of water race		↓				GWRC is requesting that the supplementary water take is moderated when the river is above median flow. Wellington Water is discussing this further with GWRC to work through the options to obtain consent. Additional flow and water quality monitoring is likely within the new consent where Wellington Water will need to consider how these additional conditions will be met. The short consent is to align the Longwood with the Moroa water race consent expiry.

Status key: *On track/achieving* *Some concern* *Off Track/Major concern*

AGENDA ITEM C2

ROADING AND AMENITIES OFFICERS' REPORT

Purpose of Report

To update Councillors on activity and progress on roading and amenities within the Partnerships and Operations group.

Recommendations

Officers recommend that the Committee:

1. Receive the Partnerships and Operations Report.

1. Group Manager Commentary

Outputs for this reporting period reflect the fact that it was interrupted by the Christmas and New Year holidays. The Roading team successfully undertook a major repair of Hinekura Road in the days leading up to Xmas to repair the Hinekura Rd. It was an intensive three days of work that had our team, Fulton Hogan and a sub-contractor on site to make sure the road was able to be open and safe for all traffic in time for Xmas. Work continues according to our work plan for Hinekura on tree removal and new dam site location.

The amenities team has completed a few important items since the last report – the highlight arguably being the Peace Gardens in Featherston. Further incidents of vandalism, theft and graffiti are concerning.

If the anticipated impact of Omicron is realised then we expect significant interruptions to service delivery outside of essential services. Solid waste, burials, emergency road repairs and water services will be maintained throughout.

2. SWDC Roading Report

The report covers the period of works to the end of December 2021, being 50% of the 2021/2022 financial year. The percentages shown below are based on works completed to date on Waka Kotahi financially assisted annual budget. Works in several maintenance categories are seasonal so the spend will reflect this variance.

A brief commentary describing key achievements during December 2021, and proposed works going forward is noted under each work category below.

2.1 OPEX

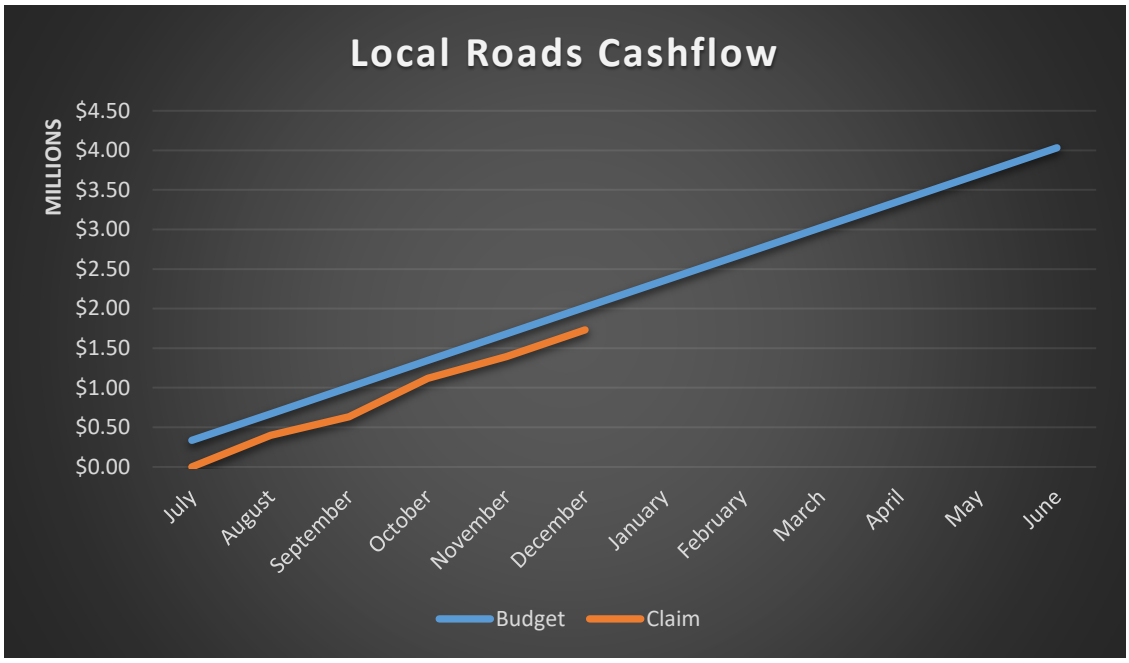
- Sealed Road Pavement Maintenance spend is 53% on Local Roads and 73% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
  - 193.07 of sealed roads inspected and faults loaded into RAMM
  - 64 sealed potholes were identified
  - 2549m2 of sealed pavement repaired
- Unsealed Road Pavement Maintenance spend is 53% on Local Roads and 80% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
  - 72.4 km of unsealed roads inspected, and faults loaded into RAMM
  - 90.7km of unsealed roads graded
  - 237.2m3 of maintenance metal applied
- Drainage Maintenance spend is 26% on Local Roads and 113% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
  - 132 culverts were inspected
  - 54.7km of streets mechanically swept
  - 3.6km of drains cleared
- Structural Maintenance spend is 15% on Local Roads and 5% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
  - 8 bridges were inspected
- Environmental Maintenance spend is 58% on Local Roads and 44% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
  - 817 km of rural berm mowing
- Minor Events spend is 113% on Local Roads and 188% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
  - Expenditure is due to response to weather events in the year to date. If further budget is required, it will be reallocated from other Maintenance cost codes.
- Traffic Services spend is 22% on Local Roads and 19% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
  - 33 signs were inspected
  - Annual remark is programmed for April 2022 and is a large portion of the budget.
- Cycle Path Maintenance spend is 0% on Local Roads in relation to Waka Kotahi annual budgets allocation.
  - Spaying and mowing adjacent to the Western Lake Road Cycle path have been completed from Environmental Maintenance budget.
- Footpath Maintenance spend is 98% on Local Roads in relation to Waka Kotahi annual budgets allocation.
  - Works have been completed allowing focus to shift to renewals in the new year.

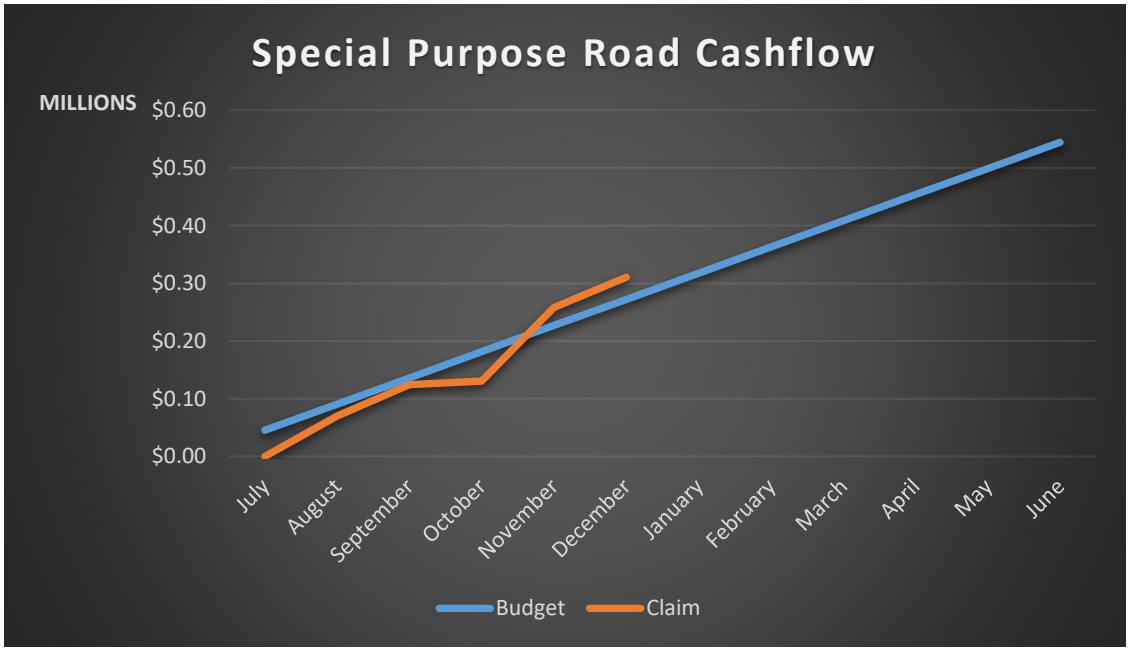
- Rail Level Crossing Warning Device Maintenance spend is 122% on Local Roads in relation to Waka Kotahi annual budgets allocation.
    - Direct cost from KiwiRail. Over budget due to lightening strike at Woodside lights
- Network and asset management spend is 51% on Local Roads and 57% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
    - 5 traffic counters were installed

2.2 CAPEX

- Unsealed Road Metaling spend is 27% on Local Roads and 90% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
    - Aggregate has been ordered and crushed to be applied during Autumn and early winter. Manufacture and supply of this material is impacted by resource supply form the rivers
- Sealed Road Resurfacing spend is 56% on Local Roads and 82% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
    - Works will be completed by early February and design is impacted by the short supply of various grades of sealing chip.
    - Special Purpose Road resealing is complete with remarking of the roadmarking costs yet to be received.
- Drainage Renewals spend is 33% on Local Roads and 0% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
- Pavement Rehabilitation spend is 4% on Local Roads in relation to Waka Kotahi annual budgets allocation.
    - Western Lake Road sites are programmed for early/mid 2022
- Traffic Service spend is 35% on Local Roads and 10% on Special Purpose Road in relation to Waka Kotahi annual budgets allocation.
- Footpath Renewals spend is 0% on Local Roads in relation to Waka Kotahi annual budgets allocation.
    - Sites programmed for February - March 2022

2.3 Tracking summary of OPEX and CAPEX to December 30, 2021

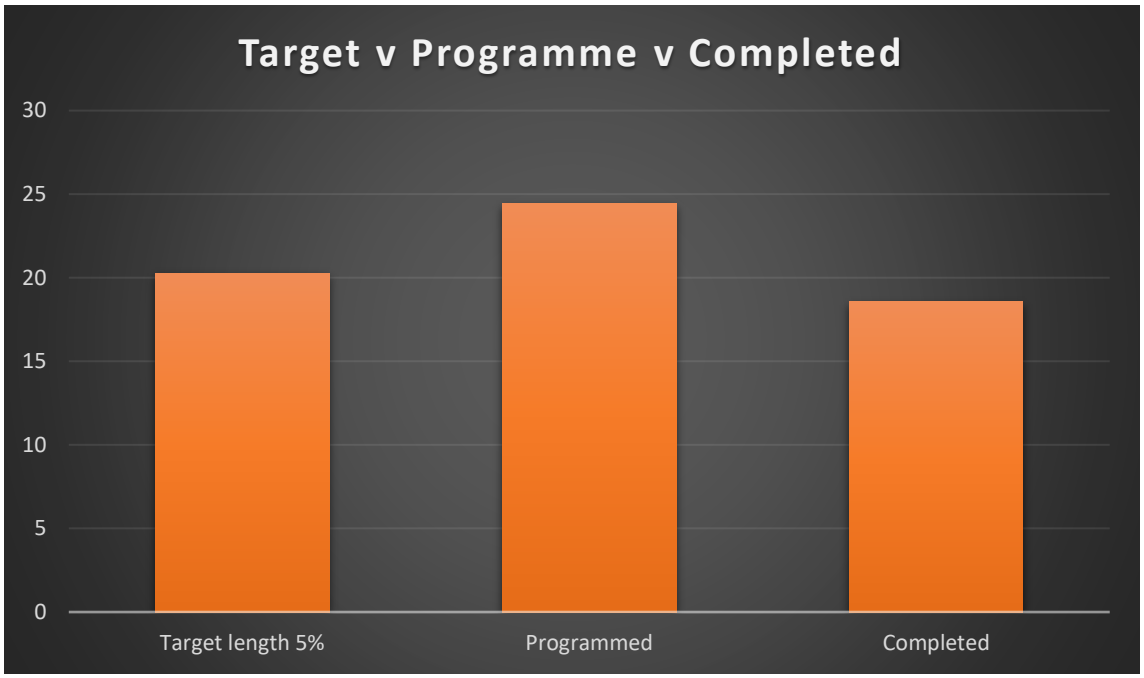




2.4 Key Performance Indicators (Year to date reporting)

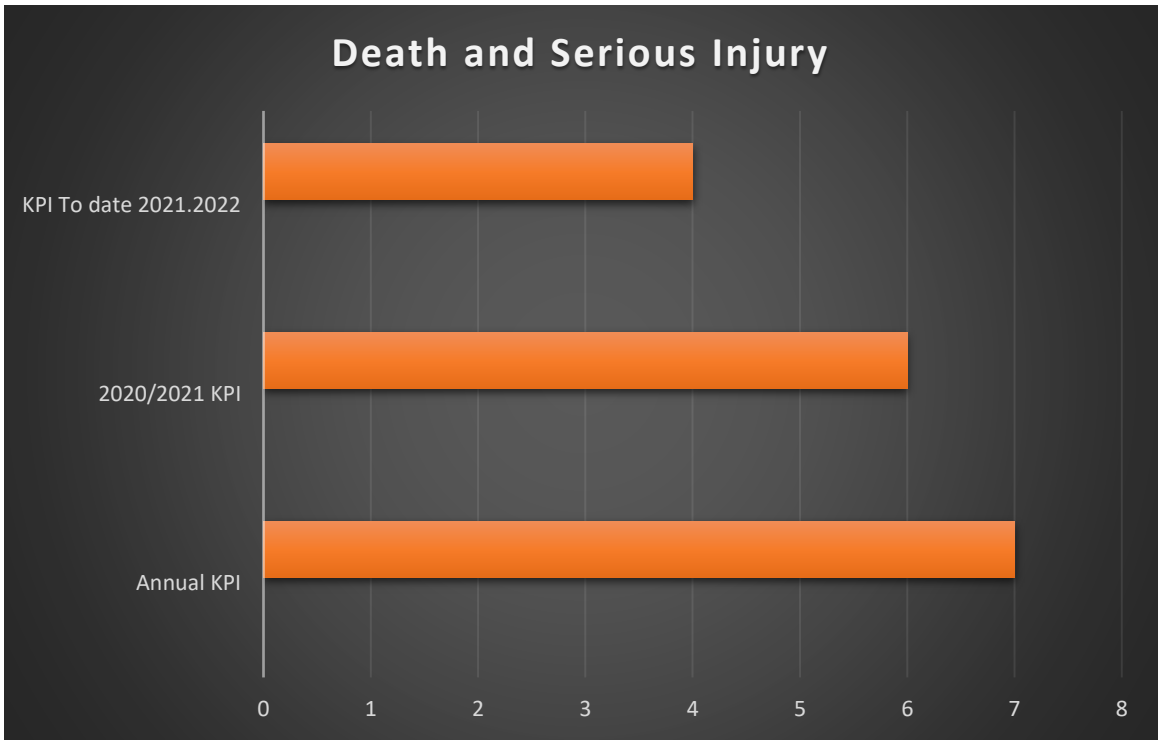
5% of sealed roads are resealed each year subject to availability of NZTA subsidy

Length of sealed network 405.7 km 5% equates to 20.3 km. 18.53 km complete.



Change in number of fatalities and serious injury crashes on the local road network from previous year. Performance target is < 7

The data below has been extracted for Waka Kotahi Crash Analysis System. Generally, there a time lag from the accident to data being uploaded to the system



3. Roading - Fulton Hogan

3.1 Health and Safety Report

3.1.1. All incidents, Near misses, New hazards/ risks identified

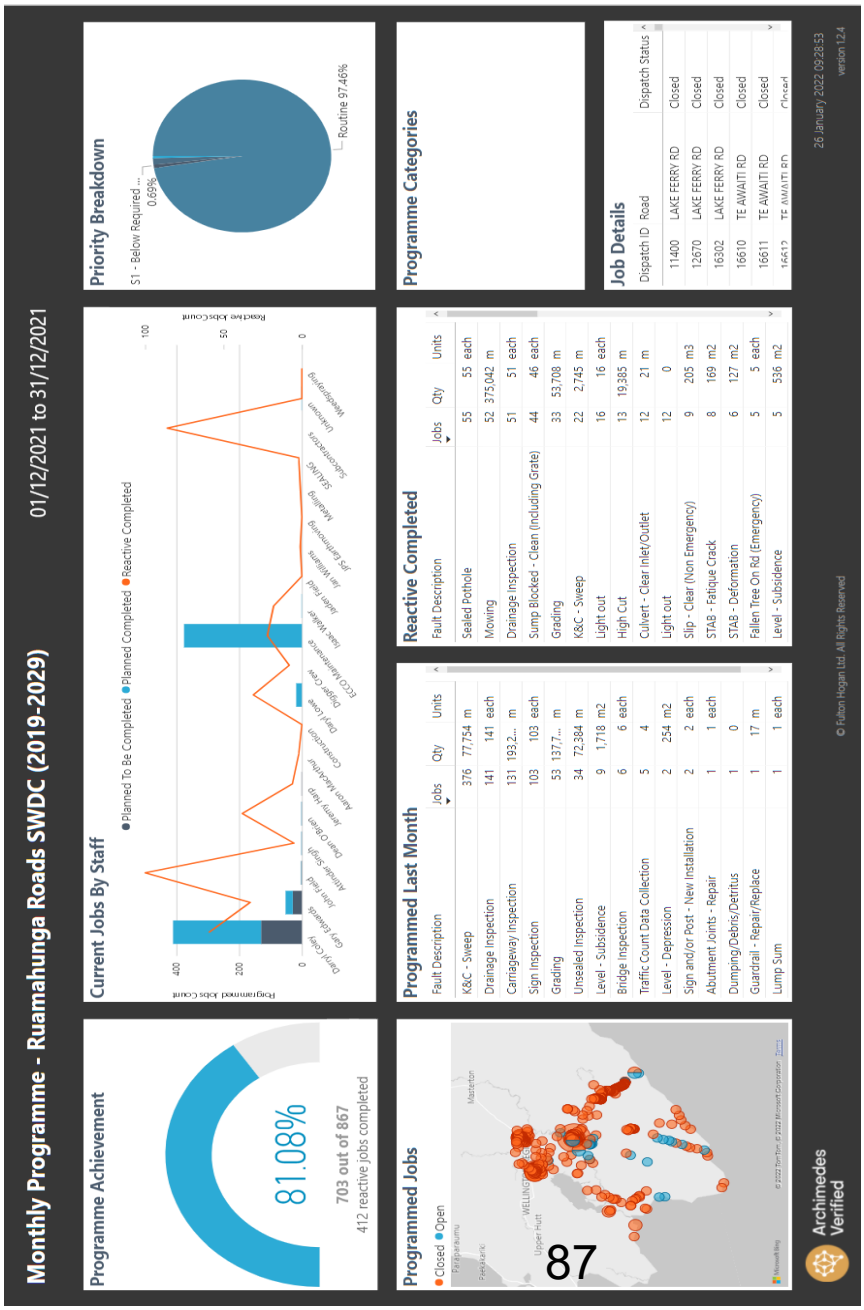
There were no incidents, near misses or new hazards to report this month.

Due to the low number of incidents there are no trends in the Wairarapa business to report on. At a national level we are made aware of incidents in the Company via Safety and Environmental Alerts, these alerts are discussed with staff at the monthly tailgate meetings.

3.1.2. Training and inductions

Training this month with staff attending Envirowise Workplace First aid, Traffic management qualifications, operator competence testing with some Managers being trained in Rapid Antigen Tests.

3.2 Achievement Dashboard



4. Amenities

4.1 Housing for Seniors

We have two vacant senior housing units which are currently being renovated. These have had long term tenants in them and require new carpets, drapes and new paint to freshen up. One in Martinborough and Greytown.

4.2 Pain Farm and Cottage

Both properties are well maintained by the occupants. The grounds are cared for by our contractor and are in good order. A large tree has come over onto the garage and structurally damaged it. Council is working with the insurance company and builders for quotes to fix the issue. Other trees in the vicinity will need to be assessed and removed if found to be dangerous.

4.3 SWDC Playgrounds

- Martinborough Playground has the 2006 Climbing frame closed due to wear and tear. New climbing framed ordered and awaiting delivery.
- Awaiting school holidays to finish to install new equipment in Greytown Playground.

4.4 Parks and Reserves

- City Care contractor has been under pressure with staffing due to retirements and also the lack of job applicants. They now have a full crew and working thru to catch up.
- Peace Gardens Featherston still in progress, 90% completed waiting on fence to be spray painted and also Heritage sign to be installed, good feedback from public. Formal opening is planned once fully completed.

- Martinborough Trial Gardens

These are very successful so far with great community comments. We have had a small amount stolen unfortunately but over all a good result so far through Summer. We will look at doing this with all three towns once trial is over.

4.5 Cemeteries

Cemetery Activity and Burials have been steady.

Table: Purchases of burial plots/niches 31/11/2021 to 26/01/2022

	Greytown	Featherston	Martinborough
Niche			3
In-ground ashes Beam			
Burial plot	3	2	
Services area	1		
Total	**4**	**2**	**3**

Table: Ashes interments/burials 31/11/2021 to 26/01/2022

	Greytown	Featherston	Martinborough
Burial	3	1	1
Ashes in-ground			
Ashes wall			
Services Area	2		
Disinterment			
Total	**5**	**1**	**1**

4.6 Swimming Pools

Swimming pools have been well used with large numbers attending and BBQ's have been extremely popular with families in all three pools. We have also removed the shade sail over the Greytown Toddlers pool as it was not allowing the water to warm to a comfortable temperature. December attendance below

ATTENDANCE REPORTS	Dec-21									Dec-21								###								
	GREYTOWN									FEATHERSTON								MARTINBOROUGH								
Visit Type	Child 11am-1pm	Child 1pm-5pm	head count at 5pm	Child 5pm-7 30pm	Adult 11am-1pm	Adult 1pm-5pm	Adult 5pm-7 30pm	Adult supervisor	Weather	Child 11am-1pm	Child 1pm-5pm	head count at 5pm	Child 5pm-7 30pm	Adult 11am-1pm	Adult 1pm-5pm	Adult 5pm-7 30pm	Adult supervisor	Weather	Child 11am-1pm	Child 1pm-5pm	head count at 5pm	Child 5pm-7 30pm	Adult 11am-1pm	Adult 1pm-5pm	Adult 5pm-7 30pm	Adult supervisor	Weather
7/12/2021		0	0	0		1	0	0	raining		5	0	0		1	0	0	raining		5	0	0		0	0	0	raining
8/12/2021		18	18	11		9	9	0	sunny		10	5	0		9	0	1	overcast		5	0	0		0	0	0	overcast
9/12/2021		30	20	2		7	1	2	sunny		20	0	0		2	0	4	sunny		39	5	2		3	10	0	sunny
10/12/2021		62	42	13		26	6	6	sunny		52	0	12		20	5	9	sunny		105	0	3		10	0	9	sunny
11/12/2021	8	33	6	4	2	17	0	16	overcast	6	17	4	16	7	5	0	7	overcast	20	30	14	0	4	9	12	0	sunny
12/12/2021	3	4	0	1		1	0	2	overcast	0	2	0	0	0	2	0	0	raining	0	5	0	0	0	0	0	3	raining
13/12/2021		26	21	10		14	4	5	sunny		21	8	3		3	3	6	overcast		67	12	8		1		9	overcast
14/12/2021		6	0	0		0	0	0	overcast			1	0		1	0	1	overcast		45	2	0		0		3	raining
15/12/2021		19	8	5		2	1	6	sunny		10	6	9		7	7	5	overcast		39	5	3		2		7	overcast
16/12/2021		11	4			1	0	0	raining		1	0	0		1	0	0	raining		3	0	0		0		3	raining
17/12/2021		45	9	2		10	1	12	sunny		45	9	3		5	0	7	sunny		37	7	13		1		21	sunny
18/12/2021	11	46	18	23	11	22	16	22	sunny	15	47	14	11	5	16	4	11	sunny	17	52	4	5	2	10	0	30	sunny
19/12/2021	47	55	8	23	17	24	14	13	hot	15	51	6	7	10	13	1	23	sunny	20	26	17	16	2	2	6	19	sunny
20/12/2021		56	13	16		16	7	18	hot		25	6	3		11	3	7	sunny		44	22	5		9	1	8	sunny
21/12/2021		33	0	0		9	0	8	hot		24	10	0		18	0	6	sunny		43	22	5		3	0	7	windy
22/12/2021		61	22	20		24	9	15	hot		61	8	9		20	3	12	sunny		37	25	14		6	4	12	sunny
23/12/2021		75	18	3		74	3	10	hot		63	29	1		22		21	hot		70	36	13		25	19	17	sunny
24/12/2021		57	18	3		24	3	12	hot		39	9	9		18	3	13	hot		31	21	4		14	2	10	overcast
25/12/2021																											
26/12/2021	8	54	42	25	9	68	25	18	hot	5	49	12	5	3	20	5	15	sunny	0	46	15	5	0	27	3	18	sunny
27/12/2021		71	17	17		72	23	20	hot		16	0	11		9	11	4	overcast		51	11	16		33	19	15	hot
28/12/2021		23	7	2		18	1	6	raining		5	0			1	0	0	raining		13	0	0		9	0	1	raining
29/12/2021		38	4	0		20	0	9	raining		3	0	4		0	4	0	cold		35	2	0		6	0	18	sunny
30/12/2021		120	28	1		50	3	42	hot		45	8			23	0	1	hot		66	26	10		32	9	25	sunny
31/12/2021		126	38	24		115	30	33	hot		36	4	3		17	1	6	hot		68	19	13		30	10	25	sunny
	98	1118	367	212	41	634	157	295		51	680	143	110	31	254	53	166		72	1005	270	139	10	242	95	277	

4.7 Other Projects

- Hua Ariki Marae is 90% completed, awaiting on confirmation of consent due to changes on the sprinkler system. Still in progress with Fire and Building Consents.
- Tauherenikau bridge project is in progress with trails and carpark installed up to where the landings begin. The two towers have been manufactured and currently with painters and end of January is when full work begins on the bridge.
- Kiwi hall kitchen - extending the hot water from the infinity system over to the kitchen was delayed due to tradesman availability but currently being installed week of the 25th Jan.
- Ngawi Community Hall has had their sewage system upgraded prior to Christmas, all that is required is planting which will happen in planting season. This worked well over the festive season.
- Wheels Park Greytown, contacted a civil company to quote on the roading component, awaiting outcome

5. Waste Management

5.1 Transfer Stations

Overall, the transfer stations are tidy.

Usual summer rubbish out at the coast which was handled well by Earthcare this year installing more recycling pods, bins and any emegency issues were dealt with quickly.

5.2 Earthcare

Earthcare has formally become part of Smart Enviromental but there will be no name change, only some personnel changes. Business as usual.

6. Appendices

Appendix 1 – Roading Programme Report

Appendix 2 – Amenities Programme Report

Contact Officer: Stefan Corbett Group Manager, Partnership and Operations

Reviewed by: Harry Wilson, CEO

Appendix 1 – Roading Programme Report

SWDC Assets and Services Committee		**Programme**	Roading
Meeting	22-Jan-22	**Period**	Dec-21

Overall Programme Status (RAG)	Finance	Delivery	H&S	Stakeholders	Risk profile	Commentary
						Programme on track overall. Some resource constraints remain but works progressing well.

Current Projects						
Bidwills Cutting RD Pedestrian Upgrade	**$266K**	**March 22-June 22**				
Five Rivers Hospital development						Engagement with Kuranui College completed and estimates done and fall within
Reading Street Upgrade		**May 21- Nov 22**				
Upgrade Street, kerb and channel, carparking drainage as part of Resource Consent						Orchards Retirement Village upgrade Concerns over Estimates have been sent back to the consultant
Sealed Road Pavement Rehab	**$250K**	**March 22 - May 22**				
Western Lake Rd Area Wide 2 sites	↓					Working on Pavement design Need to confirm Aggregate supply. Initial estimates are over budget
Sealed Road Resurfacing Local Roads	**$700.0k**	**Oct 21 - Marc22**				
Scheduled programme of works comprising 22kms of resurfacing on: BATTERSEA LINE BETHUNE ST BOAR BUSH GULLY RD DANIEL ST (MARTINBOROUGH) DRY RIVER NO. 1 RD DUBLIN ST LAKE FERRY RD MOERAKI RD MOORE ST NEW YORK ST OXFORD ST PRINCESS ST WARDS LINE WEST ST WESTERN LAKE RD WHITE ROCK RD MOROA ROAD PAPAWAI RD						Shortage of Chip supply in the Wairarapa and Bitumen is no longer refined in NZ has to imported 75% completed
Sealed Road ResurfacingCape Palliser Rd	**$100K**	**Oct 21 - Dec21**				
Scheduled programme of works comprising 2.4kms						Sites Complete
FootPath Renewals	**$375K**	**Feb 22 20 - Jun 22**				
Revans Street Featherston 2 sites , Fox Street Featherston,Bell Street Featherston						Ultra fast Broadband rollout has been completed in Featherston
Low Cost Low Risk Local Roads	**$345K**	**Jan 22 - Jun 22**				

Identified Projects as approved by Waka Kotahi: Flag lightat the following intersections Lake Ferry Rd/Kahutara Rd,Kahutara Rd/East est Acces Rd,Western Lake Rd/East West Access Rd. Seal widening Western Lake Road.Bidwills Cutting Road signage improvements. Cattle underpass contributions. Te Awaiti Rd stability investigations at the Gluepot						Reduce funding from Waka Kotahi
Low Cost low Rick Special Purpose Rd	**$250K**	**Jan 22 - Jun 22**				
Identified projects as approved by Waka Kotahi: Flag light at lake Ferry Rd Cape Palliser Rd intersection,Signage upgrade,Guard Rail installation,Bridge scour protection,Whatarangi Cliff resilience investigation,Rock revetment protection works,Johnson Hill slumpoing investigation and modelling,Ecoreef installation						
Road to Zero		**Jan 22 - Jun 22**				
Consult re speed review and impliment programme over 3 years		↓				Link to NZTA speed reduction and Road to Zero, Urban safety for vulnerable users etc. NZTA planned consultation and in discussions with NZTA on alignment. Wilkie Consultants have been engaged to manage delivery and consultation processes

Status key: *On track/achieving* *Some concern* *Off Track/Major concern*

Appendix 2 – Amenities Programme Report

SWDC Assets and Services Committee		**Programme**	Amenities
Meeting	2/2/2022	**Period**	Jan-22

Overall Programme Status (RAG)	Finance	Delivery	H&S	Stakeholders	Risk profile	Commentary
						Insert Officer view on programme status and key indicator changes

Current Projects and service contracts						
City Care	**950k**					
Parks and Reserves						Within 5% of budget tracking well. Concern on staff availability due to retirements. In constant discssion with City Care management. Omicron risk on delivery BN
Peace Garden, Featherston	**35k**					
Upgrade and install web-enabled information display with additional seating and planting						90 % Completed awaiting on Heritage sign installation and sprya painting of steel fence. On Budget supplied by Heritage NZ BN
Earthcare	**750k**					
Refuse and recycling						Budget on target, Earthcare now under the umbrella od Smart Enviromental, Possisible Omicron rish with availability of staff.Confident they will manage BN
CLM (Swimming pools)	**245k**					
All SWDC pools						Budget on target no risks involved, season ends March 14 BN
SWDC Tree asset management	**20k**					
Develop a long term District wide programme for tree management						Into final stages of design, Public will be able to intergrate this with our web site also. BN
Featherston Stadium	**50k**					
Upgrade to kitchen, seating and ablutions						Awaiting on quotes from builders TD
Ngawi Community Hall	**30k**					
Upgrade septic system						Completed main installation prior to Xmas. Planting will be completed in April BN
Cemetery Data Project	**70k**	**Mar-22**				
Upgrade into Plot Box Management system						Working with Plot Box to stream line burials and ashes, Public will have access to site for information KMc, TD
Tauherenikua Bridge	**1.3k**					
IRG funding						On Budget, Work on Bridge to begin last week of January. Delay due to Covid in Northland BN
Pain Farm garage						
Repair damaged garage structure						Insurance involved, awaiting quotes TD
SWDC Lease review programme		**tbc**				
Complete review of leases						Working thru outstanding and new leases SC, BN
Hua Ariki Marae	**435k**					
IRG funding						Awaiting on further consents on fire and Building due to unknown circumstances. Awaiting on finacial appraval for variations. BN
Considine Park Lime Path	**5k**	**Jan-22**				
Lime path extension						Path in place but minor work still required BN
Wheels Park greytown	**1.0k**					
Park Cotter and Peirce street						Civil Company quoting on Roading infrastructure BN
Greytown Pavilion	**1.0k**					
Upgrade						New Design completed, under action moving forward BN

Status key:

On track/achieving *Some concern* *Off Track/Major concern*

PEDESTRIAN CROSSING AUDIT

Purpose of Report

To inform Councillors of the outcomes of an audit of Pedestrian Crossings in Greytown Featherston and Martinborough.

Recommendations

Officers recommend that the Council:

1. Receive the Pedestrian Crossing Audit Report.

1. Executive Summary

There are currently 15 pedestrian crossings within the District inclusive of school crossings which are generally located mid-block and controlled before and after school. This figure does not include pedestrian crossing on the State Highway network.

Pedestrian and vehicle movements on and adjacent to the crossings would be low compared to national counts.

Data extracted from Waka Kotahi Crash Analysis System showed 11 pedestrian injury accidents on the Council roading network over the last 20 years with zero happening on pedestrian crossings.

Future funding for upgrades will be included in Waka Kotahi funding applications under Low Cost Low Risk and Road to Zero Work Categories.

2. Background

As an integral part of the pedestrian network, crossings should meet the same minimum standards as through routes on the footpath, especially in:

- the maximum permissible crossfall
- maintaining adequate overhead clearances and protrusions
- the surface standard (stable and firm, and slip resistant even when wet)
- not containing grates and covers.

All crossing points should be designed to minimise pedestrians' crossing distance, which means ensuring:

- they are at right angles to the direction of the road
- the roadway is as narrow at the crossing point as possible.

Where possible, crossings should be located on the pedestrian desire line. Where this is not possible or unsafe, use environmental and/or tactile cues to guide pedestrians to the crossing point. Other road users should be able to predict the route of pedestrians who are about to leave the kerbs.

Street furniture that may obscure visibility should be located well away from the crossing, and vegetation should be regularly trimmed. Parking should be prohibited for at least 15 m either side of the crossing point (although this can be six metres if there is a kerb extension at least two metres deep). To ensure compliance, this may need enforcing every now and then, or additional infrastructure could be installed.

Some crossings are raised to the same level as the footpath, while others require pedestrians to change grade. In both cases, it is important to ensure that all types of pedestrians can make the transition between the footpath and the crossing safely and easily.

All pedestrian crossing points must be monitored so they continue to be appropriate for the location while operating safely and efficiently. They may need removing if pedestrian numbers have declined substantially and are unlikely to increase, or upgrading if pedestrian numbers have increased.

Crossing point design includes considering the cost and ease of maintenance, repair, reinstatement and replacement, especially in the materials used. It also includes considering the implications of maintenance for pedestrians and other road users.

Over-dimension load transport is also an issue in designing pedestrian crossing points, especially on routes commonly used for this purpose. These routes require a 'design envelope' 11m wide and six metres high. Islands should have mountable kerbs and load bearing surfaces, with signs, poles and rails conveniently removed or folded at ground level. Where the road edge protrudes into the 'design envelope' such as at kerb protrusions, road furniture, signs, poles and other objects should be less than one metre high or be conveniently removed or folded over.

3. Discussion

3.3 Location

There are currently 15 Pedestrian Crossings within the South Wairarapa District Roading network as identified below.

Town	Location
Greytown	
East Street	McMaster St
East Street	Greytown School
Kuratawhiti St	Greytown Pools

Town	Location
Featherston	
Birdwood Street	Clifford Square
Bell Street	St Teresas School
Martinborough	
Martinborough Square	Cambridge St
Martinborough Square	Oxford St
Martinborough Square	Jellicoe St
Martinborough Square	Kitchener St
Cambridge St	Martinborough Square
Oxford Street	Martinborough Square
Jellicoe Street	Martinborough Square
Texas Street	Martinborough Square
Jellicoe Street	Venice St
Dublin Street	Martinborough School

3.4 Legislation

Traffic Control Devices (TCD) Rule Clause 8.2 stipulates the following requirements for pedestrian crossings (zebra) as outlined in Appendix 1.

3.5 Road markings

Pedestrian crossings (zebra) should be marked as indicated in Figure 3.1, Figure 3.2, and Figure 3.3 below Appendix 2.

3.5.1. Audit findings

The table below outlines the findings. The observations is that the no parking lines marked do not meet the required length in many cases.

		Markings			
Town	**Location**	Bars	Hold Line	Diamonds	No Parking
Greytown					
East Street	McMaster St	Yes	Yes	Yes	Yes
East Street	Greytown School	Yes	Yes	Yes	Yes
Kuratawhiti St	Greytown Pools	Yes	Yes	Yes	No
Featherston					
Birdwood Street	Clifford Square	Yes	Yes	Yes	Yes
Bell Street	St Teresas School	Yes	Yes	Yes	Yes
Martinborough					
Martinborough Square	Cambridge St	Yes	Yes	Yes	Yes
Martinborough Square	Oxford St	Yes	Yes	Yes	Yes
Martinborough Square	Jellicoe St	Yes	Yes	Yes	Yes
Martinborough Square	Kitchner St	Yes	Yes	Yes	Yes
Cambridge St	Martinborough Square	Yes	Yes	Yes	Yes
Oxford Street	Martinborough Square	Yes	Yes	Yes	Yes
Jelicoe Street Street	Martinborough Square	Yes	Yes	Yes	Yes
Texas Street	Martinborough Square	Yes	Yes	Yes	Yes
Jellicoe Street	Venice St	Yes	Yes	Yes	Yes
Dublin Street	Martinborough School	Yes	Yes	Yes	Yes

3.6 Signs

Signs for midblock pedestrian crossings (zebra) are provided in Table 3.4 as outlined Appendix 2.

3.6.1. Audit Findings

The table below outlines the findings. The observations is that the pedestrian Crossing Signage in advance has not been installed in the majority of the crossings.

		Signage			Directional Tactiles	
Town	**Location**	Advanced	Belisha	School	Parrellel	90 degrees
Greytown						
East Street	McMaster St	No	Yes	N/A	No	No
East Street	Greytown School	No	Yes	No	No	No
Kuratawhiti St	Greytown Pools	Yes	Yes	Yes	No	No
Featherston						
Birdwood Street	Clifford Square	Yes	Yes	N/A	No	No
Bell Street	St Teresas School	No	Yes	No	No	No
Martinborough						
Martinborough Square	Cambridge St	No	Yes	N/A	No	No
Martinborough Square	Oxford St	No	Yes	N/A	No	No
Martinborough Square	Jellicoe St	No	Yes	N/A	Yes x1	No
Martinborough Square	Kitchner St	No	Yes	N/A	Yes x1	No
Cambridge St	Martinborough Square	No	Yes	N/A	Yes x2	No
Oxford Street	Martinborough Square	No	Yes	N/A	Yes x2	No
Jelicoe Street Street	Martinborough Square	No	Yes	N/A	Yes x2	No
Texas Street	Martinborough Square	No	No	N/A	No	No
Jellicoe Street	Venice St	No	Yes	N/A	No	No
Dublin Street	Martinborough School	Yes	Yes	Yes	No	No

3.7 Lighting

Pedestrian crossings (zebra) must be illuminated during the hours of darkness and when the street lights are operating in the vicinity, unless the RCA considers that a particular crossing will generally not be used at night (TCD rule clause 8.2(8)).

Lighting for pedestrian crossings (zebra) should meet the requirements of AS/NZS 1158.4: 2009 Lighting of Pedestrian Crossings.

3.7.1. Audit Findings

The table below outlines the findings. The observations is that the older type flashing Belisha lights have been replaced with orange Belisha discs.

		Lighting	
Town	**Location**	Belisha	Street light
Greytown			
East Street	McMaster St	No	No
East Street	Greytown School	No	No
Kuratawhiti St	Greytown Pools	No	Yes x1
Featherston			
Birdwood Street	Clifford Square	No	Yes x1
Bell Street	St Teresas School	No	no
Martinborough			
Martinborough Square	Cambridge St	No	No
Martinborough Square	Oxford St	No	No
Martinborough Square	Jellicoe St	No	No
Martinborough Square	Kitchner St	No	No
Cambridge St	Martinborough Square	No	Yes x1
Oxford Street	Martinborough Square	No	Yes x1
Jelicoe Street Street	Martinborough Square	No	Yes x1
Texas Street	Martinborough Square	No	Yes x1
Jellicoe Street	Venice St	No	No
Dublin Street	Martinborough School	No	No

3.8 General layouts

A pedestrian crossing (zebra) may be combined with other facilities, such as kerb buildouts, pedestrian refuge islands, and / or speed platforms. Layouts for some combinations are shown in Figure 3.1, Figure 3.2, and Figure 3.3 as outlined in Appendix 2.

3.8.1. Audit Findings

The table below outlines the findings. The observations is that the build outs adjacent to the schools do not meet the width requirements. When build outs are planned allowance for stormwater upgrades will need to be allowed for due to the bubble up stormwater system within the urban streets, this will impact on the cost.

		Medians	Build outs
Town	**Location**	solid or flush	
Greytown			
East Street	McMaster St	No	No
East Street	Greytown School	No	No
Kuratawhiti St	Greytown Pools	No	No
Featherston			
Birdwood Street	Clifford Square	Solid	No
Bell Street	St Teresas School	No	Yes
Martinborough			
Martinborough Square	Cambridge St	No	No
Martinborough Square	Oxford St	No	No
Martinborough Square	Jellicoe St	No	Yes
Martinborough Square	Kitchner St	No	Yes
Cambridge St	Martinborough Square	Solid	No
Oxford Street	Martinborough Square	Solid	No
Jelicoe Street Street	Martinborough Square	Solid	No
Texas Street	Martinborough Square	No	No
Jellicoe Street	Venice St	No	No
Dublin Street	Martinborough School	No	Yes

4. Conclusion

Safety on the roading network is driven by road user safety and building infrastructure to accommodate vulnerable users of all modes of transport. Continuous minor improvements to the network help to reduce the Death and Serious injury accidents. The main benefit in the reduction of these accidents is the impact on social costs to the community.

Changes to Waka Kotahi standards have been made over the last 10 years and these changes have not been fully implemented within the South Wairarapa District roading infrastructure.

The upgrade and improvement of signage, directional tactiles and markings can be accommodated within the budgets.

The installation of lighting is not currently budgeted for and will be built into future asset management planning and funding requests.

5. Appendices

Appendix 1 – Land Transport Rule, Traffic Control Devices 2004 Section 8.2 Pedestrian Crossing

Appendix 2 – Pedestrian Crossing Design Standards

Contact Officer: Tim Langley, Roading Manager

Reviewed By: Stefan Corbett, Partnership and Operations Manager.

Appendix 1 - Land Transport Rule, Traffic Control Devices 2004 Section 8.2 Pedestrian Crossing

Traffic Control Devices (TCD) Rule Clause 8.2 stipulates the following requirements for pedestrian crossings (zebra):

8.2(1) A road controlling authority may, except for areas controlled by traffic signals, mark a pedestrian crossing on a road for which a speed limit of 50 km/h or less is set.

8.2(2) A road controlling authority may mark a pedestrian crossing on a road for which a speed limit of more than 50 km/h is set if it has obtained the approval of the Director and complies with any conditions specified in the approval.

8.2(3) A pedestrian crossing must be marked in reflectorised white and as specified in Schedule 2.

8.2(4) A pedestrian crossing that was installed before the commencement of this rule that does not comply with 8.2(3) must be marked in reflectorised white as specified in Schedule 2 by 30 June 2007.

8.2(5) A pedestrian crossing must not, by 30 June 2006, exceed 15 m from one side of the roadway to the other side unless it is:

(a) interrupted by one or more traffic islands to form two or more pedestrian crossings; or

(b) controlled by traffic signals.

8.2(6) Markings for a pedestrian crossing must be placed, as far as practicable, either at right angles to the middle line of the roadway or so as to provide the most convenient route for pedestrians.

8.2(7) A pedestrian crossing must be placed so that:

(a) it is visible to a driver approaching the crossing from any direction; and

(b) the length of the crossing is unobstructed by any permanent growth, construction or physical feature.

Lighting pedestrian crossings

8.2(8) A pedestrian crossing, other than a pedestrian crossing that in the opinion of the road controlling authority will not generally be used at night, must be kept illuminated when street lights are operating so that the crossing markings and a pedestrian on the crossing are visible.

Poles, markings and other indicators of pedestrian crossings

8.2(9) A road controlling authority must install, within 2 m from each end of a pedestrian crossing and on a traffic island that separates two pedestrian crossings, a pole that is:

(a) 75 mm or more in width and 2 m or more in height; and

(b) marked with alternate parallel bands of black and white, which may be reflectorised, each of which is approximately 300 mm wide.

8.2(10) A road controlling authority must place on every pole in 8.2(9) either:

(a) an internally illuminated amber globe (that may flash at between 40 to 60 flashes each minute) that is 300 mm or more in diameter; or

(b) a fluorescent, reflectorised orange sign in the form of a disk that is 300 mm or more in diameter.

8.2(11) To inform approaching traffic of the presence of a pedestrian crossing, a road controlling authority, on each approach to the pedestrian crossing:

(a) must place a pedestrian crossing warning sign before the pedestrian crossing; and

(b) must, by 30 June 2006, mark a limit line that consists of a white line that is not less than 300 mm wide and not less than 5 m from the pedestrian crossing: and

(c) may mark a pedestrian crossing warning marking in the form of a diamond on the road surface.

Appendix 2 - Pedestrian Crossing Design Standards

3. Road markings

Pedestrian crossings (zebra) should be marked as indicated in Figure 3.1, Figure 3.2, and Figure 3.3 below.

3.3.1. Centrelines

The centreline should always stop short of the crossing point, at the limit line. If a pedestrian crossing (zebra) is installed on a road with no centreline, a centre-line should be marked from the limit line to the upstream end of the advance warning diamond.

A centreline marked through a pedestrian crossing (zebra) does not legally divide it into two separate crossings.

3.3.2. Limit lines

All pedestrian crossings (zebra) must have a limit line marked as follows, unless such a marking is impracticable.

Table 3-1: Pedestrian crossings (zebra) limit lines

Colour	Reflectorised white
Width	300mm minimum
Stripe	Continuous
Location	5m from the crossing point

No-stopping lines

On each approach to a pedestrian crossing (zebra) no-stopping lines should be marked not more than 1m out from the kerb or edge of seal and for a minimum distance of 6m prior to the crossing. On rural roads (where a pedestrian crossing (zebra) must be approved by Waka Kotahi NZ Transport Agency) or where operating speeds are greater than 30km/h, the distance should be increased to 15m.

Where school patrols operate, no-stopping line markings should be provided for a minimum of 15m on both approach and departure sides of pedestrian crossings (zebra).

Where kerb extensions are provided, no-stopping lines may be omitted.

3.3.3. Advance warning diamond

Advance warning diamond symbols, if marked, should be located not less than 50m in advance of the pedestrian crossing (zebra) and in the centre of each approach lane. Advance warning diamond symbols should be marked as follows.

Table 3-2: Pedestrian crossings (zebra) advance warning diamond

Colour	Reflectorised white
Line width	100mm minimum
Diamond	0.6m x 4m (minimum), 1m x 6m (desirable)
Proportions	As indicated in Figure 3.1 Figure 3.2 Figure 3.3

Advance warning diamond symbols should be located so they are clearly visible to approaching drivers for at least 50m.

3.3.4. Crossing bars

The bars of pedestrian crossings (zebra) should be marked parallel to the direction of approaching traffic and must be placed as far as reasonably practicable:

- at right angles to the middle line of the roadway; or
- so as to provide the most convenient route for pedestrians.

Any new pedestrian crossing installed or remarked following resealing should be in the M1-1.3, 600 x 600 (new format) as shown in Figures 3.1, Figure 3.2 and figure 3.3.

All existing M1-1, 300 x 600 pedestrian crossings, when being remarked for maintenance, should be remarked in the M1-1.2, 450 x 450 (interim format) through the addition to the marking stripe width by 150mm and thereby reducing the gap by the corresponding amount as per the Land Transport Rule gazette notice.

Table 3-3: Pedestrian crossings (zebra) markings

Format	**New format**	**Interim format**
Colour	Reflectorised white - note that the roadway must contrast with the white crossing markings.	
Bar width	600mm	450mm

Gap	600mm	450mm
Bar length	2.0m (minimum)	

The length of bars may be increased to provide greater visual impact or to provide wider crossings where there are large pedestrian volumes.

The Rule does not specify the required roadway colour to provide a contrast to the white lines. If the roadway is to be resurfaced or marked to improve the contrast between the roadway and the white lines, care is required to ensure that the contrast is visible to all road users; in this regard, visually impaired road users have reported that red and pink colouring between the white lines does not provide adequate contrast.

3.4 Signs

Signs for midblock pedestrian crossings (zebra) are provided in Table 3.4.

The W16-4 children flag/kea crossing flags cannot be legally used for school patrols operating at pedestrian (zebra) crossings. A kea crossing is a part time crossing facility and therefore depends on the temporary W16-4 flags for their conspicuity. Using W16-4 flags at zebra crossings undermines the effectiveness of the flags at kea crossings.

For information on sign specifications such as sign size, reflectivity and legend details refer to the sign specifications.

Table 3.4: Signage for pedestrian crossings (zebra)

Sign code	Example	Description/use
W16-2 Pedestrian crossing		Must be installed in advance of all marked pedestrian crossings. (See 8.2(11) TCD Rule) Crossings should be: • provided with delineation devices that comply with AS/NZS 1158: 1997 Road Lighting - Parts 1-3 AS/NZS 1158 Set: 2010. Must not be used: • where traffic signals control pedestrian movements crossing the road. For sign location (see note 1)

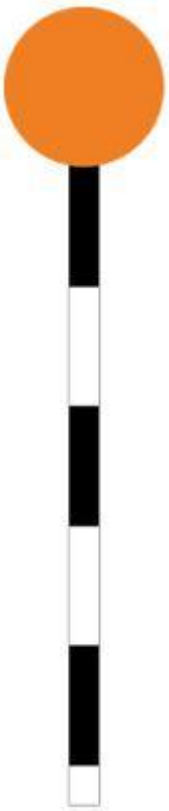
Sign code	Example	Description/use
W16-3 Belisha beacon disc		Poles which indicate the positions of pedestrian crossings (zebra) must be at least 75mm diameter, at least 2m high and be marked with alternate parallel bands of black and retroreflective white sheeting of minimum Class 400 performance. A pole must be located within 2m of each end of every pedestrian crossing (zebra), preferably on the approach sides to crossings, and at the end of pedestrian refuge islands (including on central islands). Pedestrian crossings (zebra) divided by a raised central median or pedestrian refuge island must have poles to mark the ends of each separate crossing, i.e. at the road sides and at the central raised central median or pedestrian refuge. A Belisha beacon disc or a Belisha beacon must be installed on every black and white pole specified Where beacons are provided they should consist of 300mm minimum diameter yellow/amber spheres with a minimum light output of 650 lumens. Beacons should have a flashing rate of between 40 to 60 flashes per minute and should be located so that they are visible to all approaching traffic. It is better to use Belisha beacons where there are a lot of urban signs and light clutter.

Table 3.4 notes:

1. Warning signs should be located where approaching drivers have an uninterrupted view of it over a distance of at least 120m in rural areas and at least 60m in urban areas.

2. Where Belisha Discs are installed on wider poles such as lighting poles the wider pole reduces the surface area of the disc presented to the road user traveling in the opposite direction to mitigate this disc should be placed back to back on either side of the a wider pole.

3.5 Lighting

Pedestrian crossings (zebra) must be illuminated during the hours of darkness and when the street lights are operating in the vicinity, unless the RCA considers that a particular crossing will generally not be used at night (TCD rule clause 8.2(8)).

Lighting for pedestrian crossings (zebra) should meet the requirements of AS/NZS 1158.4: 2009 Lighting of Pedestrian Crossings.

3.6 General layouts

A pedestrian crossing (zebra) may be combined with other facilities, such as kerb buildouts, pedestrian refuge islands, and / or speed platforms. Layouts for some combinations are shown in Figure 3.1, Figure 3.2, and Figure 3.3.

Figure 3.1: Typical layout for pedestrian crossing (zebra) with kerb extensions

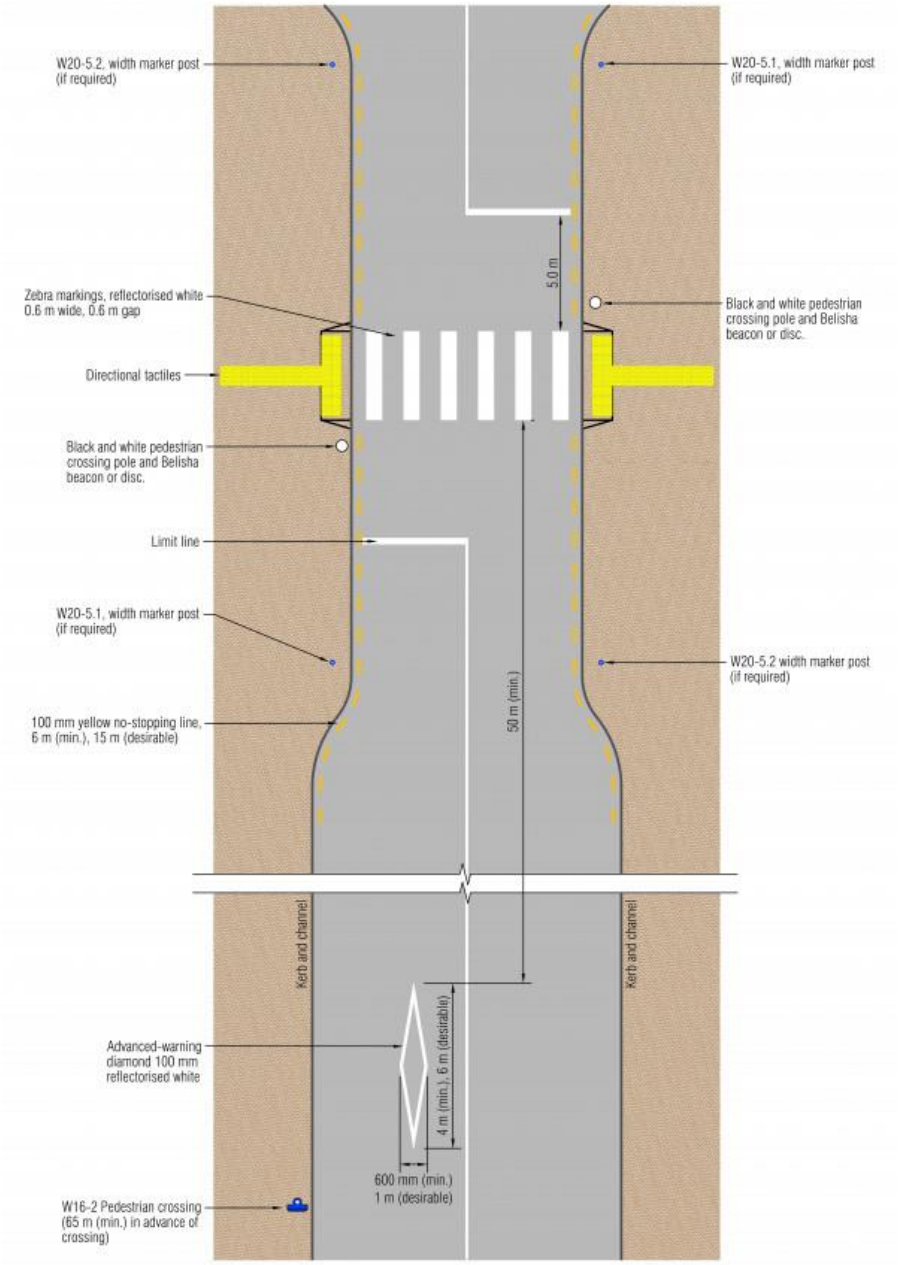
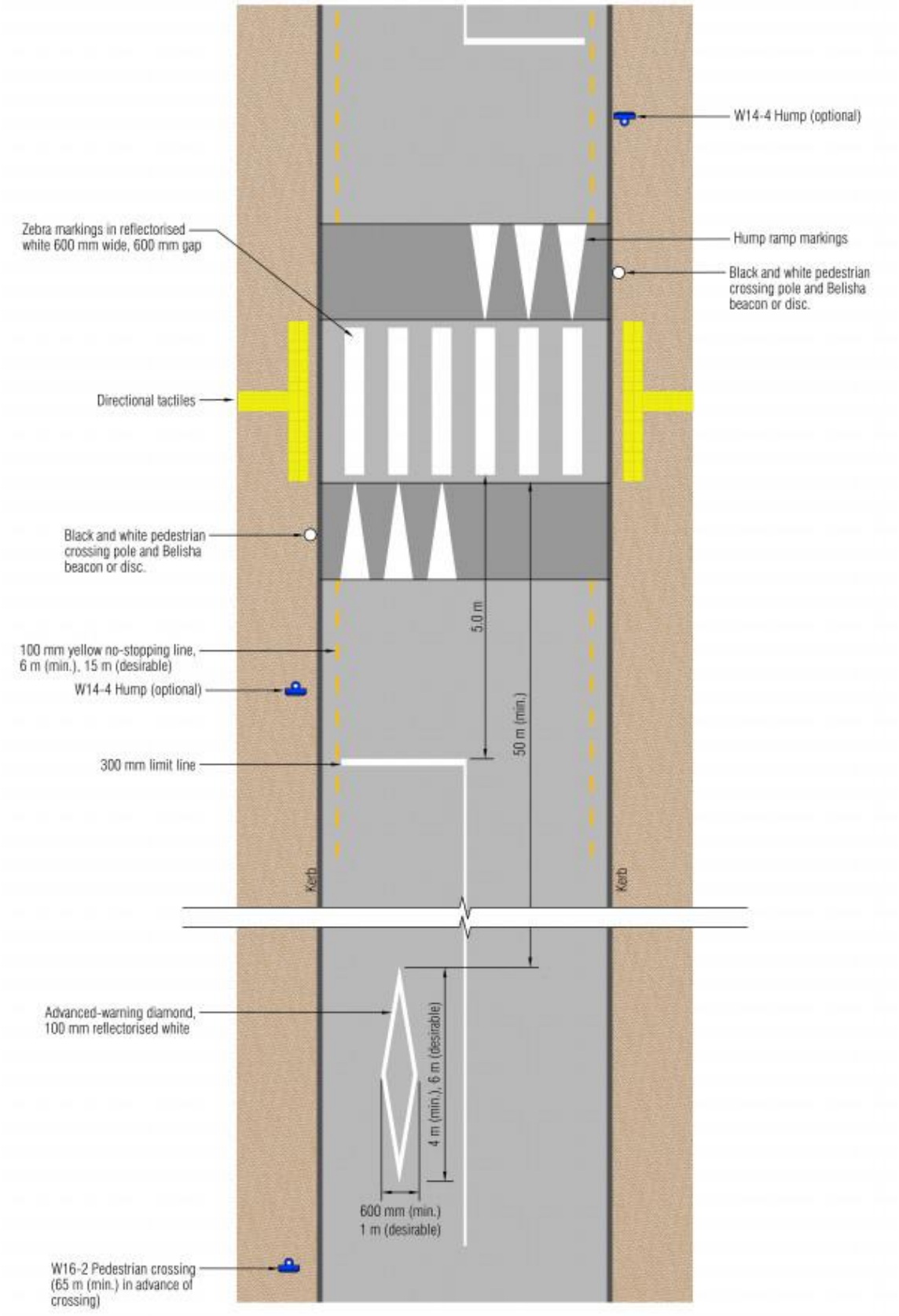


Figure 3.2: Typical layout for pedestrian crossing (zebra) on raised platform



Flush median divided roads

Where a pedestrian crossing (zebra) is marked on a two-lane road marked with a flush median, a pedestrian refuge island should be constructed, to divide the crossing into two separate crossings.

If it is impracticable to provide a pedestrian refuge island, the crossing bars should be marked through the interrupted flush median markings. Such pedestrian crossings (zebra) should be kept to an absolute minimum, where they are used, consideration should be given to measures to better highlight the presence of the pedestrian crossing (zebra) for drivers.

Figure 3.3: Typical layout for pedestrian crossing (zebra) with pedestrian refuge island in a flush median

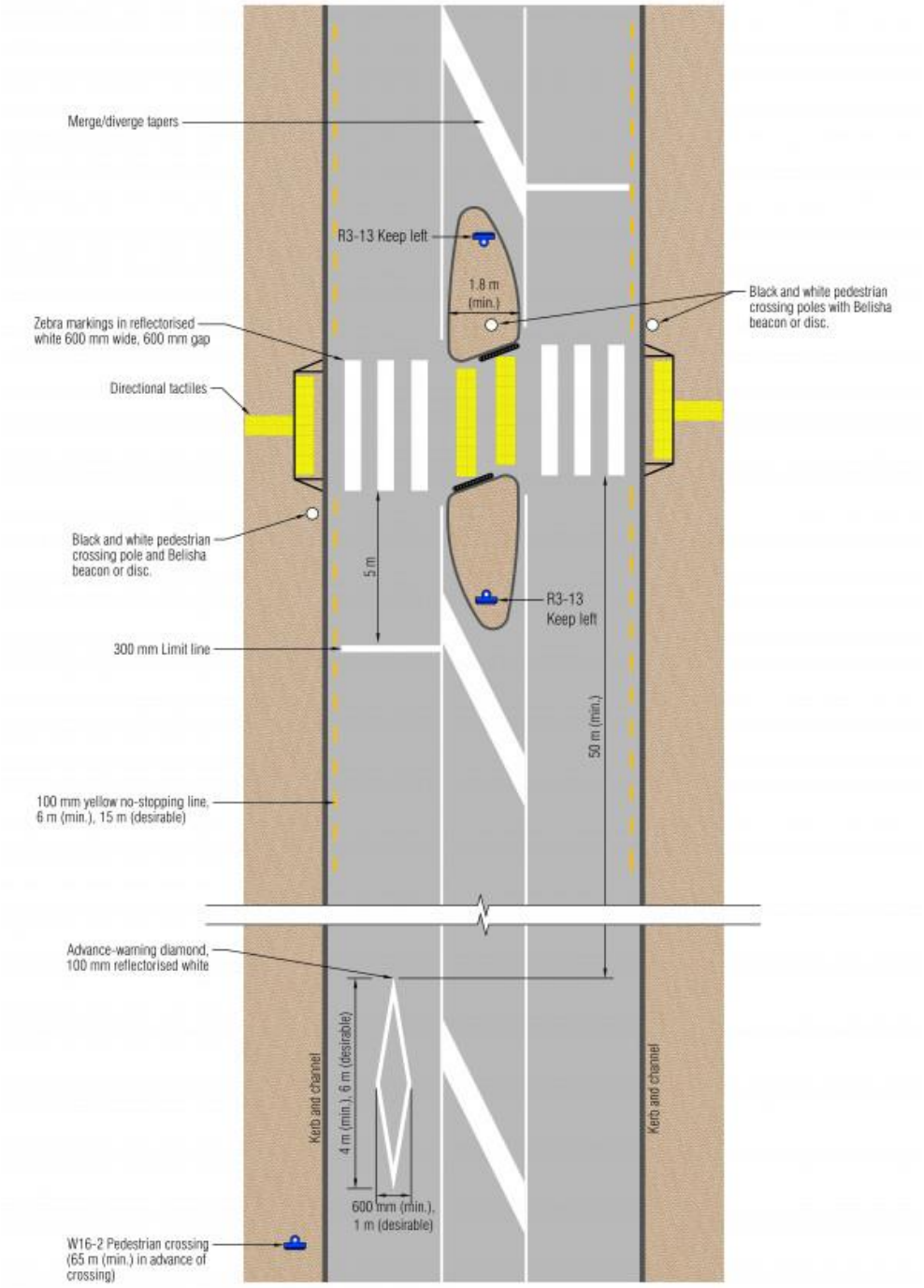


Figure 3.3 note:

1. Tactile Ground Surface Indicators (TGSI) shall not be installed within pedestrian refuges less than 1.2m deep.
2. This layout is also appropriate where a pedestrian crossing (zebra) is installed on a road with a solid median. The flush median's hatchings and boundaries may be omitted.

Multi-lane roads

It is recommended that pedestrian crossings (zebra) are not installed on multi-lane roads due to the safety risks associate with such facilities.

If pedestrian crossings (zebra) are located on multi-lane roads they should be marked as two separate crossings, not exceeding 10m in length and should be divided by a centrally located pedestrian refuge island. The minimum recommended width for a pedestrian refuge island is 1.8m.

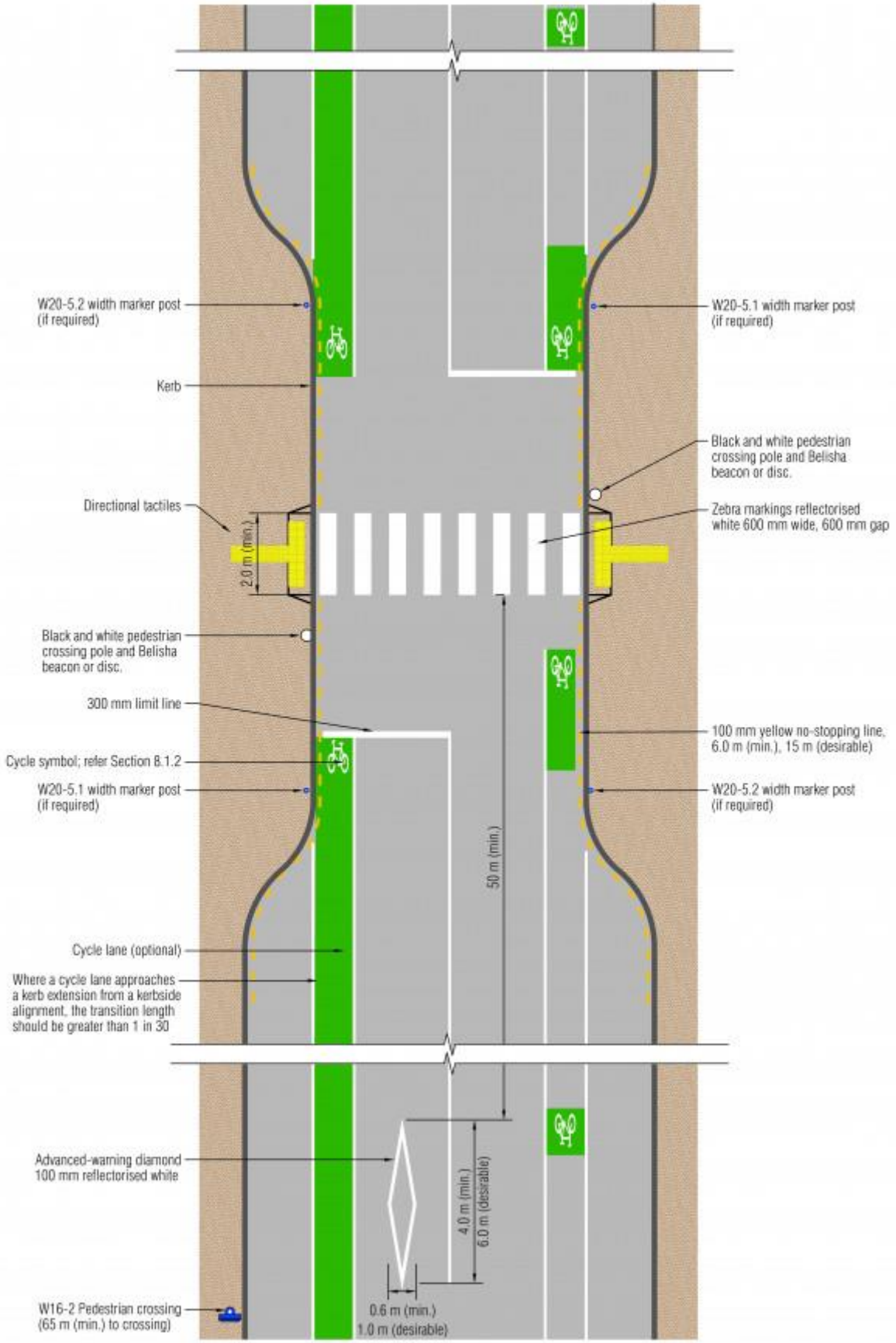
On multi-lane roads it is preferable, where possible, to install kerb extensions to minimise the width of pedestrian crossings (zebra) and to position pedestrians waiting to cross outside of vehicles parked on the approaches to crossings.

Cycle lanes at pedestrian crossings

Where a pedestrian crossing (zebra) is installed across a road with cycle lanes or cycle paths, the cycle lane or cycle path may be continued through the crossing. However, the kerb buildouts required to achieve a maximum crossing distance of 10m may represent a 'pinch point for cyclists. Designers should take care to appropriately manage the conflict that may arise from this situation. Such as by installing pedestrian refuges between opposing traffic lanes or between cycle lanes or paths and the traffic lane.

Refer to Figure 7-13 for recommended cycle lane layouts at a typical pedestrian crossing (zebra) with kerb extensions. It is important that the cycle lane is not terminated prior to the kerb extension and that a taper of not less than 1 in 30 is achieved for the cycle lane where it tapers from a kerbside alignment. Where kerb extensions are provided to ensure sufficient intervisibility, but result in insufficient cycle lane width, more upstream parking could be removed, or the general traffic lane narrowed. An advanced stop line (ASL) as per a normal intersection configuration should also be used.

Figure 3-4: Typical layout of a pedestrian crossing (zebra) with on-road cycle lanes



Cycle paths at pedestrian crossings (zebra)

Where a pedestrian crossing (zebra) is installed on a road with cycle path(s), special consideration should be given to the treatment of cycle path(s) to avoid creating additional risks for pedestrians or cyclists.

The following treatments may be used:

- transition the cycle path to a cycle lane on the roadway and mark the crossing as shown in Figure 3-4

  or

- transition the cycle path to a shared path and mark the crossing as shown in
  Figure 3.1
  Figure 3.2
  Figure 3.3;
  or

- continue the cycle path through the pedestrian crossing (zebra) as shown in Figure 3.

Figure 3-5: Typical layout for a pedestrian crossing (zebra) with a cycle path (cycle path is interrupted)

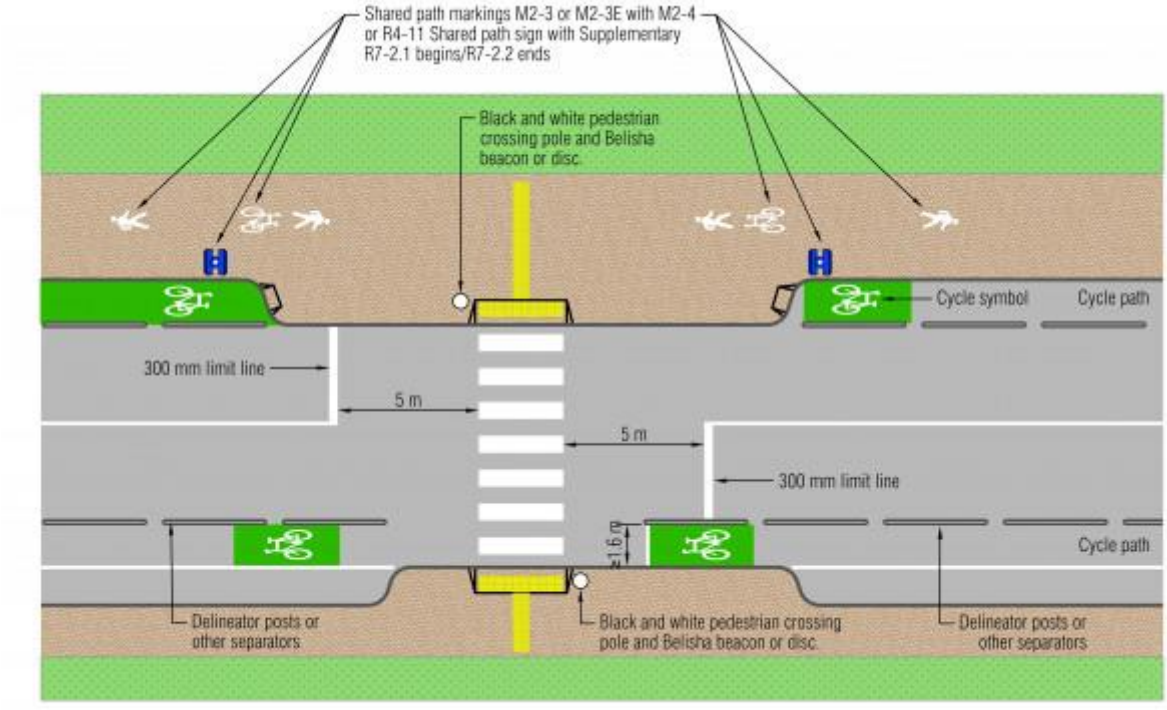
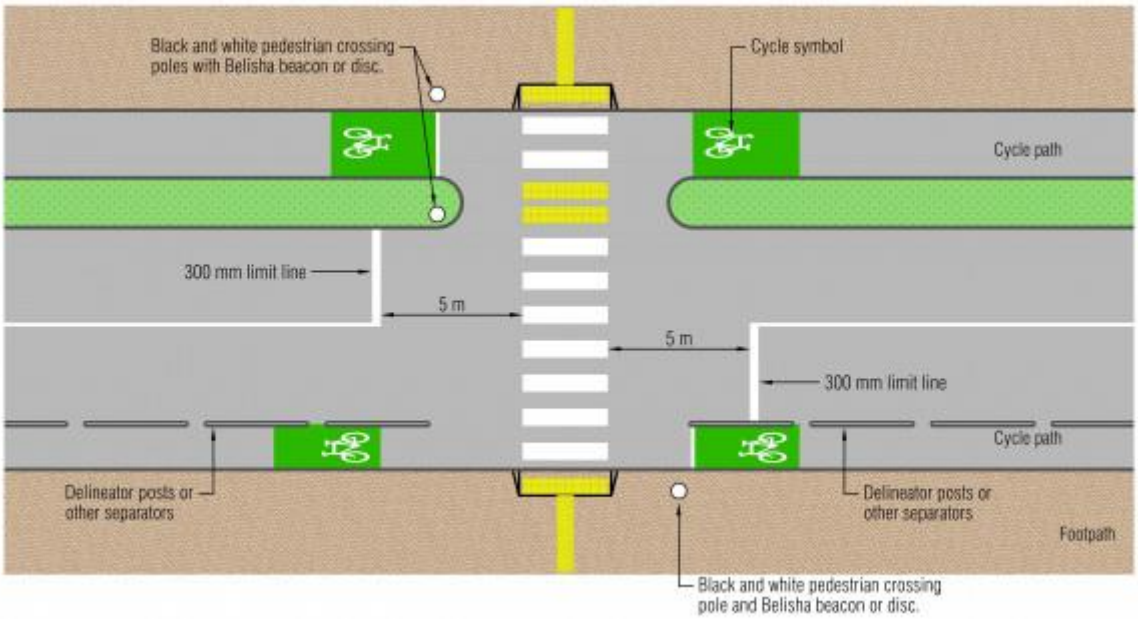


Figure 3-6: Typical layout for a pedestrian crossing (zebra) with a continuous cycle path



ASSETS AND SERVICES COMMITTEE

2 FEBRUARY 2022

AGENDA ITEM C4

ACTION ITEMS REPORT

Purpose of Report

To present the Assets and Services Committee with updates on actions and resolutions.

Recommendations

Officers recommend that the Committee:

1. Receive the Assets and Services Action Items Report.

1. Executive Summary

Action items from recent meetings are presented to the Committee for information. The Chair may ask officers for comment and all members may ask officers for clarification and information through the Chair.

If the action has been completed between meetings it will be shown as 'actioned' for one meeting and then will be remain in a master register but no longer reported on. Procedural resolutions are not reported on.

2. Appendices

Appendix 1 – Action items to 2 February 2022

Contact Officer: Stefan Corbett, Group Manager Partnerships and Operations
Reviewed by: Harry Wilson, Chief Executive

Appendix 1 – Action Items to 2 February 2022

Number	Raised Date	Action Type	Responsible Manager	Assigned to	Action or Task details	Open	Notes
81	20-Feb-19	Resolution	Stefan		COUNCIL RESOLVED (DC2019/15): 1. To receive the Wastewater Sewer Later Replacement Management Report. 2. That lateral renewal up to the boundary where necessary will be undertaken at Council's cost but only when main pipeline renewal is being undertaken (this will be regarded as an operational expense). 3. That council in the meantime will not fund depreciation of private lateral assets. 4. That clearing of obstructions and ensuring the lateral is functional will be carried out within Council land. 5. That private property owners remain responsible for lateral renewal maintenance and renewal as per the bylaw when (2 above) does not apply. 6. That the policy be altered to reflect this change and the bylaw remain unchanged. (Moved Cr Olds/Seconded Cr Craig) Carried Cr Wright voted against the motion. Cr Carter voted against the motion.	Actioned	Policy to come to A&S meeting on the 24th of July 29/07/19 - The section 3.1.9 of the Bylaw will be amended when the bylaw is reviewed and the resolution is put into practice now. Lateral Renewals being done in conjunction with capital works is currently in practice and able to be done under the current bylaw. 27/08/19 Bylaw and Policy reviewed. Officers feel there is no need to amend as the changes can be done under existing policy. 4/9/19: Reopened, report required to next A&S Committee to ensure inconsistencies are address 12/2/20: To be placed on a policy review schedule for 2020 (for the purpose of checking consistency) 28/1/22: Update requests from A&S noted on the Policy Review Register which is being reported to FAR on the 16 Feb 22. This is now being managed via a different process.
423	19-Jun-19	Resolution	Stefan	Tim	ASSETS AND SERVICES RESOLVED (AS2019/12): 1. To receive the Directional Sign Policy for Accommodation, Information and Tourist Attraction Report. 2. That the Blue Signs Policy be amended and then circulated to community board chairs for feedback, and then presented to the Assets and Services Committee seeking a recommendation for Council to approve the Policy.	Actioned	16/08/19 policy is being redrafted in terms of NZTA Traffic Control Devices Manual to ensure Level of Service meets ONRC requirements for national consistency 12/2/20: To be placed on a policy review schedule for 2020 28/1/22: Update requests from A&S noted on the Policy Review Register which is being reported to FAR on the 16 Feb 22. This is now being managed via a different process

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					(Moved Cornelissen/Seconded Cr Colenso) Carried		
424	19-Jun-19	Action	Stefan	Tim	Make amendments to the Directional Sign Policy so that consideration is given to generic vs business specific signs, historic business specific signs, making the policy relevant for all towns, consideration and appropriate use of coloured signs (blue and white vs black and yellow vs brown signs), policy exclusion situations, relevant NZTA policies, publication of the approved policy and application form, and a recommended process for managing requests	Actioned	16/08/19 policy is being redrafted in terms of NZTA Traffic Control Devices Manual to ensure Level of Service meets ONRC requirements for national consistency 12/2/20: To be placed on a policy review schedule for 2020 28/1/22: Update requests from A&S noted on the Policy Review Register which is being reported to FAR on the 16 Feb 22. This is now being managed via a different process
114	18-Mar-20	Resolution	Stefan		COUNCIL RESOLVED (DC2020/27): 1. To receive the Featherston Treated Wastewater to Land and Water Resource Consent Application Report. (Moved Cr West/Seconded Cr Colenso) Carried 2. To endorse Option 2 (withdrawal of the current consent application and lodging a new consent application) as the way forward for the Featherston Treated Wastewater to land and water consent application. 3. Within three months prepare options for the Assessment of Environmental Effects and a Community Engagement Plan. (Moved Cr Fox/Seconded Cr Colenso) Carried	Open	27/5/20: work continues on the Project Plan, AEE and Comms plans. Due to significance and budget, project sits within the Major Projects team at Wellington Water. GHD have been engaged to manage the project and progress the above work. 17/06/20 - A&S committee provided with updated timeline. 12/08/20 Work continues 04/11/20 – 2017 Consent application withdrawn in letter to GWRC. Ongoing update to project provided in Officers' Report. 07/07/21 - Work has continued in background and Council and public engagement can recommence now LTP finalised. 27/10/21 – WWL has been working to provide assurance to SWDC on consentability and affordability.
400	12-Aug-20	Action	Stefan		Investigate the nature of Moroa Water Race events resulting in an operational callout (e.g.	Open	Work in Progress 16/12/20 - Data gathered, analysis under way

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					urban vs rural vs stormwater), cost and location, and put together some analysis		12/05/21 – to be completed in parallel with WR survey.
689	16-Dec-20	Resolution	Stefan		ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2020/68): 1. To receive the Draft Roading Activity Management Plan Report. (Moved Cr Plimmer/Seconded Cr Jephson) Carried 2. To consider the Activity Management Plan and provide strategic feedback for consideration following a workshop yet to be advised. (Moved Mayor Beijen/Seconded Cr Jephson) Carried	Actioned	07/07/21 - Roading AMP findings included in LTP Infrastructure Strategy 28/1/22: AMP is now operational for the next 2 years
695	16-Dec-20	Resolution	Stefan		Schedule a workshop with the A&S Committee and Greater Wellington Regional Council to understand the Donald's Creek flooding issue and to clarify responsibilities for works and protection in waterways	Open	12/05/21 – work being undertaken now under GWRC global consent. 07/07/21 - Clearance of Creek completed. Update in P&O Report.
161	12-May-21	Resolution	Stefan		ASSETS AND SERVICES COMMITTEE RESOLVED (A&S2021/12): 1. To receive the Road Safety in Greytown Report. 2. To note the issues identified by the local community and Greytown Community Board. 3. To consider the proposed initiative once the proposed safety improvements from Waka Kotahi, NZTA, for the SH2 corridor in Greytown are known. (Moved Cr Maynard/Seconded Cr Jephson) Carried	Open	07/07/21 - Waka Kotahi, NZTA providing update and proposal in meeting. 26/8/21 Waka Kotahi consultation for SH 2 safety improvements deadline has been extended due to Covid-19
182	26-May-21	Action	Stefan	Tim	Provide a regular report to the A&S Committee of where footpath funding is being spent	Actioned	16/7/21: Action transferred to A&S Ctte 28/8/21: First sections have been identified in P&O report to A&S 1 September. Final Waka Kotahi funding has yet to be approved.

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							28/1/22: Covered in previous A&S reports
197	27-May-21	Action	Stefan	Tim	Provide assurances to the Assets and Services Committee that the rural road maintenance programme, including maintenance of culverts, is performing to standard	Actioned	16/7/21: Action transferred to A&S Ctte 26/8/21: Annual reporting Matrix from Waka Kotahi Roading Excellence Group will provide high level reports. These are due mid September 2021 28/1/22: Covered in previous A&S reports
280	30-Jun-21	Action	Stefan	Tim	Provide an update to the Assets and Services Committee on the adequacy of the districts pedestrian crossings (safety and lighting)	Actioned	16/7/21: Transferred to A&S Ctte 26/8/21: A district wide review is currently underway with a report due in Oct 21. 27/1/21: Report to Committee 2 Feb
301	7-Jul-21	Action	Stefan	Tim	Provide the archaeological report for the Cape Palliser ecoreef consent application to the Assets and Services Committee, Māori Standing Committee and the Martinborough Community Board for information	Open	30/12/21: Installation scheduled for Jan 22.
302	7-Jul-21	Action	Stefan	Tim	Provide information to the MCB on why the Innovating Streets Project was being partially funded by the Infrastructure Reserve Fund	Open	
484	6-Oct-21	Action	Stefan		Enable waste minimisation measures that encourage ratepayers to deal with their waste responsibly, thereby reducing the waste sent to landfill as well as the cost to Council and ratepayers of landfill disposal	Open	Note: Created by FAR for A&S to consider 15/10/21: Officers are conscious of the need to minimise waste and are working to achieve waste reduction to landfill. Price increase of rubbish bags is the most recent initiative to get ratepayers thinking on what they are throwing vs recycling which is free. Waste Minimisation Action Plan to be developed. 27/1/22: Environmental and Sustainability advisor due to start end of Feb and will be moving these initiatives forward.
516	27-Oct-21	Action	Stefan	B Neems	Work on a health and safety action plan with the Wairarapa Trails Action Group to ensure network safety of the proposed trails and continue discussions on cyclist safety on	Open	8 Nov 21: WTAG chairman Greg Lang, Carterton Mayor is having discussions with SWDC Mayor on a way forward to resolve this problem on both sides of Underhill

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					Underhill Road leading to the Tauherenikau Cycle Bridge		Road 20/12/21: Bridge construction delayed 12-14 weeks (subject to weather). 27/1/22: Underhill Road will be included as part of the speed review, other initiatives will be investigated prior to the bridge opening in September.
517	27-Oct-21	Action	Stefan	Tim	Provide an update to the A&S Committee regarding material availability for works at Ponatahi	Actioned	28/1/22: Work completed
518	27-Oct-21	Action	Stefan		Provide the A&S Committee with an estimate of the impact of rising costs to water related projects	Open	
519	27-Oct-21	Action	Stefan	Tim	Investigate whether there is an NZTA measure for unsealed roads (i.e. similar to the sealed roads measure)	Actioned	28/1/22: There is no defined measurable performance measures within Waka Kotahi toolbox
647	15-Dec-21	Action	Stefan	Sheil	Prepare media communications about the Papawai wastewater line renewals explaining the original scope, why this has changed, and what the program now involves	Open	28/1/22: Working with WWL to draft a release.