Notice is given that an ordinary meeting of the Engineering Services Committee will be held on:

Date:	**Thursday 11 April 2019**
Time:	**9.30 am**
Meeting Room:	**Tasman Council Chamber**
Venue:	**189 Queen Street**
	Richmond

Engineering Services Committee

AGENDA

MEMBERSHIP

Chairperson	Cr S G Bryant	
Deputy Chairperson	Cr P F Sangster	
Members	Mayor R G Kempthorne	Cr S R Brown
	Cr P L Canton	Cr M J Greening
	Cr P H Hawkes	Cr T B King
	Cr C M Maling	Cr D E McNamara
	Cr D J Ogilvie	Cr T A Tuffnell
	Cr A C Turley	Cr D M Wensley

(Quorum 7 members)

Contact Telephone: 03 543 8524
Email: robyn.scherer@tasman.govt.nz
Website: www.tasman.govt.nz

Note: The reports contained within this agenda are for consideration and should not be construed as Council policy unless and until adopted.

AGENDA

1 OPENING, WELCOME

2 APOLOGIES AND LEAVE OF ABSENCE

Recommendation
That apologies be accepted.

3 PUBLIC FORUM

4 DECLARATIONS OF INTEREST

5 LATE ITEMS

6 CONFIRMATION OF MINUTES

That the minutes of the Engineering Services Committee meeting held on Thursday, 6 December 2018, be confirmed as a true and correct record of the meeting.

7 REPORTS OF COMMITTEE

Nil

8 PRESENTATIONS

Nil

9 REPORTS

10 CONFIDENTIAL SESSION

9 REPORTS

9.1 CHAIRMAN'S REPORT

Information Only - No Decision Required

Report To:	Engineering Services Committee
Meeting Date:	11 April 2019
Report Author:	Stuart Bryant, Chairman, Engineering Services Committee
Report Number:	RESC19-04-1

1 Summary

1.1 This report provides the Chairman’s regular update.

2 Draft Resolution

That the Engineering Services Committee receives the Chairman's Report RESC19-04-01.

3 Update

3.1 Welcome to this first meeting of the Engineering Services Committee for 2019.

3.2 As you are aware, we cancelled the February meeting because of the fire emergency. However, everyone, both staff and Councillors, has been extremely busy.

3.3 I had predicted last year that 2019 would be a demanding year for the Council but I hadn't factored a serious fire or drought into that "prediction". Both were serious "events" for our District and I am so proud of the Engineering Services team and, in fact, all of our Council staff for their huge efforts. It is times like this that everyone works together to get the best results for our ratepayers.

3.4 The Pigeon Valley fire affected so many people; even Joanne and I were not immune as we were evacuated from our home for a couple of days. However, while that was a minor inconvenience for us there were many others who were prevented from returning to their homes for an extended period. In particular, I would like to acknowledge our Deputy Mayor Tim King and his family who were adversely affected by the fire.

3.5 While Fire and Emergency New Zealand are now on top of the fire situation, the after effects will go on for a long time, not only for the affected land itself, but for our residents too. We need to continue to provide our support wherever we can.

3.6 I was hugely impressed with the cooperation and collaboration between the various agencies involved in the fire emergency. I think we are very fortunate to have so many people who came from all over New Zealand to help their colleagues in Tasman District. Thank you every one of you.

3.7 The drought last month was another big issue for the Engineering Services team and again I take my hat off to those staff who worked some very long hours to manage our water supplies and ensure we kept as many businesses continuing to operate.

3.8 The cooperation of both our residents and our businesses to conserve their water use was fantastic. It was heartening to hear many residents urge the Council to restrict their domestic use so that our businesses could continue to operate and support our local economy.

3.9 While the recent rain has been welcome, we still have some restrictions in place and it will take some time for the rivers and aquifers to recharge. The situation has certainly reaffirmed for me our decision to go ahead with the Waimea Dam to future-proof our water supplies.

3.10 With Richard Kirby seconded to the fire emergency as Recovery Manager, Dwayne Fletcher stepped up and led the team working on the drought and management of our depleting water supplies. Thank you to you both.

3.11 It has been an extremely busy and stressful six weeks for many of our residents and for our staff. Our Engineering Services team has been at the forefront of both the fire emergency and drought and I am extremely proud of them all. Thank you everyone.

Government Policy Statement on Land Transport

3.12 Along with Councillors Maling and Ogilvie and staff, I recently attended a regional workshop organised by the Ministry of Transport to discuss transport policy. Unfortunately, the discussions were very fragmented and have confirmed to me that the Ministry needs to urgently rethink its priorities for land transport in the Nelson-Tasman region.

New Zealand Transport Agency

3.13 On a different note, there has been a change in personnel at the New Zealand Transport Agency. Frank Porter who was based in Marlborough and has been responsible for the state highway network in the Top of the South has retired. Andrew James, who many of you will know from his time at Nelson City Council and more recently with the Agency, is taking over Frank's position. I am sure that we will enjoy a very good working relationship with Andrew as we have had with Frank. On behalf of the Council and our staff, I would like to wish Frank all the best for a happy and busy retirement and welcome Andrew to our team.

South Island Regional Transport Chair's Committee

3.14 Drew Bryant and I attended a meeting of the South Island Regional Transport Committee (RTC) Chairs on 4 March 2019. The meeting discussed Hon Nick Smith's proposed Local Member's Bill regarding roadside drug testing of vehicle drivers and the Nelson and Tasman RTC Chairs persuaded the group to support his bill.

3.15 A draft Freight Mode Research report on shifting freight from the road to rail in the South Island was tabled. The report showed that road freight was increasing and there was a significant external cost that was not being met by charges to users when compared to other modes of transport. A number of case studies showed how the benefits could be realised. All these case studies related to change from road to rail so are not an obvious fit for Tasman. The next stage is to expand to a programme business case to explore the opportunity in totality for the rest of the South Island.

3.16 The South Island RTC Chairs Group commissioned a study into the potential for development of a Visitor Flows Model for the South Island. This project has now been completed and published by the New Zealand Transport Agency. The study found that while there are a number of potential data sources that could be used for such a model, difficulties would be encountered in sourcing repeatable data and implementation of such a model. The study outlines the next steps to allow a better understanding of the flow of visitors through the South Island and provides a sound basis for decisions regarding further options for visitor flow modelling.

9.2 PAXSTER USE OF TASMAN DISTRICT FOOTPATHS

Decision Required

Report To:	Engineering Services Committee
Meeting Date:	11 April 2019
Report Author:	Jamie McPherson, Transportation Manager
Report Number:	RESC19-04-2

1 Summary

1.1 The use of NZ Post Paxster delivery vehicles on footpaths in Tasman District has been discussed several times at the Engineering Services Committee.

1.2 The Committee previously resolved to defer any decision regarding approval for NZ Post to use Paxster vehicles in Tasman District until the outcome of a Paxster trial in Hamilton City was known.

1.3 This report provides a summary of information received from the Hamilton City trial and recommends a way forward.

1.4 The Hamilton City trial, while arguably limited in size and scope, is considered sufficient to gauge the overall effects of Paxster use on footpaths in Hamilton. Evidence indicates that the effects are minimal and that Paxsters may be approved for use in Tasman District.

1.5 Nelson City Council has approved a 24-month trial of Paxster delivery vehicles on selected footpaths in Nelson City.

2 Draft Resolution

That the Engineering Services Committee

1. **receives the Paxster Use of Tasman District Footpaths report, RESC19-02-02; and**
2. **approves the use of Paxster vehicles on selected footpaths in Tasman District for a 24-month trial period, from a start date to be confirmed with NZ Post, in accordance with the terms and conditions set out in Attachment 2, Approval of the Footpath Operation of Electric Delivery Vehicles in the jurisdiction of Tasman District Council.**

3 Purpose of the Report

3.1 This report is to reconsider the request from NZ Post for the use of Paxster electric delivery vehicles on Tasman District Council footpaths. It also provides a summary of results from Hamilton City Council's trial of NZ Post Paxster electric delivery vehicles, which had been requested by the Engineering Services Committee.

4 Background and Discussion

4.1 Several reports have previously been presented to the Committee regarding Paxster use.

4.2 At the Committee meeting on 29 June 2017, it was resolved:

That the Engineering Services Committee

1. **receives the approval for footpath operation of electric NZ Post delivery vehicles report, RESC17-6-04; and**
2. **approves the use of electric delivery vehicles on Council footpaths in accordance with the terms and conditions set out in Attachment 1, Approval of the Footpath Operation of Electric Delivery Vehicles in the jurisdiction of Tasman District Council; and**
3. **refers this item to the Accessibility for All Forum for their feedback and comment and to report back to the next Engineering Services Committee meeting.**

4.3 Subsequent engagement with the Accessibility for All forum (A4A) raised concerns about the proposal which were outlined to the Engineering Services Committee Meeting on 17 August 2017. The Committee resolved the following:

That the Engineering Services Committee:

1. **receives the Engineering Activity Update report, RESC17-08-04; and**
2. **that the approval given by the Engineering Services Committee on 29 June 2017 for the introduction of the NZ Post Paxster service be delayed until staff can report back on any H&S issues to assess if the risk to footpath users is still considered minor.**

4.4 The Engineering Services Committee subsequently resolved at a meeting on 15 February 2018:

That the Engineering Services Committee

1. **receives the Paxster Use of Tasman District Footpaths report, RESC18-02-03; and**
2. **defers any decision regarding approval for NZ Post to operate Paxster vehicles on Richmond footpaths until the outcome of the Hamilton City Council trial has been assessed and reported back to the Engineering Services Committee.**

The Hamilton City Council Trial Results

4.5 A trial of Paxster vehicles in Hamilton City started in 2017. It included resident surveys in November 2017 (with 247 respondents) and July 2018 (with 110 respondents). The surveys

asked about resident's observations, experiences and perceptions of the Paxster vehicles and their use. An example summary of results from the November 2017 survey is included in **Attachment 1**.

4.6 Seven percent (7%) of respondents to the November 2017 survey were aged 65 or over. Nine percent (9%) were aged 51-64, 35% were aged 36-50, 39% were aged 25-35 and 10% were under the age of 25.

4.7 Eleven percent (11%) of the respondents in November 2017 and 7% of respondents in July 2018 answered yes to the question "Has the presence of Paxsters on the footpath changed how you use the footpath (eg, time of travel, route taken, feeling of safety?)". None of the respondents aged 65 or over answered yes to this question. The most common issue mentioned in the verbatim comments for this question was that people are unsure who has right of way when the Paxster is on the footpath (the NZ Post operating manual requires that Paxster drivers make way for any other footpath user). This sort of issue could be managed through public information and as people gain experience and understanding in how the Paxsters operate. The behaviour of Paxster drivers would also be a key management issue should a trial be approved in Tasman.

4.8 Overall, the resident surveys did not provide any evidence that people who would otherwise have used the footpath have felt unable or unwilling to do so knowing that Paxsters may be operating on them. However, the sample size was limited.

4.9 The Hamilton trial also included pedestrian counts in an attempt to quantify whether the use of Paxsters caused any change in the number of pedestrians on selected footpaths, in particular noting numbers of users with disabilities. These counts showed widely varying counts of pedestrians over time and ultimately we consider the survey methodology was not able to provide any useful evidence of the impact of Paxster vehicles on use of footpaths by pedestrians.

4.10 Hamilton City Council has received on average one or two service requests per month regarding Paxster vehicles, mainly in relation to them being driven on berms or grass.

4.11 No significant incidents have occurred during the trial. Some minor property damage has occurred, for example where Paxsters have collided with utility markers, fences or bollards. One incident involving a crash between a Paxster and another vehicle occurred on road, and did not result in injury.

4.12 In summary, considering the overall evidence from the Hamilton City trial, the effects of Paxster use on footpaths is considered minimal both in terms of effect on users and on the asset.

5 Options

5.1 Table 1 describes the options.

Option 1 – Confirm approval for NZ Post to operate Paxster vehicles on footpaths in Tasman District	
Advantages	• Accommodates NZ Post and customers/communities needs for cost effective and convenient parcel delivery
Disadvantages	• May be unpopular with some footpath users and A4A
Option 2 – Decline approval for NZ Post to operate Paxster vehicles on any Tasman District footpaths	
Advantages	• Existing footpath use is not affected
Disadvantages	• Likely to affect NZ Post and impact cost of mail and parcel delivery for customers.
Option 3 – Confirm approval for NZ Post to operate Paxster vehicles on selected footpaths in Tasman District for a trial period to assess suitability. This is the recommended option.	
Advantages	• Accommodates NZ Post and customers/communities needs for cost effective and convenient parcel delivery • Takes into account evidence received from Hamilton City trial areas and enables the effect of Paxsters to be understood on our network, without committing long term • Aligns with Nelson City Council decision
Disadvantages	• May be unpopular with some footpath users and A4A

5.2 Staff recommend Option 3 – Confirm approval for NZ Post to operate Paxster vehicles on selected footpaths in Tasman District for a trial period to assess suitability.

6 Strategy and Risks

6.1 The risks associated with Paxster use has been largely discussed in previous reports to this Committee. However, the overall strategy of how Tasman District Council proposes to manage use of the footpath area is a pertinent matter and one which has not been fully discussed.

6.2 Most Road Controlling Authorities (RCAs) in New Zealand have approved Paxster vehicles to operate on their footpaths, with the notable exception of Wellington City Council who had concerns about safety due to the generally narrow and steep nature of their topography and footpaths.

6.3 Nelson City Council has approved Paxsters on their footpaths for a 24-month trial period.

6.4 This report does not consider wider use of footpaths by other wheeled personal transport vehicles such as motorised scooters, including ‘Lime Scooters’ being trialed in other larger urban areas.

6.5 Staff do not consider that NZ Post Paxster vehicles can be considered in the same category as such mobility devices, as the Paxster proposal is highly controlled in terms of where they may go, how they are to be operated, and being operated only by trained drivers. Private

electric scooters, and other electric mobility devices which are already in use on the footpath network, are not subject to the same controls as Paxsters and currently present a much greater risk to other footpath users than Paxsters.

6.6 Ongoing engagement with A4A has noted that they have general concerns about use of footpaths by non-pedestrians, along with their particular opposition to Paxster use on footpaths. This engagement also raised particular issues with Paxster vehicles, for example their lack of audible warning, which staff will take into account in any conditions of approval if the Committee approves their use on footpaths.

6.7 If the Engineering Services Committee declines approval of Paxster vehicles due to the risks they present to footpath users, then it should also consider how additional controls or restrictions may be added to other electric mobility devices to manage this more significant existing risk.

7 Policy / Legal Requirements / Plan

7.1 Footpaths are a strategic piece of public infrastructure. The Council's 2018-48 Transportation Activity Management Plan (AMP) identifies the aging population as a key issue for our District and generally describes the Council's response as 'provide integrated walking and cycling networks' and 'provide better active transport routes'.

7.2 Table 2 below provides an assessment of how the use of Paxster vehicles on footpaths contributes to the Council's Community Outcomes.

Community Outcome	How Paxster Use Contributes to Community Outcome
Our unique natural environment is healthy and protected.	No effect
Our urban and rural environments are people friendly, well-planned and sustainably managed	**Neutral**. Some users may consider Paxster vehicles on footpaths as not people-friendly. Evidence from Hamilton trial suggests the effects are minimal. Sustainable management includes using parcel delivery methods that are efficient**.**
Our infrastructure is efficient, cost effective and meets current and future needs.	**Positive** as it provides efficiency to the delivery of mail and parcels to residents and meets modern parcel delivery needs.
Our communities are healthy, safe, inclusive and resilient.	**Neutral**. Some footpath users and advocacy groups may feel that their particular views and needs are not being met. Evidence from the Hamilton trial does not suggest that residents are less likely to use footpaths due to Paxsters. The conditions and management systems controlling Paxster use manage the safety risks.

Community Outcome	How Paxster Use Contributes to Community Outcome
Our communities have opportunities to celebrate and explore their heritage, identity and creativity.	No effect
Our communities have access to a range of social, educational and recreational facilities and activities.	**Potentially negative**. A4A concerns are that some community members who are dependent on the footpath network to access activities will be less likely to do so with Paxsters using footpaths. Evidence from Hamilton trial does not suggest this is the case, therefore **Potentially Neutral**.
Our Council provides leadership and fosters partnerships, a regional perspective and community engagement.	**Potentially Negative**. Engagement with A4A has demonstrated opposition to Paxsters. Approving Paxster use would be disappointing to A4A given the feedback they have provided to date, although they will continue to have input on a range of strategic issues. However, the Council needs to balance risks, function and demands on the transportation network, and evidence from Hamilton is that many people are supportive of Paxster use. **Potentially Neutral**.
Our region is supported by an innovative and sustainable economy.	**Positive**. Introduction of Paxsters provides economic benefits to residents who are customers of NZ Post.

7.3 NZ Post has sought and received New Zealand Transport Agency (NZTA) approval for an exemption under Section 2.13 of the Land Transport (Road User) Rule to allow footpath access for Paxster vehicles subject to approval from the relevant RCA.

8 Consideration of Financial or Budgetary Implications

8.1 The use of selected footpaths by Paxster vehicles is considered to have minor or no financial implications for the Council.

9 Significance and Engagement

9.1 Considerable engagement with A4A has occurred since June 2017 when this proposal was first considered. This is considered sufficient in relation to the significance of the proposal.

9.2 If approved for use, it is recommended that a communications plan be developed in conjunction with NZ Post so that public perception issues, such as uncertainty of who has right of way as evident from the Hamilton trial, can be managed. This is covered as a condition of the draft approval document previously seen by the Committee.

Issue	Level of Significance	Explanation of Assessment
Is there a high level of public interest, or is decision likely to be controversial?	Moderate	This matter is of considerable interest to A4A.
Is there a significant impact arising from duration of the effects from the decision?	Low	The approval of a 24-month trial period for Paxster use, with more stringent clauses for withdrawal of approval within the conditional agreement, limits the duration particularly of any demonstrably negative effects.
Does the decision relate to a strategic asset? (refer Significance and Engagement Policy for list of strategic assets)	Moderate	This decision relates to selected footpaths in the Richmond urban area.
Does the decision create a substantial change in the level of service provided by Council?	Low	No effect, it does not limit the use of footpaths by existing users.
Does the proposal, activity or decision substantially affect debt, rates or Council finances in any one year or more of the LTP?	N/A	

10 Conclusion

10.1 Results from the Hamilton City trial of Paxster vehicles have not provided evidence of detrimental effects on footpath users due to Paxster operation.

10.2 Staff recommend that conditional approval be granted to NZ Post to operate Paxster vehicles on selected footpaths in Tasman District for an initial 24-month period. This aligns with the Nelson City Council decision.

11 Next Steps / Timeline

11.1 If approved, staff will work with NZ Post and other stakeholders as required to confirm final routes including those footpaths that are assessed as unsuitable for Paxsters, and develop a communications plan in advance of Paxster operations.

12 Attachments

1. Paxster Survey - Final Report 17

Hamilton City Council
Te kaunihera o Kirikiriroa

New Zealand Post

NZ Post Paxster Vehicles Trial 2018 Survey: Summary report

This report was created on Monday 16 July 2018 at 09:15.

The consultation ran from 03/07/2018 to 15/07/2018.

Contents

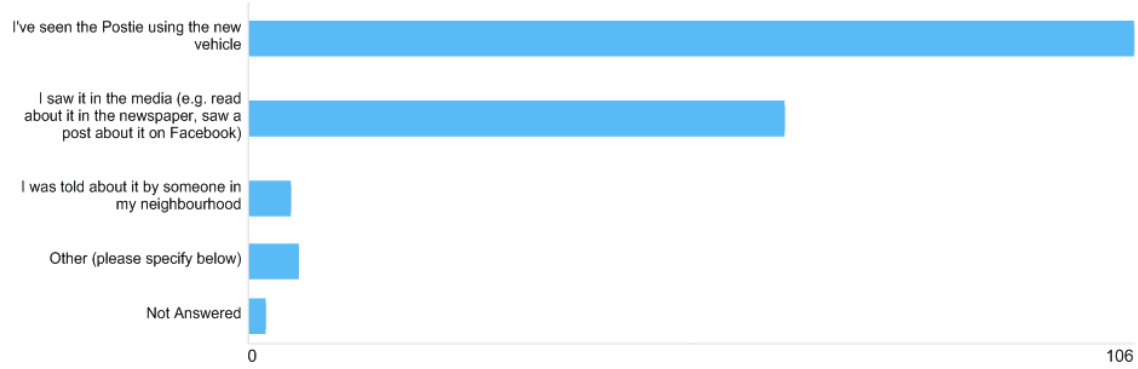
Question 1: Were you aware that NZ Post have been trialing the new electric Paxster vehicles in Hamilton since September 2017?

Were you aware that NZ Post have been trialing the new electric Paxster vehicles in Hamilton since September 2017?

Option	Total	Percent
Yes	110	94.83%
No	5	4.31%
Not Answered	1	0.86%

Question 2: What made you aware of the trial? (Select all that apply)

What made you aware of the trial?



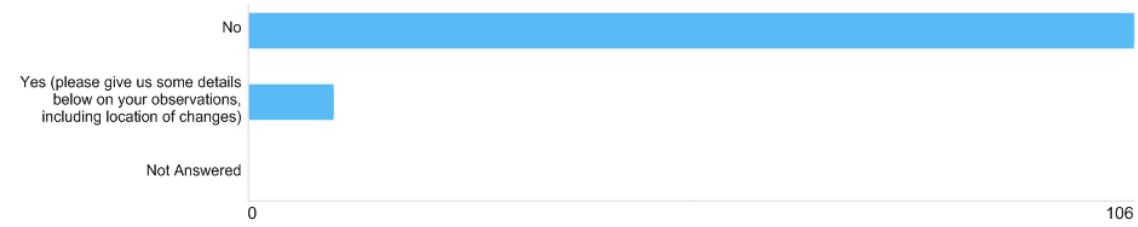
Option	Total	Percent
I've seen the Postie using the new vehicle	106	91.38%
I saw it in the media (e.g. read about it in the newspaper, saw a post about it on Facebook)	64	55.17%
I was told about it by someone in my neighbourhood	5	4.31%
Other (please specify below)	6	5.17%
Not Answered	2	1.72%

If you chose 'other' please specify

There were **6** responses to this part of the question.

Question 3: Have you noticed any changes to the condition of the footpaths, kerbs or grass verges since the trial began?

Have you noticed any changes to the condition of the footpaths, kerbs or grass verges since the trial began?



Option	Total	Percent
No	106	91.38%
Yes (please give us some details below on your observations, including location of changes)	10	8.62%
Not Answered	0	0%

If yes, please give us some details below on your observations, including location of changes

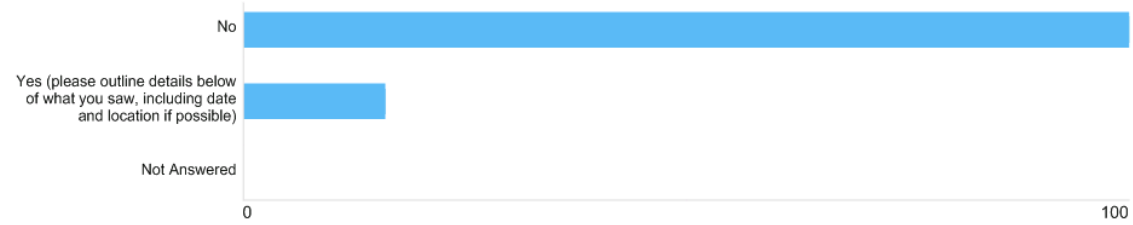
There were **16** responses to this part of the question.

Hamilton City Council
Te kaunihera o Kirikiriroa

New Zealand Post

Question 4: Have you observed any incidents (positive or negative) between the vehicles and other footpath users?

Have you observed any incidents (positive or negative) between the vehicles and other footpath users?



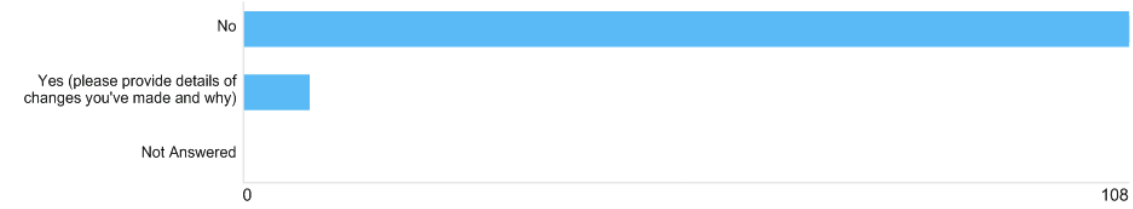
Option	Total	Percent
No	100	86.21%
Yes (please outline details below of what you saw, including date and location if possible)	16	13.79%
Not Answered	0	0%

If yes, please outline details below of what you saw, including date and location if possible

There were **17** responses to this part of the question.

Question 5: Has the presence of Paxsters on the footpath changed how you use the footpath? (e.g. time of travel, route taken, feeling of safety?)

Has the presence of Paxsters on the footpath changed how you use the footpath? (eg. time of travel, route taken, feeling of safety?)



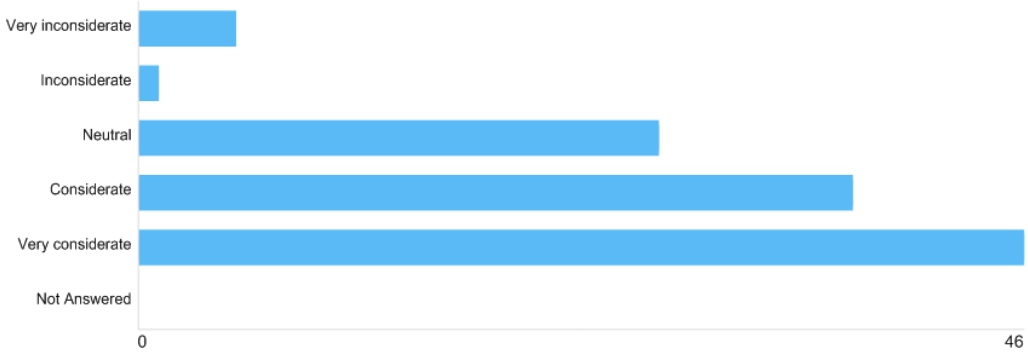
Option	Total	Percent
No	108	93.10%
Yes (please provide details of changes you've made and why)	8	6.90%
Not Answered	0	0%

If yes, please provide details of changes you've made and why

There were **8** responses to this part of the question.

Question 6: On a scale of 1 (very inconsiderate) to 5 (very considerate) how considerate have you found Paxster drivers to be towards pedestrians?

On a scale of 1 (very inconsiderate) to 5 (very considerate) how considerate have you found Paxster drivers to be towards pedestrians? - How do you rate the Paxster drivers?



Option	Total	Percent
Very inconsiderate	5	4.31%
Inconsiderate	1	0.86%
Neutral	27	23.28%
Considerate	37	31.90%
Very considerate	46	39.66%
Not Answered	0	0%

Do you have any other comments to make about the drivers?

There were **23** responses to this part of the question.

Question 7: Are there any further comments you would like to make about this trial or the Paxster vehicles? Please outline details below.

Are there any further comments you would like to make about this trial or the Paxster vehicles? Please outline details below.

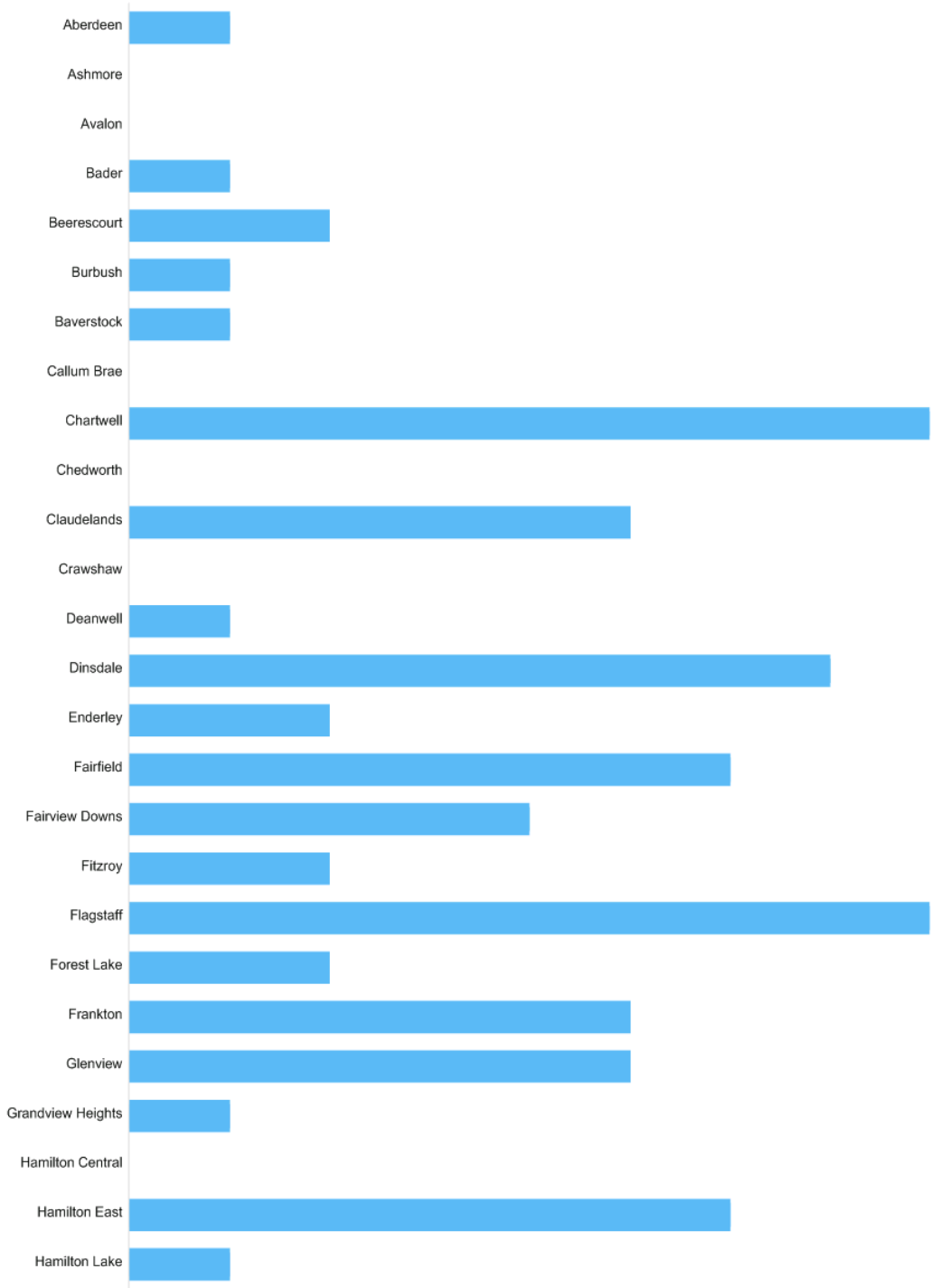
There were **50** responses to this part of the question.

Hamilton City Council
Te kaunihera o Kirikiriroa

New Zealand Post

Question 8: Please tell us which Hamilton suburb you live in.

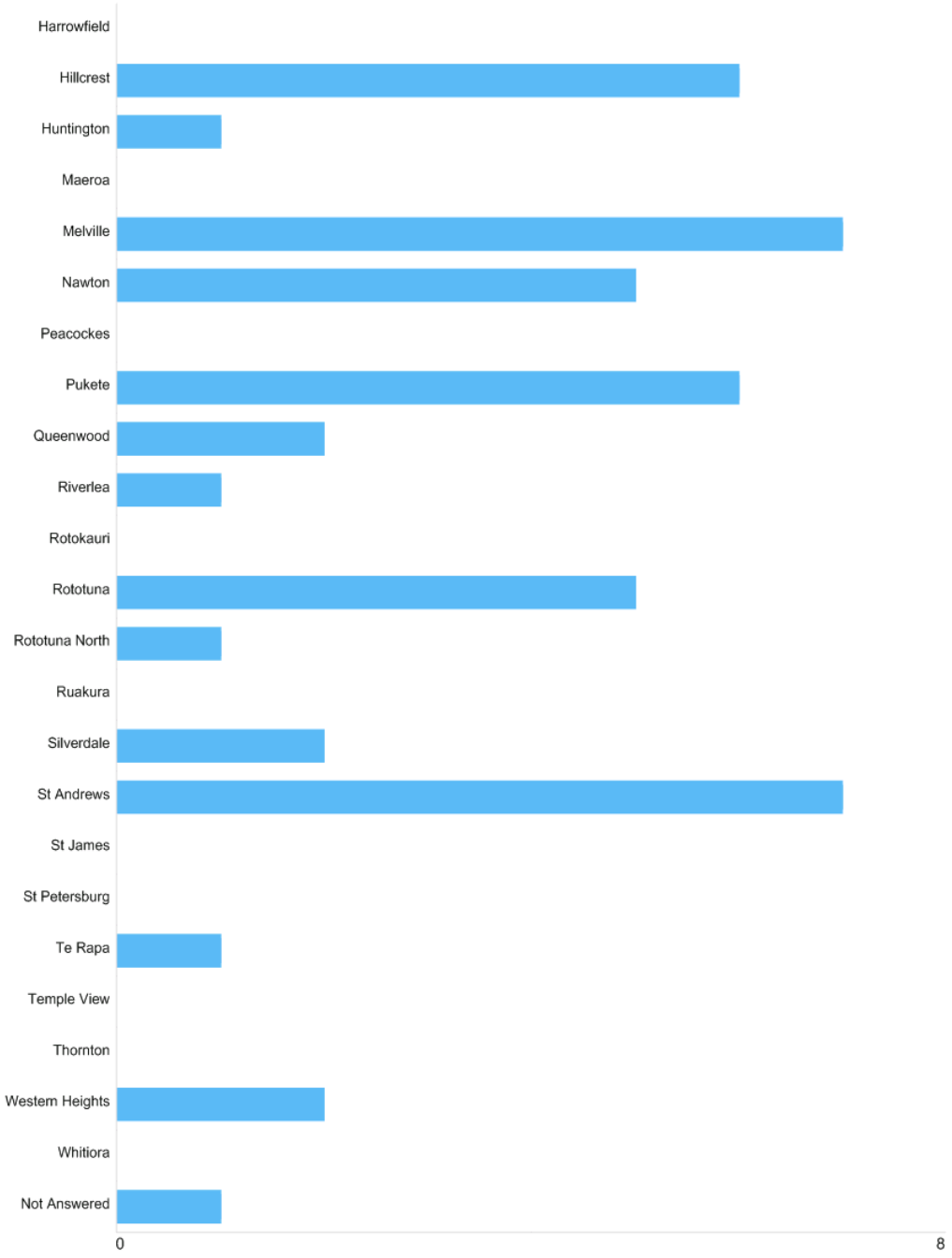
My suburb is



Page 5

Hamilton City Council
Te kaunihera o Kirikiriroa

New Zealand Post



Page 6

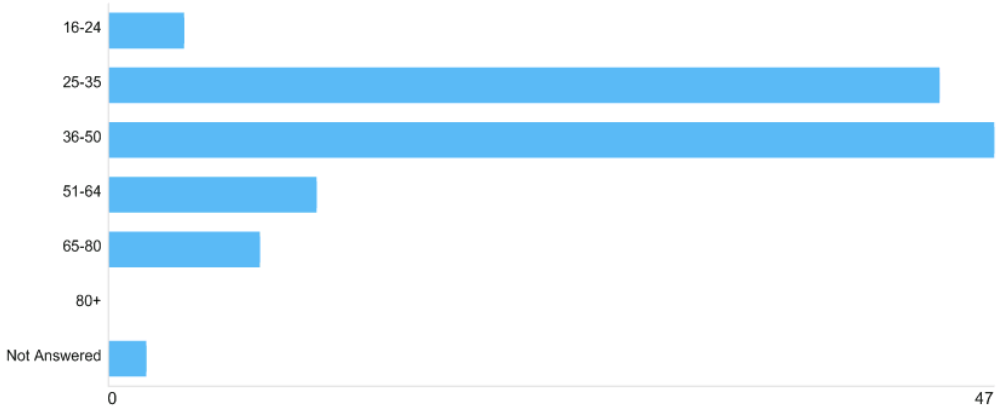
Hamilton City Council
Te kaunihera o Kirikiriroa

New Zealand Post

Option	Total	Percent
Aberdeen	1	0.86%
Ashmore	0	0%
Avalon	0	0%
Bader	1	0.86%
Beerescourt	2	1.72%
Burbush	1	0.86%
Baverstock	1	0.86%
Callum Brae	0	0%
Chartwell	8	6.90%
Chedworth	0	0%
Claudelands	5	4.31%
Crawshaw	0	0%
Deanwell	1	0.86%
Dinsdale	7	6.03%
Enderley	2	1.72%
Fairfield	6	5.17%
Fairview Downs	4	3.45%
Fitzroy	2	1.72%
Flagstaff	8	6.90%
Forest Lake	2	1.72%
Frankton	5	4.31%
Glenview	5	4.31%
Grandview Heights	1	0.86%
Hamilton Central	0	0%
Hamilton East	6	5.17%
Hamilton Lake	1	0.86%
Harrowfield	0	0%
Hillcrest	6	5.17%
Huntington	1	0.86%
Maeroa	0	0%
Melville	7	6.03%
Nawton	5	4.31%
Peacockes	0	0%
Pukete	6	5.17%
Queenwood	2	1.72%
Riverlea	1	0.86%
Rotokauri	0	0%
Rototuna	5	4.31%
Rototuna North	1	0.86%
Ruakura	0	0%
Silverdale	2	1.72%
St Andrews	7	6.03%
St James	0	0%
St Petersburg	0	0%
Te Rapa	1	0.86%
Temple View	0	0%
Thornton	0	0%
Western Heights	2	1.72%
Whitiora	0	0%
Not Answered	1	0.86%

Question 9: Please tell us your age group.

Age Group



Option	Total	Percent
16-24	4	3.45%
25-35	44	37.93%
36-50	47	40.52%
51-64	11	9.48%
65-80	8	6.90%
80+	0	0%
Not Answered	2	1.72%

Question 10: If you would like to go in the draw to win a $200 Prezzy Card please provide us with your contact details.

Name

There were **107** responses to this part of the question.

Email

There were **107** responses to this part of the question.

Phone number

There were **101** responses to this part of the question.

I'm happy to be contacted to follow up on any of the comments I've provided (tick box and please ensure you've provided your contact details above).

Option	Total	Percent
Yes	66	56.90%
No	50	43.10%

From TRAFINZ Newsletter March 2019

HAMILTON-PAXSTER OPERATION AND MONITORING UPDATE

1. Approval for New Zealand Post (NZ Post) to operate Paxsters on Hamilton City footpaths was considered at the 14 February 2017 and 28 March 2017 meetings of the Growth and Infrastructure Committee

2. An approval was given by the Chief Executive, under delegated powers, with a 12-month review period which required establishment of a monitoring programme of meetings and on-site observations. The Paxsters have now been operational since October 2017 with an initial period of training and gradual rollout prior to becoming fully operational.

3. When the Paxsters became operational, monthly meetings with NZ Post and the Infrastructure Alliance (IA) were held. The focus of these meetings was to review any incidents or complaints that had been received from either party (NZ Post or Hamilton City Council (HCC)), and to discuss any faults found on the network that needed to be dealt with e.g. low hanging tree branches. As the operations became more routine, these issues have been dealt with via emails, with meetings held if needed.

4. NZ Post ran a "meet and greet" at Alandale Village following customer concerns reported from the village regarding the speed of the Paxsters. No concerns have been reported since.

5. A staff member from the IA addressed two team talks at NZ Post with operators to discuss health & safety and hazard reporting.

6. During our 8-weekly meeting with representatives from CCS Disability Action, Blind Foundation, Cycle Action, Disabled Persons Assembly and Living Streets there is a standing agenda item to check with the group for feedback on the Paxster operations. Following the rollout we have had no issues brought to that regular meeting.

7. NZ Post's health and safety incident reporting has seen approximately 15 incidents reported, none involving pedestrians. Incidents include damage to a fence, sign posts, one on-road incident that was a minor injury to the Paxster driver, damage to Paxsters from tree branches or broken poles in the ground. Most of these incidents were early in the roll-out stages as the operators became familiar with the vehicles and their routes.

8. As part of the monitoring programme, Council have run two online customer surveys - one each in 2017 and 2018. The survey was distributed through social media and via the advocacy group contacts listed in paragraph 30 above. The key results of these surveys are shown below:

Online Customer Survey results	2017	2018
Number of responses received	247	116
Awareness of Paxster operations	yes - 96%	Yes - 95%
Changes in condition of footpaths etc	No - 95%	No - 91%
Changes how you use the footpaths	No - 90%	No - 93%
Rating of Paxster driver behaviour	considerate - very considerate 66%	considerate - very considerate 72%
	inconsiderate - very inconsiderate 8%	inconsiderate - very inconsiderate 5%

9. In addition to the surveys, on-site observations were undertaken to monitor the impact of Paxster operations on footpath users and particularly those using mobility aids. A representative sample of 12 sites throughout the city were chosen in consultation with the Advocacy Group representatives. The on-site observations were undertaken prior to the Paxsters being operational and three times since.

10. The results of the on-site observations indicate that the time of year and associated weather appear to be the biggest influence on the number of footpath users that were observed. We had both increases and decreases in mobility aid users and non-mobility aid users over the sites, but nothing to indicate that the Paxster operations were influencing the choice of users to be out on the footpath network on those days.

11. As a result of the monitoring programme, staff are happy that the operation of Paxsters on the footpaths within the city are not creating safety issues and nor do they appear to have had an adverse impact on the activities of those using mobility aids when travelling on our footpath network. The approval has its next review 1 July 2020 and then every three years.
For further information Ngaire.Atmore@hcc.govt.nz

7

9.3 ENGINEERING SERVICES - ESTIMATED BUDGET CARRY FORWARDS 2018-2019 CAPITAL WORKS PROGRAMME

Information Only - No Decision Required

Report To:	Engineering Services Committee
Meeting Date:	11 April 2019
Report Author:	Richard Kirby, Engineering Services Manager
Report Number:	RESC19-04-3

1 Summary

1.1 This report provides information on the capital works programme for Engineering Services and specifically the estimated budget carry forwards.

2 Draft Resolution

That the Engineering Services Committee receives the Engineering Services - Estimated Budget Carry Forwards 2018-2019 Capital Works Programme report, RESC19-04-03.

3 Purpose of the Report

3.1 The purpose of this report is to outline the estimated budget carry forwards from 2018/19.

4 Background and Discussion

4.1 The Council has a Capital Works budget for Engineering Services of $52,487,710 for 2018/19.

4.2 This is made up as follows:

Activity	2018/19 Budget $
Coastal Structures	70,000
Rivers & Flood Protection	821,100
Roading – Non Subsidised	3,890,557
Roading - Subsidised	7,682,501
Solid Waste	2,375,190
Stormwater	9,743,068
Water Supply	15,570,565
Wastewater	12,334,729
Total	**$52,487,710**

4.3 We estimate that of this $52.5 million, up to $38.2 million will be spent by 30 June 2019 and the carry forward is estimated at around $14.3 million.

4.4 The following table outlines the specific projects that make up the $14.3 million and the reasons why the funding has not been spent this year.

4.5 There are some committed projects that have amounts less than $100,000 that need to be carried forward. These have been bundled together within each activity.

Table 1 – Estimated Carry Forwards for Engineering Capital Works Programme

Project ID	Name	2018/19 Budget	Carry Forward to 2019/20	Reason
Roading - Subsidised				
0	Tasman's Great Taste Trail Construction	$1,358,493	$358,493	Delayed trying to reach agreement with landowners
1108	Structures Component Replacements	$386,580	$280,677	Construction delayed due to estimate being greater the budget
	Projects with carry forwards less than $100,000	$816,000	$94,780	Committed projects that span beyond 30 June 2019.
Solid Waste				
1105	Takaka RRC compactor and new pit	$785,400	$485,000	Engineer's estimate is greater than the budget so project delayed until scope and estimate reviewed.
	Takaka RRC weighbridge and access	$290,000	$220,000	
	Projects with carry forwards less than $100,000	$100,000	$50,000	Committed projects that span beyond 30 June 2019.
Stormwater				
1057	Pohara Main Settlement flood works	$1,095,373	$813,628	Agreement required with private land owners
1125	2017 Lower Queen St-Waimea Estuary	$1,330,770	$225,965	Land agreements delayed construction
1156	Richmond South Stormwater Land Purchase	$2,292,958	$997,540	Purchased some land but Funding required to purchase land in 2019/20
1168	Richmond Stormwater Land Purchase	$963,002	$650,000	
	Projects with carry forwards less than $100,000	$327,026	$250,540	Committed projects that span beyond 30 June 2019.
Water Supply				
1058	New Motueka WTP (Parker St)	$2,435,678	$2,014,671	Water quality data over several months is required before confirming the design parameters
1120	Mapua Retic - Aranui Road & Stafford Drive Main Replacement	$2,565,186	$2,061,000	Tender greater than budget. Options being reviewed and recommendations to Council 9 May 2019. Project delayed.
1130	Motueka Retic - Zone of Effect around Parker Street WTP	$408,000	$202,470	Design phase has taken longer than envisaged so proejct delayed
	Projects with carry forwards less than $100,000	$304,000	$183,729	Committed projects that span beyond 30 June 2019.
Wastewater				
1111	Motueka WWTP Wetland Restoration	$427,145	$230,534	Waiting for more plants - staged planting underway
1120	Ruby Bay Pump Station Upgrade and Storage	$573,036	$440,000	Tender greater than budget. Options being reviewed and recommendations to Council 9 May 2019. Project delayed.
1120	New Stafford Dr Pump Station and Rising Main	$2,560,469	$2,061,000	Tender greater than budget. Options being reviewed and recommendations to Council 9 May 2019. Project delayed.
	NRSBU Capital and LOS Renewals	$2,419,140	$2,419,140	NRSBU expenditure based on inplementing consent conditions. Consent not granted yet. Funding needs to be carried forward.
	District Wide Reticulation Renewals	$214,200	$138,048	Consideration being given to using this to fund project 1120
	Projects with carry forwards less than $100,000	$423,405	$120,469	Committed projects that span beyond 30 June 2019.
	Total	**$22,075,861**	**$14,297,684**	

5 Options

5.1 This report is for information only.

6 Strategy and Risks

6.1 The capital works programme is an important component of the Council's commitment to the provision of services to the Tasman District. The delay in delivering the full programme is problematic. However, several factors contribute to this delay.

6.2 The key risk influencing this delay is the stretched supplier/construction market and the corresponding and probably consequential increase in prices. Staff are reviewing options to mitigate this risk and increase the chances of delivering the full programme each year.

7 Policy / Legal Requirements / Plan

7.1 There are no specific policy or legal requirements associated with this report. However, the Council may need to review its procurement policy to increase its chances of delivering its programme cost-effectively.

8 Consideration of Financial or Budgetary Implications

8.1 There are budgetary implications associated with this report and more detail surrounding these implications will be outlined in the financial report to the Council in May 2019.

9 Significance and Engagement

9.1 This report is an information report. Although the information presented does refer to budgets and expenditure of significant value, there is no need to undertake specific consultation or engagement.

Issue	Level of Significance	Explanation of Assessment
Is there a high level of public interest, or is decision likely to be controversial?	Low	There could be public interest in some of the projects that have been delayed.
Is there a significant impact arising from duration of the effects from the decision?	Low	There is no decision being made so significance is low.
Does the decision relate to a strategic asset? (refer Significance and Engagement Policy for list of strategic assets)	Low	There is no decision being made. The information does relate to components of strategic assets.
Does the decision create a substantial change in the level of service provided by Council?	Low	No substantial change in the level of service.
Does the proposal, activity or decision substantially affect debt, rates or Council finances in any one year or more of the LTP?	Low	The information being presented does have an effect of debt. It is likely that the level of debt at 30 June 2019 will be less than forecasted because of the carry forwards outlined.
Does the decision involve the sale of a substantial proportion or controlling interest in a CCO or CCTO?	No	
Does the proposal or decision involve entry into a private sector partnership or contract to carry out the deliver on any Council group of activities?	No	The report does anticipate and review how the Council may procure some of its capital projects, but that will be the subject of a separate report to the Council.
Does the proposal or decision involve Council exiting from or entering into a group of activities?	No	

10 Conclusion

10.1 The capital works programme 2018/19 has been disrupted for various reasons resulting in an estimated carry forward of $14.3 million from a total budget of around $52.5 million.

11 Next Steps / Timeline

11.1 Staff will continue to deliver the capital works programme 2018/19. Projects that require a scope change and/or additional funding will be the subject of specific reports to the Council.

9.4 RIVERBED LEVEL MONITORING REPORT

Information Only - No Decision Required

Report To:	Engineering Services Committee
Meeting Date:	11 April 2019
Report Author:	Giles Griffith, Rivers and Coastal Engineer
Report Number:	RESC19-04-4

1 Summary

1.1 This report summarises the results from the last round of riverbed level monitoring undertaken on key Tasman District rivers. This summary is based on analysis detailed in an attached technical report (**Attachment 1**).

1.2 Monitoring of riverbed levels is an important regional authority activity in order to meet our obligations for flood protection and river control.

1.3 The report concludes that there are a range of behaviours within the set of rivers monitored and that in general gravel extractions over the most recent period of analysis (2004-2017) have been sustainable.

2 Draft Resolution

That the Engineering Services Committee receives the Riverbed Level Monitoring Report, RESC19-05-04.

3 Purpose of the Report

3.1 The purpose of the report is to record and communicate the current state of knowledge on river bed levels on several of the larger rivers that the Council manages and monitors.

4 Background and Discussion

4.1 A key objective of river management is to maintain a stable riverbed i.e. a riverbed that is neither degrading (cutting down) or aggrading (building up) significantly over time. Riverbed stability is important to maintain flood conveyance while preventing undermining of bank protection and flood protection assets, bridges and utilities.

4.2 Note that this management aim is the traditional approach, and that the more modern view by some is that as well as rivers being given more room to move laterally, human intervention to remove gravel (and potentially all intervention) should not be undertaken outside of emergency situations. Ceasing gravel removal in theory would allow the riverbed to reconnect with the floodplain where it is naturally inclined to do so, reducing erosion damage to the channel from floods but increasing the incidence of flooding on the floodplain.

4.3 Riverbed level information is important for managing gravel extraction as we need to know where gravel removal (extraction) is needed/should be allowed and where it should not be allowed in order to maintain a stable riverbed.

4.4 Prior to the 1990s, many of our rivers were targeted for non-sustainable levels of gravel extraction for the gravel resource they provided. It was considered that there was an added benefit in that flood conveyance would be increased. The adverse effects of this over extraction became apparent such as the undermining of bridge piers (Motueka Highway Bridge – anecdotal), incised channels leading to increased bank erosion from more powerful flood flows (lower Wairoa River), and loss of groundwater requiring weirs to rebuild the riverbed and thus the groundwater level (lower Wai-iti River).

4.5 The effects of over extraction can be long lived and may not become apparent for many years. By prioritising bed stability over resource provision we ensure that hidden costs within our control are not passed on to future generations.

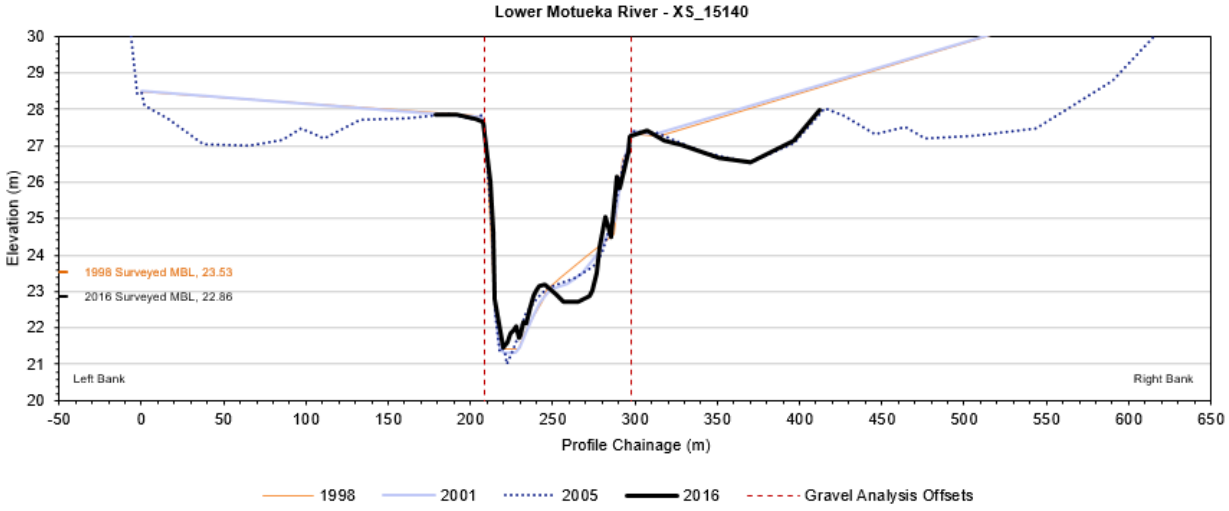
4.6 Compared nationally, Tasman's rivers have low rates of sediment supply. This is mostly due to both the geology of the headwaters and the fact that much of the headwaters are covered in mature native forest reducing the incidence of land-slipping.

4.7 Riverbed monitoring in Tasman District is still carried out from a survey of cross-sections along rivers with a defined set of cross-section locations. An assumption is made that there are enough of these cross-sections in any particular reach that riverbed levels in between the cross-sections can be reliably interpolated (estimated).

4.8 As an alternative to cross section survey remote sensing of riverbeds using technology such as LiDAR or photogrammetry can be used. The drawback to these techniques being that they don't in general pick up the parts of the bed covered by water, so a separate technique is needed to collect this information and then combine the two datasets. Expense has also been a drawback and access to the technology, but with the rise of Remote Piloted Aircraft and photogrammetry technology, in particular, this is no longer a barrier. This technique provides a more complete picture by measuring the entire bed within the area of interest and is something that many councils are moving toward including ourselves.

4.9 The current policy is to re-survey the specified river reaches every five years, or sooner if there is a twenty year return period flood or larger. This means we are due to start the next round of surveys in 2021.

4.10 Following survey, the current bed profiles are then compared to previous profiles at the same location and Mean Bed Levels (MBLs) calculated i.e. average bed levels. MBLs are the main metric used in analysing trends of riverbed vertical movement and are represented visually by a horizontal line having half the cross-section above it and half below it.



4.11 The table below is from the technical report **(Attachment 1)** and summarises bed level trends over both the short and longer term. There is a companion numerical table in the report with the actual overall MBL changes calculated and the time periods that the table below is based on. For ease of understanding, these have been converted to relative terms (relative within this dataset) to describe each river's behavior regarding vertical movement in this table.

4.12 As they are 'overall' observations, this does not mean that all reaches or all cross-sections within these river lengths are following the trend i.e. an aggrading river can still have cross-sections that are degrading.

4.13 Note that the comment for the Riuwaka 'berm' refers to the area between the stopbanks and the active channel. The Riuwaka flood protection scheme has very narrow berms which are in general well vegetated (woody vegetation, tall grass etc) on them upstream of the highway bridge. This helps in protecting the stopbanks from erosion but means that higher levels of silt and debris are trapped. It is the berms rather than the gravel bed itself that has been building up.

Summary	Short Term Observation based on	Longer Term Trend based on overall	Notes
Motupiko	degrading	neglible movement	The lower river has had a relatively high level of extraction
Upper Motueka	neglible movement	degrading	Reasonable sized extractions appear not to have affected the bed level much
Lower Motueka	aggrading	aggrading	Reasonable sized extractions appear not to have affected the bed level much
Riuwaka	neglible movement	aggrading	Note this is due to build of of the berms rather than buildup within the gravel bed channel
Lower Takaka	neglible movement	- degrading	Only a small ammount extracted
Upper Takaka	-	neglible movement	Only a small ammount extracted from main stem
Waimea	degrading	+ aggrading	We have since removed 60,000m3
Wairoa	- degrading	- degrading	Very little extraction undertaken
Wai-iti	neglible movement	neglible movement	Little extraction carried out
	- degrading	more than -15mm/year	
	degrading	-5mm to -15mm/year	
	neglible movement	+5mm to -5mm/year	
	aggrading	+5mm to +15mm/year	
	+ aggrading	over + 15mm/year	

4.14 The Lower Motueka Integrated Catchment Management project (2000-2011) concluded that for the Lower Motueka, bed levels were directly linked to extraction but this has not been proven on other rivers in the District. The effect of other river management interventions such as bank protection and gravel relocation on gravel transport is unknown. Local examples where modification of rivers could well be affecting natural sediment transport processes are the Riuwaka (narrow berms, high degree of bank protection) and the Takaka (still adjusting to a shorter lower channel to the mouth from the 1983 flood).

4.15 The technical report compares gravel extraction records with the current riverbed level trends in an attempt to guide the direction of gravel extraction for the current inter-survey period. Please refer to this report for further details.

5 Options

5.1 Not applicable.

6 Strategy and Risks

6.1 This report is not likely to be well received by some individuals who believe that we should be taking more gravel out of our rivers. However, the conclusion and messaging is consistent with previous reports and analyses, so should not be a surprise.

6.2 Increased flexibility as to where and how much gravel can be extracted is what we are seeking under the Engineering Services Department's current application to renew the current global gravel extraction consent. It is not an objective or expectation of the new global extraction consent for a significant increase in extraction; rather, it is intended for this consent and extraction activities to be more closely aligned with and informed by the data and evidence from riverbed monitoring.

7 Policy / Legal Requirements / Plan

7.1 There are no significant policy, legal or plan requirements that are impacted by this report. In the case of degradation of riverbeds, the only affordable solution is to cease extraction from those areas until they show they have built-up above a desirable level again.

8 Consideration of Financial or Budgetary Implications

8.1 The cost of riverbed monitoring is both a sunk cost (in salary and wages) and an external cost currently budgeted for within the Professional Services budget within the Rivers activity.

8.2 The income generated from gravel extraction though fees and charges from gravel extracted from Crown or Council owned areas of riverbed, is returned to both Engineering Services and Environment and Planning for the purposes of river monitoring. As the analysis shows that current extraction levels are overall about right, we don't expect much change in this income other than small increases due to an increase in the charges set each year through the Annual Plan.

9 Significance and Engagement

9.1 Vocal members of the public and industry that believe we should be extracting more gravel make this a controversial topic. The conclusions of this report may not be well received by these people.

9.2 However, the conclusions for individual rivers pertaining to particular Rivercare groups have been presented to these groups over the last two years as the information has become available, with no ongoing ramifications.

9.3 Sediment transport is a complex natural catchment wide process and it is very difficult to educate the public on why we are not extracting more. Gravel management is discussed regularly at the annual Rivercare meetings and even amongst landowners who have heard the messages there is sometimes an unwillingness to accept the explanation.

10 Conclusion

10.1 The main rivers surveyed have differing trends in bed levels movement that may also differ between the short and longer term. This reflects both river management intervention and the incidence and size of floods.

10.2 Extraction levels should be reduced in some rivers and increased in others with caution (in the reaches where aggradation is occurring) with the aim of achieving negligible movement in bed levels.

10.3 Extraction should be undertaken with caution on rivers that are showing a longer term degradation trend (particularly where this does not have a natural explanation). This is in order to reduce further lowering of the bed, as while extraction can be used to combat slower rates of aggradation, addition of gravel is not a practical, affordable or proven technique (but may be applicable to small streams).

River	Proposed Maximum Extraction Rate for Current Inter-survey Period (m3/year)*	Comments
Wairoa	0	
Waimea	11,000	1,000m^3 per year for remaining period.
Wai-iti	1,000	
Motupiko	500	
Upper Motueka	3,000	
Lower Motueka	3,000	
Riuwaka	500	
Upper Takaka	2,500	
Lower Takaka	2,500	Other than at Rose's beach, no extraction downstream of Reilly Street.
*Not taking account of extraction up to the date of this report		

10.4 Monitoring of bed levels of these rivers at a minimum should continue and should be reported to the Council between survey rounds. The information should be presented clearly to improve understanding by everyone.

11 Attachments

1. Riverbed Monitoring Report 39

Tasman District Riverbed Level Monitoring Results

December 2018 Tasman District

Abstract

This report looks at the current riverbed levels within main rivers managed by Tasman District Council

Giles Griffith

Table of Contents

Introduction

Riverbed monitoring by repeat survey across rivers at defined points along the length of the river (cross sections) informs us as to long term trends in riverbed level and behaviour. It rarely provides definitive answers but is the best tool we currently have for understanding how the bed is changing and therefore what future intervention measures may be appropriate.

As part of our riverbed monitoring programme, riverbed survey of the main Tasman rivers with an established cross-section network was undertaken from 2015 to 2017.

All known cross-sections plus a number of new cross-sections to ensure even coverage were surveyed.

Typically these cross sections are 300-400m apart and we have to infer bed levels in between them.

Although the technology has advanced greatly and surveys can be undertaken more quickly and easily along with the analysis, we are essentially still monitoring the way the Catchment Boards did from the middle of last century. The holy grail of riverbed monitoring is using remote sensing to scan the entire riverbed and berm/floodplain to accurately compute levels, volumes and changes between any two points. The current drawback is surveying the underwater part of the bed, and while there is technology that can do this, it is not currently affordable in NZ.

The aim is to manage bed levels to be as stable as possible, so that the rate of degradation (lowering) or aggradation (raising) while it may trend one way, is kept low. We are fortunate in Tasman that our rivers have relatively low supplies of gravel (or bedload) and thus don't require intensive intervention to achieve stability.

In general, our rivers are recognised as being naturally degrading. The Motueka ICM Project (Integrated Catchment Management Plan) undertaken from 2000-2011 showed that the amount of material extracted correlated very closely with the amount of bed degradation over the same time period i.e. this river has a naturally stable bed. This is the most in depth study of this type performed on any of Tasman's Rivers, but this conclusion does not necessarily hold true for every river in the district of course.

With regard to sediment transport, rivers can be divided into three basic zones; the production zone (typically the headwaters), the transportation zone and the deposition zone. Gravel moves in pulses or waves in response to flood events, and while particular locations such as confluences or flatter sections may aggrade in the transportation zone (forming the majority of the river), it is the reaches low on the floodplain where the rivers become tidally influenced where the majority of the gravel deposits.

Highly aggrading rivers due to high rates of erosion in the headwaters such as the Waiho on the West Coast, the large braided east coast South Island rivers such as the Waimakariri, Hawkes Bay central plains and North Island East Coast rivers, require large (and potentially unsustainable) rates of extraction to maintain flood capacity, channel alignments and freeboard of structures crossing the channel.

In Tasman as in many regions of the country, there has been a history of over extraction from particular river reaches where rivers contained suitable material and were easily accessible. As well

as providing low cost quality material to build roads and buildings as the country developed, it had the added benefit of increasing the flood carrying capacity of the channels.

The downside of over extraction apart from the environmental effects on river life and habitat (because of the way it was done in the past by dredging the entire bed rather than only removing material above water level), was increased bank damage from the higher flows. This has led to the undermining and exposing of hard structures on or beside the river like bridge piles, abutments and pipe crossings. In Tasman there was also the lowering of groundwater levels affecting irrigation (in the lower Wai-iti River a series of rock weirs were built to build the riverbed back up for this reason). There are examples of Southland rivers that were extracted to a level that exposed the lignite beds underlying the gravels, drastically changing the nature of the river in places.

The effects of over extraction can take decades to be recognised. Now that we are aware of these effects we must balance the risk of short term gain from extraction against increased future costs. Hence our current consent requires us to only undertake extraction for 'river management purposes', i.e. only if there is a benefit such as a reduced risk of erosion or flooding. In reality it is often hard to prove this, gravel is deposited typically in the same locations which are governed by the size of the material, the shape and slope of the channel and flow regime. If gravel is removed at these locations then new gravel from upstream is deposited back there to a similar or even higher level eventually in subsequent floods, defeating the reason for removing it in the first place.

Rivers and streams have been shown to naturally maximise sediment transport for any given flow, hence from a theoretical viewpoint any human intervention will only reduce sediment transport in the long run (this includes suspended sediment as well as bedload i.e.gravel or shingle). In larger floods much if not all of the material visible above the water in normal flows is moved downstream and entrained in the flow, material from upstream dropping out to replace it as the flow recedes and gravity and friction take over once again.

Sensible removal can however aid in 'buying time' to reduce the power of smaller flood flows on the opposite bank by increasing the cross sectional area of the channel at that point.

Methodology

True left bank benchmarks (the zero metre mark for each cross-section) were geodetically fixed along with existing or new benchmarks on the true right bank to accurately fix the cross sections. This was done for every riverbed survey undertaken in this round and means that we no longer need to maintain or update physical benchmark positions (typically a concrete block with a nail or brass pin set in it). Previously the heights of these benchmarks had been accurately levelled but the horizontal positions only recorded with a handheld GPS with an accuracy of +/- 5m.

The new 'virtual' benchmarks are positionally accurate in three dimensions to within 5cm so in the future we will not need to locate or maintain physical marks. Note that the 'survey control' or wider set of district survey benchmarks used to locate these virtual river benchmarks, still utilise physical markers.

Before undertaking the survey, a full check of benchmark levels against previously recorded levels and control points was undertaken and readings converted to a common vertical datum (NVD55) as previous surveys had used NVD55 along with a different vertical datum in Takaka.

Future surveys will all be delivered in the new vertical datum NVD16 as on 01 July 2016 we changed to a new common vertical datum with Nelson City (approximately 0.3m higher to account for the rise in mean sea level over the last sixty years).

For quality assurance purposes each cross-section was plotted against the previous survey to ensure adequate cross section coverage and correctness.

The surveyors converted the coordinates collected into a vertical level and horizontal offset from the left benchmark.

Like all surveys undertaken this round, the cross-sections covered only the main channel. It is common for surveys to include the stopbanks and berm as well as the channel where flood protection schemes exist in order to determine the current scheme discharge capacity. If there have not been any significant floods or development on the berm (floodplain between the river channel and stopbank) in the years between surveys and the berms are wide in relation to the channel, then it can be expected that berm levels will have changed little.

Aerial orthophotos and obliques were typically collected at the time of the survey, and provided in a number a formats including .kml format for display on Google Earth. Previously only obliques from the ground would be taken to augment the survey results but with the advent of Unmanned Aerial Vehicles we can now collect high quality scaleable photography for a relatively small additional cost.

Cross-Sections

By convention all cross-sections are named using their distance from the original river mouth during Catchment Board days. Hence cross section 2340 is 2.34km from the old mouth. As with many of our rivers the mouth has now moved inland due to sedimentation so the zero mark is now well out below the low tide mark.

Also by convention, all cross-sections are plotted looking downstream, hence the left hand side of the graph is the true left, and the right, the true right. The 0m mark on the X axis is the position of the true left benchmark.

An example cross section is shown below. This is at river distance 14.27km and plots both the 2015 and 2016 levels, also showing the water level at time of survey. All units are in metres.

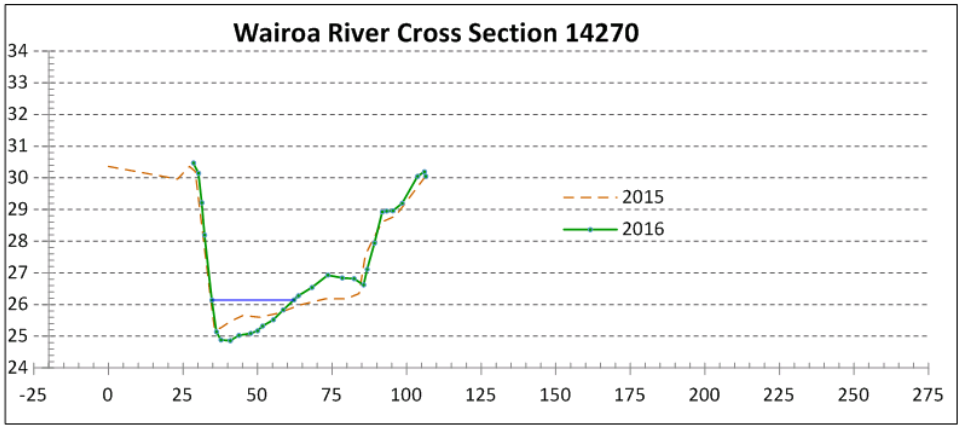


Fig1 Example Cross-section (looking downstream)

Mean Bed Levels (or calculation of an average bed level) for each cross section for each survey year were then plotted along the length of the river (a long-section) to enable comparison of bed level trends. Software by the name of Hilltop Hydro (a module within Hilltop Manager) is able to directly report MBL's, channel cross sectional area, volume, thalweg (lowest point of each cross section) plus a number of other metrics however MBL's are the most commonly used and thus understood variable for comparison. Graphically, the MBL is represented by a horizontal line with the area of the cross-section above the line equalling the cross-sectional area below it.

Examination of particular cross-sections when over plotted with multiple survey years is also very useful in understanding how the river is changing, along with examination of MBLs averaged over entire reaches.

I have avoided presenting calculation of gravel volumes in these reports, due to the large figures and inaccuracies that occur due to having to assume levels between cross sections. What volumes may or may not be available to extract are really just a guide based on where the riverbed levels are and where we would like them to be.

To calculate a MBL you must decide what two points on each side of the channel will be used to define the part of the cross section for the calculation to occur across. Typically a wider length of cross-section is surveyed than what these limits are. The limits can be chosen to be a number of locations such as bottom of bank, top of bank, stopbank crest to stopbank crest etc (if you are wanting to assess floodplain levels also). In this case I have chosen two different limits based around the top of the bank to give a good reflection of levels just within the channel itself.

Having consistently determined channel limits and knowing on what basis these have been chosen is extremely important, as MBLs can be very sensitive to these limits. It is not hard to understand that if you are comparing one MBL that has a larger amount of floodplain (i.e. higher ground) in it than another at the same cross section at another point in time, that the MBL will be a higher number. It will also not reflect just the amount of gravel stored within the channel, but will include floodplain material which is not what we are primarily seeking to manage.

For the more recent surveys with full survey notes and/or photography the Active Channel Width (ACW) has been determined. This is essentially the width of channel between 'permanent' lines of vegetation (such as planted willows), or natural or man made hard protection that exist either side of the part of the channel that has gravel that is likely to be mobilised. In places with a well defined or incised channel this is easy to define but it some locations where the bank slope is very gradual it can be quite subjective.

The other channel limits I have looked at is what I have termed the 'Common Offset' or fixed limits. This is essentially a fixed width and channel limits that is the same for one cross section location over all survey years that occurs around about the top of the bank where the ground line has been more or less in the same position. I determined this from plotting all survey periods for each cross-section on the same plot and picking 'best fit' points.

The common offset approach has the advantage because it is the same width across all periods at each cross-section, that volumes can be directly calculated if desired. It also has the advantage in that without survey notes and photos being available for the older surveys, the ACW cannot accurately be determined.

Sediment transport calculations

A sediment transport study was undertaken on two of Tasman's rivers in 2014 to calculate the likely average annual volumes of sediment being transported through these rivers. . The sediment transport calculations take into account channel slope and bedload size and apply this to the known flow record to produce a range of estimates. The Lower Motueka has an expected average annual volume of 2,000-8,000m3 of bedload being transported, with the Waimea River having 2,500-4,000m3 respectively.

These figures provide another guide as to what likely sustainable rates of gravel extraction are.

Target Riverbed Levels and Gravel Envelope

There are a number of different approaches around the country as to determining an ideal riverbed long section to manage rivers to. In some regions, the known riverbed level at the time of the largest flood on record sets a maximum line for mean bed levels, or a grade line determined from MBLs from several time periods set as a target to manage the river to. The approach we have taken in Tasman, is to examine the MBLs for all survey years and then fit an envelope around these profiles. In other words, a minimum and maximum riverbed level to work to at any point in the river. This approach recognises that fact the rivers are dynamic and so variation is to be expected and accepted, while also placing a limit on this variation.

Where current riverbed levels are below the envelope, extraction would be avoided, where they are above the maximum line we would look to extract (given that MBLs elsewhere along that river are largely within or above the envelope).

Keeping riverbed levels below the maximum line particularly within the reaches of our three flood protection schemes is a key consideration, noting that main channel capacity varies and is only one component of overall flood conveyance (berm roughness, berm width and channel slope being other determining factors). Over decades, as channels continue to aggrade or degrade in places, these envelopes will need to be revised.

Gravel envelopes have been developed are shown on the Mean Bed Level graphs where included in these reports (as broken red lines).

The envelope could be set around the 1989 MBL profile which would allow more current scope for extraction, however the 1989 profile is still largely within the 1989/2016 envelope in any case. There is also little scope for gravel extraction in this river due largely to the relatively stable bed that exists, the small quantities available as well as access difficulties.

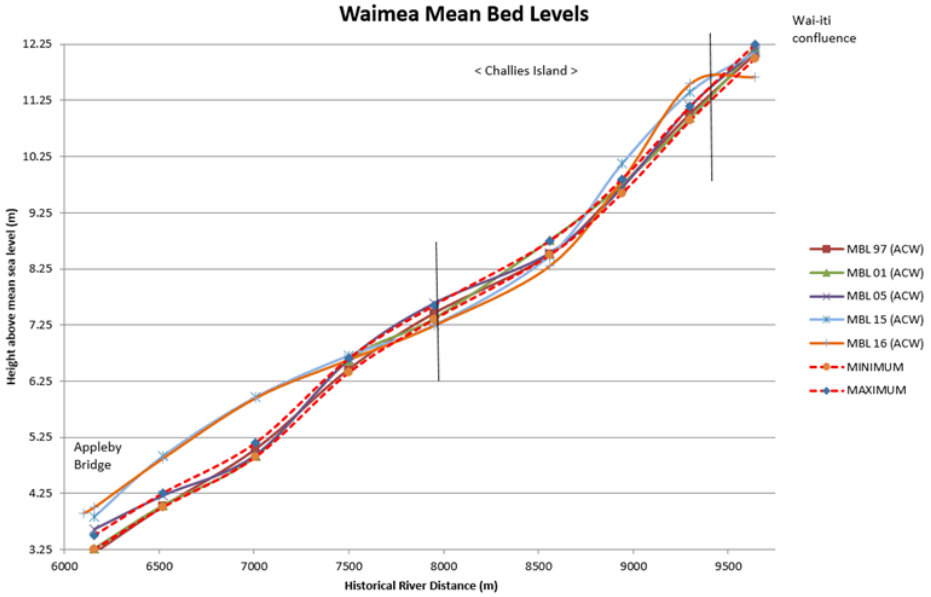


Fig2 Example Mean Bed Level (MBL) plot showing gravel envelope

Gravel Returns – a note of caution

A distinction needs to be made between gravel returns (i.e. gravel Council has recorded as being extracted) and the actual quantity extracted. The true figure will be closer to what has been permitted rather than returned.

Gravel is also extracted through resource consents other than the global riverworks consent but there is no single repository for the return information. Without going back through all the separate consents that have been issued for the monitored rivers, it is assumed (on discussion with the Rivers and Coastal Scientist) that this quantity is a much less significant quantity that what has been taken under the global consent.

The actual quantity extracted will be higher than what has been reported in returns due to the above and due to both oversight and dishonesty on the behalf of extractors. We are looking to more closely manage the gravel extraction process including Unmanned Aerial Vehicle survey of extraction sites, rather than relying on documentation from contractors for the larger extractions. The Motueka ICM (Integrated Catchment Management) Project acknowledged this same concern.

This is another reason that we must be conservative as to extractions and apply a precautionary approach in the face of many in the general public who believe more gravel should be extracted.

Upper Motueka

The Upper Motueka system comprises of a number of rivers that confluence with the main river channel (main stem) along the frosts flats of the valleys running to the south west of the main valley. Council maintains 23 kilometres of this river from its confluence with the Wangapeka to the Gold Pine post processing facility upstream of Norths Bridge. The main tributaries along this reach are the Motupiko and the smaller Tadmor which Council also maintains. We maintain the Sherry River in this area also, but this is a tributary of the Wangapeka.

The main river has its headwaters in the mineral belt Red Hills area near Nelson Lakes, which produces relatively hard aggregate.

Fig3 Blank

Data – Upper Motueka Mainstem

Surveys available to compare 2017 against were 1988, 1995, 2000 and 2004. Data was reformatted and imported into Hilltop Manager for plotting of cross sections. All survey years were plotted for each cross section and 'common offsets' (i.e. a common horizontal position on left and right banks) carefully chosen for comparison purposes. These points were chosen so that they included the entirety of the main channel for each survey year and where possible were as close to the base of the stopbanks or top edge of the natural bank where no discernible stopbanks are present. Note that there are no official Council maintained stopbanks in this catchment, but informal bunds of material either natural or pushed up by landowners in the past,as well as some Catchment Board built stopbanks that have not been taken on as Council assets.

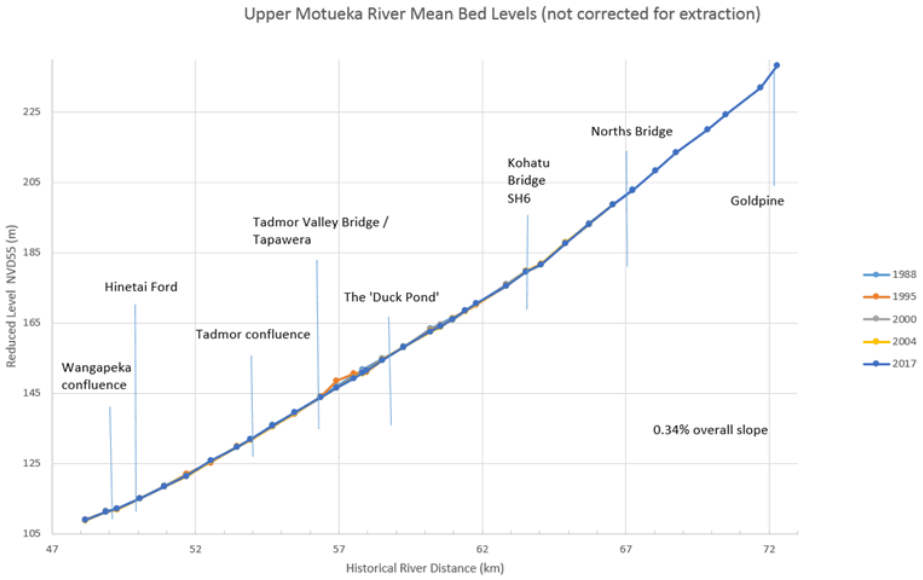


Fig 4 Overall MBL Upper Motueka

When the Mean Bed Levels are plotted for the entire 24km of the reach maintained by Council, the lines appear virtually on top of each other due to the scale displayed at, with only the section just upstream of Tapawera having much variance, where the 1995 survey shows high bed levels.

This 1995 blip around the 57km mark has no obvious explanation.

There was a major washout on the right bank just upstream here between 1988 and 1995, locally termed 'The Duck Pond' (see Fig 2. & Fig 3.). The river was diverted back to its previous channel and the large embayment heavily planted with willows, and the area has remained stable since then, and the river bed levels have been fairly similar in this location.

There was also significant bank erosion between 2000 and 2004 at the next cross section 200m downstream of the Duck Pond (see Fig 2.), possibly as a result of high bed levels here forming a 'plug' and a flood event subsequently 'blowing this out' during that period.

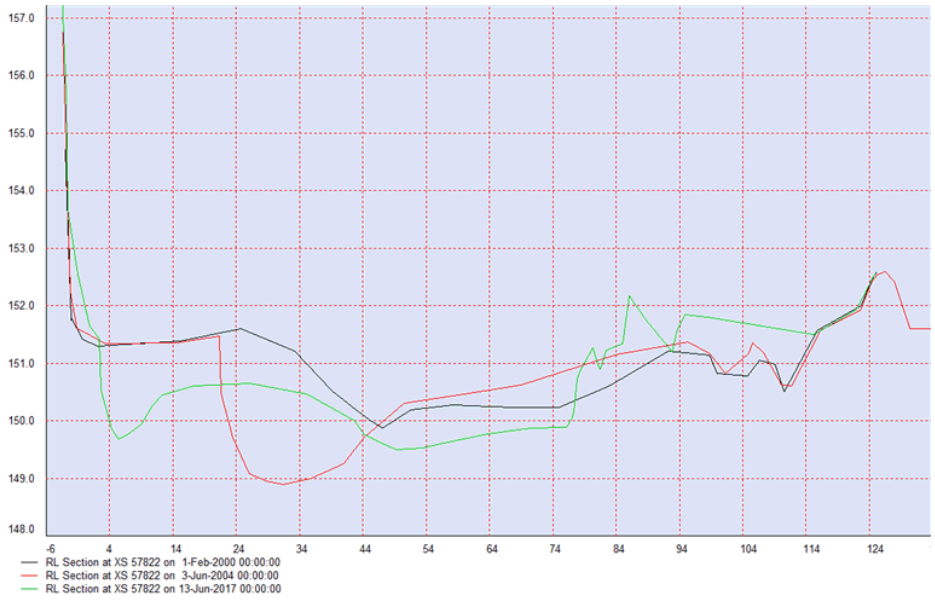


Fig 5 Upper Motueka cross-sections at 57.822km.
The red one was in 2004. Black year 2000, Green is 2017.

Fig 6. Duck Pond and downstream cross section 57.822km location

Figures above show the MBLs for the mid and lower reaches from Norths Bridge down to the confluence with the Wangapeka River at a finer scale. The reach above Norths Bridge is not shown as there are only two surveys for this section with little variation in bed level.

The gravel envelope shown by the red broken likes on the plots below are based on a one metre wide envelope, 0.5 metres either side of the 2017 plot (contrast this with the 0.25m wide envelope for the Waimea).

Between consecutive surveys, the difference in MBLs at any one cross section was as little as 3mm, or as much as 518mm.

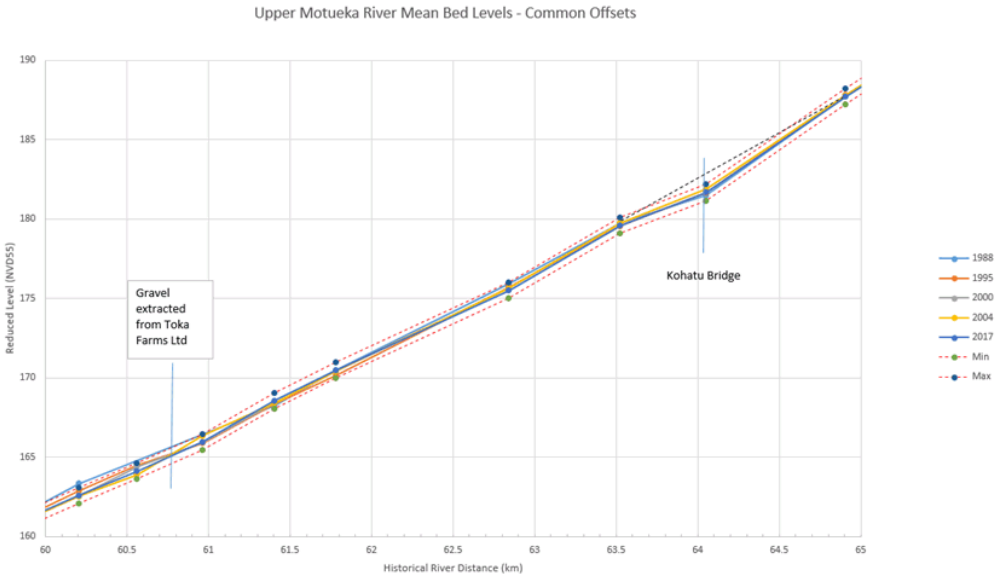


Fig 7. Upper Motueka MBL plot of mid reaches

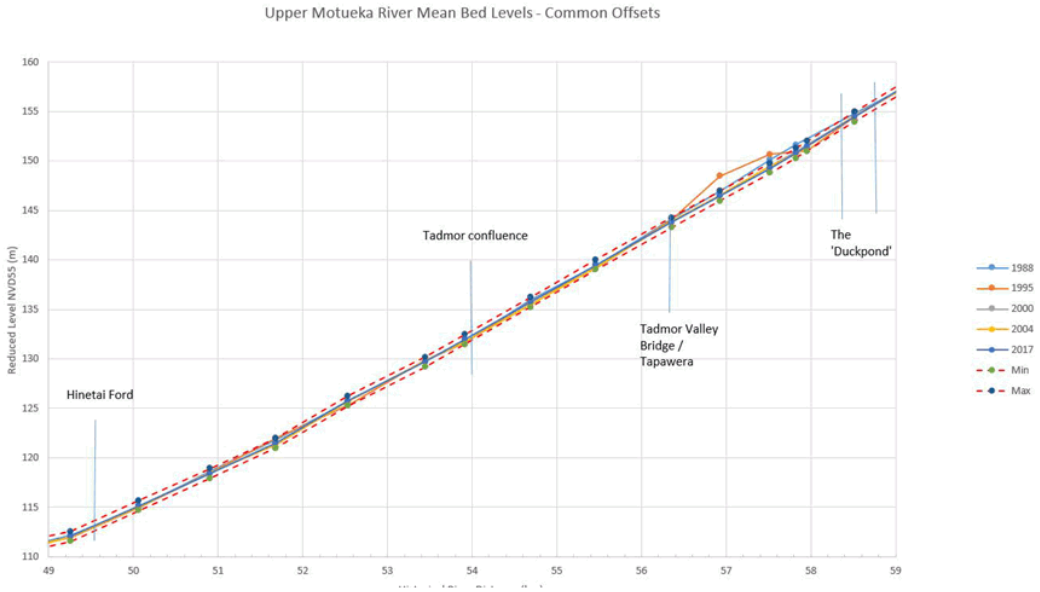


Fig 8. Upper Motueka MBL plot of lower reaches

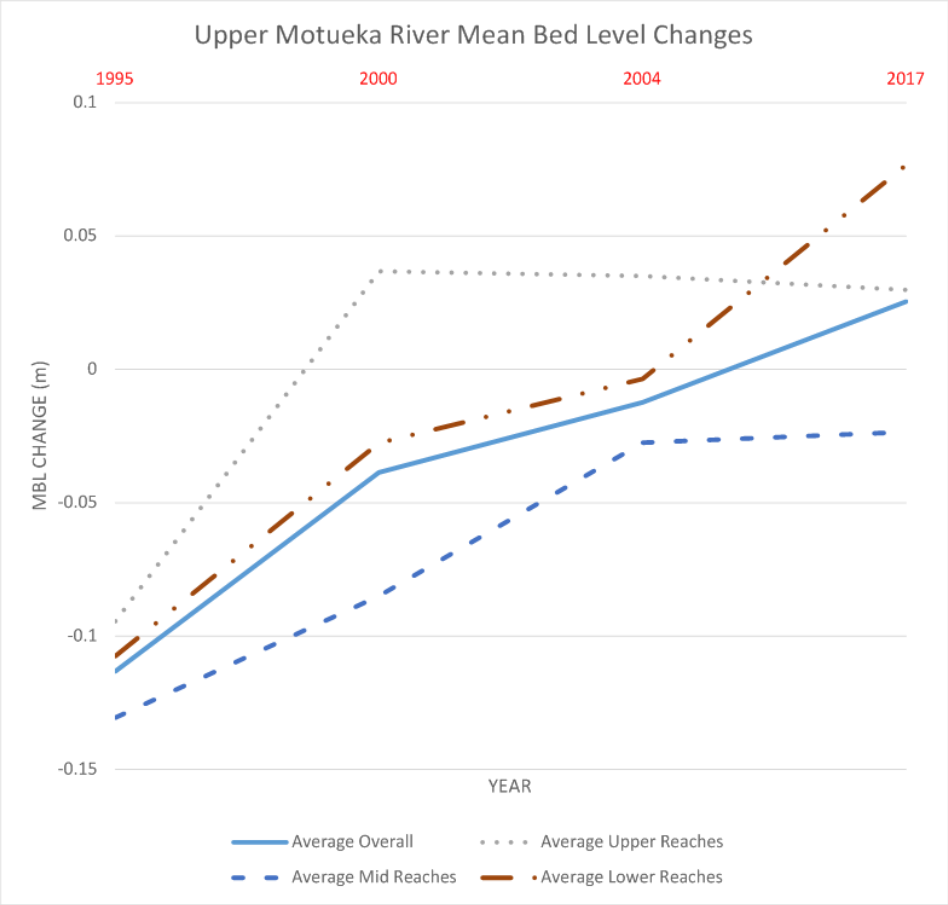


Fig 9. Upper Motueka Change in Average MBL Trends

Figure 6 shows the average MBL difference for each survey year, for the total length and for the three reaches that the other graphs were based on. For example, in 1995 the overall change in average MBL between 1988 and 1995 was about -0.12m i.e. the average level in 1995 was 12cm lower than the average level in 1988.

Note that there was no survey data for the Upper Reaches collected in 2004 so the graph at that point is interpolated, but this does not affect the conclusion that this reach now looks to have stabilised after recovering from a degradation phase prior to 1988.

This shows that overall the river is aggrading very slightly i.e. the degradation has been getting less and less and has now switched to aggradation between 2004 and 2017. You can see that this is largely due to the average MBL in the lower reaches increasing. This level of aggradation is not a concern and the river can be considered stable. This is the main area that we have been targeting our extraction on (i.e. downstream of Tapawera) from 2017.

Motupiko River

The Motupiko River is a main tributary of the Upper Motueka and confluences at Kohatu. It has been considered as one our higher producing gravel bed rivers, with large slips and escarpments along its left bank in the lower reaches below Korere as it runs through the Moutere gravel formation. It contributes gravel to the reaches downstream in the Upper Motueka main stem, so needs to be considered along with the Upper Motueka with respect to bed levels and gravel supply.

This river also has its headwaters close to the Nelson Lakes area but off lower less steep land further to the west (the Korere-Tophouse Road to St Arnaud follows this river).

The Motupiko is a flashy river that rises and falls rapidly. It is steep and has relatively coarse and cobbly gravel but flood events are able to move material relatively easily although like most of Tasman's rivers with very short duration flood peaks, gravel is only moved short distances.

Council maintains the first fourteen kilometres (to two kilometres upstream of Korere Bridge) but only the lower six kilometres are monitored for riverbed levels.

A study has shown that the softer Moutere gravels from this river do not make it down to the lower Motueka other than in sand or smaller sized particles.

Data and Analysis

Five data sets were available to analyse being the survey years of 1993, 1998, 2000, 2004 and 2017. Only three cross sections were surveyed in 1998 however so really there are only four complete sets.

Figures 7. and 8. show that overall this river is degrading. Up until 2004 it was degrading less and less and had just begun aggrading (Fig 8.), but it is likely that the significant amount of gravel extraction since that time has been at a rate higher than what the river can supply.

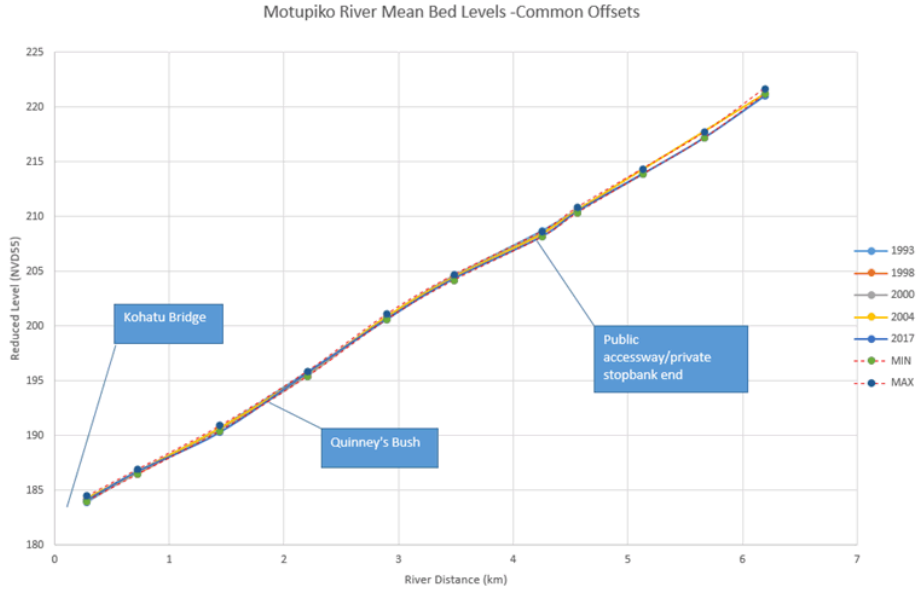


Fig 10. Motupiko MBL Plot

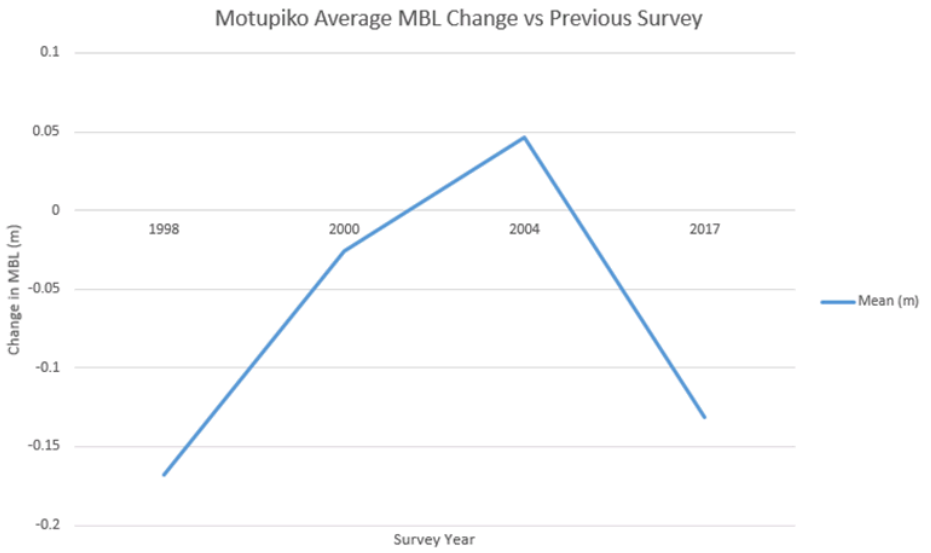


Fig.11 Motupiko MBL Change

Gravel Extracted and Gravel Envelopes

Upper Motueka

40,000m3 of gravel in total was allocated from the Upper Motueka main stem between 2004 and mid-2016 inclusive (average 3,000m3 per annum). 33% of this was downstream of Tapawera (to the Wangapeka confluence), 47% of this was from the mid reaches (Tapawera to Kohatu), and 20% coming from upstream of Kohatu.

This rate of extraction appears to be sustainable, with an increased take possible in the lower reaches where the bed has aggraded slightly since 2004.

A 0.6m wide envelope based on the average of the 2004 and 2017 profiles is a good fit.

Motupiko

Given the size of the river, a relatively large amount of gravel has been allocated from the Motupiko from records available going back to 2006. This has arisen in part due to a belief that this river has a higher than typical gravel supply (for Tasman) due to various Moutere gravel slips into the river along the mainstem and from long gully.

Additional gravel of 600m3 in total has been extracted from the river at Quinneys Bush to form the campground swimming pool. Most of the gravel removed to form the pool since it was first formed in 2008 rather than being extracted has been relocated within the riverbed.

This makes a total of 36,500m3 removed 2006 to 2016, or about 3,300 m3 per annum.

No further significant quantity of gravel should be removed from this river until monitoring results show that the bed is recovering.

A 0.5m wide envelope based on the 2004 levels is a good fit to manage this river to.

Takaka River

Cross-section data was formatted and imported into Hilltop Manager into a file containing all previous cross section data available.

Previous surveys were not as complete as the 2017 data, with either only the reaches below the 6 kilometre mark surveyed or data having missing cross sections.

Surveys included were undertaken in 1976, 1983, 1996, 2000, 2006 and 2017 i.e. six data sets. Above the 6 kilometre mark only two complete data sets were available being 2000 and 2017 with 6.0 – 9.5km having also been surveyed in 2006.

Common channel limits were then chosen to perform a mean bed level analysis on.

The channel limits were chosen by overplotting all survey periods at each cross-section and choosing and left bank and right bank points that included the main channel and that was covered by all datasets. This meant that in some places the edges of some cross-sections were excluded as one survey data set was shorter than the rest (channel limits adjusted to this shorter cross-section).

Reaches were then created in the add-on module Hilltop Hydro, to include the cross sections for each survey year along with the common channel limits (or left and right offsets). The program was then used to calculate the average (or mean) bed level between these two limits. The mean bed level can be represented graphically as a horizontal line. The mean bed level for each cross section has then been taken out of Hilltop and plotted in Excel which has better graphing capability and can overplot multiple long sections.

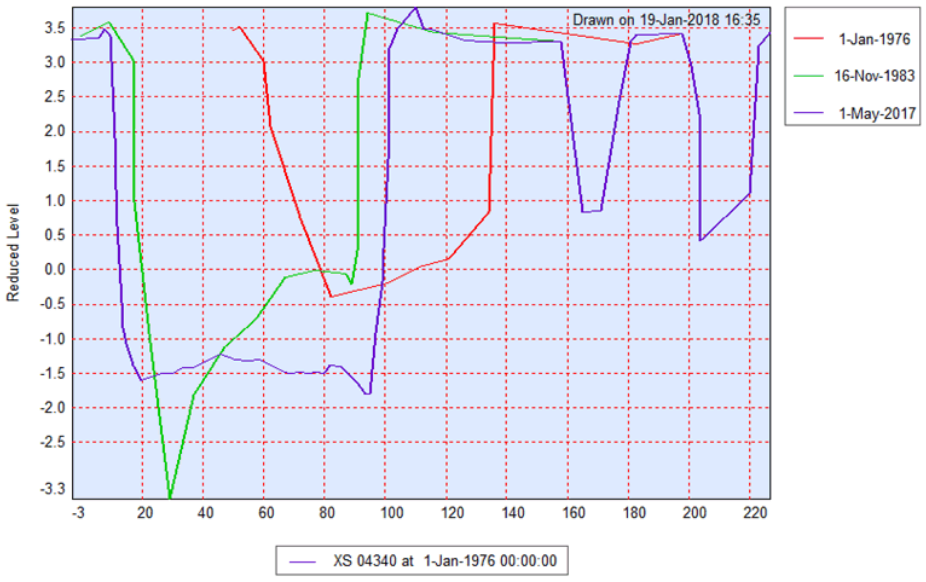


Fig.12 Takaka XS at 4.34km showing channel migration from 1983 flood

Several cross-sections in the reach from just above Waitapu bridge had unique limits applied as due the new river mouth the flood of 1983 made, as the common limits missed the old channel.

Bed levels in this part of the river varied greatly as the river adjusted over the next couple of decades due to the straighter and steeper nature of the new alignment.

Fig. 13 Takaka Rivermouths

Overall the lower Takaka is continuing in a slightly degradational trend. There are however places were pulses of gravel are moving through the system. The best example of this is at Roses Beach which cross-section 7830m runs through. See Fig 14. below. The green bulge on the right hand side is the beach which has built up by 2m since 2006. This is also plainly noticeable in the aerial photo as the new gravel layer marches over the top of the older beach.

Note that these cross section plots have an exaggerated vertical scale in order to fit them on a computer screen/A4 page, so changes in levels appear much more severe than they are on the ground.

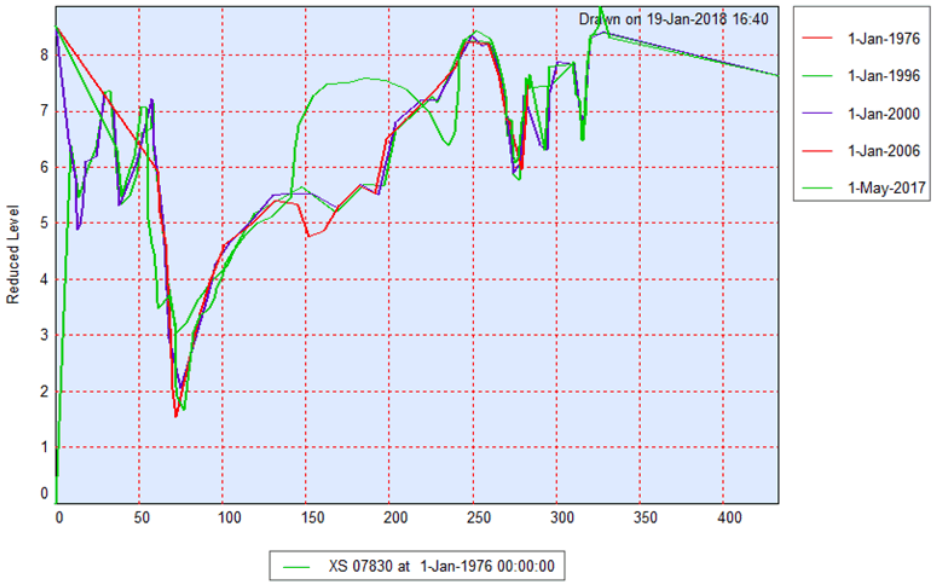


Fig.14 Cross section XS 07830 at the downstream end of Roses Beach

Fig 15. Roses Beach with CS 07830 relating to Fig.2 shown at bottom

Interestingly, while the rest of the bed has been relatively stable over the last forty years (excluding the section downstream of the Pupu River confluence), the reach above Roses Beach degraded significantly (in the order of 0.5m over 600m) between 2000 and 2006. The degradation appears natural and due to the channel becoming deeper and moving towards the left bank (see Fig.5). The Anatoki River enters this reach on the left bank.

Upstream of this point there has been very little variation of mean bed level over the full time period.

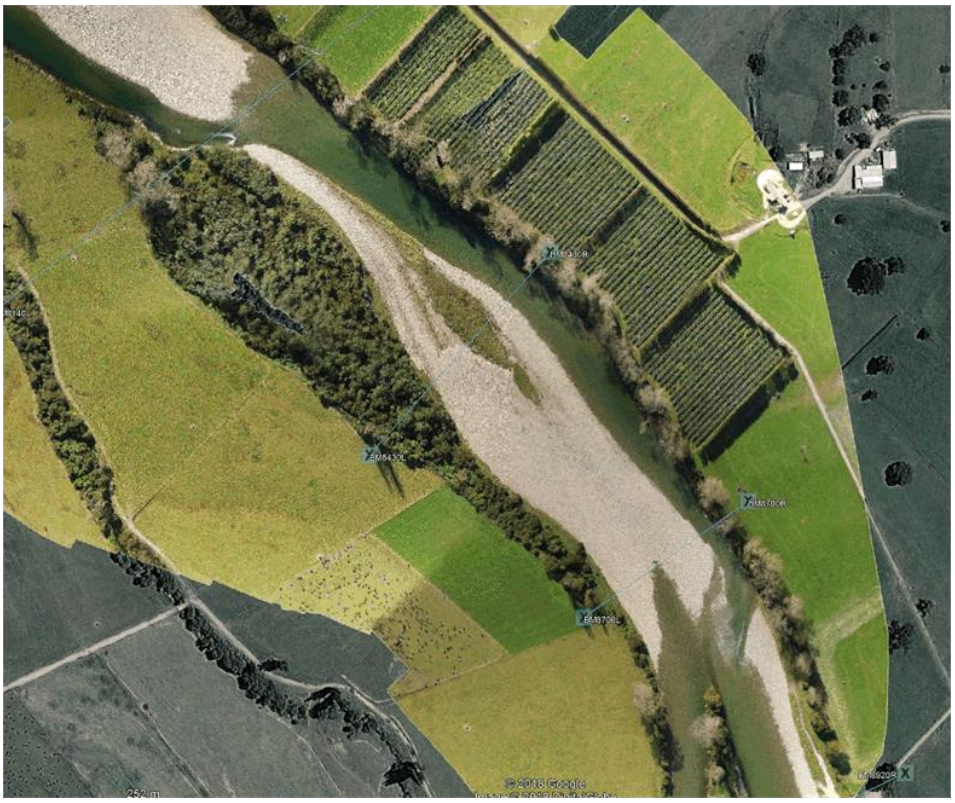


Fig.16 Reach Upstream of Roses Beach that has degraded

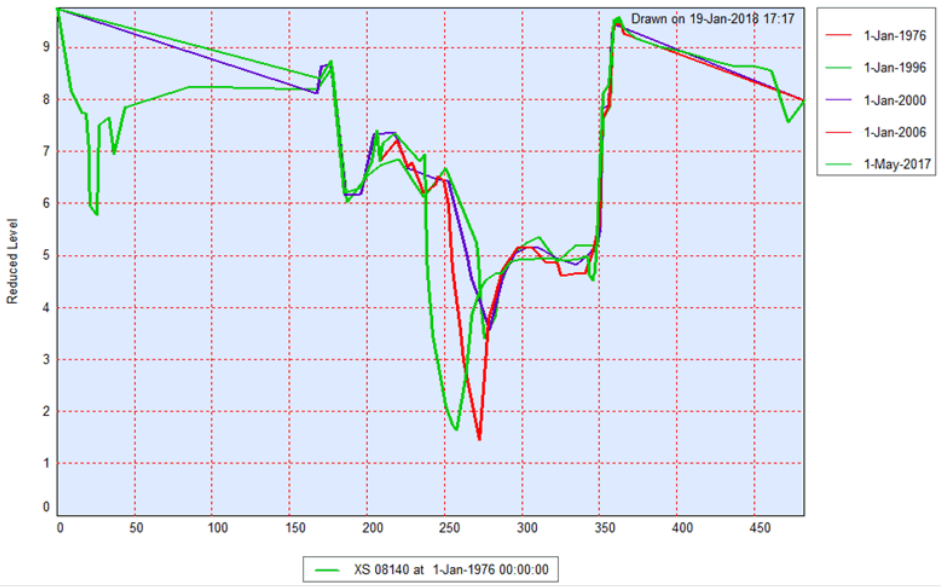


Fig. 17 Takaka Cross section 8140 (top of photo Fig.16)

Mean Bed Levels Downstream of the Pupu River

As previously discussed, it is difficult to draw any long term trends on riverbed levels here due to the major shortening of the mouth in 1983 and the major shifts in channel horizontal and vertical location this has caused.

One obvious anomaly in this reach is in the area of the Waitapu Bridge. The mean riverbed level at this point is in fact higher than the previous cross section 250m approx. upstream which is highly unusual. This has been borne out over several surveys so is not a survey or analysis error.

The explanation for this is because of the 'beaver dam' of woody debris and sediment that has built up against the old highway bridge timber piles, many of which were not removed. Some of these piles are exposed at extreme low tides.

Removal of these piles is not likely to be an easy or cheap exercise, but may help to move sediment from upstream down to the river mouth so should be considered.

It appears that the riverbed level at this point is building up back to what it was in 1976 before the 1983 flood lowered this whole section of river. There are only three datasets at the bridge cross section: 1976, 1983 and 2017 but five data sets at the upstream cross section which has remained relatively stable.

See Fig.18 below which shows the location of these two cross sections.

Fig. 18 Waitapu Bridge bed level anomaly

Gravel Envelope

It is our intention going forward to manage the rivers included in the regular cycle of riverbed survey using a 'gravel envelope' method. That is, to set a minimum and maximum bed level at any point on the surveyed section, based on historical bed levels. Extraction (or non-extraction) will be used to keep the riverbed where possible within this envelope, with the bottom of the envelope (or minimum line) demarcating the point at which no further extraction can be undertaken. Where riverbed levels are within or above the envelope then extraction can occur (we have yet to be granted a resource consent on this basis however).

Following analysis of bed levels since 1976, this has now been set based on the most complete data set being the 2017 Mean Bed Levels but adjusted at two cross sections close to Roses beach to account for the fact that Roses beach is at historically high levels so should be near the top or above the envelope.

The envelope is represented by the broken lines in the figures which shows the lower river only from just upstream of Reilly Street. Below Waitapu Bridge the river has been extremely dynamic due to the shortened distance to the mouth from 1983 so it was not felt useful to have an envelope in this area. This reach also enters the Coastal Marine Area where gravel extraction is much more difficult consent wise.

It needs to be understood in interpreting these plots that in between the plotted points the mean level of the riverbed is being interpolated only, so is not necessarily very accurate.

It is important to note that the graphs represent actual mean bed levels and that any gravel extraction has not been taken into account. Hence under a natural regime with no extraction, some of the earlier profiles (given that last century extraction levels were typically much higher) could well in fact have been higher, meaning the setting of the envelope could be conservatively low.

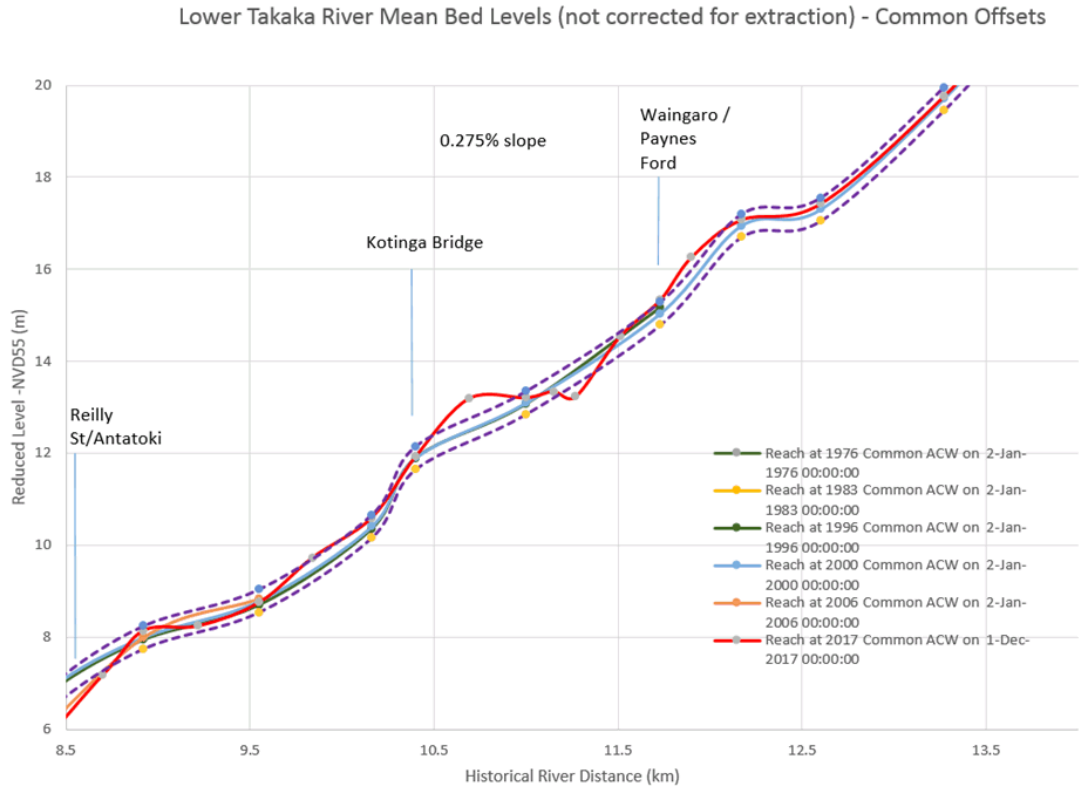


Fig 19. Lower Takaka MBLs 1

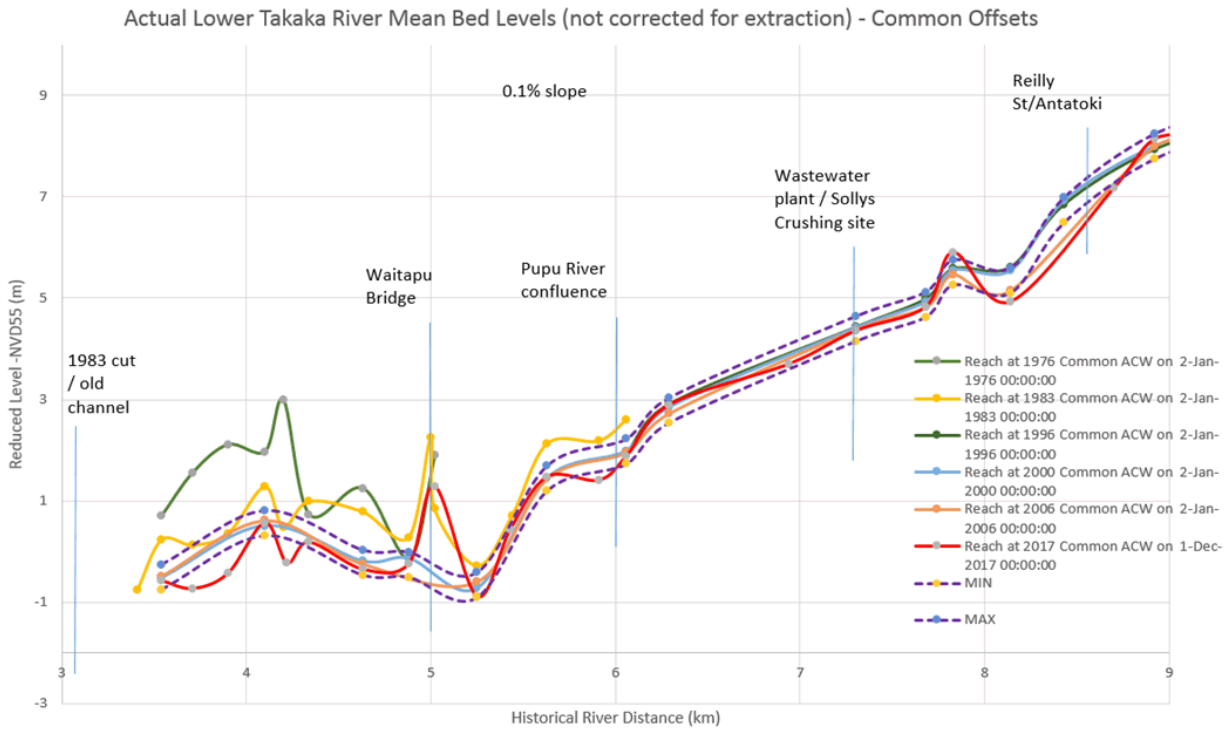


Fig 20. Lower Takaka MBLs 2

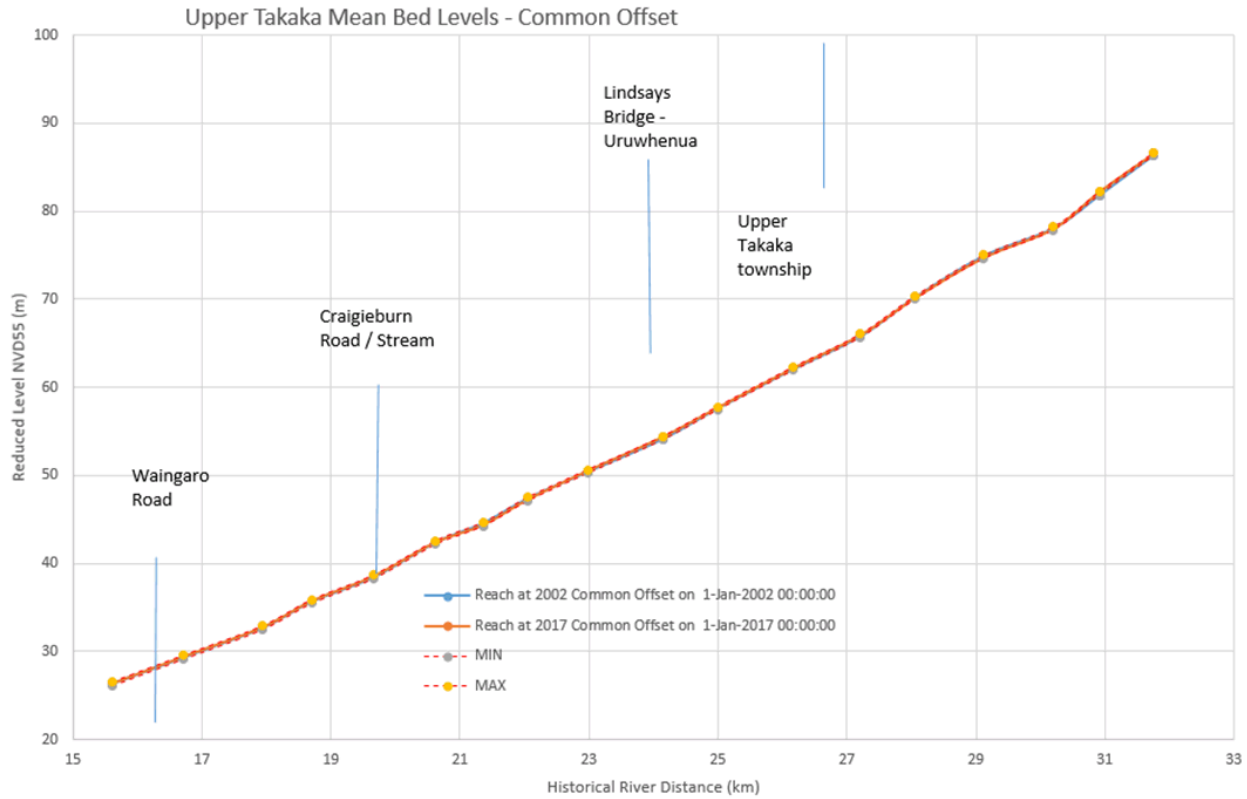


Fig 21. Upper Takaka MBLs

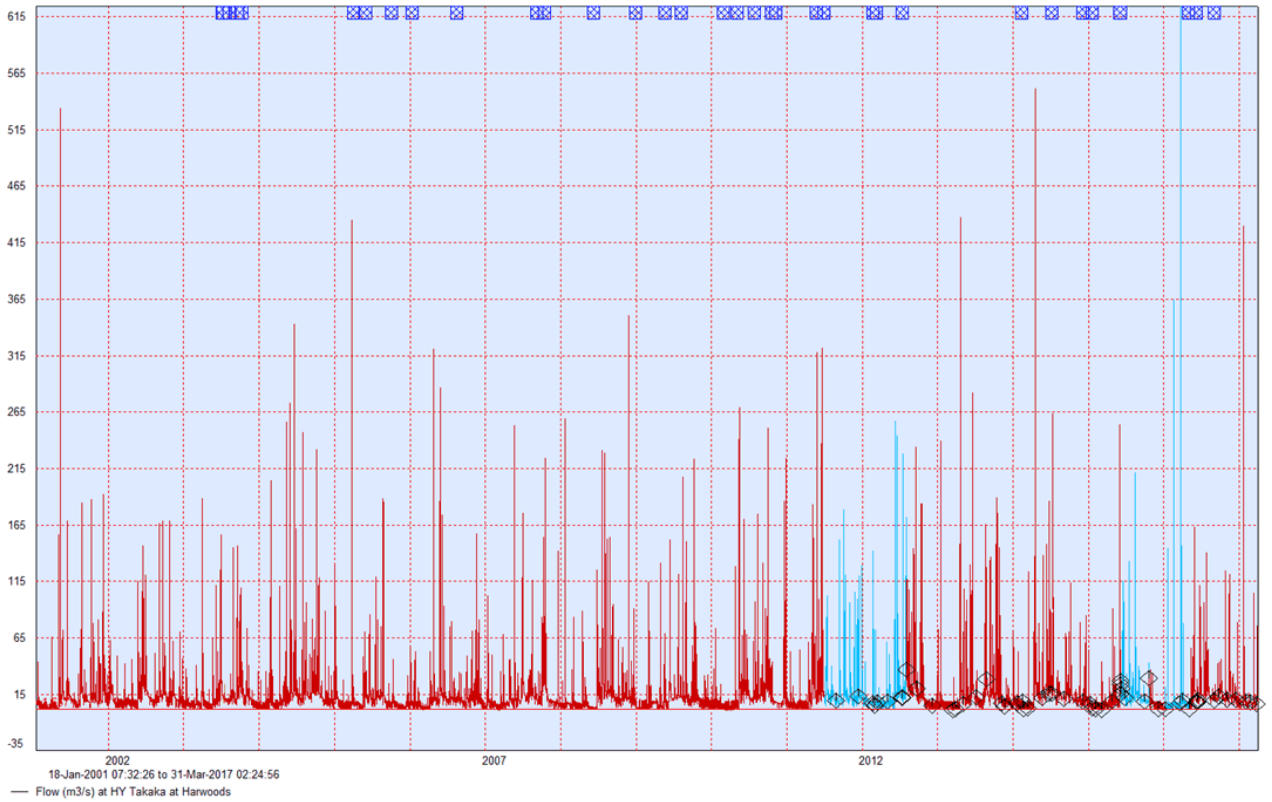


Fig 22. Upper Takaka Flow Record

Upper Takaka

The Upper Takaka cross-section network which continues from the lower river network (starting 4km above Paynes Ford to opposite the Upper Takaka township) was also surveyed in 2017. Analysis was similar to the lower river with heights reduced to a common datum.

The upper river network is much newer, being established and first surveyed in 2002 with the 2017 survey forming the second data set. Given this much smaller data set, limited conclusions can be drawn, other than that over the fifteen year period between surveys there some variation in mean bed level and a very slight aggradation trend.

This is despite several large floods over this period, the largest being the March 2016 event that was in the order of a thirty year return period and flooded large parts of the valley. This rates as the third largest flood (and not much less than the second largest) since records began in 1981.

Hence this appears to be a very stable length of river.

An envelope 0.4m wide either side of the average level between the two surveys has been set which contains all data points. A graph of the mean bed levels for the entire river has been included above along with a hydrograph showing the higher incidence of larger floods since 2013.

Gravel Extracted

Between the last two surveys (2006 and 2017) 16,600 m3 of gravel was allocated for extraction in this river. 6,600m3 of this was from the lower river (just about all from Roses Beach) the rest coming from sites around the 10.6km and 15km marks. Returns show that 12,812m3 was taken.

This is an average of 1,165 m3 per year.

Looking at sediment transport figures from the Waimea and Lower Motueka, 1,200 m3 for the Takaka River seems on the low side given the size of the river and the frequency of high flow events in recent years.

Until further monitoring is undertaken in 2022 (or earlier if a twenty year flood or greater is experienced), it would be wise to limit average annual extractions to no more than twice this figure (a total of 12,000m3 over five years), and to take the majority of this material from Roses Beach.

A similar maximum take from the Upper Takaka (which is aggrading) would be sensible until the next survey.

Overall Change Lower Takaka

As explained, the Takaka riverbed shows a degradational trend, that is the riverbed is lowering over time. This river is a particularly dynamic river with quite some variation in bed levels over the years, however, overall the bed is stable with the degradation being very slight.

The graph below shows change in Mean Bed Levels over the length of the river by year comparing each survey to the previous one. There are gaps in the data as you can see, but other than the 1983 vs 1976 survey (orange line) the change hover around the zero mark. The 2017 green 'witches hat' is Roses Beach.

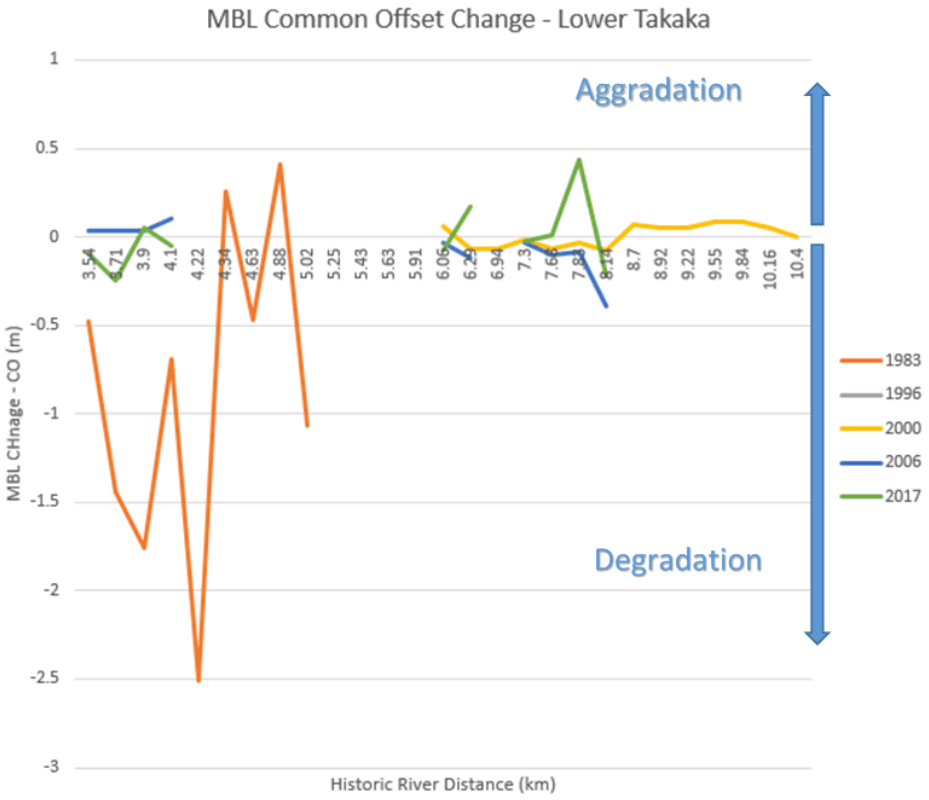


Fig 23. Lower Takaka Riverbed Level Changes

The next graph shows the average, maximum positive and negative changes when looking at all the MBLs for each survey year across all cross sections, again comparing consecutive surveys. You can see that from the year 2000 the mean is very close to zero (i.e. stable) as the bed has built up following the 1983 flood. Since 1976 the mean bed level has lowered by nearly 1.6m, however this is of course skewed by the large degradation that occurred near the mouth from the formation of the new channel.

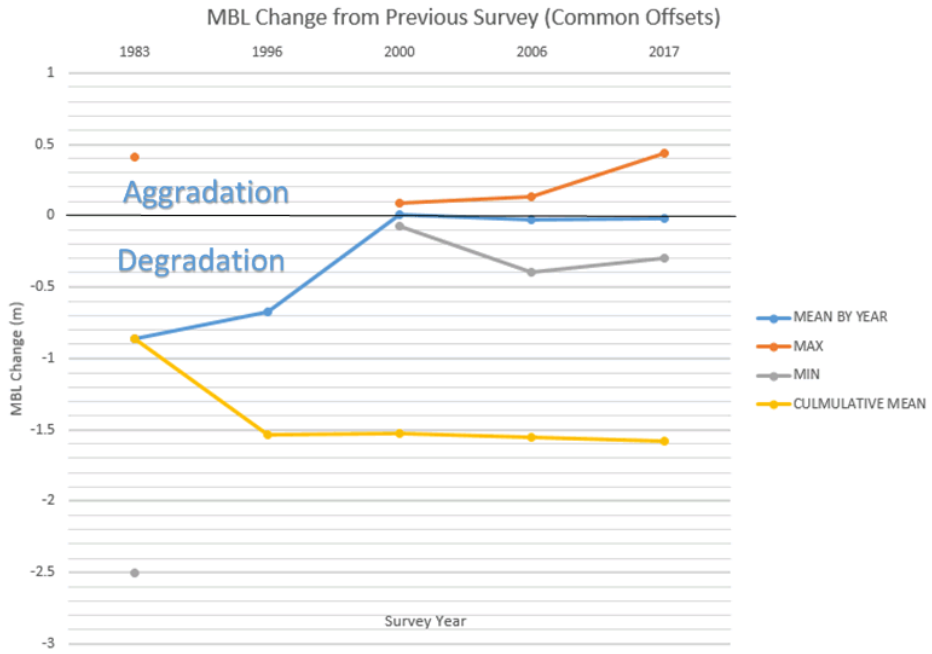


Fig 24. Takaka River Overall Riverbed Level Changes

Riuwaka River

Introduction

The Riuwaka Scheme is Council's smallest river flood protection scheme which was completed in 1956. It has a lower level of protection than Councils other schemes (contains only a ten year average return period flood). It also has a lower construction standard compared to other Council flood protection schemes with small, irregular, low stopbanks of varying quality that are typically very close to the channel itself to maximise landuse outside the river.

Consequently, it has a highly modified channel and large amount of both hard and soft protection such as a weir, rock revetments and willows. The Separation Point Granite based catchment it drains means that a lot of fine (sand sized) sediment is present along with relatively small sized and thus highly mobile bedload.

Flooding of landowners is becoming an annual event on this river, the most recent event being the ex tropical cyclone Gita generated extreme depression. In these events a significant flow exits the river at several points upstream of the highway bridge and flows through orchards and then, then down roads and residential areas such as the straight past the Riuwaka pub and down the Kaiteriteri Road through Cooks Corner. Overtopping immediately above and below the highway bridge has also been occurring. The flooding is becoming an increasing nuisance to the orchardists, and is an ongoing issue for particular residences, particularly at Cooks corner.

In July 2016 the Riuwaka River bed and banks were surveyed as part of Council's ongoing riverbed monitoring programme. The survey consisted of picking up ground and bed levels along historical cross-sections from bank to bank, from the mouth up to the cross section at historical river distance 8700m. This covers the reaches of the river that fall within the River X rated fully maintained section. Cross-sections have previously been surveyed upstream of this point but the plan was to focus on the Council maintained section where the channel is larger, is stopbanked and where there is intensive horticulture along both banks.

The floodplain outside the banks was not surveyed, with also only the main channel being picked up at the mouth where the river merges with the estuary.

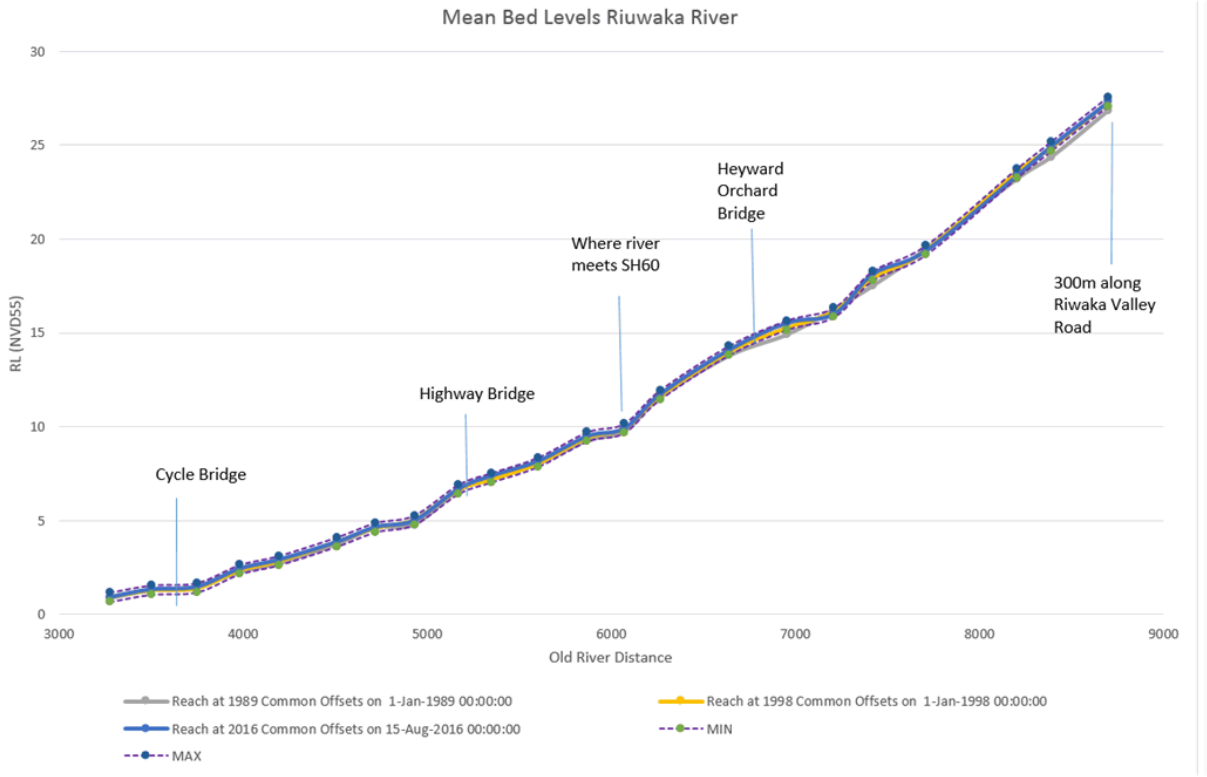


Fig 25. Riuwaka River MBLs

Fig. 26 Upstream Riuwaka River MBLs

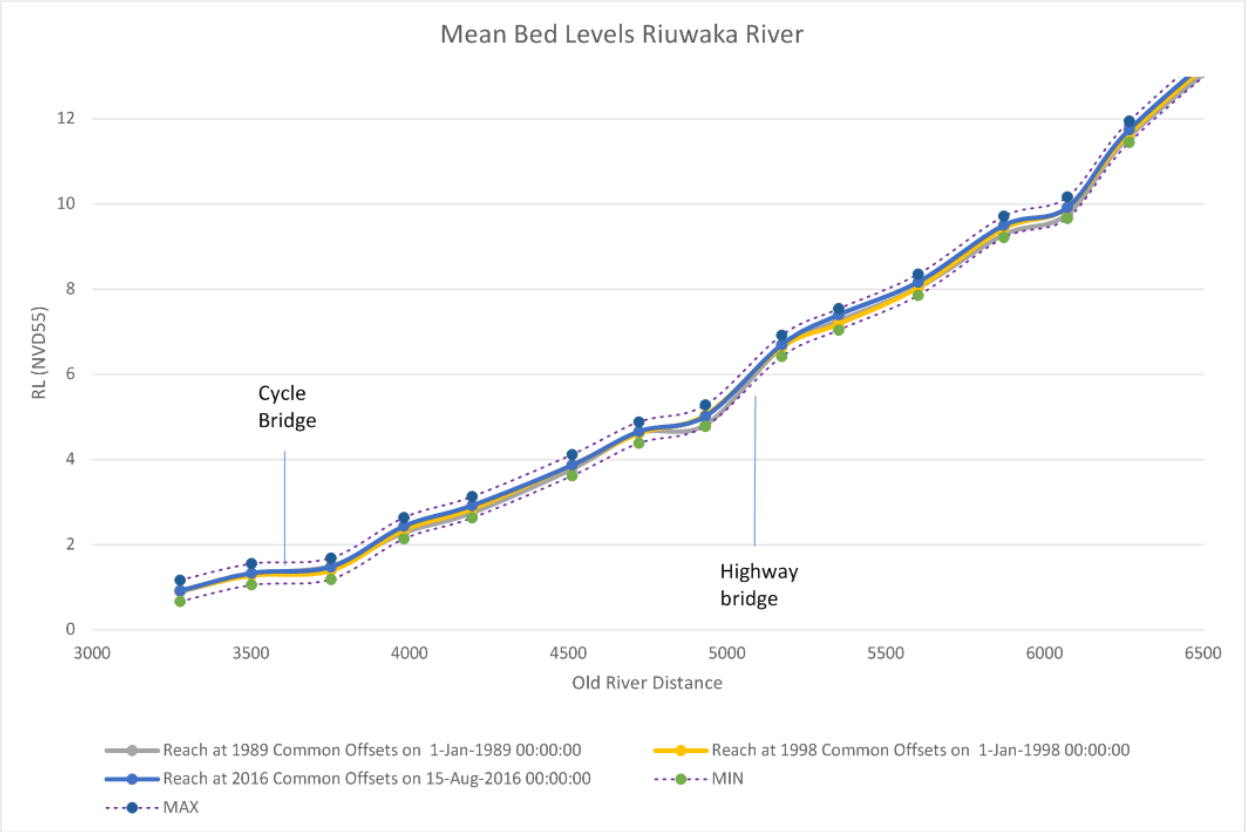


Fig 27 Riuwaka River MBLs Lower Reaches

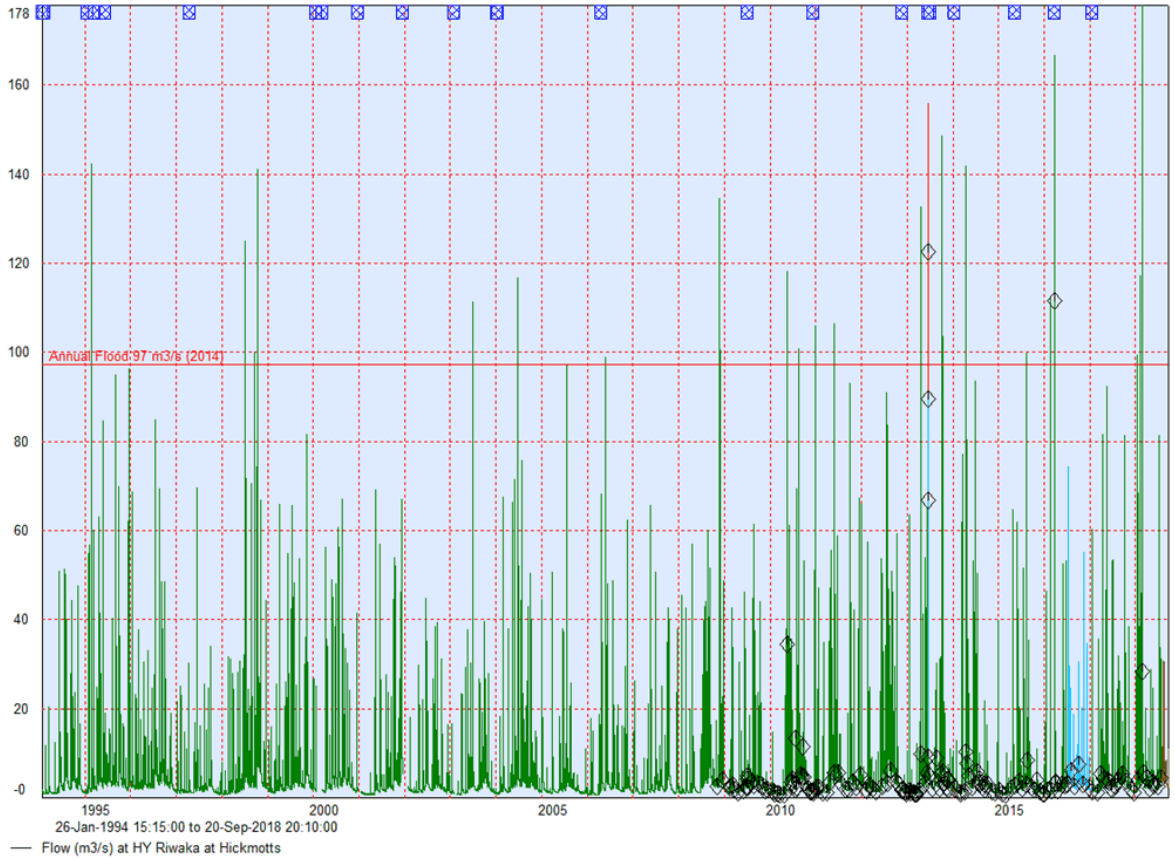


Fig 28. Flow Record – Lower River (recorder at Hickmotts below Highway Bridge)

Discussion

Three data sets of cross section information was available for analysis, 1989, 1998 and 2016.

Looking at the MBL's (Mean Bed Levels), the 1998 and 2016 profiles are very similar. Over the 18 years between surveys it is quite surprising how similar they are in comparison with many of our other rivers.

The 1989 profile is not so similar, overall it is slightly lower than the others. This can be seen in the second graph where it tracks close to or below the bottom of the gravel envelope.

A survey or transcription error in the 1989 cross section at river distance 7710m was picked up with the MBL at this point initially falling below the envelope, with the entire cross section sitting about 1.3m below the 1998 and 2016 profiles. The levels for the 1989 cross section data was therefore increased by that amount to put it in line with the other two surveys which pulled the MBL up into the envelope.

The envelope shown is built around the mean of the 1998 and 2016 profiles with a width of 0.5m.

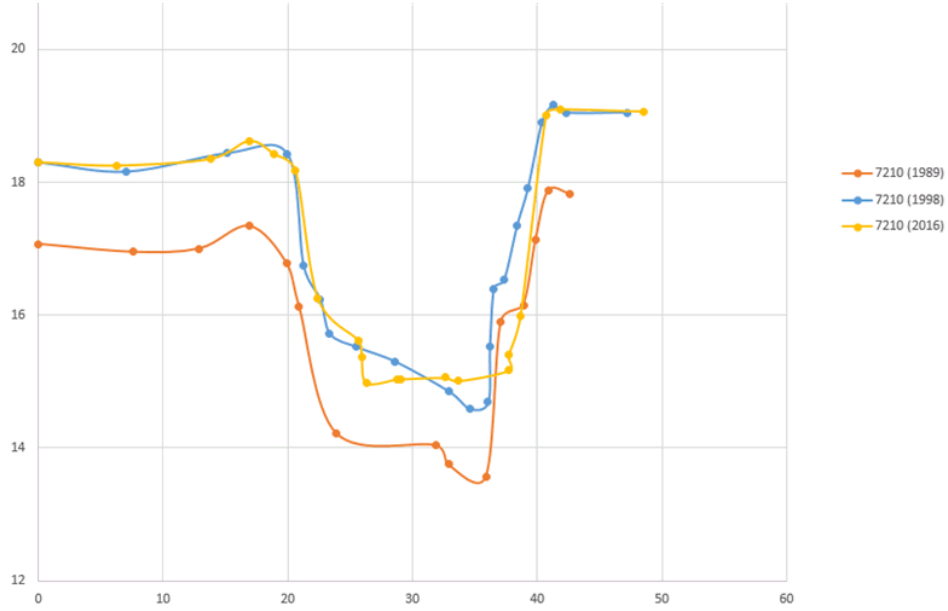


Fig. 29 Cross Section 7210m taken in 1989 (orange line) before correction

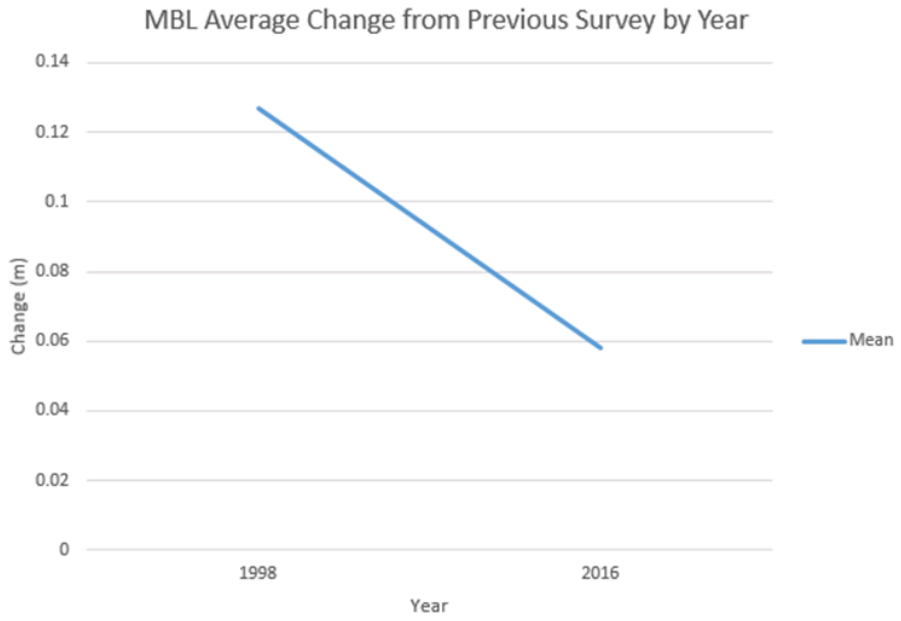


Fig 30 Riuwaka River Average MBL Change

The graph above shows that overall MBLs have increased since 1989. The river is slightly aggrading but at a reducing rate so if the current trend continues it will eventually enter a degradation phase (in about twenty years time if the rate continues at the current value). The average of all MBLs in 1998 was 13cm higher than in 1989, and the average in 2016 was 6cm so it has aggraded 19cm on an average overall basis since 1989.

Gravel Extraction

A total of 500m3 of gravel had been allocated in the Riuwaka between 2013 and the survey in winter 2016, however there are no returns recorded for this period. Permits dating back to 2004 do not show any extraction for the 2004 to 2013 period.

Since the 2016 survey another 1,900m3 has been allocated, again in the lower river (the majority just upstream of the Highway Bridge).

However, the only return recorded for this river was in March 2017 for 765m3 (taken from the first beach upstream of the highway bridge).

An annual extraction rate of around 500m3 would be a sensible rate not to exceed until the next survey.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

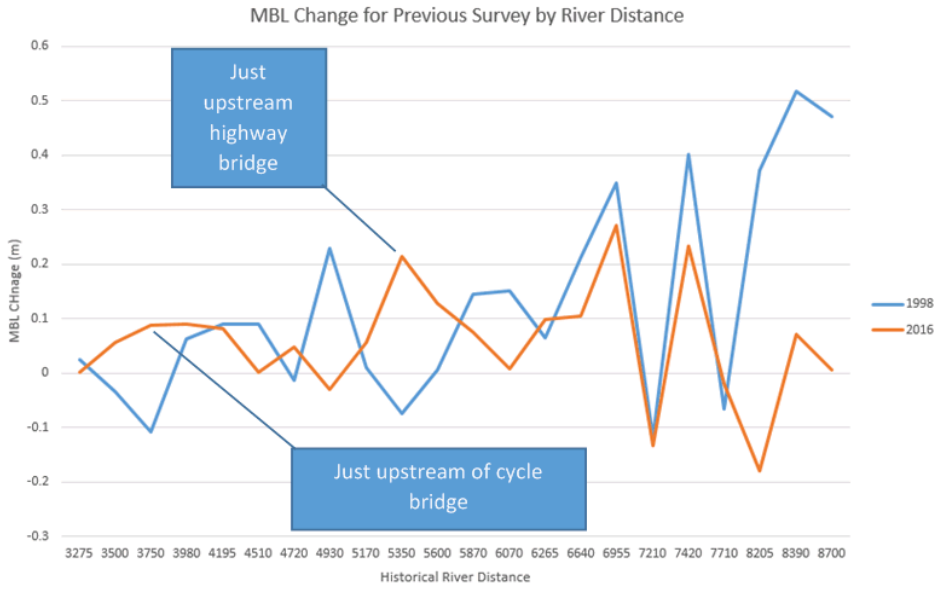


Fig 31. Riwuaka MBL Changes along river

The graph above shows MBL change at each cross section over the length of the river. It shows that a large slug of material at the upstream end has gone with peaks and troughs in the middle reaches alternating as material moves downstream over time. At the downstream end the oscillation smooths off in response to tidal influences.

Conclusion

This river has a very limited supply of coarse bed material but the results indicate gravel storage is increasing but at a decreasing rate. An increased rate of extraction would be helpful in reducing this aggradation, however the ability to do this is limited given there are only small, infrequent beaches with most of the gravel part of the bed below water level.

This is in light of the river experiencing regular floods of up to ten year events and several flows above this since 2012 (the most recent March 2016 event which also affected the Takaka was close to a forty year flood in the Riuwaka). There has been very little erosion and bank damage from these floods.

Build up of fine sediment trapped by vegetation on berm and bank areas above the main (active) channel has a more significant effect on reducing channel capacity in this river, with the presence of dense woody vegetation while confining flood debris in the channel effectively, also increasing roughness and hence top water levels in flood events.

The effect of this vegetation is not consistent however, if we were to mulch and control this more intensively in the future there is likely to be little benefit to the overall capacity of the total scheme. The vegetation has greater benefit of assisting in controlling erosion.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

Lower Motueka River

Background

The Lower Motueka Flood Protection Scheme is Tasman's largest scheme. The river has the largest flow compared with the Waimea and Riuwaka schemes, and is close to one of our larger population centres so is our highest risk scheme. The stopbanks along the lower 10 kilometres of the river were built in the 1950's largely to protect tobacco plantings. Over 1,000 hectares of arable land, most of it intensive horticulture on both banks is protected along with the township of Motueka.

The scheme protects Peach Island which is now only any island when the river has a major flood and water begin spilling over down the Westbank Channel (which used to be the main channel prior to the largest flood on record the 1877 'Mud Flood'). The stopbanks on Peach Island are lower than the stopbank on the town side at Whakarewa Street so will overtop first.

In 2014 Council decided not to proceed with the Motueka Flood Protection project, which proposed widening and improving the stopbanks to resist a long duration flood, as testing showed that the banks had relatively uncompacted central cores. The banks and underlying ground have a history of instability and high porosity in flood events at particular locations such as at Whakarewa Street. Modelling showed that the township would most likely have only shallow flooding of around 100mm on average in a 1% Annual Exceedance Period (1:100 year) flood if the right bank failed. Given this and the issue of affordability (cost was around $15M) the project was abandoned.

Data

All available data sets of 1997, 2001, 2005 and 2016 were analysed over forty-eight cross sections running from the mouth (3,400m) to Alexander Bluff Bridge (16,620m) so just over thirteen kilometres of riverbed. For the 2017 survey, to pick up river bed levels in some of the deeper holes a mini jet boat with downwards pointing sonar was used.

Results

Calculation the Mean Bed Levels for each survey year using Common Offsets (i.e. fixed left and right bank positions the same for each cross section over all survey years) shows that this river was very stable up until 2005, but is now very slightly aggrading.

Looking at the first graph showing change in MBL between each consecutive survey the 1997 and 2005 levels are overall much the same (change close to zero). As gravel moved downstream in the eight years between these surveys the peaks and troughs often do not coincide but once averaged gravel storage in the channel is much the same. This can be seen in the second graph showing the average of all MBLs as the lines between 2001 and 2005 are relatively flat.

The biggest change has been between 2005 and 2016. The riverbed has aggraded a lot more as you would expect (all things being equal with flow regime and extraction regime) as this is a twelve year intervening period. Records also show there was not a lot of extraction over this period, but extraction for earlier periods is unknown but quite possibly was at a higher rate given historical attitudes to use of the gravel resource. Minimum MBLs stayed much the same but the maximum MBL at various cross sections increased markedly leading to an overall increase in the mean MBL over all cross sections of about 0.1m. This is a minor increase, but represents a relatively large volume of material given the width and length of this reach.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

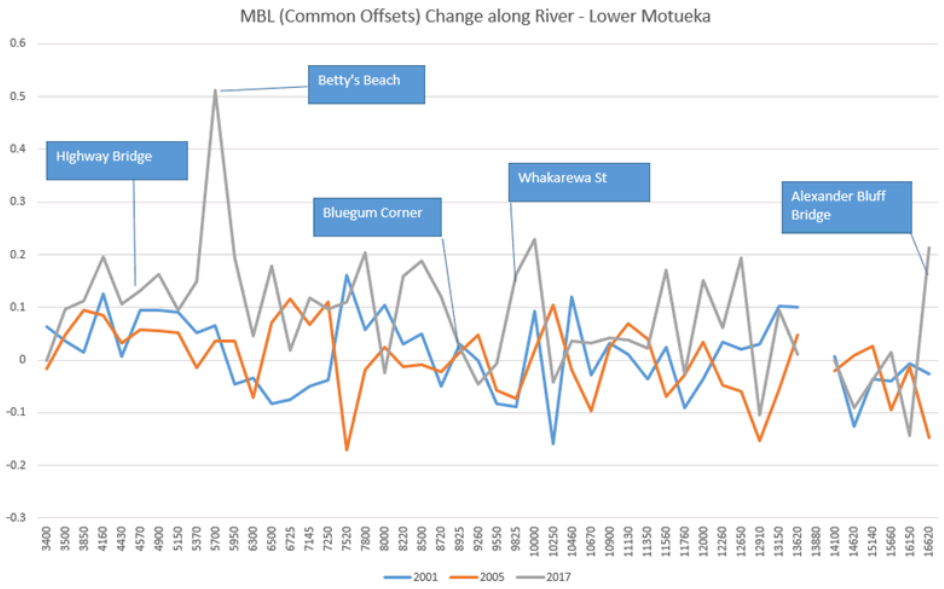


Figure 32 Lower Motueka MBL Change along River

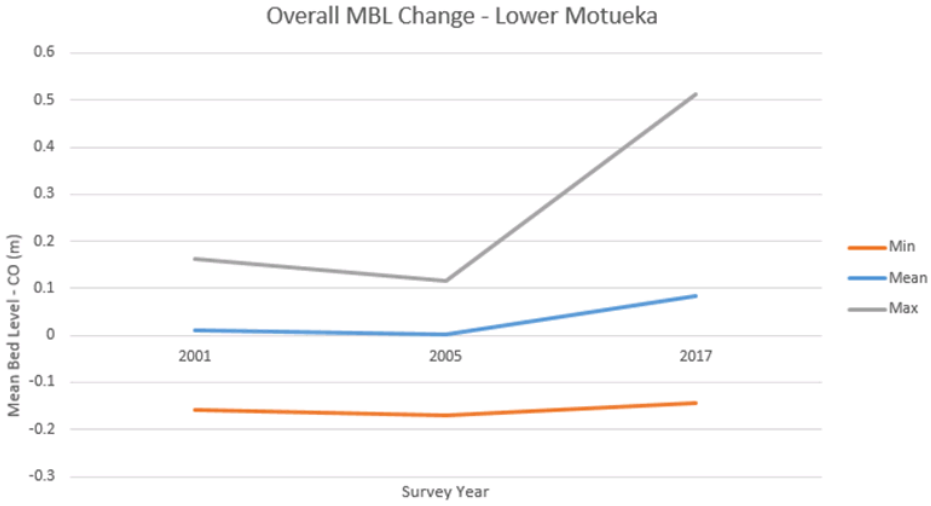


Fig 33. Lower Motueka Overall MBL Change

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

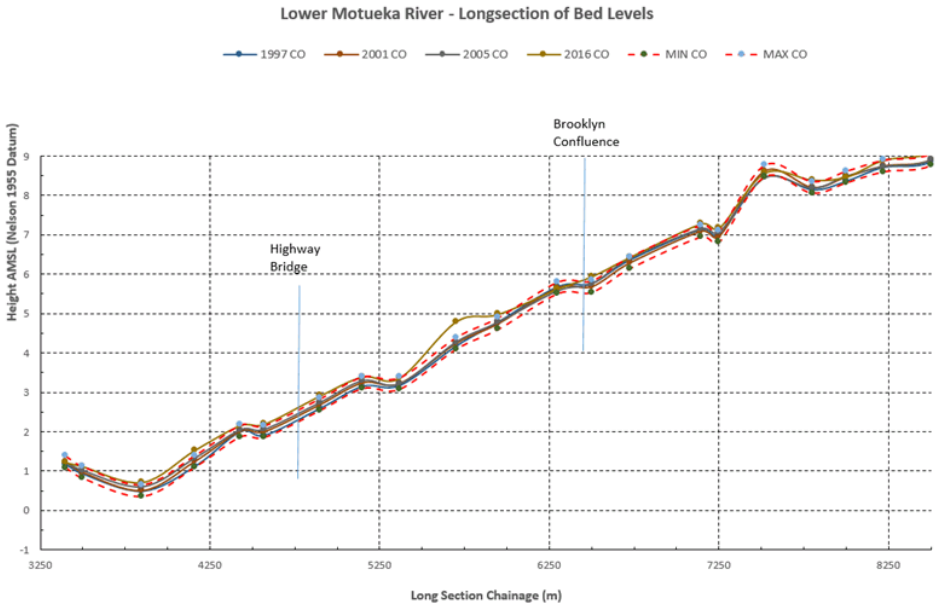


Fig 34. Lower Motueka MBLs 1

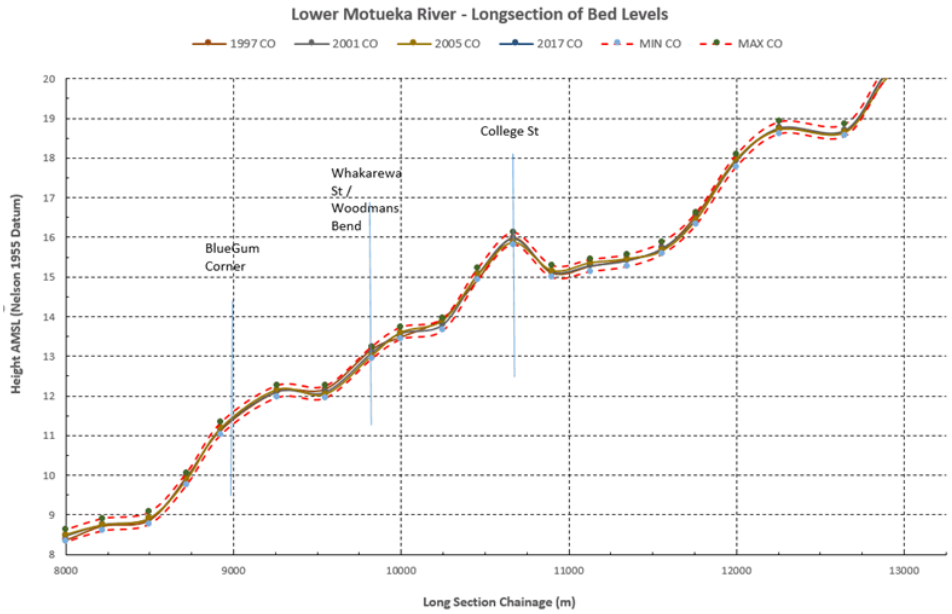


Fig 35. Lower Motueka MBLs 2

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

A 0.3m wide gravel envelope based around the 2001 Common Offset MBLs contains the bed levels of all surveys at most points and is shown in the graph above.

The main change is at 5,700m at 'Bettys Beach'. This is located on the left bank one kilometre upstream of the highway bridge and is due to silt build up in the long grass that was vegetation the downstream portion of this beach. This location shows up as being well above the envelope as well as being the highest peak for the average levels when plotted along the river.

Gravel Extraction

Gravel extraction returns from available records from 2007 to 2016 for this part of the river were only 5,450m3. This is well below the 2,000-5,500m3 average the sediment transport calculations performed in 2014 predicted as an annual average, so it is not surprising that there has been some aggradation.

More than 16,000m3 has been extracted since 2017 so we expect that the next survey will show a slight lowering of the bed (this volume is outside the period of this analysis).

At least 8,300m3 has been extracted to date since 2004 from the middle section of the Motueka (from Alexander Bluff Bridge up to the Wangapeka confluence), all since 2014 so this could have an impact on supply to the lower river. Likewise, increased extractions in the Upper Motueka and the occasional extraction on the Wangapeka could also have a long term impact on supply to these lower reaches.

As we don't specifically survey volumes extracted and rely on contractors records and because sometimes returns may have not been submitted, it's likely that what we have recorded as being extracted is on the low side, so we need to bear this in mind and be conservative.

Conclusion

Total extraction until the next expected survey in 2021 should stay within the maximum expected as shown by the sediment transport study i.e. 22,000m3. This will require us to cease taking any further gravel from this part of the river shortly.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

Waimea and Wairoa Rivers

Introduction

The Waimea River is the main river just west of Richmond and has formed the fertile Waimea plains. It empties into the Waimea inlet and has formed the barrier island Motorua (Rabbit Island) at it's mouth. It is fed by a number of tributaries. The main tributary is the Wairoa River which has its headwaters in the Richmond Ranges behind Wakefield where Ben Nevis is. Others are the Lee River which joins the Wairoa at the bottom of the gorge near Brightwater and the Wai-iti River which drains the valley to the south past Spooners Range. Where the Wai-iti (little water) confluences with the Wairoa the river becomes the Waimea River.

The Waimea and lower portion of the Wai-iti (which was diverted) were stopbanked in the mid 1950's. Previously the river was semi braided and had formed two main channels over part of its length. The western arm was blocked creating a single main channel east of Challies Island (i.e. it ceased to become an island). The Council maintained length of the Waimea and lower Wairoa is 13km and an irrigation weir for the Waimea East irrigation scheme was built at the top of this reach.

High volumes of gravel (as is the case in several of our main rivers) were extracted from the river up until the early 1980's when it became apparent that the river was degrading (the bed was lowering). Headward erosion continued into the lower Wairoa River leading to a highly incised channel with steep banks. In the early part of the 21st Century a number of weirs were constructed in the lower Wai-iti in order to raise river bed levels and restore ground water levels for irrigation, as this river had also degraded following headward erosion from the Waimea and a policy of extraction within its own channel to increase flood conveyance.

Data Sets and Analysis

Five datasets were found for the Waimea being surveys performed in 1997, 2001, 2005, 2015 and 2016. The 2016 survey was carried out to pick up changes following the 5% AEP (twenty year average recurrence) flood in February 2016.

Sixteen datasets were found for the Wairoa but most were only for a handful of cross sections. Six datasets were complete or mostly complete however giving a good spread, being 1971, 1978, 1997, 2005, 2015 and 2016.

Fig 3. plots this data using a set of common (or fixed) channel offsets for all datasets. This means that the same points on the left and right banks have been used to define the channel over which the MBL is calculated for the various survey years (i.e. the channel width is the same at any particular cross-section no matter what the survey year was).

The red broken lines show the current gravel envelope setup for the river based on mean bed levels for the Active Channel Width (ACW). The ACW is the width of the actual channel at the time of each survey so it generally varies between surveys for each cross section and reflects the flow regime of the previous intervening period (i.e. more or larger floods leads to a wider channel in general, in quiescent periods vegetation encroaches and narrows the channel). It requires having additional information such as survey codes and/or aerial photos to determine the channel limits.

Fig 1. shows the cross-section at 3560m on the Waimea River to demonstrate ACW's for different survey times.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

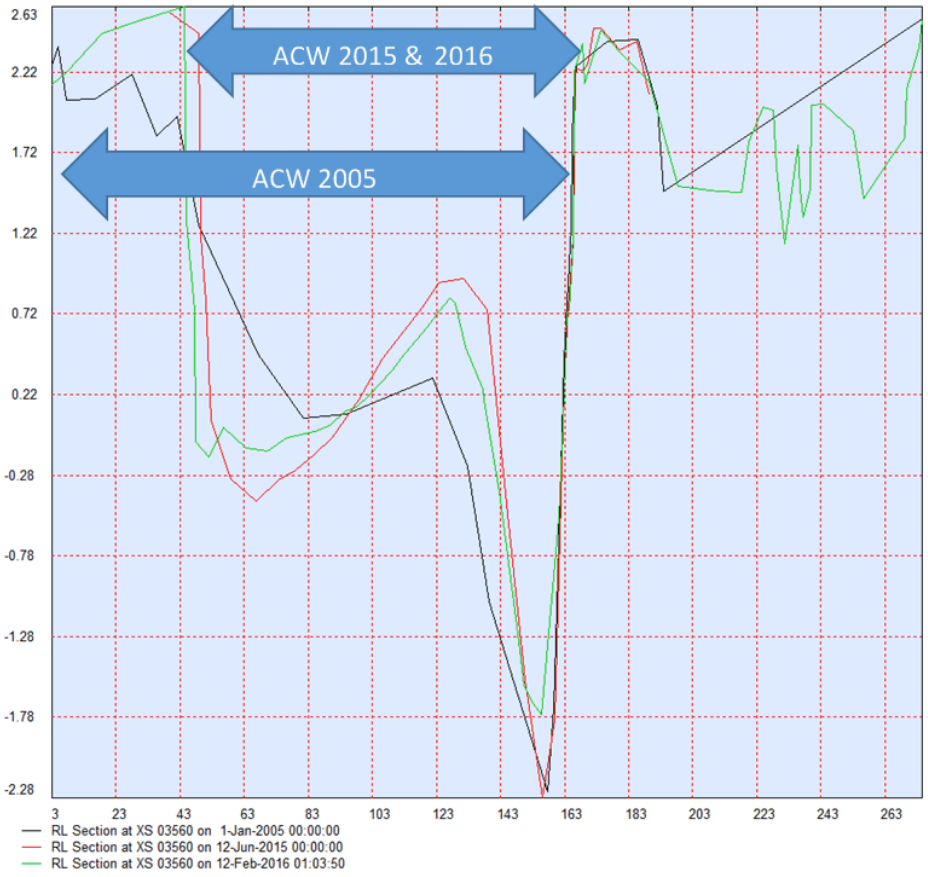


Fig 36. Active Channel Widths

The gravel envelope was developed as a best fit maximum and minimum grade lines from the 1997, 2001 and 2005 datasets. The envelope is relatively narrow at 250mm in width in relation to the historical bed movement shown, indicating that the bed degradation has slowed significantly in line with the significantly reduced extraction. Bed levels have dropped by nearly 3 metres in places since 1969.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

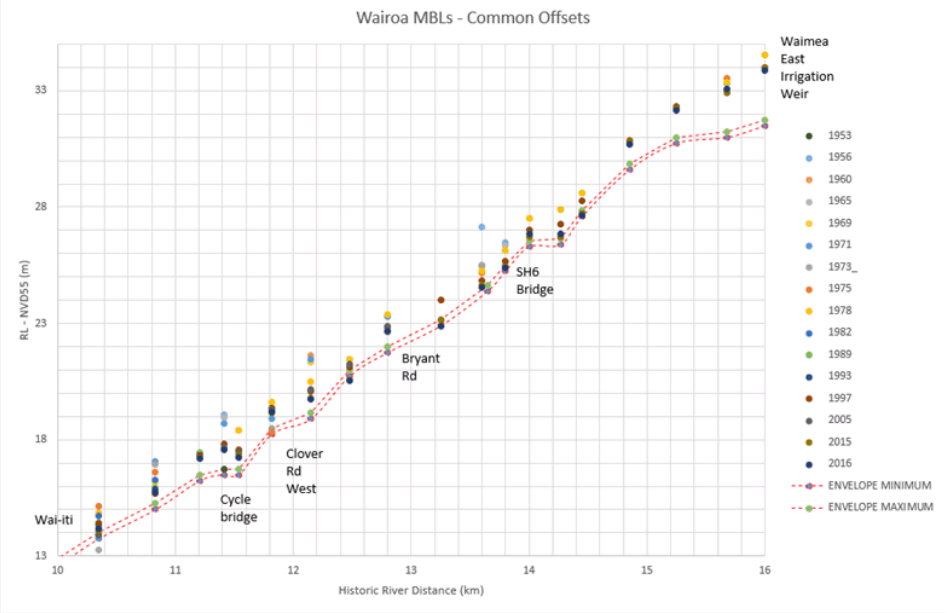


Fig 37. Wairoa River MBLs

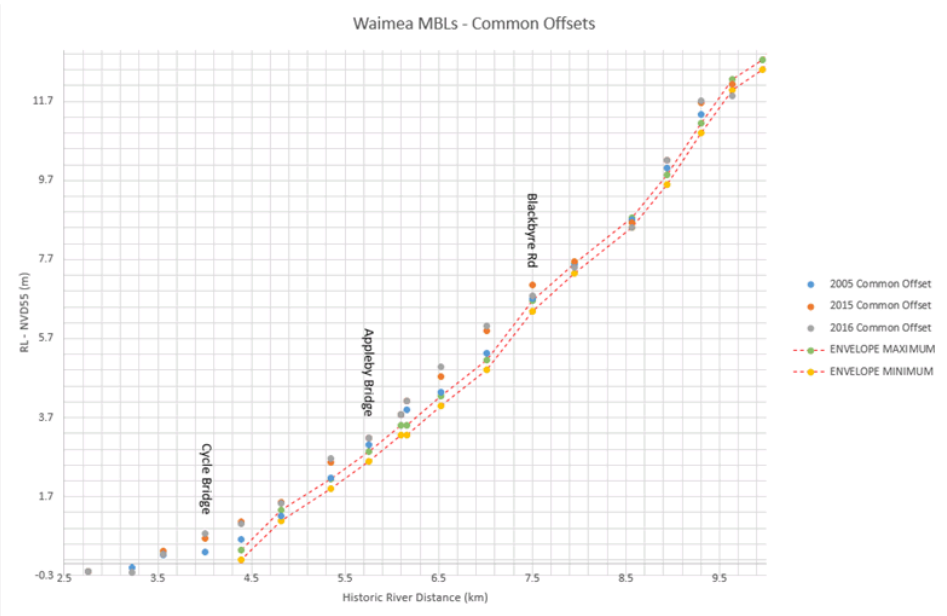


Fig 38. Waimea River Common Offset MBLs

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

Fig 38. shows that using a set of common channel offsets for calculating the MBL also results in MBLs above the gravel envelope i.e. it confirms the MBLs calculated from the varying active channel widths (ACW) that bed levels in the lower river in 2015 and 2016 were much higher than in 2005 (up to 400mm higher).

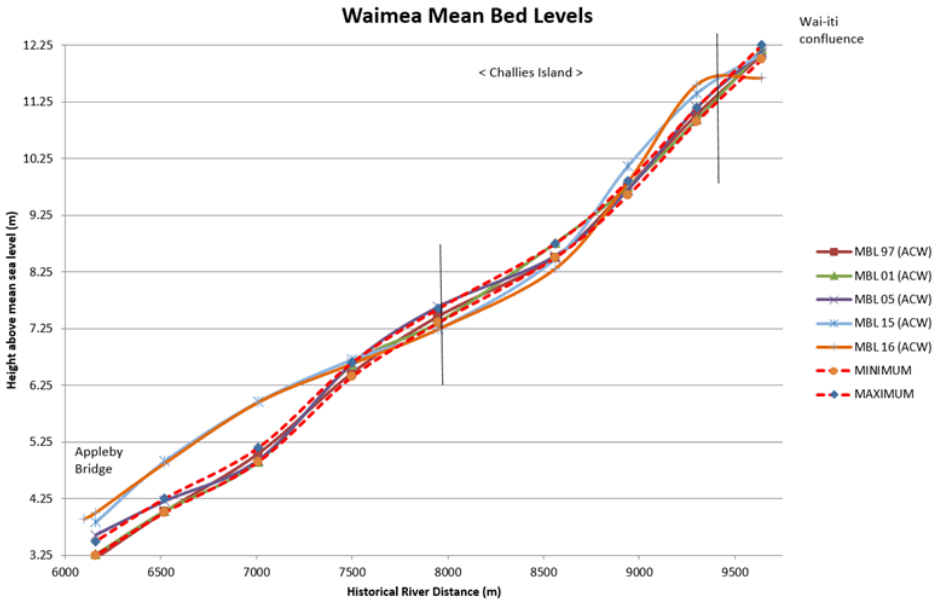


Fig 39. Waimea Active Channel Width MBLs 1

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

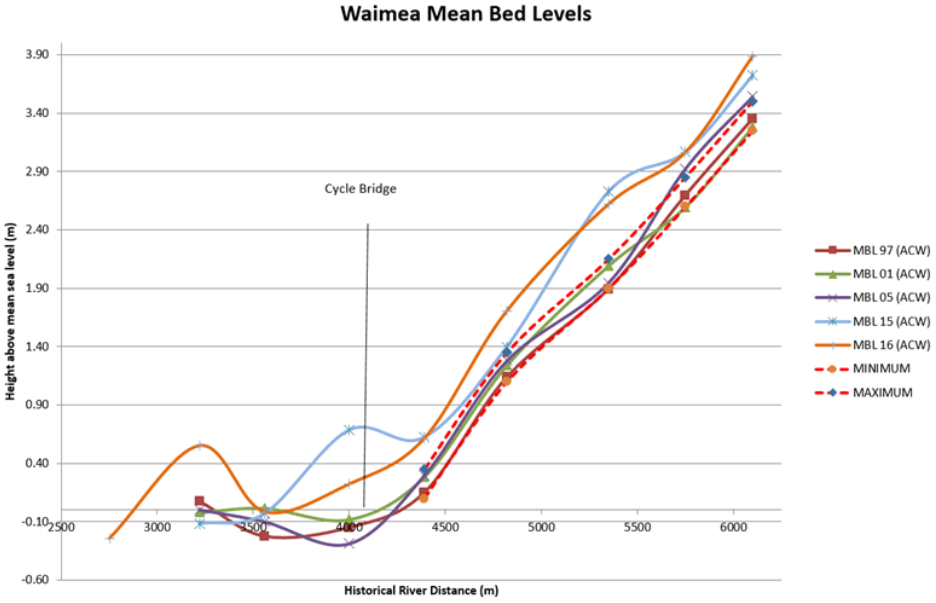


Fig 40. Waimea ACW MBLs 2

You can see from the Waimea graphs above that the lower river from Blackbyre Road downstream has aggraded since 2005, the 2015 and 2016 (light blue and orange lines respectively), being well above the envelope, whereas the Wairoa plots (not shown) are much closer to the envelope. Even with the twenty year (5% AEP) flood, upstream of Blackbyre Road the 2015 and 2016 mean bed levels were very similar.

Below the bridge however mean bed levels changed greatly for these two datasets as per the graph above. Note the movement of the slug of gravel either side of the cycle bridge which moved closer to the mouth in the February 2016 flood.

Extraction Record and Conclusion

On examination of gravel returns going back as far as is recorded in the previous global riverworks consent (NN010109) a total of 4,500m3 was extracted from the Waimea between 2011 and 2016.

56,000m3 has been extracted from the full length of the Waimea above the cycle bridge over 2017 and 2018 in response to the aggradation shown from the 2015 and 2016 surveys, so we expect the next survey to show a much lower MBL. It's likely that the reach below Appleby Bridge will still be above the envelope however, as or current consent allows a maximum of 4,000m3 to be extracted off any one beach over a rolling five year period (aggradation in this area was in excess of this).

Sediment transport calculations on the previous hydrological record were carried out in 2014 and show that the likely annual average transport capacity of the Waimea is around 3,000m3 of bedload (i.e. gravel). This indicates that the recent 2017 and 2018 extractions will have removed about twenty years worth of gravel so until further monitoring is undertaken (planned for 2021) it would be unwise to undertake further extractions at this rate.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

Once gravel reaches the cycle bridge it enters the Coastal Marine Area (CMA). Our current consent and new consent application in general do not allow gravel to be extracted in the CMA (new consent allows defined areas in the Takaka and Motueka river mouths only to be extracted from). The stopbanks flare out at this point to blend floodwaters with the tide so we do not see a need to extract in the CMA in this river.

Wai-iti River

The Wai-iti River (small water) is a main tributary of the Waimea. It drains the Moutere gravel floodplain and valley to the south of Richmond containing the townships of Brightwater and Wakefield. At Belgrove the river diverts along the base of Spooners Range heading more southerly towards Nelson Lakes. Council maintains 30 kilometres of this river for erosion protection from the mouth up to Stock Road in Hiwipango.

Parts of the river dry up in summer along with many of the tributaries which is a common feature of many Moutere gravel waterways. Surface takes for irrigation are common along this river, with Kainui dam being built prior to 2010 in Eighty Eight Valley to augment summer flows.

The Catchment Board targeted the reach from midway between Brightwater and Wakefield down to the mouth for gravel extraction, to provide material for a growing district and to increase flood conveyance.

The lower few kilometres of river was diverted over time from where it joined the west branch of the Waimea River at Challies Island to its current mouth, and stopbanked as part of the Waimea Flood Control Scheme in the 1950's. This shortening of the lower river along with extraction both in the Wai-iti and in the Waimea caused this part of the river to become severely incised, with a consequent drop in ground water levels. Early this century, a series of weirs were therefore constructed in the lower river to build the bed up and partly restore ground water levels.

There are 41 cross-sections we monitor which covers from the mouth to Belgrove. Bed surveys date back to 1959 but only the last three surveys cover the entire network, being 1999, 2006 and 2016. Surveys previous to 1999 look to have been concentrated on short sections of interest whether in response to extraction or bed instability so are not particularly useful in deriving any trends.

The lower river shows up as being the most dynamic, with a strong degradational trend (see Fig 42).

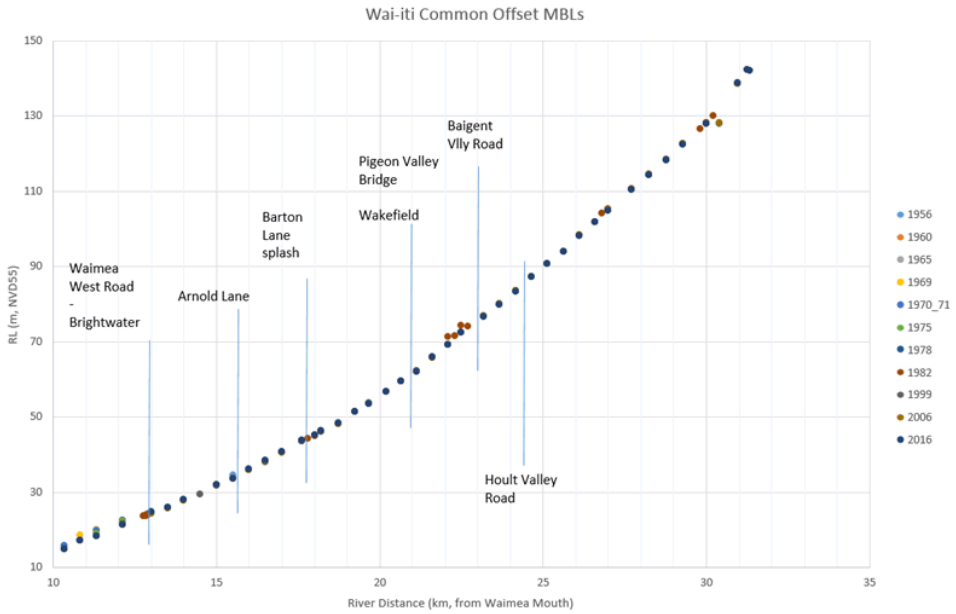


Fig 41 Overall Wai-iti riverbed Common Offset MBLs downstream of Belgrove

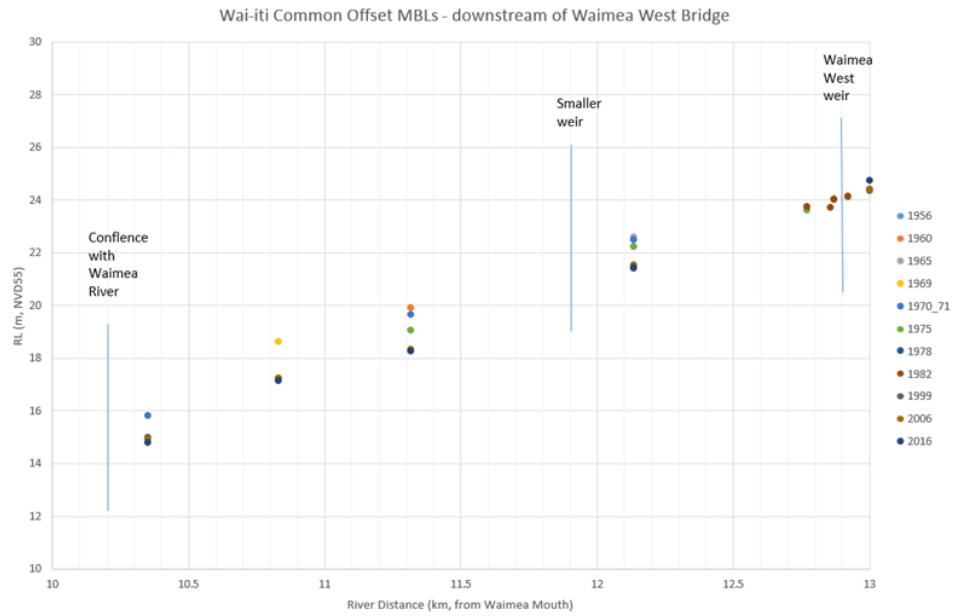


Fig 42 MBLs below Waimea West Road Bridge – Lower Wai-iti River

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

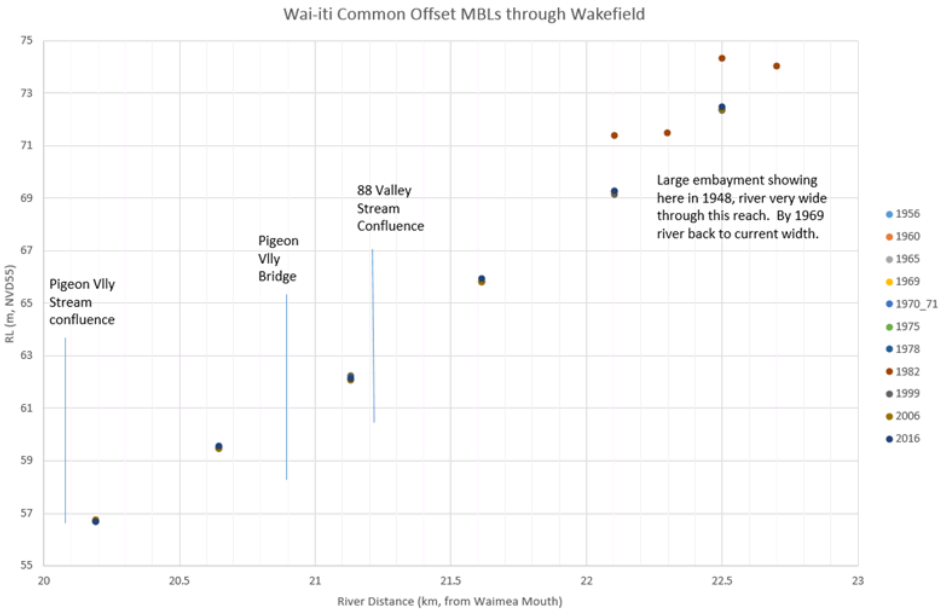


Fig 43 Wai-iti River MBLs through Wakefield township

Analysis and Discussion

From visual inspections both of the mainstem and many of the tributaries such as Pigeon Valley Stream, Eighty Eight Valley Stream, Hoult Valley Stream, Pretty Bridge Valley Stream and Trass Valley Stream, these reaches of the Wai-iti have a ready supply of gravel. A high frequency of floods has been received evidenced by the amount of subsidised river control works carried out in these tributaries, with the main stem having ten year return period floods in both 2011 and 2018.

Summary

Tasman's main rivers are overall in a stable phase.

Average bed movement between the last two surveys (generally 2016 and 2005) is typically less than 0.1m (all except the Motupiko due to recent over extraction – refer table below).

Four are showing overall aggradation since the earliest records, and three are showing overall degradation.

The Riuwaka and Waimea/Wairoa have aggraded the most, about twice that of the Lower Motueka.

The lower Takaka River has degraded the most due to the new river mouth formed from the 1983 flood. The Upper Motueka has the next highest amount of total degradation but is now slightly aggrading.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

River	Length Surveyed (km)	Gravel Envelope Width (m)	Time between last two Full Surveys (year)	Mean Bed Movement last two surveys (m)	Annual Mean Bed Movement between last two full surveys (mm/year)	Time between first and last Full Surveys (year)	Mean Bed Movement since first and last full survey (m)	Annual Mean Bed Movement between first and last full survey (mm/year)	Currently in envelope at all points?	Sediment Transport Annual Volume (m3)	Total maximum suggested take until 2022*
Motupiko	6	0.5	13	-0.14	-10.77	25	-0.026	-1.04	No.	-	500
Upper Motueka	24	0.6	13	0.026	2.00	29	-0.157	-5.41	Yes.	-	10,000
Lower Motueka	13.3	0.3	12	0.085	7.08	19	0.095	5.00	No.	5,000	10,000
Riuwaka	5.5	0.5	18	0.06	3.33	27	0.185	6.85	Yes.	-	2,000
Lower Takaka	14	0.5	17	-0.023	-1.35	34	-0.564	-16.59	No.	-	9,000
Upper Takaka	17	0.4	15	0.025	1.67	15	0.025	1.67	Yes.	-	9,000
Waimea	16	0.25	1	-0.013	-13.00	11	0.172	15.64	No.	3,250	4,000
Wairoa	5.4	0.4	1	-0.021	-21.00	45	-0.706	-15.69	Yes.	-	-
Wai-iti	21	0.5	10	-0.004	-0.4	17	0.032	2	No.	-	5,000?
				Negative = Degrading			Positive = Aggrading				
				Red = there are no two full surveys, 2017 and 2000 the most complete							
				Blue = only the lower 6km of river as most complete							

Note: Total maximum take is in relation to the surveyed reaches, not necessarily each river as a whole.

Fig. 41 Summary Table Key Metrics

	Short Term Observation based on overall Average MBL Rate of Change	Longer Term Trend based on overall Average MBL Rate of Change	Notes
Motupiko	Degrading	Neglible movement	The lower river has had a relatively high level of extraction
Upper Motueka	Neglible movement	Degrading	Reasonable sized extractions appear not to have affected the bed level much
Lower Motueka	Aggrading	Aggrading slightly less	Reasonable sized extractions appear not to have affected the bed level much
Riuwaka	Slightly aggrading	Aggrading	Note this is due to build of of the berms rather than buildup within the gravel bed channel
Lower Takaka	Neglible movement	Strongly degrading	Only a small ammount extracted
Upper Takaka	-	Neglible movement	Only a small ammount extracted from main stem
Waimea	Strongly degrading	Strongly aggrading	We have since removed 60,000m3
Wairoa	Strongly degrading	Degrading slightly less	Very little extraction undertaken
Wai-iti	Neglible movement	Neglible movement	Little extraction carried out

Fig. 42 Interpretation of Summary Table Bed Movement Rate of Change

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

NOTES ON ABOVE TABLES

The tables above summarise bed level trends both over the short and longer term. In Fig.42 the numbers in Fig.41 have been converted to relative terms (relative within this dataset) to describe each rivers behavior in regard to vertical movement in this table, for ease of understanding. Hence 'strongly' does not indicate an immediate need to take action, rather that the trend in this case is at a comparatively higher or lower rate than the other rivers. Also, as they are 'overall' observations, this does not mean that all reaches or all cross-sections within these river lengths are following the trend i.e. an aggrading river can still have cross-sections that are degrading.

Other Rivers

Anatoki and Waingaro

We have committed to surveying these rivers which are main tributaries of the Takaka, over the 18/19 summer. They have had a high incidence of floods over the last five years or so, and have a cross section network that has previously been surveyed. The lower reaches are Y river rated.

Aorere

The lower Aorere is also river Y rated and is our largest river flow wise (as we only have the top part of the Buller within the district), but has not been surveyed previously. Flooding on this river is frequent along the lower reaches but the level of development and population numbers are low. This is under consideration for future survey.

\\tsrvfiles\ENGINEERING$\Transportation\Rivers\GRAVEL\SURVEY\Riverbed Monitoring Report ALL RIVERS.docx

9.5 ENGINEERING SERVICES - ACTIVITY UPDATE

Information Only - No Decision Required

Report To:	Engineering Services Committee
Meeting Date:	11 April 2019
Report Author:	Richard Kirby, Engineering Services Manager; Dwayne Fletcher, Activity Planning Manager; Jamie McPherson, Transportation Manager; Russell McGuigan, Programme Delivery Manager; Mike Schruer, Utilities Manager; Robyn Scherer, Senior Executive Assistant - Engineering
Report Number:	RESC19-04-5

1 Summary

1.1 This is the regular six-weekly update from the Engineering Services team.

2 Draft Resolution

That the Engineering Services Committee receives the Engineering Services - Activity Update report, RESC19-04-05.

3 Management

Construction Suppliers Market

3.1 The Tasman District Council is reliant on suppliers within the construction sector. The Council has an annual capital works programme that needs the construction sector to provide the necessary and appropriate skills and resources to enable the Council to deliver its programme.

3.2 Most of the Council's work programme is related to horizontal infrastructure; roads and pipes with a smaller proportion related to vertical infrastructure; treatment plants, pumpstations and buildings.

3.3 Concurrent with the Council's works programme, there is significant other development by the private sector within the Tasman/Nelson region. This is adding to the demand on the construction sector. Nelson City Council also has a works programme that contributes to the demand for construction resources.

3.4 This high level of activity and the associated demand on the construction sector has three consequences on procuring appropriate construction resources:

- Firstly, contractors prefer not to bid for work that they cannot deliver. Therefore, the number of tenders being submitted reduces. Two contractors have informed us that they will not be bidding for work for the next 12-18 months because of their current workload and commitments.
- Secondly, a higher level of activity reduces the level of competitiveness in the market. The consequence is an increase in prices being tendered. For example, the recent tender bid for Mapua water and wastewater upgrades is $2.7 million greater than the pre-tender estimates and the Council's budget of $5.6 million. For a project of this scale, only two tenders were received. There is no doubt that this has resulted in an elevated tender price. In a more competitive market, we would have expected at least three tenders and probably a more competitive price.
- Thirdly, contractors are in the position of only tendering for clients they like working with.

3.5 The contractors have also confirmed that hiring qualified and capable staff is an impediment to their capacity and capability. The lack of qualified and capable staff in the construction sector is constraining their ability to expand their capacity to meet the increased demand for construction resources.

3.6 This puts the Council in an awkward situation in that it has a capital development programme that it needs to deliver. It is being constrained by the stretched supplier market and this is clearly impacting on the pricing of projects. The consequence we now see is that for many tenders the prices are exceeding the Council's budgets, some by significant margins.

3.7 Staff have had discussions with representatives within the supplier market. They have made it clear that they like working for the Council. This is a positive aspect for the Council.

3.8 The construction market often goes through cyclic stages ranging from plenty of work to limited amounts of work. This cyclic effect has historically occurred over a 4-8 year period. The current market has been busy for some 2-3 years and indicators suggest that it is not likely to ease for at least another two years.

3.9 The Council has two options. Firstly, it could delay some of its capital works programme until the market frees up a little. This is probably not an option for many projects, especially those that are critical in ensuring the Council delivers services to the community.

3.10 Secondly, the Council could review how it procures some of these projects. The Council needs certainty around price and delivery. The construction sector would like certainty or work commitments into the future. Contractors currently have commitments from three months to 18 months into the future. The Council may need to consider longer term procurement commitments with the construction sector to help overcome the current dilemma.

3.11 The contractors have indicated that it would be beneficial to both the Council and the market if there was certainty into the future. This could result in longer term arrangements for future work.

3.12 How could this be done? Staff believe that the Council could engage contractors for a specific project or bundle of projects that need to be completed over say the next three years. Staff would then work with the construction sector through the design and pricing phases of each projects. Essentially implement more 'early contractor involvement' procurement options.

3.13 Staff need to give this concept more thought. We will come back to the Council with more detail around how this could be effected.

Health and Safety Lead Indicators (Audits/site observations) – 1 July 2018 to date

Measure	Management	Activity Planning	Programme Delivery	Transportation	Utilities	Total
H&S Observations			4	12	12	**28**
H&S Briefings (also as part of regular meetings)	23	27	45	44	40	**179**
Number of H&S courses attended by staff		3	2	9	3	**17**

Not Business As Usual

3.14 The February 2019 Pigeon Valley fire event and the water supply crisis during February and March have been the major focus for the Engineering Services team for several weeks.

3.15 Several staff were involved in the emergency response to the Pigeon Valley fire and worked some very long hours including night shifts. It was great to see the real "team" effort across all of the agencies involved in fighting the fire. Approximately 1,600 staff hours were spent on managing the drought's impact on Council's water supplies and customers.

3.16 Dwayne Fletcher did a great job of leading the drought crisis team while Richard Kirby was involved in the fire recovery effort. Again, it was very satisfying seeing everyone work together on what was a huge task with staff focusing on managing the various water supplies, enforcement, communications and working with the larger businesses to ensure we could keep their business operating.

3.17 Overall, we were very pleased with the community response to the water supply crisis with both urban residents and the business community making significant savings in their water take.

3.18 Because of both events, there has been some impact on our business as usual but staff are busy trying to catch up so we can meet our planned timetables.

4 Activity Planning

Strategic Infrastructure Planning – Project Updates

4.1 The table below provides a summary of key strategic planning projects.

Project	Description	Status	Comments
Transportation: Strategic Policy and Research			
Richmond Network Operating Framework	In conjunction with NZTA, a Network Operating Framework (NOF) and Network Improvement Plan are in development to better understand the current and future transport demand, and consider intervention options that make best use of the existing local and state highway network. This is in response to the NZTA's Richmond Arterial Strategic Case – SH6 which was completed in 2016. New Zealand Transport Agency (NZTA) staff are leading the project with support from AECOM. Staff from both Tasman District and Nelson City Councils are also members of the project steering group.	On track	Abley Transportation Consultants have updated the TRACKS transportation model for the Richmond network. The modelling started with traffic surveys in July and finished in January. The next step will be to identify key routes and intersections for which we will undertake detailed modelling. This will be done over the next month. Work to complete the NOF and the follow up Network Improvement Plan (NIP) will continue through to July.

Project	Description	Status	Comments
Sandwich Boards Review	Develop a policy to address the use of sandwich boards in town centres. This may require a bylaw or changes to existing bylaws.	Delayed	Staff workshopped options with the Environment and Planning Committee on 29 November. The Committee was divided on whether to ban sandwich boards or have a licence to occupy under conditions. Staff will undertake public pre-consultation on the two options before discussing the results with the Council at another workshop. Due to the current workload, actual consultation dates are yet to be determined.
Active Transport Strategy	Develop an active transport strategy to guide development of our walking and cycling networks across the District. This will help address a key transportation issue for our District – "our ageing population requires access to more diverse transportation options to ensure personal mobility is maintained". This work is in line with the direction that central government has given and with our community expectations.	On track	Staff created a public survey to canvass the community on transportation issues around walking and cycling. We have 556 responses to this survey and another 75 responses to an abbreviated survey taken at the velodrome opening. Staff will present the results of the survey and request direction for development of the draft strategy to Council following this Engineering Services Committee meeting.
Champion/Salisbury Intersection Business Case	Create a business case for improvements at the Champion Road /Salisbury Road intersection to improve access for pedestrians and cyclists as well as reduce queuing of vehicles. It is proposed the project will be funded by Tasman District Council, Nelson City Council, Countdown and NZTA. The business case is required in order to seek NZTA funding for the project.	On track	Staff have been working alongside Nelson City Council and NZTA staff in the development of the business case. NZTA staff have recently alerted us that all transport funding is tighter than previously envisaged. This means that funding of this project (despite its merits) is not certain. A draft of the business case will be completed in mid-April. The draft will be circulated to all investment partners prior to submission to NZTA for funding approval.

Project	Description	Status	Comments
Stormwater: Strategic Policy and Research			
Richmond Catchment Management Plan (CMP)	An integrated catchment wide plan for stormwater management. The plan will identify and address key issues such as water quality, quantity, stream health and effects from developments in a holistic manner.	On track	The draft Richmond CMP is now available on Council's website for community feedback until 1 May. Staff intend to discuss community feedback with the Council during a workshop shortly after the community feedback period has closed.
Richmond stormwater modelling	A stormwater model for Richmond to identify locations that are at risk of stormwater flooding in 1% and 10% AEP events	On track	The Richmond stormwater model is currently used to identify design solutions for key areas of concern.
Motueka stormwater modelling and CMP	A stormwater model for Motueka to identify locations that are at risk of stormwater flooding in 1% and 10% AEP events, taking into account different aspects such as rainfall, and coastal flooding. The Motueka CMP will identify and address key issues such as flooding, water quality, stream health and effects from developments in a holistic manner, similar to the Richmond CMP.	On track	The Motueka stormwater model is currently used to identify design solutions for key areas of concern. Staff have engaged a surveyor to establish a cost effective survey methodology to determine floor levels of all buildings within a modelled flood plain. Results from the modelling and floor level survey will feed into development of the Motueka CMP, which is scheduled for development in 2019. The Richmond CMP format will be used as a blueprint for Motueka.
Motueka West Stormwater Management Plan and Discharge Feasibility Study	A stormwater management plan that provides direction to developers on stormwater requirements for Motueka West. The discharge feasibility study will identify the most appropriate means of discharge from Motueka West.	On track	Staff have identified four different discharge routes that are currently being modelled using the existing Motueka stormwater model. All options are intended to also alleviate existing flood issues in Motueka where possible. A staff workshop has been held with stakeholders from different Council departments, as well as Wakatū to discuss the feasibility of the four options.

Project	Description	Status	Comments
Discharge Consent	A resource consent is required for the diversion and discharge of stormwater from the Council's public stormwater networks in accordance with the provisions of the Tasman Resource Management Plan.	On track	A draft consent application has been prepared. Lodgement is planned following the community feedback period for the Richmond CMP. It is intended that the consent will be voluntary notified.
Stormwater Modelling Brightwater & Wakefield	A stormwater model for Brightwater and Wakefield to identify locations that are at risk of stormwater flooding in 1% and 10% AEP events, taking into account river flooding at the same time.	On track	A base model for Brightwater/ Wakefield has been developed and staff will discuss draft results with their consultants in April.
Stormwater Modelling Guideline	A stormwater modelling guideline is required to ensure consistency in results from future modelling work that is being undertaken often by different consultancies for the Council as well as private parties.	On track	A first draft guideline has been developed and is awaiting feedback from staff. The guideline will incorporate "lessons learned" from the recently finished stormwater modelling work. The guideline will be finalised before the end of the year.
Stream Management Guideline	A guideline is required to achieve better outcomes for stream channel design and management in greenfield developments. The guideline will be linked to the Nelson Tasman Land Development Manual and is aimed at developers and stormwater engineers.	On track	A draft guideline is currently under development. It is intended that the guideline will incorporate national and international best practice, and describe preferred outcomes for specific catchments and growth areas across the District. We anticipate that the guideline will be finalised in the first half of 2019.

Project	Description	Status	Comments
Kingsland Forest Stormwater Modelling	As part of the Kingsland Forest Management Plan, a study is required into effects from different plantation forestry practices on stormwater runoff. More specifically, potential effects from harvesting on the downstream stormwater network in Richmond. Results from the stormwater modelling study will feed into the wider Kingsland Forest Management Plan and will help determine effective harvesting schedules and replanting strategies.	On track	A stormwater model, covering the Barnicoat Range and the Kingsland Forest is currently being developed. Model scenarios will focus on the effects of different harvesting schedules and replanting strategies on stormwater runoff. Initial results are expected in April.
Water: Strategic Policy and Research			
Water Restriction Protocol and Water Supply Bylaw	The Water Restriction Protocol has been included in the amended Draft Water Supply Bylaw. The purpose of the protocol is to provide a framework that sets out how the Council will restrict water use during times of drought or disruption.	Delayed	Staff planned to present proposed amendments to the bylaw and protocol and seek approval to undertake a second round of consultation at the first Full Council meeting this year. However, this was put on hold due to the drought. The drought provided an opportunity to test the proposed protocol. Staff requested the delegation of authority to impose restrictions as set out in the draft protocol. In general, the protocol proved to be effective. Staff are currently undertaking a drought debrief and planning to incorporate lessons learned from the process into the protocol. It is expected that some minor amendments will be made to make the bylaw/protocol more robust. Staff expect to present the proposed amendments to the Council in May.

Project	Description	Status	Comments
Water Network Modelling	Modelling of various water supply networks.	On track	Network models and master plans for Richmond, Mapua and Wakefield are complete. Staff are planning to engage modelling consultants to run a series of scenarios on the Richmond model to determine whether more water is available for development. A basic model for the Dovedale scheme is also complete and calibrated.
Rural Water Supply Committee Meetings	Staff attend quarterly meetings with the Dovedale and Eighty-Eight Valley committees.	On track	The Dovedale and Eighty-Eight Valley rural water supply committee meetings are ongoing and staff consider that these provide a very effective way of communicating on water supply issues. This was particularly evident during the drought. Staff have contacted the Redwood Valley Rural Water Supply Committee to request regular meetings be reinstated with Council participation. Staff expect to attend the first meeting in the coming months.
Wastewater: Strategic Policy and Research			
Wastewater Network Modelling	Modelling of Motueka network	Started	Staff awarded a contract to a consultant to conduct a four-staged modelling project. The first stage (review of existing information) is underway.
Wastewater Strategies	Development of long-term wastewater network strategies for Motueka and Waimea.	On Hold	Work on the strategies is yet to begin and is planned to take place over the 2018/19 and 2019/20 financial years. Staff will proceed with the Motueka strategy once information from the modelling becomes available. Due to planning uncertainties with the NRSBU, the Waimea strategy has been put on hold.

Project	Description	Status	Comments
Other Projects			
Resilience Strategy	Undertake comprehensive risk, resilience and recovery planning that covers three waters and transportation. The outcome will be a Resilience Strategy.	On track	Staff are in the process of engaging Tonkin and Taylor to assist with critical asset classification and assessment of asset risk due to natural hazards. This work will allow staff to better understand asset vulnerability and risks. From that, staff will be able to identify and prioritise actions to reduce those risks. During the drought, staff prepared a series of high-level contingency plans to deliver water if a supply source was contaminated or unavailable. These contingency plans will now form part of the Resilience Planning. Staff plan to refine these contingency plans and produce a series of maps that identify potential water distributions sites.
Motueka and Riuwaka River Flood Mitigation Planning	Develop flood mitigation plans outlining actions required to mitigate flood risks from the Motueka, Brooklyn and Riuwaka rivers, and Brooklyn Stream.	Scoping	Staff have engaged Tonkin and Taylor to assist with the following tasks: • Hydraulic modelling • Condition assessment • Failure mode analysis and consequence rating • Development of a risk register • Review of asset management practices • Development of an emergency action plan Work has begun on the hydraulic modelling.

Report by Controller and Auditor-General: Managing Stormwater Systems to Reduce the Risk of Flooding.

4.2 In this report, the Auditor-General (AG) has looked at how Dunedin City Council, Porirua City Council, and Thames-Coromandel District Council manage their stormwater systems to protect people and their property from the effects of flooding.

Findings

4.3 The three councils had an incomplete understanding of the flood risks in their district or city. Much of their assessment of flood risk has been in response to specific events or regulatory pressure, such as complying with resource consents. This reactive approach risks councils focusing on reducing the effects of the most recent flood and being caught unaware by unanticipated floods.

4.4 The three councils have gaps in their understanding of the current state of their stormwater systems. These gaps limit their ability to make well-informed and deliberate decisions and have informed conversations with their communities about the costs of reducing the risks from flooding.

4.5 All three councils were already aware of some of the issues identified and are planning improvements. Some councils are further along in making improvements than others. However, all have more to do.

4.6 In the AG's view, the historical underinvestment in stormwater systems in New Zealand creates a level of urgency for councils to address recommendations. The main findings and recommendations are relevant to all councils. There is also an opportunity for councils to work together to address shared challenges.

Recommendations from the Auditor-General

4.7 To better manage their stormwater systems to protect people and their property from the risks of flooding, the AG has made five recommendations. Each of these are listed below followed by comments from staff outlining how Tasman District Council is placed against those recommendations.

1. Understand the current and likely future flood risks in their district or city sufficiently to take a proactive approach to reduce the risk and effects of flooding.

4.8 Staff acknowledge that in accordance with the AG's findings, there is often a tendency to focus on reducing the effects of the most recent event, rather than considering all possible events throughout the district. A lack of understanding of all potential risks throughout a district may result in a reactive approach instead of being proactive.

4.9 Staff consider that good progress is being made to better understand current and future flood risks across the district through stormwater modelling and floor level surveys.

4.10 Although the AG's report focuses on stormwater flooding and underinvestment of stormwater systems, staff would like to emphasise the need to consider flood risks in an integrated manner also taking into account our rivers, coastal environment and groundwater. As well as the need to address the environmental effects of our stormwater discharges.

4.11 Several comprehensive work programmes are currently underway to assess flood risks associated with stormwater, coastal inundation and river flooding. All studies consider the effects of multiple climate change scenarios. The information will help the Council prioritise solutions and investment to proactively address and reduce the risk of flooding.

2. Provide elected members with the necessary information and options, including about local flood risks and their stormwater systems, to make well-informed and deliberate decisions about investment in their stormwater systems.

4.12 Information about flood risks and capacity of stormwater systems will be made available through Catchment Management Plans (CMPs) for each of the Urban Drainage Areas. The Richmond CMP is currently available for public feedback on the Council's website. The other CMPs are programmed to be developed over the next few years. New levels of service were introduced in the Council's Stormwater Activity Management Plan (AMP) 2018-2048 to measure the performance of our primary stormwater network (10% AEP events) and secondary stormwater network (1% AEP events).

3. Improve the information made available to their communities so that people can understand:

- *the potential risk of flooding;*
- *what the council is doing to manage that risk, including how it is managing the stormwater system and at what cost and;*
- *what the remaining risk is to the community;*

4.13 All CMP's will be developed in a public friendly format (e.g. StoryMap) which will help our community to understand potential flood risks and mitigation works that are programmed in the LTP to reduce these flood risks. The Council will seek feedback from the community during preparation of these CMPs to ensure the communities views and considered and included where appropriate.

4. Improve their understanding of their stormwater systems, which will entail ensuring the adequacy of their stormwater asset data, including condition data and information on the performance and capacity of the stormwater systems.

4.14 Staff undertook a maturity assessment of asset management practices at the time of preparing the Stormwater AMP 2018-2048. That assessment identified focus areas for improvement are: Asset Register Data, Asset Condition, Decision Making, Risk Management and Operational Planning. This is generally in accordance with the findings of the AG. The AMP improvement plan identifies actions to make improvements in these areas.

5. Identify and use opportunities to work together with relevant organisations to more effectively manage their stormwater systems.

4.15 The AG expects city and district councils to work closely with regional councils to manage flood risk. Council benefits from being a unitary council. Staff from across the organisation work together in project teams on flood related studies and coordinating work programmes. There is also some collaboration between Tasman and Nelson Councils, such as the development of a common Land Development Manual.

Development Engineering

General

4.16 Staff expect to submit the Nelson Tasman Land Development Manual (LDM) to the Council for ratification in May. Training for users is being arranged and staff are encouraging developers and their professional advisors to start using the LDM now. The LDM won't have the full force of the RMA behind it until a related TRMP plan change process has concluded.

Key Subdivisions

Development and Location	No of Lots	Description	Status
Application Stage			
HASHA application, Richmond south	~40	Residential subdivision in a rural zone	Being processed
Residential multi-unit development in Florence Street, Richmond	8	Residential development	Pre application being processed
Residential subdivision –Hart Road	30	Residential development in a residential zone	Being processed
Total lots	**78**		
Engineering Plan Stage			
Mapua Coastal Stage 3 and 4, Mapua	26	Residential lots with private water supply	Requiring further information on water treatment and alternative supply
Barry Ridge, Hart Road, Richmond	8	Fully serviced residential	Plans approved awaiting start of construction
Mytton Heights	3	Rural residential unserviced	Plans approved awaiting start of construction
Greenways Plan, Park Avenue, Takaka	25	Residential serviced for wastewater and stormwater private water for firefighting	Awaiting amendments following engineering plan checks
Totara Park, Wakefield	13	Rural residential unserviced	Plans currently being checked
Boomerang Stage C and D, Moutere Highway	12	Rural residential unserviced	Plans approved but still completing checks on detention dam
Progressives, Champion Road, Richmond	2	Stormwater design for new funeral home	Plans approved awaiting start of construction
Hunt Street, Richmond	2	Fully serviced residential	Plans approved awaiting start of construction
Total lots	**91**		

Development and Location	No of Lots	Description	Status
 **Construction Stage**			
Applebyfields, Richmond West - Stage 3	55	Fully serviced residential	Plans accepted, construction has not yet commenced
Paton Rise, Bateup Road, Richmond	48	Fully serviced residential	
Pioneer Energy, Matiri Valley	0	Private Road to be constructed in legal road	
347 High Street, Motueka	1	Fully serviced residential	
473 High Street, Motueka	0	Car park design	
Hart Rise Greenway Plan, Richmond	0	Unserviced	
Jones, Rototai Road, Takaka	3	Rural residential serviced for wastewater only	
Harley Road Stage D - Harley Road in Tasman	14	Rural residential un-serviced.	
Boomerang Stage B, Moutere Highway	11	Rural residential un-serviced	Work has begun
Coman, 428 Lower Queen Street, Richmond	18	Industrial fully serviced	Work has begun. Stormwater has been installed in conjunction with Council works.
Quayside Trust Motueka 38 – 40 Greenwood Street in Motueka	6	Residential serviced for wastewater, water via private bores.	Drainage being installed.
Richardson, 7 Dorset Street, Richmond	3	Residential fully serviced via right-of-way.	As-built inspection complete. Waiting for remedial works to be finished.
Karapoti Properties Ltd (previously Katania) in Brightwater	50	Residential fully serviced.	Drainage being installed.
St Ledger, Champion Road in Richmond	13	Residential fully serviced subdivision.	Drainage being installed.
Applebyfields, Richmond West Stage 1 and 2	66	Residential fully serviced subdivision.	Drainage being installed.
323 Hill Street	26	Residential and rural serviced. Residential via right-of-way.	Drainage construction underway in ROW A. Earthworks still underway ROW B.

Development and Location	No of Lots	Description	Status
The Fields in Richmond West	72	Residential fully serviced.	Drainage being installed.
Tasman Holdings, Waimea West Road in Brightwater	12	Residential subdivision.	Drainage installed. ROW being formed.
Ecology at Appleby Hills	7	Rural residential un-serviced.	Road formation taking place.
Pastures near Highland Drive in Richmond	7	Residential lots served by existing Highland Drive formation and a new right-of-way.	Drainage being installed.
Wakefield Developments - Lord Auckland Road in Wakefield	24	Residential subdivision.	Very close to as-built stage.
Tasman Road in Tasman	15	Un-serviced rural residential subdivision.	Construction mostly complete.
Beaches and Bays in Little Kaiteriteri	18	Residential subdivision.	As-built stage.
Arizona – Hart Rise Stages 9-11 in Richmond	10(current stage)	Located in Richmond South along Hart Road and Paton Road. 132 residential lots in total over seven stages.	As-built stage.
Puketutu Stage 3B off Old Wharf Road in Motueka	17	The final stage of the Puketutu subdivision.	On hold.
Total lots	**496**		

5 Programme Delivery

Project Stage	Total
Preliminary Design	28
Detailed Design	15
Procurement	3
Construction	12
Grand Total	**58**

Tenders awarded since the last report

ID	Name	Procurement Plan / Methodology	Date Contract awarded	Tender Value (Excl. GST)	Range of Tendered Prices	Contractor
1174	Motueka Library Technical Lead	Brooks Law	06/03/19		n/a	BPM Ltd
1128	Takaka Abel Tasman Drive Curve Widening	Supplier Panela Tender - LPC: Surface & Pavement Construction	05/03/19	$148,604.00	n/a	Tasman Civil Ltd

Projects in Preliminary Design Stage

ID	Project Name	Work Description	Status	Tender Upload Date	Comments
1149	Murchison Ned's Creek Flood Prevention	Flood protection.		31/06/19	The revised alignment is in the preliminary design stage.
1175	Queen Street/ McShane Road Intersection	Adding a right turning bay on McShane Road, for traffic turning into Lower Queen Street.	Cost	05/06/19	Engineers Estimate is higher than budget. Looking at options.
1165	Motueka Library Redevelopment	Construction of a new library building on Decks Reserve in Motueka.		31/07/19	Site investigations and library scope underway. Building site decision planned for July 2019. We are consulting with iwi.
1148	Waimea water treatment plant Seismic & DWS upgrades	Upgrade the existing building and balance tank to meet seismic requirements. Upgrade the treatment at the plant to meet NZ drinking water standards. Probable upgrade will be cartridge filtration and UV. Chlorine disinfection will remain.		04/12/19	This project will bring the existing Waimea water treatment plant up to earthquake standards, plus upgrade the water treatment process units. The plant supplies water to Best Island and Mapua. Preliminary design work is underway. There is a strong link between this project and the Waimea Bore upgrades.
1147	Waimea Water Bores upgrade	Upgrade five existing bore headworks, pumps and their supply line by the Waimea stopbank to make them more secure and to increase the flow. Install new automatic control at Waimea water treatment plant to allow flow to split between the two plants.	Cost	09/12/19	This project will upgrade 5 existing bores and provide a new pipeline with extra capacity to connect the bores to both the Waimea water treatment plant and the new Richmond water treatment plant, both on Lower Queen Street. The existing asbestos cement pipes were laid in 1973. We have identified a budget shortfall in the estimated funding - we will proceed to preliminary design stage to confirm cost estimates.

ID	Project Name	Work Description	Status	Tender Upload Date	Comments
1129	Richmond Salisbury Road water main replacement	Upgrade existing 150mm pipeline to 200mm pipe		04/11/20	Reviewing options assessment.
1141	Richmond South Low Level Reservoir	Construct new reservoir facility in Richmond South to extend water supply network in Richmond South		02/07/21	Land negotiations in progress for preferred site with a deadline set for negotiations to conclude by June 2019. An alternative site is owned by the Council.
1176	Moutere Hwy Gardner Valley Rd Intersection	Realigning the intersection of Gardner Valley Road and Moutere Highway to reduce the steep, sharp angle.	On-Hold	NA	On hold as budget is $450,000 and estimate is $520,000.
1123	Richmond McGlashen Avenue, Stormwater Improvements	Stormwater intake to collect overland flow from McIndoe Place/McGlashen Avenue area into an existing stormwater pipe.	On-Hold	Not for Tender	Project on hold until the stormwater model has been assessed.
1134	Collingwood wastewater treatment plant Odour Consent Renewal	Renewal of the odour discharge consent for oxidation pond.		Not for Tender	In progress
1156	Richmond West Stormwater Land Purchase	Purchase of land for stormwater requirements.		Not for Tender	The land purchase programme is progressing well, however rapid development is pushing market prices upwards, and landowners are requesting council purchase designated land earlier than anticipated. This is currently being managed within approved budgets, but a reassessment as part of the next Long Term Planning cycle will be required. Seven to eight property purchases are planned for the 2018/19 financial year
1168	Stormwater Land Purchase Programme	Ongoing land purchase programme for Richmond Stormwater.		Not for Tender	The land purchase programme is progressing well, however rapid development is pushing market prices upwards, and landowners are requesting we purchase designated land earlier than anticipated. This is being managed within approved budgets, but a reassessment as part of the next Long Term Planning cycle will be required. 7-8 property purchases are planned for the 2018/19 financial year

ID	Project Name	Work Description	Status	Tender Upload Date	Comments
1019	Wakefield New water treatment plant	New water treatment plant for Wakefield.	On-Hold	TBA	Project has been deferred. Reviewing options.
1057	Pohara Stormwater Improvements	Upgrade infrastructure to mitigate flood impact.	Land	TBA	Detailed design of solutions for individual properties is being finalized with property owners. Property Consultant is seeking approval from landowners for application for Resource Consent. Additional request from a developer to install a sewer under the proposed stopbank is being assessed.
1058	Motueka New water treatment plant	Design a new water treatment plant at Parker St. site to supplement the existing Recreation Centre supply.	cost	TBA	Water quality testing of existing bores is complete and verifies acceptability of water quality confirming the basis for design. Back up bore to be installed to supplement two existing production bores. Contract to be tendered as design/build. Current construction estimate is higher than budget.
1104	Richmond Deviation Bund Drainage	Upgrade the inlet structures at Richmond Deviation and install new storm water system under the existing clay bund to elevate flooding at Arbor Lee Avenue	On-Hold	TBA	On hold until the flood modelling for Richmond is complete.
1121	Wakefield water treatment plant Pipe	New water pipeline to run off the main highway (Higgins Road/Telenius Road) and directly into the reservoir.	Cost	TBA	The new water main is being designed in conjunction with the new wastewater main that will run from Wakefield to Richmond. The two mains will share the same route from Telenius Road to Bird Road. Securing land owner permissions for the pipeline route is the priority work. This will continue while design for the water treatment plant is on hold.
1137	Richmond Headingly Lane wastewater PS & RM upgrade	Upgrade of Headingly Lane wastewater pump station and rising main to increase existing capacity of the sewer connection from Headingly Lane to the Beach Road NRSBU pump station.	On-Hold	TBA	On hold pending a wider regional sewerage pipeline solution. The NRSBU have engaged a consultant to test the potential of sharing existing pipes whilst a long term solution is found.
1138	District-wide wastewater PS Emergency Storage Tanks	Emergency storage tanks at wastewater pump stations		TBA	Planning underway. Funding spans multiple financial years. An economic solution is sought for a number of sites, including for Trewavas Street Pump station.

ID	Project Name	Work Description	Status	Tender Upload Date	Comments
1139	Mapua Aranui Road wastewater pump station upgrade	Upgrade the Aranui Rd wastewater pump station, new emergency storage and odour control, connection to new trunk rising main.		TBA	We have asked the preferred tenderer for the upgrade of the 72 Stafford Drive and Ruby Bay pump stations to price the upgrade of this pump station as well. These upgrades are being done as part of project 1120 - Stafford Drive and Aranui Road Water and Wastewater Upgrades. The contractor will have resources mobilise from Christchurch to complete the other work and there is an opportunity to save money by doing all three at once. By engaging with a potential contractor early in the design process we are aiming to reduce design costs. The pump station is located on land currently being developed. We are working with the developer to coordinate subdivision design with the pump station design.
1140	Wakefield 3 Brothers wastewater pipeline upgrade	Increase capacity of the wastewater trunk main between Wakefield and Three Brothers Corner to provide for predicted population growth.		TBA	This project will provide the extra capacity required to accommodate predicted growth in Wakefield and Brightwater, plus resolve some pressure pipe related problems. Planning is underway to select a route between Wakefield and 3 Brothers Corner for a duplicate sewer pipeline. We estimate that up to 60 properties may be affected in some way - a detailed Property Management Plan is being developed.
1144	Motueka Rec. Centre Water Facility upgrade	Upgrade of the Motueka water supply Recreation Centre bore site (on Old Wharf Road) with treatment so that it meets the NZ drinking water standards (DWSNZ). Probable UV addition, possibly with filtration. Emergency chlorination to be confirmed.		TBA	Funding is available this year to carry out feasibility and preliminary design only.
1146	Pohara Valley PS & RM upgrades	Replace the Pohara Valley and Tarakohe wastewater Pump Stations and associated rising main.	Cost	TBA	Preliminary design is underway. Engineers estimated costs are higher than budget.

ID	Project Name	Work Description	Status	Tender Upload Date	Comments
1151	Ruby Bay Stafford Drive stormwater Pipe Extension	To collect and pipe stormwater from Stafford Drive through to the back of the properties near 72 Stafford Drive and discharge into the open drain.	Cost	TBA	A solution has been developed to improve stormwater conveyance from Stafford Drive to sea and drainage from tidal inundation events in the area behind Broadsea Avenue. Preliminary design is nearly complete. The design includes a new outfall pipe and drainage channel improvements. Once preliminary design is complete, a report to Council will be prepared for consideration. There is currently no budget for the second outfall pipe or the drainage channel improvements. Negotiations with residents to obtain easement agreements to enable works are advanced.
1169	Richmond Champion-Salisbury Rds. Roundabout	Double-lane Champion/Salisbury roundabout and construction of pedestrian/cycle underpass on Champion Rd approach		TBA	Clarifying the project scope with our consultant. Funding for this project has not yet been confirmed from NZTA and Nelson City Council - so we will only progress the work to better confirm buildability and cost estimating
1170	Richmond West trunk water main - B1	Section B1 – Richmond West trunk Water main	Cost	TBA	This short section of water main will connect to the main already installed from the Richmond water treatment plant to Berryfield Drive. The intention is to complete this section of main as priority works, to stay ahead of adjacent subdivision work planned for 2019. It is approximately 400m long. Preliminary design is delayed as key Council staff have been involved with the drought crisis.
1171	Richmond West trunk water main - B2 C D1 D3	Section B2,C,D1,D2,D3 – Richmond West trunk Water main	Cost	TBA	This section of water main will run from the Appleby Fields development in Richmond West to Three Brothers Corner. It is approximately 1150m long. It includes a crossing under State Highway 60. Construction is not programmed until 2021, but preliminary design is being completed now so that costs can be more accurately forecast.
1172	Richmond West trunk water main - D4	Section D4 – Richmond West trunk Water main	Cost	TBA	This short section of water main runs under State Highway 6 at Three Brothers Corner. The intention is to design and procure this section of work as a separate package of work, as it will be technically difficult.

Projects in Detailed Design Stage

ID	Project Name	Work Description	Status	Tender Upload Date	Comments
1150	Collingwood Gibbs Road Stormwater Diversion	Improve Gibbs Road stormwater discharge.		20/03/19	Easements are required to run the pipeline across a Gibbs Road property. Due for tender in April.
1105	Takaka Resource Recovery Centre upgrade	Upgrade of the Takaka Resource Recovery Centre, including waste compactor, weighing system, bin storage, disposal pit & offload area, kiosk, recycling drop-off & storage and safety, drainage & security improvements.	Cost	27/03/19	Report to full Council on funding on 9 May.
1130	Motueka Reticulation Zone of Effect	To reticulate an area in the north west of Motueka and provide connections at all properties in this area for residents to connect to if they choose to do so.		03/04/19	Design is largely complete. Contract documentation is being prepared for tender in April.
1157	Takaka-Pohara Cycle Connection	New cycleway from Takaka township to Pohara		03/04/19	Cycle route has been agreed. In the process of buying land. Tender due in April.
1145	Wakefield Water pipe upgrades – Bird & Arrow	Arrow Street, Bird Lane, Whitby Way, Martin Avenue water pipe upgrades. This is the replacement of existing AC pipes constructed in the 1970s to modern pipe material in a number of locations in Wakefield. The benefit will be reduced pipe breaks and disruption to customer service.		31/05/19	Detailed design is underway and the project is on track to call for tenders in May.
1098	Brightwater Town Centre upgrade	Brightwater town centre improvements	Cost	05/06/19	Detailed design is complete. Network Tasman have now agreed to underground the power lines. Work is underway to finalise the tender document. Engineers estimate is higher than budget.
1069	Collingwood water treatment plant upgrade	Upgrade bore and treatment plant to meet NZ drinking water standards (DWSNZ).		01/07/20	Bore improvement work is almost complete. Some site improvements planned this year. Considering a design-build tender with construction in 2020/21.

ID	Project Name	Work Description	Status	Tender Upload Date	Comments
1056	Pohara water treatment plant upgrade	Improve water quality and to comply with the NZ drinking water standards.	Cost	Not for Tender	Scope yet to be confirmed. Current budget ($409K 2018-20) may not be sufficient to fund the preferred membrane filtration option. Some minor improvements to be carried out on the water treatment plant building.
1059	Trewavas wastewater PS Emergency Storage	New emergency overflow storage	On-Hold	Not for Tender	Work will potentially be combined with the District-wide wastewater Pump Station Emergency Storage Chambers project.
1062	Borck Creek Widening Phase 2	Upgrade of Borck Creek from Poutama Drain confluence to SH60		Not for Tender	Design has been updated to accommodate Special Housing Area rezoning. The developer is undertaking bulk excavation work in Richmond West ahead of programme.
1086	Poutama Drain upgrade 2017/18	Upgrade of Poutama Drain for stormwater to meet growth of Richmond.		Not for Tender	Design of Lower Poutama Drain is complete, and bulk excavation of a part of this section has been commissioned as the fill is needed to complete another project. Upper Poutama design is complete but not drawn up. Discussions with NZTA regarding relocating upper Poutama Drain closer to the State Highway reserve are underway, with additional information requested.
1135	Motueka wastewater treatment plant Inlet Works Duplication	Upgrade of plant - two new inlet screens to replace the existing aging structure.		Not for Tender	Design progressing. Due for construction May 2019. Work will be conducted through our Operations & Maintenance contract.
1143	Richmond Hill Street High Level Water pipe upgrade	Install an additional pipeline along Hill Street from Angelus Avenue to Churchill Avenue.	On-Hold	On Hold	Detailed design complete and approved, ready to go to tender. Estimated construction cost exceeds budget so project is on hold until strategic prioritization is complete.
1071	Washbourn Gardens Stormwater Diversion	New stormwater pipe from Washbourn Gardens to Poutama Drain to relieve stormwater flows on Queen Street including stormwater diversion from Gladstone Road to Poutama Drain to allow the Washbourn Gardens Stormwater Bypass to cross Gladstone Road.	On-Hold	TBA	On hold pending further investigation on Stormwater model.

ID	Project Name	Work Description	Status	Tender Upload Date	Comments
1102	Richmond Waverley Street New Water Main	New water main in Waverly Street to replace existing 1960s AC main.	On-Hold	TBA	Detailed design complete and approved. Tender document drafted. Project scope was reduced to design only in 2017/2018. Construction now forecast for 2023/24.

Projects in Procurement Stage

ID	Project name	Work Description	Status	Tender Close Date	Comments
1120	Mapua Stafford Drive-Aranui Road water & wastewater upgrade	Construction of a new Stafford Drive wastewater pump station and new rising main to Mapua Wharf wastewater pump station. upgrade of Ruby Bay wastewater pump station including, greater pumping capacity (pumps and rising main), odour treatment, and emergency storage. Replace water pipes from Mapua Wharf along Aranui Road to Mapua Drive; Stafford Drive from Aranui Road to the junction with the main to Pomona Road Reservoirs; Stafford Drive to intersection at Brabant Drive.	Cost	05/12/18	A preferred tenderer has been selected and negotiations are underway. The tendered prices were more than available budget and we are working with the preferred contractor to establish where savings can be made. Some redesign works have been proposed. We are negotiating with land owners to find a different site for the upgrade of the pump station currently at 72 Stafford Drive.
1152	Richmond RRC Pavement Renewals	Design and procure pavement renewals for the Richmond Resource Recovery Centre.		27/03/19	Under evaluation.
1177	Wai-iti River Suspension Bridge	Construct a new Wai-iti River Suspension Bridge for Tasman's Great Taste Cycle Trail		TBA	Procurement only project.

Projects in Construction Stage

ID	Project name	Work Description	Status	Estimated PC Date	Project status summary
1131	Mariri RRC Right of Way Access	Construction of right-of-way access to neighbouring property through Mariri Resource Recovery Centre.		15/06/18	Construction on track.

ID	Project name	Work Description	Status	Estimated PC Date	Project status summary
1127	428 Lower Queen Street Stormwater Earthworks	Earthworks contract for storm water pipe and drain between Lower Queen Street and Waimea Estuary.		30/09/18	Landscaping is complete. Minor works remain to create cycle connection and break through sea wall at completion of subdivision. As-builts received and gate 4 pending.
1068	Ledger Goodman Park wastewater Pump Station	Relining of Ledger Goodman wastewater pump station wetwell.		31/5/19	Initial preliminary work is underway through our Operations & Maintenance contract. An alternative solution has been adopted to reduce costs. Wetwell coating is planned for early April
1158	Norris Gully to Kohatu Cycle Trail	Construct cycle trail from Norris Gully to Kohatu as part of Tasman's Great Taste Trail.		15/04/19	Works complete. Working through practical completion process.
1099	Pohara Four Winds Pump Station & Rising Main	New pump station, emergency storage and active odour treatment.		21/05/19	Construction is on track and due for completion in April 2019.
1163	District-wide Supply & Install of Compactors	Renewal of Richmond RRC Compactor and relocation and installation of existing Richmond compactor to Takaka RRC.		30/04/19	The Richmond compactor is undergoing refurbishment for installation at Takaka RRC
1047	Richmond Bateup Road Widening	Widening of Bateup Road to provide for growth in Richmond South.		31/05/19	Road surfacing will start in April and the project will finish at the end of May.
1142	Richmond Headingly Lane trunk Main	Construction of a new section of trunk main from adjacent the Richmond water treatment plant on Lower Queen Street to the northern end of Headingly Lane.		28/06/19	Contract awarded to Downer NZ Ltd. Construction is programmed to start 4 April 2019. Completion is expected in June 2019.
1167	Collingwood Carter Bridge Rebuild	Rebuild Carter Bridge (Bridge no. 101902).		28/06/19	Contract has been awarded to Egypt Ltd. Contractor has established on site and commenced rock placement
1111	Motueka wastewater treatment plant Wetland Restoration	Wetland restoration of decommissioned WWTP ponds.		30/06/19	Stage one planting complete. Plants are establishing well considering the drought conditions.

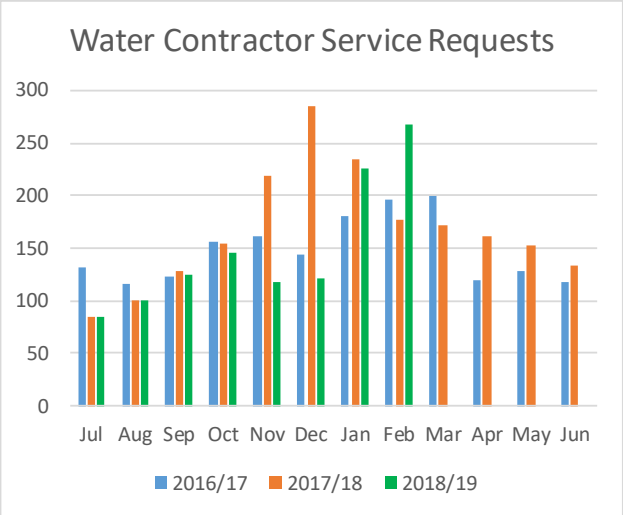
ID	Project name	Work Description	Status	Estimated PC Date	Project status summary
1153	Waste and Recycling Bin Procurement	This project is to procure seven open-top waste hook lift bins and four large format recycling hook lift bins.		30/06/19	Procurement prior to Christmas was achieved and the bins were sourced from the supplier of the current bins. open top bins to be sourced from existing supplier
1128	Takaka Abel Tasman Drive Curve Widening	Improve corner visibility and provide a shoulder for cyclists.		24/04/20	The tender has been awarded to Tasman Civil. Start date 20 March 2019, Due for completion end of April 2019

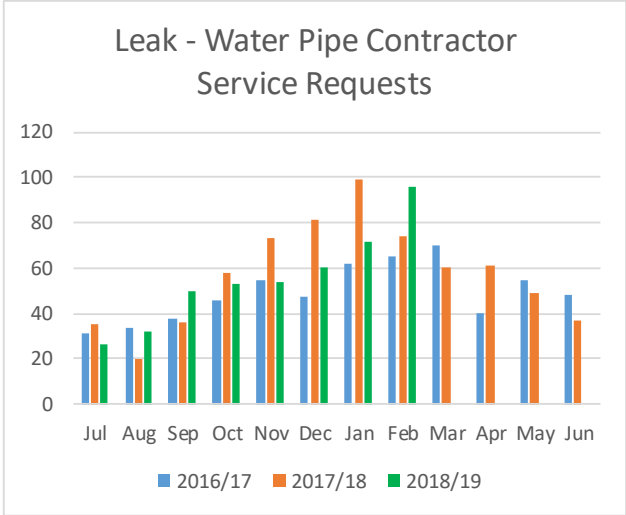
6 Utilities

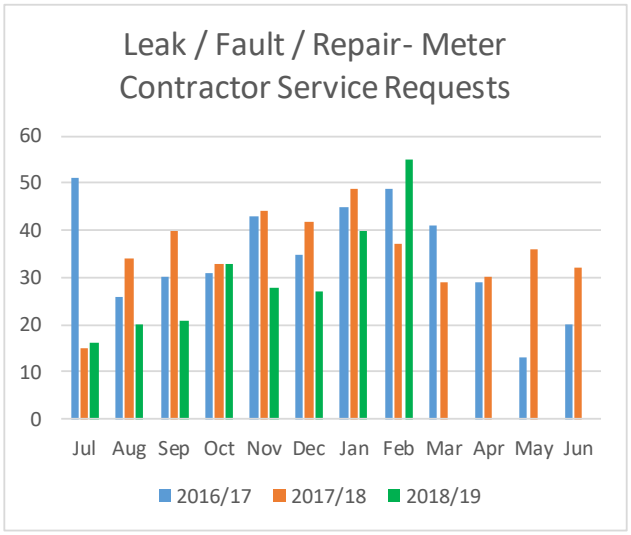
Customer Service Request Trends

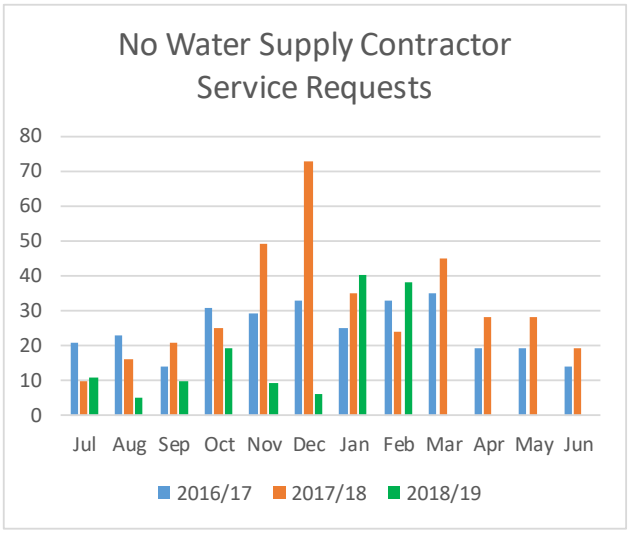
Water Supply

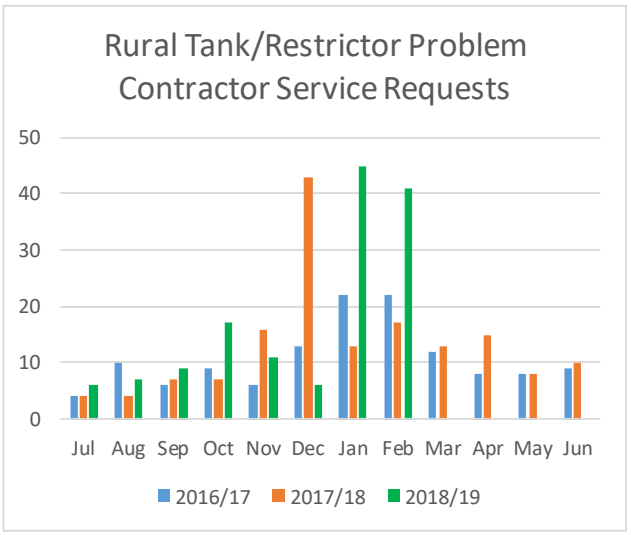
6.1 The number of service requests relating to water leaks is up with increased awareness of the drought often leading to multiple requests for the same issue. The number of rural tank/restrictor issues has increased with the dry weather as this is when people tend to notice their flow is reduced. Service request numbers also increased because of queries during the water restrictions period.

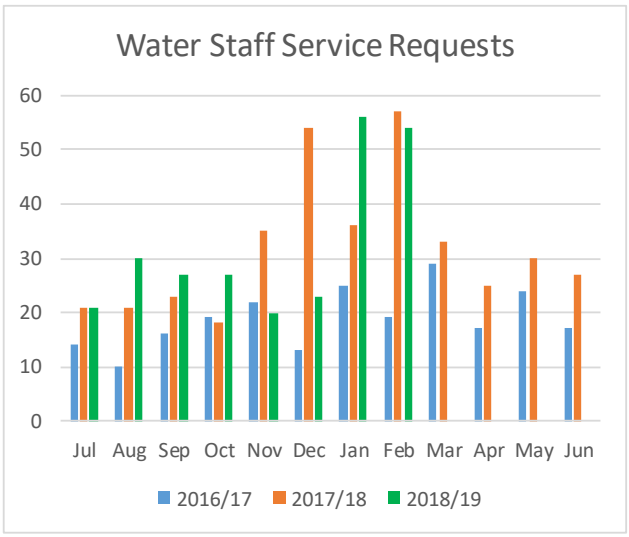






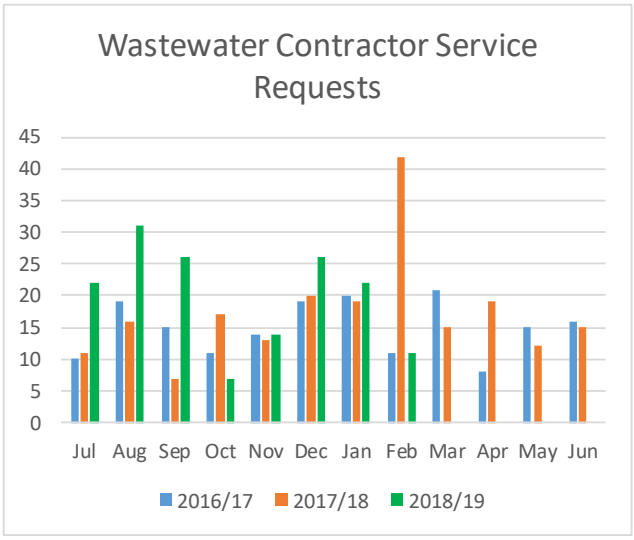


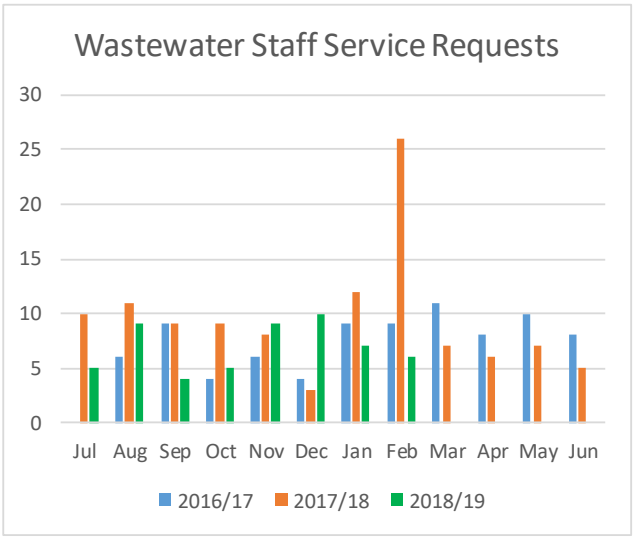




Wastewater

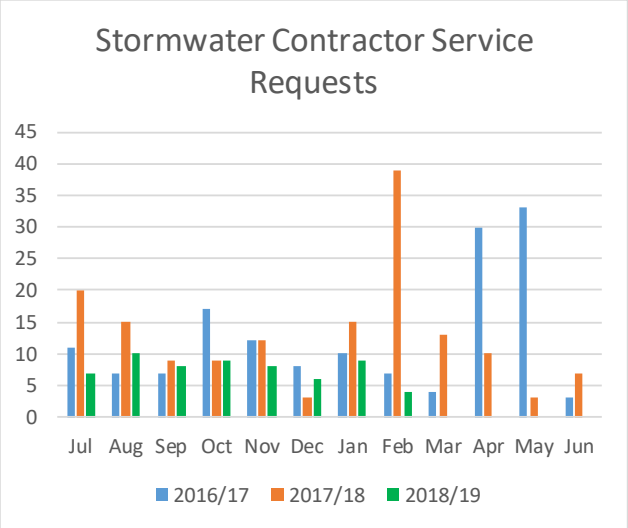
6.2 Wastewater service requests are tracking at similar levels to previous years.

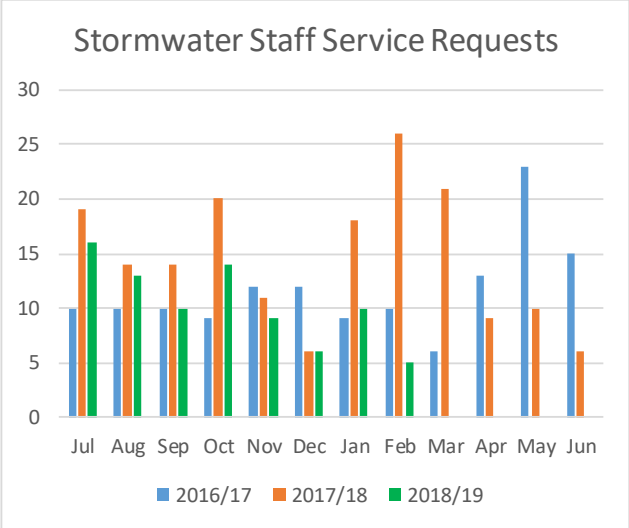




Stormwater

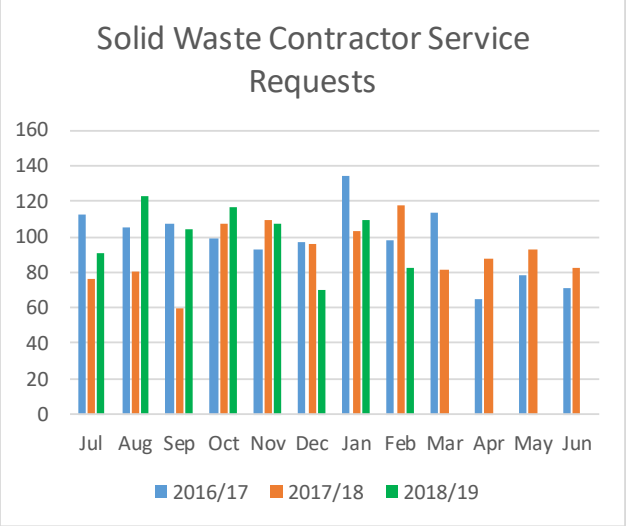
6.3 Stormwater requests are at low levels with the dry weather.

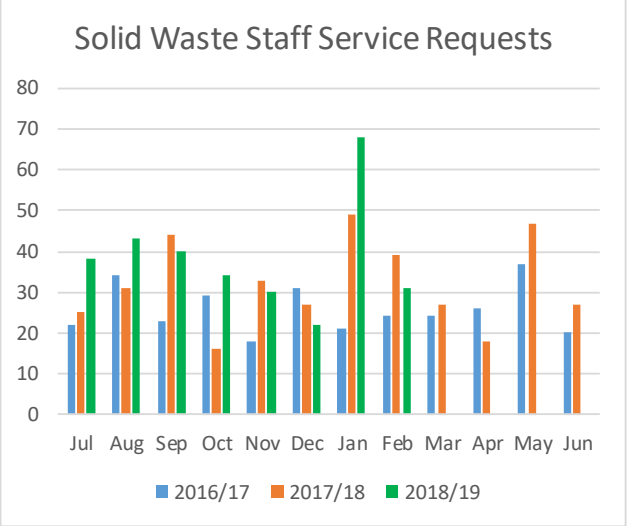




Solid Waste

6.4 Service requests were high in January, mainly due to requests for new bins that had been stolen or for people the moving into a property. There was also an increase in the number of notifications of dumped rubbish.





Water Supply

Activity Highlights

6.5 It has been a busy period for both staff and contractors during the fire and drought. A number of system changes were required to manage water use within our water take consents. Up to 1,500m^3/day was taken from Nelson City Council at Nayland Road and Champion Road. The area from Champion Road between Hill Street and SH6 through to McGlashen, Talbot and William Streets was supplied with Nelson City water.

6.6 The water supply boundary between Richmond and Brightwater was moved and water from Brightwater was then pumped to Wakefield to assist during the fire event. Water was taken from these locations to fill ponds at the Eves Valley sawmill from which water was drawn for the fire effort.

6.7 The fire-break installed along the ridgeline in Redwood Valley has damaged water lines. A new water main will be laid in the first week of April and a tank replacement will be completed at the same time to replace a concrete tank that has significant leaks.

6.8 Work is to commence shortly on re-armouring the top 2-3 meters of the Wai-iti dam face, the waveband, which has eroded slowly since the dam was constructed. The removal of a number of dead trees at the top end of the reservoir will prevent them causing further erosion as they break off and drift towards the dam wall.

6.9 Work will start soon on the final connections for the new section of water main in Dovedale Road, which will eliminate one of the existing Dove River crossings. This will be followed by the removal of the temporary pipe bridge river crossing installed in February last year.

Compliance

6.10 During routine sampling of the Richmond water supply network, an *E.coli* count of 1 (per 100ml) was picked up in one the reservoirs (Valhalla Lane).

6.11 The chlorine was switched on at the Richmond Treatment Plant on 26 February and the dose was reduced after a week and left running until 18 March. Follow up *E.coli* samples taken after the chlorine left the system have been clear. This incident occurred a day after it had rained, following a long period of dry weather. We are investigating the possibility of installing a membrane on this roof, similar to that installed on the new concrete reservoir at the Richmond Water Treatment Plant to ensure it is watertight.

6.12 The Council was fined $500 twice for breaches of the water take consent for the Eighty Eight Valley water supply scheme during the drought.

6.13 We are currently in the process of prosecuting two companies for illegal use of a fire hydrant upstand in accordance with the Public Water Supply Bylaw 2016. Staff are also investigating nine cases of illegal tampering with water restrictors or the water supply network across the rural water schemes.

Operations Update:

6.14 Over the last two months leak detection work has been done in Brightwater, Wakefield and Mapua and the contractor followed up with a number of repairs.

6.15 The work to maintain the supply in Redwood during the fire response, following damage to the pipeline along the ridgeline, added to an already stretched resource, made more difficult by access restrictions. The contractor undertook daily meter readings of the top twenty water users. They also inspected reports of non-compliance with restrictions on private properties, monitored their water use and delivered letters advising of issues.

6.16 The next round of checks is to commence in April of the approximately 1,500 rural and urban extension restricted connections.

6.17 Work is still underway moving telemetry connections in the Motueka area from the existing overloaded connection point in the Valhalla area to the Motueka office.

Wastewater

Activity Highlights

6.18 Maintenance and minor improvements seem to have reduced or eliminated odour at all areas where complaints had been received in the past. The cooling weather will also have helped.

Compliance

6.19 Instances where the Collingwood UV dose is below compliance limits continues but we have a plan that should help to address this.

6.20 Monitoring of the Takaka River during summer low flow conditions has shown full compliance with consent limits. The monitoring data since 2015 has shown there is little or no difference in nitrogen concentrations between the two monitoring sites. This indicates that the discharge of treated sewage into the groundwater is not having any impact on river quality. Staff will look into varying these consent conditions to remove the need to continue with this monitoring in future years.

6.21 There continues to be non-compliances for the Motueka Wastewater Treatment Plant (WWTP) associated with ammonia and nitrogen concentrations. However, there has been some improvement in concentrations compared to previous years. There was also low dissolved oxygen in the final pond which is probably the result of the work we have been doing to reduce nitrogen concentrations so is not necessarily a bad thing. Oxygen concentrations were still sufficiently high enough not to risk odour.

Operations Update

6.22 There have been eight UFB strikes on laterals in Motueka over the last two months, some were not apparent for several weeks after the damage was done. We are working with Chorus to recover costs for the repairs from the contractors.

6.23 On 18 March 2019 a local resident notified the Council of a possible pressure main break on Thorp Street, Motueka approximately 80m beyond the intersection with Staples Street on the way to the Motueka WWTP. Initial investigations found an intermittent leak of around one litre of wastewater at a time surfacing beside the road, coinciding with pumping cycles. It had not entered the adjacent drain or any waterway. Excavation on the pipe confirmed the pipeline runs directly under a hedge/windbreak of large trees. The leak is coming from underneath a large tree. Due to several factors including:

- the small nature of the leak and low health risk;
- the unknown nature and extent of the pipe damage without the removal of several trees;
- the risk of having insufficient suitable pipe to make a repair; and
- only 2 septic tankers were available, ideally 5 are needed to prevent large overflows from the network;

6.24 the hole was backfilled. Arborists have removed several of the trees and exploratory excavation has confirmed the leak is not from the pipe joints. The damage appears to be confined to one four-metre asbestos cement pipe length on the ditch (eastern side) of the pipeline. The repairs will be done in the first week of April and Motueka residents will be asked to conserve water to reduce the risk of overflow while wastewater is tankered to the WWTP.

6.25 Work replacing manholes and pipework in Ledger Avenue adjacent to the Goodman Park pump station is progressing well and is expected to be completed by 1 April, with reinstatement work the following week. The re-coating of the wet well is planned for early April

6.26 Contractors will be using CCTV to view approximately 14 kilometres of wastewater pipes in Motueka, starting on 28 March. This is expected to take up to three months to complete. The

work will help with identifying pipe condition and feed into the pipe renewals programme. It will also assist with efforts to reduce inflow and infiltration into the network.

Stormwater

Activity Highlights

6.27 Pre-storm checks were carried out in February and twice in March. There has been a significant amount of leaf litter and small twigs and branches removed from the drain inlet grills with the arrival of autumn.

6.28 The Wharf Road tidal gates in Motueka were closed at high tide during the rain event on 27 March 2019.

6.29 Vegetation maintenance along open drains continued in January and the start of February but was then stopped due to the directive from Civil Defence in relation to the Pigeon Valley fire. Vegetation maintenance has recommenced following the rain with lots of growth now occurring.

Compliance

6.30 There have been no known non-compliance events for this reporting period.

Operations Update

6.31 Silt removal from Jeffries Creek in Brightwater has been completed while there was no flow in the channel.

Removal of silt from Jeffries Creek, Lord Rutherford Road South, Brightwater

6.32 We have been in discussion with local iwi regarding the diversion swale drain from Lake Killarney, Takaka and we are awaiting their comments prior to progressing further with the work.

6.33 A culvert inlet grill has been installed in Gibbs Road, Collingwood. This is to assist with the removal of debris build-up during a storm event. The project to divert stormwater flows away from Gibbs Road is due to be completed by November 2019.

Culvert inlet grill – Gibbs Road, Collingwood

6.34 We are assessing the forestry clearance work in the Saxton Creek catchment above Champion Road in terms of the added risks of extra run-off during storm events. The management of the forest area is controlled under consent requirements but significant extra stormwater flow can be expected. Initial modelling results indicate an increase of up to 30% in peak flowrate during some heavy rainfall events.

6.35 Presently there is a restriction at the new Champion Road culvert to protect downstream properties in Nelson City. However, with new development on both sides of Champion Road we consider it may be beneficial to reduce or remove this restriction and allow greater stormwater flow in the stream channel. We are working with Nelson City Council to model the effects of a range of flows with and without the flow restriction.

Solid Waste

Activity Highlights

6.36 Activities have been busy over the summer period but with recycling volumes dropping slightly. Commodity prices remain low and we are actively investigating options to increase the value and salability of recyclable materials.

Compliance

6.37 There have been no known non-compliance issues over the reporting period.

Operations Update

6.38 Kerbside recycling volumes dropped in February, following a very busy month in January. For the eight months ending February total recycling volumes were 99% of the same period last financial year. The drop in recycling volumes this year have been driven by a 6% drop in mixed recycling, which was offset by a 5% increase in glass. The drop in mixed recycling appears to be driven by falling paper and cardboard volumes.

6.39 Commodity prices remain very low for paper / cardboard and mixed plastics. We are continuing to export paper and cardboard and sell clear PET and some HDPE locally. We continue to stockpile some mixed plastics.

6.40 Our contamination levels in kerbside recycling remain higher than our target of 5%. We are increasing bin audits and actively working with our contractor and other councils to identify opportunities to reduce contamination and improve the value and salability of recyclable materials.

6.41 Activities in Resource Recovery Centres have been busy over the summer period. Waste volumes have increased at Mariri and Collingwood and decreased at Richmond.

6.42 We are planning to change some Resource Recovery Centre opening hours in the coming months. The Mariri site is very busy on Sundays, but is currently only open 1.00pm to 4.00pm. The customer demand is very similar to that at Richmond, where the site is open from 8.00am to 5.00pm. From 1 June 2019 we are proposing to open the Mariri site from 10.00am to 4.00pm and the Richmond site from 10.00am to 5.00pm. The change will have a net cost of $5000 per annum.

6.43 A new higher capacity compactor was installed at the Richmond Resource Recovery Centre in early March. The existing compactor has been transported to the manufacturer in Timaru for a full refurbishment before installation in Takaka later in the year.

New waste compactor at Richmond Resource Recovery Centre

6.44 We are continuing to work on the Joint Waste Management and Minimisation Plan with Nelson City Council staff. In a workshop in December 2018, working party members asked staff to report back on the scale and cost of activities required to meet waste reduction targets. This work is progressing but was delayed due to staff commitments to the recent fire emergency.

7 Transportation

Urban Road Maintenance

7.1 The last section of new kerb and footpath upgrade in Florence Street, Richmond is underway. The old kerb and channel on Elizabeth Street between Florence Street and the start of new kerb on the southern side, will be replaced shortly.

7.2 As a result of safety concerns from the Richmond Police, the bus stop in Queen Street is to be relocated in front of The Warehouse opposite the Council offices. This relocation will happen in mid-April.

7.3 New lockable cycle friendly sump grates will be installed in Oxford Street between Queen Street and Wensley Road

7.4 Contractors have been engaged to install a pedestrian refuge in Oxford Street opposite Washbourne Gardens. This will include extending the vehicle access crossing into the back carpark of Council/Armadillos.

7.5 Urban mowing of unkempt areas is starting shortly along with vegetation spraying.

7.6 Various footpath repairs in Richmond will start in April and work is in hand to complete a section in Saxon Street, Motueka that will require replacing kerb and constructing a new path.

7.7 Staff plan to replace the kerb at the corner of Greenwood Street and High Street, Motueka where the tree was removed, in May. The temporary traffic management of this site is quite complex.

Street Lighting

7.8 Powertech have started the lighting upgrade to Aranui Road, Mapua. This involves infilling between existing streetlights to improve illumination levels.

High Street Overhead Underground Project

7.9 The High Street OHUG project is due for completion by the end of April 2019 now Chorus has sorted the final private fibre connections.

Rural Road Maintenance

7.10 Urgent pavement repairs are ongoing on Lee Valley Road, River Terrace Road, Church Valley Road, Motueka Valley Highway and Korere-Tophouse Road. Other work underway is routine drainage maintenance and renewals, as well as delineation renewals.

7.11 The roadside mowing round is currently underway as well as roadside spraying and wilding tree removals.

7.12 Grading is underway across the network. The prolonged dry period has left many roads susceptible to quick deterioration now that wetter weather has arrived. Extra resource is working on the network to get it into an acceptable level of service as quickly as practical. A large quantity of unsealed metaling is also programmed to be completed.

7.13 Otuwhero Valley Road, which is subject to regular inundation of water due to siltation in the Otuwhero stream following ex-cyclone Gita, is to be raised with an overlay of gravel and installation of new culverts. A funding contribution is being made by the upstream forest owner. This work should be complete in April.

7.14 Sealed road resurfacing is almost complete with only a few sites remaining.

Golden Bay Road Maintenance

7.15 Routine maintenance work is on track with particular attention to drainage in preparation for winter.

7.16 The hold on mowing has been removed now the fire risk has dropped.

7.17 The new seating outside the Dangerous Kitchen in Takaka has been well received by the community.

7.18 Work planned for April includes drainage maintenance, pavement repairs, coastal rock protection and removal of trees on Pupu Springs Road.

Murchison Road Maintenance

7.19 Routine and planned road maintenance has been progressing well in the Murchison area. Work planned for April includes drainage maintenance, pavement repairs and removal of dangerous trees.

Rivers Activity Update

Physical Works Progress (X&Y rated river sections)

7.20 Rockwork has been completed in the Aorere River and is ongoing in the Takaka and Tadmor Rivers (including willow maintenance in the Tadmor). February was a quiet month with little river work completed due to our contractor diverting resources to assist with the wildfire effort. After a slow January we are tracking below previous expenditure expectations but are expecting a big claim for March. If ground conditions remain favourable we will come closer to spending the extra funds granted for ex-Cyclone Gita repairs by July.

7.21 Fairway spraying has been completed in the Upper Motueka main stem, with the Tadmor and Waimea/Wairoa yet to be done. There are only low levels of woody weeds present in the other Council maintained rivers.

7.22 Final weed spraying to prepare sites for native riparian planting is underway with a number of older sites having the plastic planting covers removed.

7.23 Work to improve fish passage on the Waimea-West Bridge Wai-iti weir was carried out with finer aggregate compacted between the rocks in one section to improve surface flows. Concrete works to achieve the same are yet to be done when flows reduce.

River Z (Z rated river sections)

7.24 Gita related work is ongoing in several catchments with little progress over the last month. There were some delays due to the fire response and extreme fire risk with the focus on getting rock to site before the ground softens. There have been only a small number of new applications to date this year.

Other Work

7.25 Work on our global gravel extraction consent is progressing, involving meeting with submitters and providing more information on the gravel envelopes and decision process, with a hearing to be held later this year.

7.26 Gravel extraction from various rivers is underway or in the planning phase, with demand for gravel easing compared to last year. We are tightening up on the gravel permitting process to better monitor and document extractions.

7.27 Delays to completing ex-Cyclone Gita related repairs in the Moutere have been communicated to affected landowners, and we are working to modify and re-prioritise the work programme so that these can be progressed. Encroachment on to the riverbank by landowners over a number of years and more so with the recent expansion of the hop growing industry is making access to our rivers more difficult.

7.28 We are looking at a proposal to undertake geotechnical testing on the Waimea stopbanks to improve our understanding and level of confidence of the flood performance of these. This information will feed into the risk based Flood Protection Asset Tool.

Coastal Activity Update

Marahau Rock Revetment

7.29 Wakatu Incorporation is still considering options for further protection of the area north of the existing rock revetment.

7.30 The application for a resource consent for the construction of a concrete block wall over approximately 20 metres has been put on hold as the Council has been unable to obtain agreement regarding the design of the proposed structure with an adjacent landowner.

7.31 We are presently in negotiation with Wakatu Incorporation to provide an interim solution to the slumped fence that restricts access to the beach across Wakatu land.

Motueka Port – George Quay.

7.32 Repairs to the fishing platform built by Talleys Fisheries have now been competed which involved the replacement of two structural cross braces as well as fixing a water pipe leak that runs to the fishing platform.

7.33 We are also checking the design of the structure to ensure it meets the current engineering standards.

Tasman's Great Taste Trail

Wakefield to Hoult Valley West

7.34 Contracts for construction of the cycle trail between Wakefield and Hoult Valley West are now underway. Design of a new suspension bridge across the Wai-iti River is complete. Resource consenting and procurement are underway.

7.35 A lack of toilets along the incomplete sections from Kohatu to Ruiwaka has been identified. Funding for improvements along these sections (including toilets at the required spacing) is in future years however, the rate of spend on current development sections will allow planning and construction of toilets to be brought forward. The Nelson Tasman Cycle Trails Trust have commenced planning for toilets. All work will be completed within existing budgets.

Speed Limits

7.36 As reported in the previous update, staff have been reviewing speed limits throughout the District. There have been some requests from residents for speed limits to be altered and there is a need for a general "tidy up" of the speeds scheduled in the Council's Bylaw. A draft consultation document is being developed. This is a "business as usual" review that was last done in 2015/16. The current review is being done using the new Setting of Speed Limits Rule 2017, which will generally result in recommending lower speeds than under the previous 2003 Rule.

7.37 The speed limit review work completed to date shows that requests from the community are widespread, and it can be difficult to confine speed limit reviews to just particular roads as this can lead to inconsistent and confusing speed limits being set.

7.38 There is also a need to update the Tasman Speed Management Plan. This is a bigger picture piece of work that will essentially direct the approach to implement the "safe and appropriate" speeds across our district. This may include some challenging conversations with the community. Many (if not all) of our rural roads have a safe and appropriate speed of 80km/h or less. Many residential streets have a safe and appropriate speed of 40km/h. We will need to test the pace and appetite for these wide ranging speed limit changes with the community. It is important that the changes to our speed limits are underpinned by community support and understanding.

7.39 The speed limit framework was discussed by our road safety partners at the 21 March Road Safety Action Plan meeting. Nelson City Council staff are also working on this, and it was suggested that a joint public survey be launched in co-ordination with Road Safety Week (6-12 May 2019). The survey has not yet been developed, but it could be as simple as the Horowhenua District Council example attached.

7.40 Undertaking this survey in May, would delay the speed limit bylaw update until after results have been collated.

Road Safety Update

Pedestrian crossings

7.41 Zebra crossings in the region have now been painted red and white. NZTA are planning to add a similar treatment to their zebra crossings.

Stopping Distance Demonstrations

7.42 Stopping Distance Demonstrations were held locally in late March. Despite the rain, 24 demonstrations were held with over 1500 students attending from 14 different schools. Some local kindergarten and day care groups also came to check out the action. We received positive feedback from schools, students and local residents that viewed the demonstration. The next demonstrations will be held in 2021.

Stopping distance demonstration in action

RYDA Programme

7.43 The Rotary Youth Driver Awareness (RYDA) programme was held at the Headingly Centre during the week of the 18 March.

7.44 Year 12 students from schools across the District were given critical information and strategies that do not come from driving lessons.

7.45 There were six interactive sessions for students each day, which included Speed and Stopping, Drive S.O.S (Drive So Others Survive), The 'I' in Drive, Road Choices, Crash Investigators and Genevieve's Story. This is an excellent programme supported by the Council and gives young drivers tools and knowledge to stay safe on the road.

Ngatimoti School

7.46 The Ngatimoti School road safety signs have been produced. The students designed them in groups of two, and have provided key locations where they would like them installed. Look out for these on the network on the coming weeks and there will be a story in Newsline once they are all in place.

Ngatimoti School children with their road signs

Dovedale School

7.47 Signage '40 kph when children are present' has now been installed at Dovedale School. A speed limit review is also being undertaken on Dovedale Road near the school.

8 Department Highlight

8.1 Nearly 170 residents and one ginger cat attended the public meeting in Richmond to discuss the water supply crisis on 6 March 2019. The cat was amazingly comfortable wandering through the Richmond New Life Church while staff gave their presentations. As can be seen in the photo below, he was particularly attentive during question time.

10 CONFIDENTIAL SESSION

10.1 Procedural motion to exclude the public

The following motion is submitted for consideration:

THAT the public be excluded from the following part(s) of the proceedings of this meeting. 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 follows.

This resolution 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, as follows:

10.1 Tasman's Great Taste Trial - Mapua Ferry Service

Reason for passing this resolution in relation to each matter	Particular interest(s) protected (where applicable)	Ground(s) under section 48(1) for the passing of this resolution
The public conduct of the part of the meeting would be likely to result in the disclosure of information for which good reason for withholding exists under section 7.	s7(2)(b)(ii) - The withholding of the information is necessary to protect information where the making available of the information would be likely unreasonably to prejudice the commercial position of the person who supplied or who is the subject of the information.	s48(1)(a) The public conduct of the part of the meeting would be likely to result in the disclosure of information for which good reason for withholding exists under section 7.