Policy and Planning Committee

Tuesday 5 February 2019
10.30am
Taranaki Regional Council, Stratford

Agenda for the meeting of the Policy and Planning Committee to be held in the Taranaki Regional Council chambers, 47 Cloten Road, Stratford, on Tuesday 5 February 2019 commencing at 10.30am.

Members	Councillor N W Walker	(Committee Chairperson)
	Councillor M P Joyce	
	Councillor C L Littlewood	
	Councillor D H McIntyre	
	Councillor B K Raine	
	Councillor C S Williamson	
	Councillor D L Lean	(ex officio)
	Councillor D N MacLeod	(ex officio)
Representative Members	Ms E Bailey	(Iwi Representative)
	Councillor G Boyde	(Stratford District Council)
	Mr J Hooker	(Iwi Representative)
	Councillor R Jordan	(New Plymouth District Council)
	Mr P Muir	(Taranaki Federated Farmers)
	Councillor P Nixon	(South Taranaki District Council)
	Mr M Ritai	(Iwi Representative)

Apologies

Notification of Late Items

Closing Karakia and Karakia for kai

Agenda Memorandum

Date 5 February 2019

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: Confirmation of Minutes – 20 November 2018

Approved by: A D McLay, Director-Resource Management

B G Chamberlain, Chief Executive

Document: 2191468

Resolve

That the Policy and Planning Committee of the Taranaki Regional Council:

1. takes as read and confirms the minutes of the Policy and Planning Committee meeting of the Taranaki Regional Council held in the Taranaki Regional Council chambers, 47 Cloten Road, Stratford, on Tuesday 20 November 2018 at 10.30am
2. notes the recommendations therein were adopted by the Taranaki Regional Council on 11 December 2018.

Matters arising

Appendices

Document #2160071 – Minutes Policy and Planning Committee

Minutes of the Policy and Planning Committee Meeting of the Taranaki Regional Council, held in the Taranaki Regional Council Chambers, 47 Cloten Road, Stratford, on Tuesday 20 November 2018 at 10.30am.

Members	Councillors	N W Walker	(Committee Chairperson)
		M P Joyce	
		C L Littlewood	
		D H McIntyre	
		B K Raine	
		D L Lean	(ex officio)
		D N MacLeod	(ex officio)
Representative Members	Ms	E Bailey	(Iwi Representative)
	Councillor	G Boyde	(Stratford District Council)
	Mr	J Hooker	(Iwi Representative)
	Councillor	R Jordan	(New Plymouth District Council)
	Mr	P Muir	(Taranaki Federated Farmers)
	Mr	M Ritai	(Iwi Representative)
Attending	Messrs	B G Chamberlain	(Chief Executive)
		A D McLay	(Director-Resource Management)
		G K Bedford	(Director-Environment Quality)
		M J Nield	(Director-Corporate Services)
		S R Hall	(Director-Operations)
		R Ritchie	(Communications Manager)
		C L Spurdle	(Planning Manager)
		S Tamarapa	(Iwi Communications Officer)
		P Ledingham	(Communications Officer)
	Mrs	K van Gameren	(Committee Administrator)
	Mr	R Phipps	(Science Manager)
	Mrs	V MacKay	(Science Manager)
	Mrs	H Gerrard	(Science Manager)
	Mr	J Kitto	(Science Advisor)
	Mrs	F Hafiz	(Environmental Scientist)
	Mr	G C Severinsen	(Policy and Strategy Manager)
		K Holswich	(Iwi Representative)
	Ms	F Mulligan	(Iwi Representative)
	Mr	J Clough	(Wrightson Consulting)

One Member of the media.

Apologies The apologies from Councillor C S Williamson and Councillor P Nixon (South Taranaki District Council) were received and sustained.

Notification of Late Items There were no late items of business.

1. Confirmation of Minutes – 9 October 2018

Resolved

THAT the Policy and Planning Committee of the Taranaki Regional Council

1. takes as read and confirms the minutes and confidential minutes of the Policy and Planning Committee meeting of the Taranaki Regional Council held in the Taranaki Regional Council chambers, 47 Cloten Road, Stratford, on Tuesday 9 October 2018 at 10.35am
2. notes that the recommendations therein were adopted by the Taranaki Regional Council on 30 October 2018.

Hooker/Raine

Matters Arising

There were no matters arising.

2. Climate change reports

2.1 Mr G C Severinsen, Policy and Strategy Manager, spoke to the memorandum introducing four reports release recently by the Government on climate change issues.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum *Climate change reports*
2. notes the many problems and complexities with the New Zealand Emissions Trading Scheme that the Government is seeking to address
3. notes the findings of the reports *Climate Change Projections for New Zealand* and *Hydrological projections for New Zealand rivers under climate change*
4. notes that the Council's current work programmes are addressing climate change issues consistent with its existing statutory duties and obligations
5. notes that further work on climate change policy is underway within central government.

Boyde/MacLeod

3. Report of the Biodiversity Collaborative Group and draft *National Policy Statement on Indigenous Biodiversity*

3.1 Mr S L Hall, Director-Operations, spoke to the memorandum introducing the report of the Biodiversity Collaborative Group which contains the Group's Draft National Policy Statement for Indigenous Biodiversity and outlined the potential implications of the report for the Council and regional sector.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum Report of the Biodiversity Collaborative Group and draft *National Policy Statement on Indigenous Biodiversity* (NPSIB)
2. notes the concerns of the regional sector with aspects of the report and of the draft NPSIB
3. notes that work on reviewing New Zealand's biodiversity strategy should precede further work on the draft NPSIB.

Joyce/McIntyre

4. Regional targets for swimmable rivers and lakes in Taranaki

4.1 Mr C L Spurdle, Planning Manager, spoke to the memorandum introducing a report setting out regional targets for swimmable rivers and lakes in Taranaki that gives effect to Policy A6 requirements of the *National Policy Statement for Freshwater Managemen*t.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum and adopts the targets set out in the attached report *Regional targets for swimmable rivers and lakes in Taranaki*
2. notes that the community will not be able to meet the Government's national targets of 80% of rivers classified as swimmable by 2030 and 90% by 2040 but will exceed that target for lakes
3. agrees that the regional targets for swimmability be made available to the public by 31 December 2018 as required by the *National Policy Statement for Freshwater Management*
4. agrees to send a copy of the report to the Ministry for the Environment.

Lean/MacLeod
Ms Bailey and Mr Hooker voted against the recommendations.

5. Regional freshwater recreational bathing water quality report for 2017-2018

5.1 Mr G K Bedford, Director-Environment Quality, spoke to the memorandum presenting an update to the Committee on the results of the state of the environment

programme that monitors freshwater contact recreational water quality for the 2017-2018 bathing season.

Recommended

THAT the Taranaki Regional Council:

1. receives the memorandum noting the preparation of the report *Freshwater Contact Recreational Water Quality at selected Taranaki sites SEM Monitoring Report 2017-2018, Technical Report 2018-01*
2. adopts the specific recommendations presented in Technical Report 2018-01.

Littlewood/Raine
Ms Bailey voted against the recommendations.

6. Bathing beach recreational water quality SEM report 2017-2018

6.1 Mr G K Bedford, Director-Environment Quality, spoke to the memorandum reporting on the quality of coastal bathing waters in the Taranaki regional during the 2017-2018 bathing season.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum noting the preparation of the report *Bathing Beach Water Quality State of the Environment Monitoring Report Summer 2017-2018 Technical Report 2018-33*
2. adopts the specific recommendations presented in Technical Report 2018-33.

Littlewood/McIntyre
Ms Baily voted against the recommendations.

Councillor D L Lean left the Policy and Planning Committee meeting at 11.45am.

7. National Policy Statement for Freshwater Management: Adoption of Progressive Implementation Programme and annual report

7.1 Mr C L Spurdle, Planning Manager, spoke to the memorandum reporting on the implementation programme for the *National Policy Statement for Freshwater Management (NPS-FM) 2014* for the 2017/2018 financial year and recommending the adoption of a revised progressive implementation programme for implementation of the NPS-FM.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum and attached *Progressive Implementation Programme for the National Policy Statement for Freshwater Management, Taranaki Regional Council* and public notice
2. approves the *Progressive Implementation Programme for the National Policy Statement for Freshwater Management, Taranaki Regional Council, November 2018*
3. agrees that the Implementation Programme be publicly notified
4. notes the progress on the implementation of the NPS-FM for the 2017/2018 financial year.

Muir/Raine

8. Groundwater Quantity – State of the Environment Monitoring Report 2015-2017

8.1 Mr R Phipps, Science Manager, spoke to the memorandum introducing a biennial report entitled *Groundwater Quantity – State of the Environment Monitoring Report 2015-2017* and an assessment of its content and recommendations was received and noted by the Committee.

8.2 A presentation *Groundwater Quality State of the Environment Monitoring Report 2015-2017*, which included an introduction to regional geo-hydrology, was provided in support of this item.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum *Groundwater Quantity State of the Environment Monitoring Report 2015-2017* that presents the findings of a report outlining the state of and trends in measures directly influencing groundwater quantity across the region
2. receives the report *Groundwater Quantity State of the Environment Monitoring Report 2015-2017 Technical Report 2017-110*
3. notes the findings of the analysis of state and trend data from the SEM groundwater programme
4. adopts the specific recommendations therein.

Williamson/MacLeod

9. *Essential Freshwater*: Latest announcements on the Government's freshwater agenda

9.1 Mr G C Severinsen, Policy and Strategy Manager, spoke to the memorandum introducing the latest announcements on the Government's freshwater agenda dn the potential implications for the Council.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum *Essential Freshwater: Latest announcements on the Government's freshwater agenda*
2. notes that the Government's work programme includes at risk catchments; amendments to the National Policy Statement for Freshwater Management; a new National Environmental Standard for Freshwater Management; amendments to the Resource Management Act; allocation of freshwater resources; and future policy framework development
3. notes that proposals for change to freshwater management in New Zealand will be consulted on over the next two years with special advisory groups set up for the purpose, and the general public, prior to final decisions being made
4. notes that the Council will be involved in these processes to ensure the proposals are appropriate for Taranaki.

Raine/Boyde

10. Proposed resource management system review

10.1 Mr G C Severinsen, Policy and Strategy Manager, spoke to the memorandum informing the Committee of recent announcements made by the Minister for the Environment on the proposed resource management system review and, in particular, on proposals for Stage 1 of the review timed for early next year.

Recommended

That the Taranaki Regional Council:

1. receives the memorandum *Proposed resource management system review*
2. notes that the Government is proposing a two stage review of the resource management system with Stage 1 being a narrowly focused set of amendments to the Resource Management Act programmed for early in 2019, with Stage 2 being a more comprehensive review of the resource management system, programmed to start in 2019
3. notes that the Council will make a submission on Stage 1 of the review when a Bill is introduced in early 2019.

Joyce/Littlewood

11. National Policy Statement for Urban Development Capacity – minimum housing targets

11.1 Mr C L Spurdle, Planning Manager, spoke to the memorandum for information and consideration, an update on the implementation of the *National Policy Statement for Urban Development Capacity*, including minimum housing targets for New Plymouth urban areas that must be incorporated into the *Regional Policy Statement for Taranaki*.

Recommended

That the Taranaki Regional Council:

1. receives this memorandum *National Policy Statement for Urban Development Capacity – minimum housing targets*
2. notes the outcome of the letter to the Minister for the Environment seeking an extension of time in which to complete the Future Development Strategy
3. agrees to the projected timeframe for the Future Development Strategy
4. endorses the minimum targets that are required to be incorporated into the Regional Policy Statement.

Jordan/Joyce

Closing Karakia Mr M Ritai (Iwi Representative) gave the closing Karakia to the Policy and Planning Committee and Karakia for kai (lunch).

There being no further business, the Committee Chairperson Councillor N W Walker, declared the meeting of the Policy and Planning Committee meeting closed at 12.30pm.

Confirmed

Chairperson _____

N W Walker

Date **5 February 2019**

Agenda Memorandum

Date 5 February 2019

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: Ministry for the Environment - current work programme

Approved by: A D McLay, Director – Resource Management

B G Chamberlain, Chief Executive

Document: 2190709

Purpose

The purpose of this memorandum is to update Members on the work the Ministry for the Environment has planned over the next 12 to 18 months and to comment briefly on the implications for the Council.

Executive summary

The Ministry for the Environment (MfE) has a number of work streams at various stages of completion. Some of these have been underway for some time while others are more recent and reflect the priorities of the coalition government, which was elected in late 2017.

The attached newsletter received from MfE in November last year provides an update on MfE's work over the next 18 months or so.

Of particular relevance for this Council are proposed changes to the Resource Management Act, further changes to freshwater policy development (and changes to national direction on a number of other fronts) and climate change policy. There is also work progressing on urban development and housing and the three waters review which will impact on the Council. Some of these projects have been reported to earlier meetings of this Committee.

A number of public consultation processes are planned for the first half of this calendar year and in the months leading up to local government elections in October this year. This may test the capacity of the Council's small planning team.

Recommendations

That the Taranaki Regional Council:

1. receives the memorandum *MfE's current work programme*
2. notes the many areas of interest or concern to the Council.

Background

MfE has a number of work streams at various stages of completion. Some of these have been underway for some time while others are more recent and reflect the priorities of the coalition government, which was elected in late 2017.

The attached newsletter received from MfE in November last year provides an update on MfE's work over the next 18 months or so.

Key aspects of the work programme for this Council are summarised below. A brief discussion of the implications for the Council follows.

Key aspects of programme

Of particular relevance for this Council are proposed changes to the Resource Management Act, further changes to freshwater policy development (and changes to national direction on a number of other fronts) and climate change policy. There is also work progressing on urban development and housing and the three waters review which will impact on the Council.

A number of public consultation processes are planned for the first half of this calendar year and in the months leading up to local government elections in October this year. This may test the capacity of the Council's small planning team.

Resource management reform

Members may recall receiving a briefing on the Government's proposals for review of the Resource Management Act (RMA) at the Committee's November 2018 meeting.

Briefly, what the Government is proposing is a two-stage process to resource management reform. Stage 1 will focus on the RMA itself and correct what the Minister considers are the least desirable aspects of the changes introduced by the Resource Legislation Amendment Act in 2017. MfE anticipates that the Stage 1 Bill will be ready for introduction in early 2019.

Stage 2 will be a more comprehensive review of the resource management system, which will begin in 2019. As noted in the attached newsletter from MfE, the scope of the review is still being worked through, but it does note that the review will provide an opportunity to make more fundamental changes to the resource management system.

Essential freshwater policy development

Also presented at the Committee's November 2018 meeting was the Government's latest announcements (released in October 2018) on freshwater. In short, this work programme includes:

- targeted action and investment in at-risk catchments;
- a new National Policy Statement for Freshwater Management (NPS-FM), including greater direction on limit setting and protection of ecological health;
- a new National Environmental Standard for Freshwater Management (NES-FM) including direction around intensification in at-risk catchments, nutrient allocation, stock exclusion and riparian management;
- amendments to the RMA, including changes to give regional councils greater ability to implement water quality and quantity limits;
- allocation of freshwater resources, including both takes and discharges;

- further work on the future framework including greater use regulation or economic instruments; and
- involvement of interested parties in testing and advising on policy options through a network of advisory groups.

Public consultation on the proposed NES and amended NPS is proposed from April 2019 with formal adoption by April 2020. Consultation on allocation of freshwater resources is planned from May 2019 through to September 2020. Work on at-risk catchments is already underway and will continue into 2019.

Indigenous biodiversity

As reported to the November meeting of the Committee, the Biodiversity Collaborative Group (BCG) has released their report on the future of indigenous biodiversity management in New Zealand. Their report outlines a draft National Policy Statement for Indigenous Biodiversity (NPSIB).

The Government intends to further analyse the BCG's report, the draft NPSIB and the workability of the BCG's policy proposals over the next few months and have tentatively indicated that a draft package may be released for public consultation in July 2019, although the timeline for public consultation on the draft NPSIB is still to be confirmed.

Air quality

The NES for Air Quality is being reviewed and public consultation on proposed amendments is planned for mid-2019.

Versatile soils

The Government is proposing to introduce a new NPS on versatile soils. Public consultation is likely to run from April through to June 2019, although this has yet to be confirmed.

Other NES's

Work on other NES's is planned with public consultation as follows: sources of human drinking water (from December 2018 or early 2019); tyres (from June 2019) and marine aquaculture (from August 2019).

National Planning Standards

MfE is currently working on refining the first set of national planning standards following public submissions. MfE has indicated that decisions from Ministers will be sought on a number of matters before the gazettal of the planning standards in April 2019. There will then be an implementation programme over the following 5 to 7 years where all councils will be required to amend their plans in line with the standards.

Housing and urban development capacity

MfE is continuing to help councils implement the National Policy Statement for Urban Development capacity (NPS-UDC) through the development of housing and business development capacity assessments in medium growth areas and future development strategies in high-growth areas. The New Plymouth district is a high-growth area. There are no medium-growth areas in Taranaki.

Councils must respond within 12 months if monitoring and evidence gathered indicates that development capacity is not sufficient.

Three waters review

The three waters review work is being led by the Department if Internal Affairs. The project is assessing regulatory arrangements and the need for reform in drinking water, wastewater and stormwater services. The focus to date has been on municipal drinking water supplies following the Havelock North drinking water inquiry, but the review is now also considering options for improving the environmental performance of wastewater and stormwater networks.

(See item elsewhere in the Agenda on the Three Waters Review).

Climate change

MfE is analysing the 15,000 submissions received on Zero Carbon Bill. These together with the latest science, economic modelling and other relevant reports will be considered in policy advise to Ministers. The Zero Carbon Bill will be introduced to Parliament early in 2019 and there will be an opportunity for further public submissions. There will also be opportunity for public submissions on the Climate Change Response Act and changes to regulations under the Emissions Trading Scheme. These will follow in July/August 2019.

As noted in the attached newsletter from MfE, further guidance is being prepared on coastal hazards and climate change. Also noted, is further guidance being prepared on implementation of the New Zealand Coastal Policy Statement.

Implications for the Council

MfE's programme of work represents a significant workload for this Council and its small planning team.

While the Stage 1 reforms of the RMA will focus to some extent on district plans and resource consenting requirements, there are a number of proposals that are likely to directly impact on Council business in resource management, particularly around consenting for water use, and in monitoring and enforcement. These will be designed to make the relevant provisions more effective, but they will need to be carefully considered for any unintended consequences. The Stage 2 reforms will be more far reaching and will require careful analysis.

A detailed memo on the Government's *Essential Freshwater* programme was presented to the Committee at its November 2018 meeting. At this stage, the proposals lack detail as to what specific changes are likely. No detail has been provided on the substance of changes to the NPS-FM or the likely scale of new regulation under the NES–FM, although some examples are given as to where amendments could be made or the types of activities that may be considered for further regulation. Particular attention will need to be given to changes to the NPS-FM and to possible new regulations under the NES-FM relating to stock exclusion, riparian management and nutrient allocation, among others.

The Council will need to consider the new policy and rules carefully to ensure they do not impose unnecessary costs on the Taranaki community and provide a sensible and practical fit with the Council's Fresh Water plan review work.

As far as work on indigenous biodiversity is concerned, regional councils as a sector have a number of concerns with the report of the Biodiversity Collaborative Group and the draft NPSIB. These include a lack of clarity about what the NPSIB is trying to achieve, roles and

responsibilities are not clearly defined and that implementation costs for councils are likely to be high. A think piece prepared by regional councils calls for these and other issues to be addressed as part of a review of the national strategy for biodiversity before a NPSIB is finalised.

The regional sector has advocated strongly for the overall strategy to be put in place first and then to develop a NPSIB as one of the methods of implementing the strategy. Recent feedback from MfE officials is that they have taken this on board and further work on the NPSIB will await progress on the New Zealand Biodiversity Strategy.

As far as this Council is concerned, we are widely regarded as a leading example in biodiversity management in New Zealand. The Council works collaboratively with all stakeholders and with private landowners to progress biodiversity protection and enhancement throughout the region with a focus on active management. As a result, the Council is already investing heavily in biodiversity work but the current proposals are likely to see the Council incurring significantly increased costs.

The review process will need to devise a solution that is fit for purpose, takes into account the good work being carried out around the country and look to fund any extra work required on a fair and equitable basis.

National Planning Standards are expected to be gazetted in April 2019, although the commencement date has yet to be confirmed. The Council submitted on the standards along with many other councils, and raised concerns regarding the structure of regional policy statements and regional plans and the effect on operative plans of standard definitions to be applied across the country.

The Three Waters Review (see item elsewhere in the Agenda) is an area of interest and concern to the Council, particularly as the review now looks to introduce new regulatory requirements for regional councils around wastewater and stormwater systems. We believe the problems or issues to be addressed in these areas have been poorly defined and inadequately researched more work is required before 'solutions' are proposed. These are areas where the Council has very strong monitoring, reporting and enforcement programmes in place and further regulation we feel is not justified.

Climate change is another area where councils may be given extra functions and responsibilities. As noted in MfE's newsletter, there will be a further opportunity to make submissions when the Zero Carbon Bill is introduced to Parliament early in 2019.

There are a number of other areas of MfE's work programme where a Council response will be required. These include changes to the Regional Policy Statement in response to the NPS-UDC, and consideration of NES and other policy work as indicated by MfE.

Decision-making considerations

Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

Financial considerations—LTP/Annual Plan

This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Local Government Official Information and Meetings Act 1987*.

Iwi considerations

This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the *Local Government Act 2002*) as outlined in the adopted long-term plan and/or annual plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

Legal considerations

This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Attachments

Document 2190691: MfE's Environment Update – November 2018

Kathryn Van Gameren

From: Chris Spurdle
Sent: Tuesday, 22 January 2019 8:41 AM
To: Gray Severinsen
Subject: FW: Environment Update - November 2018

FYI

Chris Spurdle
Planning Manager

From: Ministry for the Environment <sarah.vaughan=mfe.govt.nz@cmail20.com> **On Behalf Of** Ministry for the Environment
Sent: Monday, 19 November 2018 10:24 AM
To: Chris Spurdle <chris.spurdle@trc.govt.nz>
Subject: Environment Update - November 2018

No Images? Click here

INFO no. 860, November 2018

Welcome to *Environment Update* – the new look *Resource Management Update*.

We've changed the name to reflect our work with councils is not just about the Resource Management Act, but spans all aspects of the environment. As a result, you will find a wider array of topics covered in this e-newsletter.

What stays the same is our intention to share information specifically relevant and of interest to council staff and managers through this quarterly newsletter.

At the Ministry for the Environment (the Ministry), we are also making some changes to how our relationship managers will work. A key change is that there will now be one relationship manager for a council covering all the matters of interest to you. We are still working though what this means for staffing – but in the meantime a familiar face is still available to you as your primary contact in the Ministry. Check out the contact list at the end of this newsletter.

As always, if you have any feedback, do let us know.

What's coming up?

7 December	Evaluation of the NPS Electricity Transmission and NES Electricity Transmission Activities – last day for feedback sarah.mccarthy@mfe.govt.nz
January 2019	Release of 2018/19 National Monitoring System data nms@mfe.govt.nz
February 2019 (TBC)	NPS Indigenous Biodiversity workshop nicola.scott@mfe.govt.nz

Resource management reform

On 8 November, the Government released the details of the two-stage approach to resource management reform, including the Cabinet paper and regulatory impact statement (RIS) for proposals for the stage 1 amendment bill.

We are in the process of drafting the stage 1 bill. Many changes made through the Resource Legislation Amendment Act 2017 are proposed to be repealed, alongside other proposed RMA amendments focusing on resource consenting, fresh water, Environment Court operations, and compliance and enforcement provisions under the RMA. Some details are still to be confirmed.

We anticipate the stage 1 bill will be ready for introduction in early 2019, which will be followed by a Select Committee process in which councils and the public will have an opportunity to make a submission.

Stage 2, which will begin next year, will be a more comprehensive review of the resource management system. The scope of this review is still being worked through, but will provide an opportunity to make more fundamental changes to system settings, to support a more productive, sustainable and inclusive economy.

For more information contact Oliver Sangster (oliver.sangster@mfe.govt.nz).

Evaluation of the NPS Electricity Transmission and NES Electricity Transmission Activities

Along with the Ministry of Business, Innovation and Employment (MBIE), we are working to complete an evaluation report on the National Policy Statement on Electricity Transmission and the National Environmental Standard on Electricity Transmission Activities.

This evaluation will determine if the NPS and NES are meeting their objectives and are fit for purpose.

Substantive work on this evaluation, including stakeholder engagement, took place late 2015 and early 2016. Some councils provided feedback on these instruments through a 4Sight Consulting research report, but the evaluation was put on hold. We are now working to complete and publish the evaluation.

We would like to hear from you by Friday 7 December if you have further feedback or information to help the evaluation. We are particularly interested in your recent experiences with implementing the instruments through plan changes or consenting processes.

Contact Sarah McCarthy (sarah.mccarthy@mfe.govt.nz) if you would like to discuss the evaluation.

Draft NPS for Indigenous Biodiversity released

You may have seen Minister Mahuta's recent announcement about the *Report of the Biodiversity Collaborative Group* (BCG), which outlines a draft National Policy Statement for Indigenous Biodiversity (NPSIB) and provides complementary measures, to halt the decline in New Zealand's unique indigenous biodiversity.

The report recommends greater recognition of Te Ao Māori in decision-making and makes provision for *Hutia to Rito*, a concept that recognises the broader connections between the health of indigenous biodiversity, the environment and people. It also incorporates requirements to identify, map and protect significant areas of indigenous biodiversity, including the use of standardised criteria, a suite of effects management policies, and targets to encourage restoration of biodiversity.

The report also recommends many supporting measures that will be considered alongside the draft NPSIB. These measures include supporting the implementation of the NPSIB, better coordinating biodiversity efforts, improving information, monitoring and compliance, and better aligning the biodiversity management system.

The Government will further analyse BCG's draft NPSIB and the workability of the BCG's policy package over the next few months, and will develop a draft package for public consultation in 2019.

We are planning a one-day workshop for council biodiversity planners in February 2019 to discuss the BCG's draft NPSIB and further policy work. We anticipate sending out an invite for this event by mid-December. Please let us know if you're interested in attending.

Work on the NPSIB and complementary measures will be undertaken in the context of the Minister for Conservation's recently announced refresh of the New Zealand Biodiversity Strategy, which will set the overarching goals and priorities for biodiversity management in New Zealand.

For more information contact Nicola Scott (nicola.scott@mfe.govt.nz or 027 567 8262).

Our work with the new Ministry of Housing and Urban Development

The new Ministry of Housing and Urban Development (MHUD) opened on 1 October 2018. We will work closely with MHUD, as we both have roles in the Government's urban work programme – including developing legislation for a national urban development authority, the National Policy Statement on Urban Development Capacity and the Urban Growth Agenda.

MHUD has been established to help individuals, families and whānau have healthy, affordable and secure homes that meet their needs. A goal of MHUD is to create thriving communities that connect to the places people live, work, learn and play.

Proposed national urban development authority

The Government is working on proposals to establish an urban development authority (UDA) to drive second-generation urban growth and renewal. It will help create thriving communities, with a mix of public, affordable and market housing, and local jobs, infrastructure, open spaces and transport links. The UDA will be the Government's lead developer and will drive the delivery of 100,000 KiwiBuild homes.

The proposal includes legislation that would enable the UDA to undertake large or complex urban development projects to be built more quickly.

We have supported the Ministry of Housing and Urban Development in developing this proposed legislation, and have led all resource management and planning aspects as well as any interactions with the Resource Management Act 1991.

We expect that details will be made available to the public by the end of the year.

For more information contact David Chittenden (david.chittenden@mfe.govt.nz or 022 318 7756).

NPS Urban Development Capacity implementation

We, along with MHUD, are continuing to help councils implement the National Policy Statement for Urban Development Capacity (NPS-UDC) through the development of housing and business development capacity assessments (HBAs) in medium-growth urban areas, and future development strategies in high-growth urban areas.

In September we published an article in the Planning Quarterly magazine on the progress of the NPS-UDC implementation. Last month we also published a factsheet to provide further guidance on assessing the feasibility of housing development capacity for councils completing a HBA.

For more information email npsurbandevelopment@mfe.govt.nz.

Introducing the Urban Planning Pillar

The 'Urban Planning Pillar' is a ministry-led project that falls under the Urban Growth Agenda.

This project aims to allow cities to make room for well-integrated and coordinated growth. We are looking at:

- how planning rules, methods and practices are enabling or restricting quality intensification
- the role of spatial planning in integrating decision-making, identifying strategic development opportunities and supporting quality built environments.

This work will build on the existing work of councils and central government and will look for opportunities to link up good practice.

As part of this work we are exploring the role of spatial planning at a system level. The Government is already partnering with councils and iwi on spatial planning, initially in Auckland and the Hamilton to Auckland corridor.

We are also considering how to better support quality intensification, including options for national direction. We know you have important perspectives to be considered as part of this policy development. Subject to approval, we expect to seek public feedback on the role of spatial planning and national direction on quality intensification in early-mid 2019.

For more information about quality intensification contact Stephanie Gard'ner (stephanie.gard'ner@mfe.govt.nz), and about spatial planning contact Heather Griffiths (heather.griffiths@mfe.govt.nz).

Our air 2018

The latest report on the state of New Zealand's environment, *Our air 2018*, shows that air quality in New Zealand is generally good. While some previously known issues persist, progress has been made and levels of some pollutants are declining.

The report shows using wood and coal burners to heat homes in winter continues to cause issues in some places. This remains the largest single cause of human-generated poor air quality in New Zealand. The report also shows vehicle emissions as a leading cause of poor air quality in some places.

Amending the Air Quality NES

Following the release of the *Our air 2018* , Associate Minister for the Environment Hon Nanaia Mahuta confirmed the National Environmental Standard (NES) for Air Quality is being reviewed and public consultation on proposed amendments is planned in 2019.

The review will be informed by feedback from targeted engagement with a number of iwi and stakeholders, including councils, conducted from May to July this year and the information in *Our air 2018*. The review focuses on the particulate matter-related provisions of the NES.

For more information contact Rapunel De Leon (rapunzel.deleon@mfe.govt.nz).

Essential Freshwater policy development underway

Local Government representatives joined about 250 people interested in protecting and restoring our fresh water at the launch of the freshwater work programme at Parliament on 8 October.

In summary, the work programme includes:

- targeted action and investment in at-risk catchments
- a new National Policy Statement for Freshwater Management and a new National Environmental Standard for Freshwater Management, expected to go out for public consultation in April 2019 and come into force in 2020
- amendments to the Resource Management Act
- decisions on how to manage allocation of nutrient discharges, informed by discussion and engagement with interested parties
- involvement of interested parties in testing and advising on policy options through a network of advisory groups (Kahui Wai Māori, the Science and Technical Advisory Group, the Freshwater Leaders Group, and a sub-group of regional council chief executives).

Ministers have set up a multi-agency taskforce at the Ministry to develop the package. Nigel Corry from Greater Wellington Regional Council is on the taskforce and we are working on involving more people with relevant skills and expertise from regional councils.

For more information email freshwater@mfe.govt.nz.

At-risk Catchments project

The aim of the At-risk Catchments project, in the Essential Freshwater programme, is to halt further decline and prevent irreversible environmental damage or loss in environmentally, recreationally, culturally or economically significant catchments.

This is a transitional project to stop further degradation as quickly as possible, while longer-term policies, plans and initiatives to improve freshwater management are put in place. The project will identify priorities for short-term action, including Government intervention and investment.

Over the past three months, the Government has been working with our partners to identify at-risk catchments around New Zealand. This involved asking regional councils and unitary authorities, Māori and other interested parties for their input, and we are continuing to gather and analyse this information.

Earlier this week we held a workshop to move towards identifying a group of 'pilot' catchments and begin the assessment of whether there is an adequate plan in place or what further action or investment is needed. In 2019 we will apply what we have learnt from the pilot process to other at-risk catchments.

Those who have provided information will be updated shortly on the outcomes of the workshop.

For more information contact Jo Armstrong (jo.armstrong@mfe.govt.nz or 021 636 637).

Review of the Drinking Water NES

We have completed the review of the National Environmental Standard for Sources of Human Drinking Water (Drinking Water NES). We plan to publish the findings in late 2018 – we will provide further details to councils before publication.

The review assessed the implementation and effectiveness of the provisions in the Drinking Water NES, taking into account the findings of the Government Inquiry into Havelock North Drinking Water.

The next phase of work on managing risks to drinking water sources is being progressed as part of a wider package of work focused on ensuring the safety of drinking water supplies.

For more information contact Adrian Young (adrian.young@mfe.govt.nz).

Three Waters Review

The Government is expected to announce details of the next phase of the Three Waters Review soon. The work is led by the Department of Internal Affairs, and there will opportunities for councils to provide feedback as the work progresses.

The Three Waters Review is assessing regulatory arrangements and service delivery and funding challenges for drinking water, wastewater and stormwater services. The focus to date has been on ensuring the safety of municipal drinking water supplies. However, the review is also considering options for improving the environmental performance of wastewater and stormwater networks.

For more information contact Adrian Young (adrian.young@mfe.govt.nz).

Urban Water Principles published

The collaborative Urban Water Working Group has released its vision for improving our stewardship of urban water bodies, Urban Water Principles.

The principles are intended to prompt action and promote alignment within government and industry – including at the regional and district council level. The principles combine and expand on councils' existing water sensitive design and three waters strategies as well as international examples to create a holistic vision for how we can better provide for ecosystem health and communities' values.

The Group's recommended principles are not Government policy, however we are exploring options to align our policy work. In addition, Minister for Local Government and Associate Minister for the Environment Hon Nanaia Mahuta has welcomed these principles, saying "I am excited to see these principles take shape and I encourage industry and councils to consider them when planning and developing urban spaces."

In its next phase of work, the Group is focusing on identifying specific good practices that relate to these principles and developing recommendations on policy options.

For more information contact Sarah Boone (sarah.boone@mfe.govt.nz or 027 770 8844).

National Monitoring System 2016/17 data released

The Ministry has published the National Monitoring System data for 2016/17 including the full datasets and summary tables. These include interactive tables enabling people to carry out their own analyses. The tables will be added over time and we will be publishing some briefs on specific topics over the next few months. The 2017/18 data is planned to be ready for release immediately after Christmas, depending on remaining councils submitting their data.

For more information contact Isabelle Collins (nms@mfe.govt.nz or 022 069 0579).

All-of-government PFAS response update

We have developed guidance for councils to identify, assess and investigate land where PFAS was manufactured, used or disposed. The guidance, which we will continue to build on, covers everything from soil analysis to roles and responsibilities and best practice for community engagement.

Regular updates from the all-of-government PFAS response programme are published on our website.

For more information contact Andrew Crosland (andrew.crosland@mfe.govt.nz or 022 010 2416).

Coastal hazards and climate change guidance

The roadshow for the Ministry's coastal hazards and climate change guidance wrapped up in October after visiting 12 locations around the country. The reception was generally positive from all audiences, and we received feedback that the workshops have been helpful in supporting councils to implement the guidance.

If you have questions about the guidance or want further support, contact Emma Lemire (emma.lemire@mfe.govt.nz).

New Zealand Coastal Policy Statement guidance roll out

The Department of Conservation (DOC) is continuing to roll out guidance on the New Zealand Coastal Policy Statement 2010 (NZCPS 2010). DOC has been working with the regional council's Coastal Special Interest Group (CSIG), the Ministry, MPI and other agencies to produce guidance notes on the policies in the NZCPS 2010.

New DOC guidance notes include the following.

- **Hazards policy guidance** was released on the DOC website in December 2017. This complements the Ministry guidance on hazards released at the same time.
- The **introductory guidance** note has been updated with a summary of the Supreme Court decision, Environmental Defence Society Inc v New Zealand King Salmon Company Limited [2014] NZSC 38 (King Salmon) and the findings in relation to how the NZCPS is to be read.
- The Policy 17 **historic heritage** identification and protection guidance was put on the DOC website in early October 2018.
- Guidance on Policy 20 **vehicle access** has just been released.

The guidance is being refreshed for Policy 13 *Preservation of natural character* and Policy 15 *Natural features and natural landscapes* in light of the implementation experience since King Salmon.

The water policies guidance will be on the DOC website by the end of the year.

Guidance is also being developed for:

- Policy 5 *Land and waters*, managed or held under other Acts
- Policy 11 *Indigenous biological diversity* (biodiversity)
- Policy 12 *Harmful aquatic organisms*.

For further information contact Karen Bell (kbell@doc.govt.nz or 027 5570 579).

National Planning Standards – incorporating feedback from consultation

We are currently refining the draft first set of National Planning Standards following the close of submissions. We received 201 submissions. We thank all the councils who took the time to make a submission.

At a high level, submissions showed general support for the first set of planning standards. Submissions were comprehensive and constructive. Almost all submissions requested changes, mostly focused on improving workability. Amendments ranged from overarching comments on the structure of regional policy statements and combined, regional and district plans, through to technical amendments on

individual standards such as definitions. A significant number of submissions also commented on implementation matters.

We will be seeking a series of decisions from Ministers in the coming weeks, before the gazettal of the planning standards in April 2019.

For more information email planningstandards@mfe.govt.nz.

Zero Carbon Bill submissions

In October, we released the 15,009 submissions we received on the Zero Carbon Bill and a summary of those submissions. These submissions, along with the latest science, economic modelling and relevant reports, are now being considered as we develop policy advice for Ministers. The next opportunity for you to share your views will be the Select Committee process next year, after the Zero Carbon Bill is introduced in Parliament.

The environment and our well-being

From an economic perspective the well-being of New Zealanders depends on how we use the different types of capital available to us: our human capital, social capital, financial and physical capital, and natural capital.

A few years ago, Treasury published the Living Standards Framework, which has these four types of capitals as its cornerstone. Treasury is now building on this work to develop a new system for measuring well-being and has identified 12 aspects of current well-being.

We are starting to think about how we can use this new framework. For example, a government policy on air quality will obviously impact on the environment, but is also likely to impact on the health and other aspects of well-being.

If you have an interest in well-being measures contact Nicola Scott (nicola.scott@mfe.govt.nz) Claudia Boyles (claudia.boyles@mfe.govt.nz) or Steven Smith (steven.smith@mfe.govt.nz).

Supporting Air New Zealand to reduce plastic waste

As part of the Government's circular economy work programme, we're helping New Zealand businesses adopt circular economy approaches in their supply chains. A great example is Air New Zealand's recent commitment to swap out its Air New Zealand owned single-use plastic packaging to compostable or recyclable alternatives on all the domestic routes by October 2019. We worked collaboratively with Air New Zealand on this initiative, providing advice on lower impact, circular economy alternatives and the recycling and composting solutions that are available in New Zealand for processing packaging after use.

The goal of the work programme is to use resources much more efficiently in the economy, to reduce the amount of waste going into landfills, while also reducing pollution and greenhouse gas emissions.

For more information contact Jay Hadfield (jay.hadfield@mfe.govt.nz or 022 080 0231)

The Ministry – founding member of the Aotearoa Circle

We are proud to be part of the Aotearoa Circle – an exciting initiative that is bringing together senior leaders from across the public and private sectors to halt and reverse the decline of New Zealand's natural assets. The group's first project is the formation of a Sustainable Finance Forum, tasked with designing a roadmap to help NZ shift to a financial system that supports economic, social and environmental outcomes.

Our annual report

Our 2018 Annual Report is now available.

Follow the Environment Select Committee on Facebook

Parliament's Environment Select Committee is now on Facebook. This committee looks at the business related to conservation, environment and climate change, so it's very important to all of the work we do. Follow the page for updates on the committee's activities and streaming of hearings.

Team profile: Te Pūrengi - the Ministry's leadership team

Vicky Robertson has been our chief executive and Secretary for the Environment since April 2015. She is supported by a team of five deputy secretaries: Amanda Moran (Natural and Built System), Cheryl Barnes (Water and Climate Change), Claire Richardson (Chief Operating Officer), James Walker (Partnerships and Customers) and Natasha Lewis (Strategy and Stewardship).

Find out more about our leadership team and their responsibilities on our website.

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Agenda Memorandum

Date 5 February 2019

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: **Report of the Parliamentary Commissioner for the Environment on *Overseer and regulatory oversight***

Approved by: A D McLay, Director Resource Management

B G Chamberlain, Chief Executive

Document: 2179129

Purpose

The purpose of this memorandum is to introduce a report prepared by the Parliamentary Commissioner for the Environment entitled *'Overseer and regulatory oversight: Models, uncertainty and cleaning up our waterways'*, together with commentary by the chief executive of Overseer Ltd and independent experts, and to comment on the significance of the findings for the Council particularly with regard to the preparation of a Regional Freshwater and Land Management Plan.

Executive summary

On 12 December 2018, the Parliamentary Commissioner for the Environment (PCE) released his report *'Overseer and regulatory oversight: Models, uncertainty and cleaning up our waterways'*. The report arose out of a growing debate nationally about the application of a model designed initially to help farmers with their nutrient budgets but which has become increasingly used by regulators (regional councils) to set nutrient limits and to enforce compliance with those limits in an effort to address diffuse water quality impacts from farming practices (with tacit support from the Ministry for the Environment for its use within a regulatory approach).

The report's main finding was that there were important gaps and shortcomings in Overseer that undermine confidence in its use as a regulatory tool and in its applicability in assessing environmental effects. It recommends that if the Government wants to see Overseer used as a regulatory tool, it needs to address these limitations as well as deal with issues concerning its transparency, ownership, governance and funding. The report acknowledges that this would be an expensive exercise that would take some time to complete and would not be sufficient on its own.

Expert reaction to the PCE's report has been consistent and raises concerns with the use of Overseer for regulatory purposes and supports the call for an open analysis and review of the model's components.

The Council's own independent and expert analysis on the use of Overseer as a regulatory tool as part of the review of the *Regional Fresh Water Plan*, has previously concluded that Overseer should not be used in this way. This determination has now in effect been substantiated by the PCE report.

Recommendations

That the Taranaki Regional Council:

1. receives the memorandum 'Report of the Parliamentary Commissioner for the Environment on *Overseer and regulatory oversight*'
2. notes that the Parliamentary Commissioner for the Environment has recommended that if the Government wants to see Overseer used as a regulatory tool it needs to undertake a comprehensive evaluation of the model, including its suitability, uncertainties and inaccuracies, ownership, governance and funding
3. notes that the Council has already commissioned an independent analysis of the suitability of using a model like Overseer as a regulatory tool as part of the review of the *Regional Fresh Water Plan*, and the conclusion of that analysis was that Overseer was not suitable for use in a regulatory context because of accuracy issues.

Background

On 12 December 2018, the Parliamentary Commissioner for the Environment (PCE) released his report '*Overseer and regulatory oversight: Models, uncertainty and cleaning up our waterways*'. The report arose out of a growing debate nationally about the application of a model designed initially to help farmers with their nutrient budgets but which has become increasingly used by regulators (regional councils) to set nutrient limits and to enforce compliance with those limits in an effort to address diffuse water quality impacts from farming practices.

The full report from the PCE can be found at https://www.pce.parliament.nz/media/196493/overseer-and-regulatory-oversight-final-report-web.pdf

A two-page document on frequently asked questions can be found at https://www.pce.parliament.nz/media/196492/faqs-overseer-and-regulatory-oversight.pdf

A media release accompanying the report can be found at https://www.pce.parliament.nz/our-work/news-insights/transparent-overseer-needed-to-regulate-water-quality

Also of interest to the ongoing debate is a concurrent report by Enfocus undertaken for the owners of Overseer on the potential use of the model for water management including limitations on its use for regulatory purposes. The Enfocus report urges councils to exercise care with using Overseer in managing water for effects. 'Overseer should not be considered as a substitute for a broad, multi-pronged approach to water management more generally'. If councils tried to use Overseer for compliance purposes, there could be inequities in inter-farm comparisons, 'creative' use of the model, and legal issues around enforcement. That report can be found at https://www.overseer.org.nz/publications

The main finding of the PCE's report was that there were important gaps and shortcomings in Overseer that undermine confidence in its use as a regulatory tool. It recommends that if the Government wants to see Overseer used as a regulatory tool, it needs to address these limitations as well as deal with issues concerning its ownership, governance and funding. The report acknowledges that this would be an expensive exercise that would take some time to complete and would not be sufficient on its own.

Members may recall that in 2015, as part of the review of the Council's *Regional Fresh Water Plan*, the Council commissioned a series of reports on nutrient mitigation options for Taranaki. One of those reports prepared by CHC Consultants, looked at current modelling tools used in dairy farm nutrient management, including Overseer, and assessed the applicability of those tools in a regulatory setting.

That report noted that Overseer was never designed or intended to be used as a regulatory tool. Rather it was designed as a support tool to assist decision-making on managing nutrient use and losses at a farm level. The use of Overseer to set nutrient limits in catchment receiving waters and then to ascribe a limit for each farm within the catchment, was entirely outside the scope of the purpose of the model. The report concluded that its use in a regulatory setting requires a level of certainty and accuracy that cannot be delivered by the model.

It recommended that the Council not use models such as Overseer with regulatory force in its plans. It further recommended that gaps in science and management needed to be addressed (if indeed they can be), before Overseer could provide the level of certainty required.

In reporting to this Committee on the report, it was noted that the sheer number of catchments in Taranaki, let alone the diversity of on-farm and inter-farm variables within a single catchment, precludes any efficient means of collectively relating each individual farm's activity to desired water quality outcomes via modelling.

The report by the PCE, which is the subject of this memorandum, raises a number of similar concerns with the use of the Overseer model in a regulatory setting.

Discussion

The PCE's report starts with the proposition that agricultural activities contribute to water quality degradation, that something needs to be done about it and that there are many regulatory interventions that could be promoted. The PCE notes that farmers have overwhelmingly stated a preference for effects-based measures over input controls as such measures provide an incentive to innovate.

However, measuring the environmental effects of nutrient losses from an individual farm within a much wider catchment (and to a standard of assignment of cause and degree that would be acceptable for legal compliance and enforcement) is problematic, and this has led some councils to try to estimate the loss through models such as Overseer.

The PCE notes that at the moment, seven out of 16 regional councils do not use Overseer in regional plans as part of their regulation of nutrient limits. Taranaki is among those councils. The remaining councils use it in various ways from requiring the preparation of an Overseer nutrient budget in Farm Environment Plans as part of the requirements for a permitted

activity, through to using Overseer to impose nitrogen loss limits as part of a resource consent. In many cases, the use of Overseer has been brought about by pressures on water resources resulting from rapid land use change combined with the fact that Overseer has been promoted through plan change and review processes (including Environment Court hearings) as the only suitable effects-based tool for regulating nutrient limits. Officers note that Taranaki does not face either those pressures or those processes.

The first point the PCE notes is that Overseer is a model; it doesn't actually measure nutrient levels or losses. It simplifies highly complex processes and standardises equally complex local variability by applying a series of algorithms designed to represent real-world but generalised conditions. It therefore has many of the same limitations as other models. Furthermore, Overseer models nutrients lost from the farming system, but not what happens to the nutrients after that, nor what happens in the surrounding and receiving environments.

All models operate with a level of uncertainty and the critical question for the PCE has been whether the level of uncertainty and accuracy in the information used in Overseer is acceptable in the context of regulation where compliance needs to satisfy a pass/fail test and those being regulated need to feel confident in the results. The test in law for compliance is proof beyond reasonable doubt.

The PCE has also commented that to help build confidence there needs to be transparency around how the model operates. The current proprietary nature of the intellectual property tied up in Overseer (the model is owned by AgResearch, the Ministry of Primary Industries and the Fertiliser Association of New Zealand) is, according to the PCE, a barrier to achieving the sort of transparency that is needed.

In the Conclusions section of the report, the PCE notes:

> *'The assessment contained in this report has revealed that a significant amount of information needed to confirm Overseer's use in a regulatory setting is lacking. For this reason, a comprehensive and well-resourced evaluation of Overseer needs to be undertaken, if both councils and farmers are going to be able to feel confident that the model is fit for purpose. Initiating this will inevitably require access to the engine of the model, which in turn raises important questions about the propriety nature of Overseer.'*

The PCE's report makes a number of specific recommendations, which call for:

- the commissioning of a comprehensive evaluation to ensure the Overseer model is independently reviewed, and is subject to sensitivity and uncertainty analysis;
- greater transparency about how the model works;
- aligning Overseer's ownership, governance and funding arrangements with the transparency required for it to be used as a regulatory tool; and
- setting up a working group to provide guidance on how Overseer can be used by regional and unitary councils.

Expert reaction to the PCE's report has been consistent and raise concerns with the use of Overseer for regulatory purposes. For example, Dr Julie Everett-Hincks, Legal and Scientific Researcher at the University of Otago in commenting on the PCE's report has stated that:

> *'Overseer would not likely withstand legal challenge, but more importantly, is it right to burden farmers with regulatory compliance when the tool used cannot reasonably measure*

> *nutrient losses? In its current form and governance structure, Overseer is not fit to be a regulatory tool'.*

Professor Troy Baisden, BOPRC Chair in Lake and Freshwater Science at the University of Waikato when commenting on the PCE's report noted that:

> *'On the upside, Overseer is well used and reflects some of our farming systems well. That would be perfect if Overseer was still mainly a calculator to improve farm nutrient management. But, when used to enforce regulation, Overseer lacks the openness and transparency needed for scientists to review model results or develop improvements'.*

Professor Richard McDowell, Chief Scientist, Our Land and Water National Science Challenge commented that:

> *… an uncertainty and sensitivity analysis of many of the model's components would be helpful'.*

On the question of uncertainty, we note the enormous complexities of modelling the real world, not only for individual farms but also once nutrients leave the farm. In Taranaki, variables such as climate, hydrology, geology, soil characteristics, on-farm practices etc. vary greatly between farms within a single catchment and between catchments. It has been estimated that even for types of farming systems within models that have been calibrated, actual results for losses of nitrogen can be up to 25 to 30% inaccurate and outside of these calibrated ranges can be up to 50% inaccurate. Some parts of New Zealand, including Taranaki, have not had Overseer calibrated to regional conditions.

Such inaccuracies mean the tool is currently not suited to enforcing regulation – and will never be, given it is a model. Its use as a farm management tool and possibly for high level trend work is accepted.

Federated Farmers has stated that:

> *'The significant inherent inaccuracies in the Overseer model means that it is very unfair when the model is used to regulate farming activity central to farmers' livelihoods, and even more importantly to mount prosecutions.'*

The chief executive of Overseer Ltd, the company set up to own, develop and administer the Overseer software, is setting up meetings with central and local government to develop better guidance on its use. Chief executive Caroline Read wants regulators to move away from using it to provide an absolute number on the amount of nitrogen being leached. She noted that its use is in determining trends and proportionate changes. She notes that there are too many variables involved to calculate nutrient losses with any accuracy, and suggested that actual losses of nitrogen from a farm can never be known. Instead, Ms Read wants councils to abandon judging farmers on 'hard numbers' with a pass/fail decision, towards applying it to evaluation of alternatives and identifying trends. Ms Read points out that the Overseer model was intended and designed as a tool for farmer decision-making around process changes.

These views support to the Council's own independent and expert analysis on the use of Overseer as part of the review of the *Regional Fresh Water Plan*, which concluded that Overseer should not be used in the way other councils have adopted. It could perhaps be

useful in providing guidance about the relative change or comparison of changes to farming systems but not for assigning absolute numbers for RMA enforcement and compliance purposes. The Council has consistently advocated this position for some time.

Now, the PCE's report highlights the inadequacies of the Overseer model in regulatory and environmental performance applications, and calls for an independent review of Overseer to see whether it can be made fit for purpose including sensitivity and uncertainty analysis. This would include guidance on how Overseer could be used by regional councils and what sort of limitations or restrictions might apply.

Staff view models as potentially useful aids to decision-making but because of their serious limitations in ascribing a benchmark for legal compliance do not think they are suited to use in regulatory situations.

Staff further note that the PCE did not attempt to address the fundamental questions of whether nutrient management is in fact the best way to manage farm practices for environmental consequences, and indeed even more importantly, whether nutrient management in receiving waters is the be-all and end-all for enhancing stream health and ecological wellbeing.

Staff also note that the language of the PCE report in its body is even more forthright and critical than comes through in the recommendations. It is acknowledged that the PCE is writing for a broad audience of varying receptivity. But for instance, the report notes that the widely quoted 'uncertainty' in the model of plus or minus 30% '*did not include errors associated with measurements, or uncertainty from data inputs, providing only part of the full picture of quantifying uncertainty.*'[1] …Instead, the PCE suggests *'uncertainty is likely to exceed 50%, but could be much higher still'*[2]. The PCE notes that on well-studied soils in Canterbury, estimates of leaching rates derived from Overseer '*could be anywhere from nearly 40% below to 60 per cent above the actual leaching rate*'[3]. In other words, a farm with an overall leaching rate of 30 kg N/hectare/year could be accused of leaching 50 kg N/hectare /year on the basis of Overseer modelling, even if the latter has been calculated using good field data for that specific farm and not just generic default values. In one case the PCE reports, experts came to the consensus that they were 90% confident the nitrogen loading rate on one particular catchment was somewhere between 400 and 910 tonnes/year[4] - a range of well over 100% of the lower figure, and even then the experts could not exclude the possibility they were well off the mark.

The PCE further provides a catalogue of what Overseer cannot do[5]. The list includes-
-modelling situations where farm management changes (staff would add: or even where it is not changing);
-capture nutrient losses on a daily, weekly, or seasonal basis;
-guide farmers in day to day management decisions (eg when to apply fertiliser, when and where to graze stock or irrigate wastes);
-capture real world processes (eg uneven fertiliser application, stock grazing rates, variable pasture growth);

[1] Pg36
[2] Pg37
[3] *ibid*
[4] Pg 38
[5] Pg 47

-recognise any benefits of innovative practices;
-model one-off events (eg pasture slips, spills, or drought or deluge events);
-or provide any information at all about nitrogen beyond the root zone, or about phosphorus in any waterway beyond immediate small surface receiving waters.

The PCE makes it plain that public good investment is needed if the model is to be trusted.[6]

Staff suggest that these constraints and limitations are telling.

The PCE's report and recommendations if acknowledged by the Government, will provide for the first time, an independent, technically robust and close examination of Overseer and its appropriateness and suitability for use in regulation or other environmental performance assessment.

Decision-making considerations

Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

Financial considerations—LTP/Annual Plan

This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Local Government Official Information and Meetings Act 1987*.

Iwi considerations

This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the *Local Government Act 2002*) as outlined in the adopted long-term plan and/or annual plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

Legal considerations

This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Attachment

Document 2187541: Farmers Weekly 14 January 2019 Interview with Caroline Read, Overseer Chief Executive.

[6] Pg122

Caution urged on Overseer use

Neal Wallace
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A FLURRY of reports advising caution in the use of Overseer has prompted developers of the technology to convene meetings with local and central government to develop better guidelines on its use.

Three reports released last year, and another commissioned by Overseer Ltd, confirm the technology was a decision support tool for farmers but was increasingly being used by regional councils as a tactical tool used especially for setting and measuring nitrogen leaching limits.

Overseer chief executive Caroline Read said she will work with regulators to get consensus on how to best use Overseer and to move away from it being used to provide an absolute number on the amount of nitrogen leaching.

Reports last year by the Biological Emissions Reference Group, Productivity Commission and the Parliamentary Commissioner for the Environment all raised doubts about the accuracy of Overseer in establishing absolute numbers on the level of nitrogen emissions.

Read said Overseer was more accurate at measuring trends and proportionate changes over time.

SYSTEM FOCUS: Overseer chief executive Caroline Read says Overseer is designed to compare the impact of system changes, rather than providing absolute numbers.

The Overseer-commissioned review, by Gerard Willis of Enfocus, described Overseer as a decision support tool for farmers.

"That is, it allows the user to understand the long-term impacts of system wide changes to a farm rather than day-to-day changes in N-loss."

Actual N-loss from a farm can never be known because it cannot be reliably measured for a whole farm and Willis said as with any modelling, Overseer simplified complex processes and standardised localised variability.

Read said in an interview there were too many variables to accurately measure any nutrient losses from a farm and she wants councils to move away from having "hard numbers" on which farmers are judged to have either passed or failed to one where Overseer was used to determine trends and compare system and management changes.

As technology improves Read said measuring nutrient loss will become more accurate and provide farmers with a comparison of the impacts of different systems and management changes.

"That is what we are trying to achieve at Overseer, to give farmers the opportunity to understand that if they make changes, what it will mean to their system," she said.

Willis said in his report that Overseer modelled rather than measured nutrient loss, and then only losses below plant root zones.

Councils have used it as a regulatory tool for more than a decade, principally as a compliance measurement tool and to set nutrient loss limits.

Over time its use has extended as regional councils look for technology to measure diffuse discharges and to meet freshwater quality targets.

Willis urged care with its use in planning effects-based water management.

"Overseer should not be considered as a substitute for a broad, multi-pronged approach to water management more generally."

Willis said after N, phosphorous (P) was the other important nutrient for water quality and while regional councils did not set property-specific P-loss limits using Overseer, there have been calls for this happen.

He said Overseer assumed all farmers followed good management practices, but this ignored changes to improve those practices and similarly ignored those following poor management.

He warned that using Overseer to show compliance or compliance failure against specific N leaching limits could lead to inequities in the way farmers are treated relative to others, drive creative uses of Overseer and be difficult to justify and enforce if tested legally.

For that reason, he advocated Overseer be used to estimate farm performance against a target range and where failure to meet those standards triggers closer scrutiny of a farm operation.

> *"Overseer should not be considered as a substitute for a broad, multi-pronged approach to water management more generally."*
>
> **Gerard Willis**
> Enfocus

This may not necessarily mean refusal or forfeiture of consent, because Willis said Overseer data should not be the only consideration for regulators.

"This approach contrasts with one that uses Overseer as part of a pass/fail test that sees a limit imposed and the activity unable to be authorised, even under a consenting regime, until such time as Overseer can demonstrate that the limit will not be exceeded."

Agenda Memorandum

Date 5 February 2019

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: Proposed regulation of municipal waste water discharges

Approved by: G K Bedford, Director-Environment Quality

B G Chamberlain, Chief Executive

Document: 2183925

Purpose

The purpose of this memorandum is to outline and present commentary on a recent Cabinet paper proposing future regulation of wastewater management in New Zealand.

Executive summary

The Cabinet paper in question asserts that the framework for regulation of wastewater management in New Zealand suffers from the absence of clear national guidance, unacceptable environmental impacts, a lack of public reporting on compliance and environmental performance, poor consenting practices, little enforcement, and inadequate investment and staff training. The solution proposed is a suite of national level interventions, including new regulatory tools.

This memorandum sets out the situation in Taranaki, including a discussion of this Council's consenting, compliance and enforcement practices and the regional past and future investment in wastewater management. It is suggested that the Ministry for the Environment (MfE) assertions are not borne out in the light of the Taranaki context.

The Council consistently applies the same regulatory approach for waste water systems as it does to all other consented activities under its Enforcement Policy.

Independent surveys of the Council's consenting, monitoring and enforcement have shown there are longstanding comprehensive systems and processes in place and appropriate staff resources and capacity to professionally and competently undertake this critical activity.

Recommendations

That the Taranaki Regional Council:

1. receives the memorandum *Proposed regulation of municipal waste water discharges*
2. notes the information contained therein concerning the regulatory management of wastewater systems in Taranaki

3. confirms that an evidential basis for the Government's proposals is not apparent in Taranaki and that this position forms the basis for any future engagement with the Ministry for the Environment in respect of an appropriate regulatory framework for wastewater management.

Background

In November 2018, the Government released a Cabinet paper (attached) that sets out a road map for Government decision-making around the '3 Waters'- the management of drinking water, stormwater, and wastewater. The paper was driven in part by the Havelock North water supply pollution event, and partly by the increasing recognition that territorial local authorities are facing monumental costs around the replacement, upgrading, and provision of utility services for the 3 Waters. While the Cabinet paper was concerned primarily with the future state of municipal water supply, which has been the subject of widespread interest and awareness, it also included a significant commentary on what the Ministry for the Environment considers to be the 'unacceptable' state of management by regional councils of wastewater discharges, along with proposals for increased central Government regulation of these facilities. The paper suggests that there are 'many hidden problems' that have not been 'exposed'. The proposals include a new '3 Waters' regulator (inter-agency- Department of Internal Affairs, Ministry for the Environment (MFE), and Ministry of Health) to provide regulatory oversight of the management of wastewater facilities, administer compliance, monitoring and enforcement roles, and to require public accountability.

Specifically, the Cabinet paper proposes the new regulatory framework could include:-
-setting national-level environmental performance requirements for wastewater systems, including minimum standards for effluent discharges and targets for controlling wastewater overflows;
-good practice guidance for re-use of wastewater biosolids;
-obligations for public reporting on compliance and environmental performance;
-involvement of the new MfE Compliance Oversight Unit in requiring improved compliance monitoring, enforcement, and reporting.

Council officers are aware that there is an intention by MfE to gather evidence by means of a survey in the near future, to ascertain the state of wastewater management in New Zealand.

By way of context, the regional/unitary council sector has commissioned an independent report on compliance monitoring and enforcement undertaken that will be released early in 2019. The report will positively show the Council's activities and that there is much more compliance monitoring and enforcement activity being undertaken by the sector than some critics have been aware of.

The Council was recently audited by its peers as part of the strategic compliance framework and received positive feedback about the systems and processes it in place.

In early 2017, Dr M Brown, (from the Environmental Defence Society) presented a report on compliance, monitoring and enforcement of New Zealand's environmental law. The purpose of the report was to explain the role and importance of enforcing environmental compliance and to provide an empirical snapshot of how it is practiced in New Zealand. The Resource Management Act and councils' performance under the Act was assessed. The report noted the regional and unitary council sector had generally improved significantly over the past

decade in the way they administer their compliance monitoring and enforcement role. Increasing capacity, professionalization and monitoring and reporting processes were evident. This Council's compliance, monitoring and enforcement regime is well established, sophisticated and effective, and does not experience the political and operational issues identified at other regional councils in the survey. An agenda item on the report was presented to the May Consents and Regulatory meeting.

Discussion

The Cabinet paper deplores the lack of public reporting on the environmental performance of wastewater treatment plants (paragraph 37.2). The Taranaki Regional Council publicly provides a comprehensive report on the performance of every WWTP every year, within 9 months of the end of the monitoring year, to the Consents and Regulatory Committee, which now includes iwi representation. Reports remain publicly available on the Council's website. Compliance monitoring consists not only of receipt of consent holder reports and Council officer site visits, but also elements such as regular ecological surveys of receiving waters, mussel studies for bacteria/virus levels and for heavy metals, and effluent and receiving environment bacteriological and physico-chemical analysis. Outfall dispersion performance and structural integrity has to be certified.

The Cabinet paper reports high numbers of wastewater facilities operating on expired consents, with another 'bow wave' of consents due for renewal by 2022 (paragraph 37.3). In Taranaki, there are no wastewater facilities operating on expired consents. With the Council's catchment-based renewal schedule, there is no forthcoming surge in consent renewal requirements.

The Cabinet paper suggests there is a *lack of formal enforcement action on the part of regional councils where consent conditions are breached, and concerns over the technical capability of some regional councils to effectively regulate wastewater services to achieve good outcomes for the environment and local services* (paragraph 37.4). The Committee may note that this Council undertook a prosecution of a local council in 2015, that resulted in one of the largest fines ever imposed under the RMA. Slow progress over the upgrading of the Eltham wastewater system was addressed by this Council taking an enforcement order against STDC. Any non-compliance events (whether discovered or self-notified) are publicly reported to the Council on a six-weekly cycle. In the last five years, this Council has issued two abatement notices and two infringement notices against the region's districts in respect of non-compliance and unauthorised events associated with wastewater systems.

The technical capacity of this Council includes a number of staff who have received formal training and qualifications in the area of wastewater treatment and who collectively have decades of operational experience. In terms of achieving good outcomes for the environment and the local community, the changes in wastewater treatment brought about in the region over the last few decades are set out in the table below. These have come about as the regional council has worked collaboratively with the district councils, community and iwi to identify and address treatment and disposal systems that no longer met community and iwi expectations or with unacceptable environmental outcomes. Critically, environmental monitoring, especially of the ecological health of receiving waters, demonstrates significant improvements in the quality of the various receiving environments as these enhancements have been delivered. Sewage system overflows have been reduced markedly for a number of systems.

In addition to its criticism of regional councils, the Cabinet paper claims there to be a lack of investment and competence in management of WWTPs. Set out below is a summary of the changes to wastewater treatment and disposal that have been brought about in Taranaki in recent years. Attached to this memorandum is a more detailed analysis of the ongoing commitments by the three district councils to upgrading wastewater systems in the region.

Facility	Previous	Current
Urenui and Onaero beach camps	Septic tanks and under-sized soakage trenches; leaks from network	Properly sized soakage fields
Waitara	Pre 1990, short ocean outfall without treatment. 1990-2014, treatment and long ocean outfall.	Flow balancing at pumping station. Most waste water piped to New Plymouth for advanced secondary treatment. Dilute stormwater flows occur through the outfall with a programme to reduce these.
Bell Block	Industrial and residential wastewater treated through oxidation ponds discharging onto foreshore	Decommissioned. Wastewater piped to NP for advanced secondary treatment
Inglewood	Hydraulically overloaded ponds discharging to Kurapete Stream	Ponds used for flow balancing. Wastewater piped to NP for advanced secondary treatment
New Plymouth	Raw sewage into near-shore zone adjacent to beaches	Advanced secondary treatment and 450 m ocean outfall
Oakura	Septic tanks with infiltration to streams	Piped to New Plymouth for advanced secondary treatment
Stratford	Oxidation ponds	Pretreatment and upgraded oxidation ponds
Eltham	Industrial and residential wastewater treated through grossly overloaded oxidation ponds discharging into stream	Ponds used for flow balancing and initial treatment. Wastewater piped to Hawera oxidation ponds for secondary treatment and discharge through long ocean outfall
Hawera	Oxidation ponds and discharge to coastal stream	Refurbished anaerobic and oxidation ponds and long ocean outfall
Opunake	Oxidation ponds and short outfall	New pumping station, oxidation ponds followed by land soakage/infiltration
Kaponga	Oxidation ponds	Upgraded oxidation ponds
Waverley	Oxidation pond	Pretreatment and upgraded pond system
Manaia	Oxidation ponds	Upgraded pre-treatment, upgraded oxidation ponds followed by wetlands

Wai-inu	Septic tank, trickling filters and land soakage	Septic tank, trickling filters and land soakage improvements
Patea	Oxidation ponds and short estuarine outfall	Upgraded network and pumping station. Upgraded oxidation ponds. Reduced system overflows to estuary.

The Cabinet paper also states that there are no quality assurance procedures for the safe production of biosolids from sewage sludge. This is simply incorrect. The Ministry of health has guidelines for the beneficial re-use of biosolids derived from sewage, while Water New Zealand in 2016 issued a good practice guide for *Beneficial Uses of Organic Waste products on Land*. Significantly, this guide was developed in partnership with the ministries of Health, Environment, and Primary Industries. The NPDC 'Bioboost' product has had wide public acceptance for several decades.

Conclusions

The Cabinet paper suggests that on the basis of the statements it presents, there is a clear justification for national regulatory intervention in wastewater management. Officers are clear on an evidential basis, that there is in fact no such justification within the Taranaki context.

This Council's compliance, monitoring and enforcement regime is well established, sophisticated and effective.

The Council consistently applies the same regulatory approach for waste water systems to all other consented activities under its Enforcement Policy.

Independent surveys support the above assertions.

There has been no definitive statement from MfE as to the next steps arising from the Cabinet paper. Officers understand that stakeholder engagement will be likely within a few months. It is suggested that any response that the Council is invited or required to make should be based on the Taranaki context as described within this memorandum.

Decision-making considerations

Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

Financial considerations—LTP/Annual Plan

This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks

including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Local Government Official Information and Meetings Act 1987*.

Iwi considerations

This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the *Local Government Act 2002*) as outlined in the adopted long-term plan and/or annual plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

Iwi have had the opportunity to be actively involved over the years in the consent processes associated with the upgrading of the regions wastewater systems as summarised in the above table.

Legal considerations

This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Appendix 1: LTP statements re wastewater systems from STDC and SDC
Document 2183097: Case study for Consents and Regulatory Committee: NPDC Wastewater performance and improvement
Document 2186837: Cabinet paper; Future state of the three waters system: regulation and service delivery

Appendix 1: LTP statements re wastewater systems from STDC and SDC

STDC LTP

The majority of wastewater treatment systems have sufficient capacity for the next ten years. Our biggest future challenges in the Wastewater activity are to manage wastewater pond discharges and reduce the levels of inflow and infiltration.

A programme of sewer CCTV has been established to assess the condition of sewers and develop a prioritised schedule of pipes to either be replaced or relined. Allowance has been made during the next three years for a further $4.5 million to be spent on sewer rehabilitation to manage the amount of rainfall-derived inflow and infiltration and achieve the performance targets we have set. We will continue to benchmark this against other councils in the annual Water New Zealand National Performance Review.

Managing sludge levels in our oxidation ponds is a very important part of maintaining effective treatment, with those taking significant trade waste loads the most critical. The ponds at Eltham, Hawera and possibly Manaia are likely to have ongoing sludge maintenance, with other ponds having intermittent desludging.

A study into the viability of constructing a wastewater scheme for Ohawe will be completed in 2017/18. If viable the construction is not likely until 2031/32, due to substantial consenting issues that would need to be worked through.

Low levels of potentially harmful organisms (norovirus) in shellfish were found after monitoring near the marine outfall in Hawera in August 2017. This can be infectious to humans, resulting in sickness for a few days. We are working with Iwi and the Taranaki Regional Council on possible long term solutions, including additional treatment at the ponds, an increased monitoring regime, and intensified public warning system. We have highlighted in our Infrastructure Strategy that the solutions will be an additional cost that we need to factor into this LTP to minimise re-occurrences of the norovirus reappearing in the medium term. Renewal of our discharge resource consents may require works to improve the treatment of sewage to comply with new consent conditions. These will be reviewed for inclusion in the next LTP.

FUTURE PROJECTS

The main projects to be undertaken during the next ten years
are:

- Completion of the renewal of the consents to discharge Hawera and Eltham's treated effluent to sea via the 1.8 km long Fonterra outfall.
- Renewal of the discharge resource consent for Wai-inu Beach, Pātea, Eltham and Hawera emergency discharges.
- Implementing a sludge dewatering facility and a septage (septic tank sludge) receiving facility or a combination of both at Hawera Wastewater Treatment Plant.
- Installation of sufficient aeration capacity to mitigate the risk of failing consents at plants with significant trade waste loads.
- An intense programme of CCTV inspection of sewers followed by the rehabilitation of faults using sewer relining techniques or physical replacement. This will form a major part of the project to manage the amount of rainwater entering the wastewater network.

KEY CAPITAL PROJECTS

The Council is planning to undertake the following key capital projects. The full list of capital projects can be found in the Chapter "Our Costs".

Description	Year	Total ($)
CCTV Inspection of Sewer Conditions	2018-2028	$1.1m
Rehabilitation of Sewers	2018-2028	$9.76m
Renewal of Resource Consents	2018-2028	$1.07m

WHAT YOU CAN EXPECT AND MEASURING OUR PERFORMANCE

Level of service	**Performance Measure C = Customer measure T = Technical measure**	**Actual 2016/17**	**Target 2018/19 Year 1**	**Target 2019/20 Year 2**	**Target 2020/21 Year 3**	**Target 2021-28 Years 4-10**	**Measured by**
Sewage is managed without risk to public health	(C) Number of sewage overflows into occupied buildings due to faults in the public wastewater system	0	0	0	0	0	CRM system and Internal Complaints and Compliments Register
	(T) Median response time for service personnel to attend overflow ***DIA Performance Measure 3a***	34m	≤ 2 hrs	≤ 2 hrs	≤ 2 hrs	≤ 2 hrs	CRM system and Internal Complaints and Compliments Register
	(T) Median response time for service personnel to resolve overflow ***DIA Performance Measure 3b***	2h/8m	≤ 5 hrs	≤ 5 hrs	≤ 5 hrs	≤ 5 hrs	CRM system and Internal Complaints and Compliments Register
	(C) Number of customer complaints per year relating to odours from wastewater pump stations or treatment facilities (per 1000 connections) ***DIA Performance Measure 4a***	0.38	≤ 1	≤ 1	≤ 1	≤ 1	CRM system and Internal Complaints and Compliments Register
	(C) Number of complaints received about sewerage system	26.6	≤ 26	≤ 25	≤ 24	≤ 23	CRM system and Internal Complaints and Compliments Register

	faults (per 1000 connections) ***DIA Performance Measure 4b***						
	(C) Number of complaints received about sewerage system blockages (per 1000 connections) ***DIA Performance Measure 4c***	13.3	≤ 11	≤ 11	≤ 11	≤ 11	CRM system and Internal Complaints and Compliments Register
	(C) Number of complaints received about response to issues (per 1000 connections) ***DIA Performance Measure 4d***	0	≤ 3	≤ 3	≤ 3	≤ 3	CRM system and Internal Complaints and Compliments Register
	(C) Total number of complaints (per 1000 connections). ***DIA Performance Measure 4a-4d***	New measure	≤ 41	≤ 40	≤ 39	≤ 38	CRM system and Internal Complaints and Compliments Register
	(T) Number of dry weather overflows per 1000 connections ***DIA Performance Measure 1***	0.89	≤ 1	≤ 1	≤ 1	≤ 1	CRM System and Internal records
	(T) % of compliance with discharge standards	98%	100%	100%	100%	100%	Annual Report provided by TRC
	(T) Number of abatement notices received for discharges ***DIA Performance Measure 2a***	0	0	0	0	0	TRC Correspondence and Reports and Internal records

WHAT YOU CAN EXPECT AND MEASURING OUR PERFORMANCE

Level of service	Performance Measure C = Customer measure T = Technical measure	Actual 2016/17	Target 2018/19 Year 1	Target 2019/20 Year 2	Target 2020/21 Year 3	Target 2021-28 Years 4-10	Measured by
Sewage does not affect the quality of the environment Residents are satisfied with	(T) Number of infringement notices received for discharges ***DIA Performance Measure 2b***	0	0	0	0	0	TRC Correspondence and Reports and Internal records

Wastewater services overall							
(T) Number of enforcement orders received for discharges ***DIA Performance Measure 2c***		0	0	0	0	0	TRC Correspondence and Reports and Internal records
(T) Number of convictions received for discharges ***DIA Performance Measure 2d***		0	0	0	0	0	TRC Correspondence and Reports and Internal records
(T) Annual rainfall – derived inflow and infiltration		New measure	6%	5%	4%	3%	Annual Calculation
(C) % of residents satisfied with the Wastewater services overall		75%	≥ 80%	≥ 80%	≥ 80%	≥ 80%	Annual Residents Survey

SDC LTP

Statement of Service Provision

SDC continue to report on progress with the implementation of the inflow and infiltration reduction programme to minimise stormwater inflow. This programme includes visual infiltration surveys in winter and summer, followed by CCTV surveys within the reticulation to determine sections requiring repairs or replacement.

During the 2017-2018 year, SDC relined 275 meters of earthenware sewer pipe with PVC pipe. In conjunction, seven sub-standard lateral joints had fiberglass inserts instilled to ensure proper seals were achieved. In addition to the relining work, 18 manholes that were believed to be potentially discharging wastewater under high flow conditions were replaced or sealed.
This work was completed to a cost of $70,380 for pipe lining and $53,320 for manhole rehabilitation.

Level of Service	Performance Measure	Actual 2016/17	Target				How Measured
			Year 1 2018/19	Year 2 2019/20	Year 3 2020/21	Years 4-10 2021-2028	
Wastewater is managed without risk to public health.	**System and adequacy -** The number of dry weather sewerage overflows from the territorial authority's sewerage system, expressed per 1000 sewerage connections to that sewerage system.	**Achieved – 0**	<5	<5	<5	<5	Reporting against corporate CRM system.
	Discharge compliance - Compliance with the territorial authority's resource consents for discharge from its sewerage system measured by the number of • Abatement notices • Infringement notices • Enforcement orders; and • Convictions, Received by the territorial authority in relation to those resource consents.	**Achieved – 0**	0	0	0	0	Consent & compliance documentation.

Fault response times	Where the territorial authority attends to sewerage overflows resulting from a blockage or other fault in the territorial authority's sewerage system, the following median response times measured:						Work order tracking/reporting through Council's Infrastructure asset management system.
	• Attendance time: from the time that the territorial authority receives notification to the time that service personnel reach the site; and	**Achieved – 48 minutes**	1 hour	1 hour	1 hour	1 hour	
	• Resolution time: from the time that the territorial authority receives notification to the time that service personnel confirm resolution of the blockage or other fault.	**Achieved – 1 hour, 55 minutes**	8 hours	8 hours	8 hours	8 hours	
Customer satisfaction	The total number of complaints received by the territorial authority about any of the following: • Sewage odour	**Not Achieved – 6.1 – due to more than expected**	<5	<5	<5	<5	Reporting against corporate CRM system.

	• Sewerage system faults • Sewerage system blockages, and • The territorial authority's response to issues with its sewerage system, Expressed per 1000 connections to the territorial authority's sewerage system.	**blockages and minor maintenance calls being recorded.**					

1.5 Key Future Projects

Project	Category	2018/19	2019/20	2020/21	2021-28
Resource Consents Level of Service		$250,000	$769,000	$262,000	$503,000
Safety Improvements Level of Service		$32,000	$33,000	$34,000	$69,000
Pipework Capacity Increase Level of Service		$100,000	$103,000	$105,000	$811,000

Case Study – NPDC Wastewater performance and improvement

Part of the Council's approach to compliance and enforcement is the encouragement of consent holders to proactively improve environmental performance and protection, rather than just react to incidents as they occur or accept the status quo between consent renewal occasions. This approach is evident in the treatment of municipal wastewater across the region, where there have been major advances in treatment performance at facilities such as the New Plymouth and Waitara wastewater treatment plants, the Bell Block, Inglewood, Hawera, and Stratford oxidation ponds, and the Eltham wastewater treatment plant. The case study below sets out the continuing investment in improved wastewater treatment by NPDC.

Figure 1 (left below) shows the decreasing number of unauthorised incidents in the reticulation and from sewer pump stations (SPS) over the last four compliance years.

Figure 1 Unauthorised Incidents from reticulation & SPSs

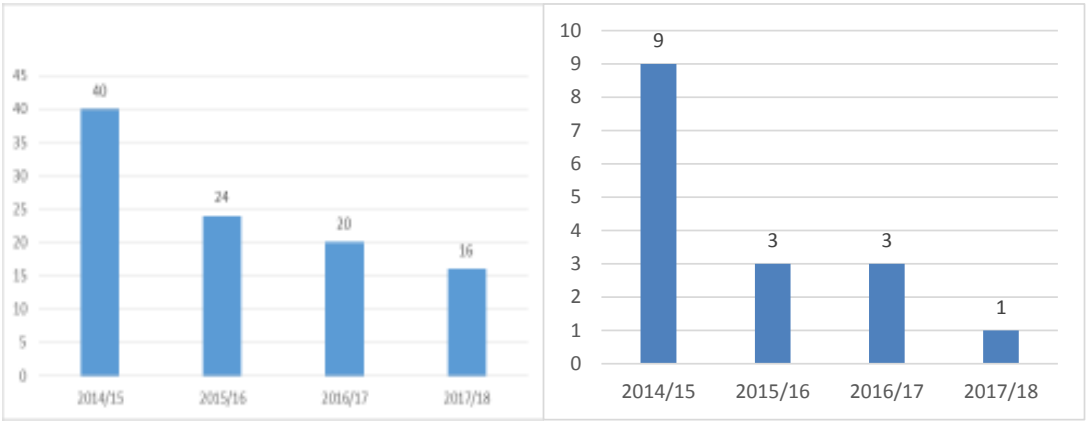


Figure 2 Unauthorised Incidents from the NP WWTP

Figure 2 (right above) shows the decreasing number of unauthorised incidents from the New Plymouth WWTP for the last four compliance years.

Inflow & Infiltration Reduction

In order to reduce the loading entering the sewerage system and thus minimise wastewater overflows and discharge of partially treated wastewater to the environment, NPDC has an extensive programme to minimise inflow & infiltration (I&I) of stormwater into the sewer network. These works includes pipe lining, pipe renewals, and smoke testing and Distributed Temperature Sensing (DTS) for identification of illegal connections. In the last three years NPDC has spent over $2m on I&I works, with $1m being spent in the last financial year. Table 1 shows the breakdown of I&I spend on the reticulation network over the last few years.

	2015/2016		2016/2017	2017/2018		
	Pipe Lining	**Smoke Testing**	**Pipe Lining**	**Pipe renewals**	**Pipe Lining**	**DTS***
New Plymouth	$ 400,505	$ -	$ 309,617	$ 404,268	$ 79,496	$ -
Bell Block	$ 13,530	$ 638	$ -	$ 6,326	$ -	$ -
Inglewood	$ 49,542	$ 1,022	$ 30,530	$ -	$ 101,961	$ 62,760
Waitara	$ 203,643	$ 33,912	$ 118,222	$ 287,107	$ 79,496	$ -
Total	**$ 667,220**	**$ 35,572**	**$ 458,369**	**$ 697,701**	**$ 260,953**	**$ 62,760**
Annual total	**$702,792**		**$ 458,369**	**$1,021,414**		
3 year total	**$2,182,575**					

Infrastructure upgrades & operational improvements

Sewer Pump Stations

Upgrades of eleven SPSs were undertaken in order to minimise wastewater overflows. This includes the construction of a new SPS to allow for the new subdivisions between Wills Road and Airport Drive.

Reticulation Improvements and Pipeline Construction

Construction of a new wastewater pipeline from Waitara to the New Plymouth WWTP in 2014 eliminated the continuous discharge of partially treated wastewater into the Tasman Sea via the Waitara Marine Outfall. The original discharge line between the Waitara Transfer Pump Station to the Marine Outfall pump station is now used to provide gravity storage for unexpected overflows from SPSs in Waitara. Since the implementation of this storage 4 years ago there have only been four overflows from the Waitara Outfall, two in 2016, one in 2017 and one in 2018.

Construction of a new wastewater reticulation network in Oakura and a pipeline to transfer wastewater through to the New Plymouth wastewater reticulation network in 2010 has reduced the number of septic tanks in Oakura and therefore reduced any potential seepage into streams.

Wastewater Treatment

During 2018 NPDC completely replaced the disinfection system at the New Plymouth WWTP with state of the art technology. The NP WWTP site has always had a back-up generator capable of sustaining limited operations (preliminary treatment & disinfection), however it did not kick in with the two power outages in the 2014/2015 compliance year. NPDC then implemented a regular routine to inspect and run all back-up power generators on all sites and there have since been zero incidents related to power outages to the NP WWTP site.

Inglewood Oxidation Ponds and Sewer Pump Station

In late 1999 major upgrades allowed for the wastewater from Inglewood to be transferred to the NP WWTP. Since then discharges to the Kurapete Stream are minimal and occur only after extreme rainfall events.

Reporting and communications

NPDC has implemented new processes for reporting of wastewater overflows to all interested parties in the last three years, including but not limited to TRC, TDHB-PHU, iwi/hapu, surf clubs, river users, councillors, and community boards. These groups receive written notification via email within 24 hours of any overflow, and NPDC staff and/or Contractors verbally warn any beach or river users in the vicinity immediately.

New permanent signage has also been installed at popular swimming and kai gathering spots, which has improved public awareness and understanding of the warnings in place.

NPDC together with TRC and TDHB has made major changes to public communications on their websites. All organisations now have a "***Can I Swim***" webpage which shows on a map where any warnings are in place, and NPDC also has a 'Wastewater Overflow' webpage. The Wastewater Overflow webage also has a link to the MPI Toxic Shellfish Warning webpage. NPDC have also improved internal communications between the environmental health and three waters teams and communications with MPI and TRC to ensure that there is no conflicting signage out in the community.

Planned works

Inflow & Infiltration Reduction

A total budget of approximately $700K has been allocated to pipe lining, CCTV (for detection of leaks and breakages, blockages such as debris and tree roots, and illegal connections) and other inflow and infiltration investigation measures for the 2018/2019 financial year.

Infrastructure upgrades & operational improvements

For 2018/2019 NPDC have doubled the preventative maintenance budget which is now approximately $600K annually.

Sewer Pump Stations

Wastewater overflow prevention at SPSs is a key objective in NPDC's Long Term Plan (LTP), with $17m earmarked over the next 10 years for upgrade works. The plan includes installing storage where practicable or other alternative options where storage is not practicable and back-up generators (do deal with power outages) where practicable.

Reticulation Improvements

NPDC plans to install more durable and long lasting PVC wastewater pipes with approximately $60m earmarked for wastewater network pipeline renewals over next 10 years.

Wastewater Treatment

To date the focus on reducing unauthorised incidents from the New Plymouth WWTP has been on plant and equipment upgrades, which has been highly successful. Going forward, NPDC plans to complement upgrade works with development of an Operational Excellence Framework which will include implementation of management systems that comply with the requirements of ISO14001 – Environmental management systems – requirements with guidance for use.

National and Government perspective

The Ministry for the Environment at the end of last calendar year presented a paper to the Cabinet that was highly critical of regional councils for deemed failures to set appropriate environmental performance requirements, failure to require consents to be current, failure to enforce consents, and failure to report publicly on consent holder performance and compliance. The paper stated that municipal wastewater plants were poorly funded and managed, and were having unacceptable effects upon receiving environments. A response to the Cabinet paper is being presented at today's Policy and Planning Committee meeting. Council officers reject the sweeping propositions set out in the Cabinet paper as lacking an evidential basis, at least from this region's perspective. The above case study is part of the evidence to the contrary.

IN CONFIDENCE

Office of the Minister of Local Government
Office of the Minister of Health

Chair
Cabinet Economic Development Committee

Future state of the three waters system: regulation and service delivery

Proposal

1. This paper sets out a road map for decisions on the future state of the three waters – drinking water, wastewater, and stormwater.

Executive summary

Problem definition and case for change

2. The best evidence available indicates there are system-wide challenges facing the three waters, and the response will need to be system-wide, from source to tap and back again.

3. In many parts of the country, communities cannot be certain that drinking water is safe. The events that led to the Havelock North contamination, along with the findings of the subsequent Inquiry, have demonstrated that the existing system does not adequately safeguard against the risk of catastrophic contamination incidents, or drive improving compliance with the drinking water standards. The Inquiry into Havelock North Drinking Water observed there is little understanding amongst the New Zealand public about the large numbers of people who become ill every year by consuming unsafe drinking water.

4. Council wastewater systems are facing similar system-wide challenges. Wastewater plants are impacting on freshwater and coastal water quality, and sewage overflows are occurring at a frequency that is no longer acceptable for communities, particularly for Māori. In many regions, regional councils do not (and are not required to) publish sufficient information to provide assurance about the impact of wastewater services on the environment. If comprehensive information were available, it is likely many hidden problems would become exposed.

5. There are challenges facing council stormwater services, but their nature (and the options for responding to them) is different to those facing drinking water and wastewater, in large part because stormwater is an open system that is closely associated with roading and urban land use. There is a lack of good quality information about the condition of stormwater infrastructure and its susceptibility to climate change.

6. Hard data and evidence of the extent of problems is variable and, in some cases, limited, which is in itself evidence of a wider systemic issue. However, the following problems exist across all of the three waters:

IN CONFIDENCE

6.1 *funding and financing to upgrade infrastructure* lies at the heart of the problems facing the three waters. While the challenges manifest in different ways for different councils, it is clear they increase as community size decreases. For many smaller councils, there is no clear way forward given the scale of the challenges. It is also clear that the funding and financing challenges are significantly larger for wastewater than for drinking water;

6.2 *capability challenges* sit hand in hand with funding and financing challenges. Again, the challenges increase as population size decreases. Many smaller rural and provincial councils face a greater struggle to access and retain the specialist skills required to operate and maintain infrastructure, and make the complex risk assessments required to safeguard public health and the environment. Smaller councils by nature have smaller teams, with wider and more general skill sets than specialists;

6.3 *regulation* is weak across the three waters system. Both drinking water and environmental regulation exhibit inadequate stewardship, and compliance, monitoring and enforcement practices. There is no formal system of economic regulation in place to ensure that consumers' long-term interests are protected, or that services are value for money.

Road map for decisions on three waters reform – proposed timetable and scope

7. The scale of the challenges indicates that the status quo is not sustainable in the long term. There is, moreover, an opportunity to do things differently. Both domestic and international models demonstrate that better quality services can be delivered to consumers more efficiently. Alongside this, the regulatory systems sitting around three waters services could provide greater safeguards to public health and environmental performance than are currently in place.

8. Regulation and service provision for the three waters are complex and interdependent, spanning multiple central and local government responsibilities. The response will therefore need to take account of these interdependencies, by taking a system-wide view, from source to tap and back again. It will be essential for any response to treat council drinking water and wastewater services as a single network.

9. We propose that the Government embark on a process of three waters reform over the next 18 months, seeking detailed policy decisions in tranches in 2019, on the following timetable.

10. In **June 2019**, the Ministers of Local Government, Health, and Environment will report back to Cabinet with detailed policy proposals for regulation of the three waters, to enable drafting of legislation to commence in these areas:

10.1 *drinking water:* system-wide reform of regulation of drinking water, along with a new risk management regime for sources of drinking water;

10.2 *wastewater:* targeted change to environmental regulation of wastewater, aimed at lifting its environmental performance within the existing framework of the Resource Management Act 1991;

10.3 *wastewater and stormwater:* measures to give greater transparency to the operation of wastewater and stormwater systems, and to promote better practice;

IN CONFIDENCE

10.4 *regulatory institutional arrangements:* the institutions (regulatory bodies) that would give effect to the above reforms, and oversight and stewardship arrangements for drinking water and environmental regulation.

11. In **late 2019**, the Minister of Local Government will report back to Cabinet with detailed policy proposals for service delivery arrangements, to enable drafting of legislation to commence, if required. These decisions will be informed by ongoing engagement with local government and other stakeholders, led by the Minister of Local Government, about reform options.

12. While there are many potential options and geographical configurations for three waters service delivery arrangements, the following high-level options appear to provide the best fit for the New Zealand context and will be the subject of further analysis and engagement.

    12.1 Proceed with regulatory reform only, with voluntary, sector-led reforms to service delivery arrangements.

    12.2 Establish a three waters fund to support voluntary service delivery improvements.

    12.3 Create an aggregated system of dedicated, publicly owned drinking water and wastewater providers.

13. In terms of sequencing, it is important that decisions on service delivery are made after the June 2019 decisions on regulation, to give local government and other stakeholders the opportunity to engage on the options in light of the proposed new regulatory environment.

14. In **late 2019**, the Minister of Commerce and Consumer Affairs, and the Minister of Local Government, will report back to Cabinet with any desired policy proposals for the economic regulation of three waters services, to enable drafting of legislation. These proposals will be dependent on decisions about service delivery arrangements.

15. Finally, in **late 2019**, the Ministers of Local Government, Health, Environment, and Commerce and Consumer Affairs will report to Cabinet on proposals to improve oversight and stewardship across the three waters system. These proposals will take account of decisions on service delivery arrangements and economic regulation, as well as previous decisions on oversight and stewardship to support drinking water and environmental regulation.

Background

16. The three waters – drinking water, wastewater and stormwater – are the core water services, which comprise the building blocks of New Zealand's communities. Taken collectively, they are lifeline utilities that comprise one of New Zealand's key infrastructure sectors, and are essential to public health, environmental sustainability, community wellbeing, growth, and economic development.

17. The significant majority of New Zealand receives three waters services from their local council. Two large scale providers are owned by councils and provide services on their behalf. Watercare provides drinking water and wastewater services across Auckland. Wellington Water provides all three waters services for five councils in the Wellington region.

IN CONFIDENCE

18. New Zealand also has approximately 181 private drinking water providers, many of which are run by community groups, servicing around one per cent of the population. Finally, throughout New Zealand there are households and community buildings (such as some hospitals, schools, and marae) that supply their own drinking water and/or wastewater services.

Previous Cabinet decisions – Three Waters Review and response to Havelock North Inquiry

19. On 9 April 2018, Cabinet invited the Ministers of Local Government and Health to report back on the options for the future regulation and service delivery of the three waters, including the Government response to the Inquiry into Havelock North Drinking Water (CAB-18-Min-0145 and CAB-18-Min-147 refer). The core areas of work were to develop:

    19.1 options for a new dedicated drinking water regulator;

    19.2 the broader regulatory options in the three waters area, including environmental and economic regulation;

    19.3 options for the future service delivery of three waters, including assessment of aggregated service provision as recommended by the Havelock North Inquiry.

20. Cabinet directed that oversight of this work be provided by a group of Ministers with portfolio interests in water infrastructure, comprising the Ministers of Local Government, Finance, Environment, Health, Infrastructure, Climate Change, Commerce and Consumer Affairs, Civil Defence, Housing and Urban Development, Transport, and Conservation. The Minister for Rural Communities subsequently joined this group. This group has met monthly, led by the Minister of Local Government, to provide the strategic direction for the project.

21. Cabinet also directed officials to engage with suppliers, iwi and Māori, and key stakeholders to discuss how any infrastructure upgrades flowing from reform options might be funded, along with the time needed to transition to any new regime. The Minister of Local Government, supported by her officials, has led an active programme of engagement with local government and industry stakeholders since that time. The emphasis has been on an open environment, where stakeholders are encouraged to lead the discussion where possible, and bring any and all options to the table for consideration. Engagement has commenced with iwi and Māori, but is only in its initial stages.

22. This paper reports back on the policy work completed to date, and the results of stakeholder engagement. It seeks Cabinet's agreement to the process for three waters reform over the next 18 months, along with the work programme and high-level service delivery options which, from this point, will guide further engagement with stakeholders.

IN CONFIDENCE

Comment

Problem definition and case for change

Challenges across the three waters system

23. Looking across the system, the best evidence available indicates there are system-wide challenges facing the three waters, and the response will require a whole-of-system approach, from source to tap and back again. The challenges vary for communities, and there are distinct challenges facing each of the services themselves. A number of themes have emerged across all of the three waters:

    23.1 ***funding and financing to upgrade infrastructure lies at the heart of the problems facing the three waters***. Many councils are struggling to fund plant and pipe infrastructure to the level required to meet standards and community aspirations, keep pace with population growth, and build resilience against natural events. The challenges manifest in different ways for councils of all sizes, but for many smaller councils, there is no clear way forward given the scale of the challenges. There is also a relationship with debt levels, with internally and externally imposed debt restrictions contributing to some of the funding and financing challenges;

    23.2 ***capability challenges sit hand in hand with funding challenges***. Good capability is the key to designing, procuring, delivering, and managing three waters services, particularly given the specialist nature of much of the infrastructure. Capability is also central to public health and environmental risk assessment in complex areas such as geology, water flows, and the impact of land use. Again, the challenges increase as population size decreases – many smaller rural and provincial councils face a greater struggle to access and retain specialist skills. Smaller councils by nature have smaller teams, with wider and more general skills, rather than specialists;

    23.3 ***regulation of three waters is weak across the system***. In many parts of the country, consumers cannot be certain that drinking water is safe, or that the system is contributing to good environmental outcomes. Both drinking water and environmental regulation exhibit, in differing degrees, inadequate stewardship, compliance, monitoring, and enforcement practices. There is also no formal system of economic regulation to ensure that consumers' long-term interests are being protected, and that services are value for money. Given that three waters service providers are natural monopolies, this is at odds both with infrastructure of a similar scale in New Zealand (such as telecommunications or electricity networks), and with good practice in comparable overseas jurisdictions.

Challenges facing the drinking water system

24. Ongoing annual reports of drinking water quality published by the Ministry of Health make it clear that demonstrably safe drinking water is not always being supplied around the country.

25. The current framework in the Health Act 1956 was introduced in 2007, with implementation staged according to size of supply from 2012 to 2016. Prior to this time, drinking water in New Zealand was largely unregulated, and compliance with standards and other measures was largely voluntary.

IN CONFIDENCE

26. Compliance with drinking water standards increased following the introduction of the current framework, but since that time progress has been at best incremental. The Havelock North Inquiry observed that overall compliance has not improved significantly since 2009. Compliance of large supplies (serving populations of 10,000 or greater) with drinking water standards is 88.4 per cent. Compliance rates decline significantly as the size of supplies decrease, to 31.5 per cent for small supplies serving populations of 101-500 people.

27. Unlike other areas such as road safety, smoking or alcohol consumption, consumers effectively have very little control over the quality of drinking water that comes from their tap, and must trust the system to safeguard their health.

28. The Havelock North Inquiry observed there is little understanding amongst the New Zealand public about the large numbers of people who become ill every year by consuming unsafe drinking water. The Inquiry accepted an estimate of up to 100,000 people per year. Ministry of Health clinical advice puts the estimate at between 18,000 and 35,000 people per year. The contamination of drinking water in Havelock North has demonstrated the significant implications that can occur when the system fails, including death, long-term chronic health problems, and widespread outbreak of illness.

29. The challenges facing New Zealand's drinking water quality are system-wide. The Havelock North Inquiry found "systemic failure" across service provision, regulation, governance, source protection, and system stewardship, and recommended a step change of major reforms.

30. Key problems and issues with the current drinking water system include:

    30.1 challenges meeting the cost of infrastructure upgrades to comply with drinking water standards, as community size decreases. A national estimate of the capital cost required to implement key recommendations of the Havelock North Inquiry, by Beca, was $375 to $575 million, with costs described as being unaffordable for many smaller communities;

    30.2 a statutory regime that places relatively weak obligations on suppliers to provide demonstrably safe drinking water, including the ability to rely on affordability as a defence for non-compliance with drinking water standards;

    30.3 an implementation approach that has focused primarily on practical support, influence and persuasion to ensure compliance, combined with no formal enforcement for serious or persistent non-compliance. No formal enforcement action has been taken against suppliers since the regime came into force, despite widespread annual non-compliance with a range of regulatory requirements that could have a material impact on water quality and safety (including drinking water standards, failures to meet requirements to monitor water supplies, and failures to take action taken following test results indicating *E. coli* contamination);

    30.4 lack of coordination between all players in the system, including suppliers, regional councils, district health boards, and the Ministry of Health, combined with inadequate whole-of-system oversight, which has led to poor understanding of risks and system performance;

IN CONFIDENCE

30.5 obligations in the Building Act 2004 for building owners to provide potable water are not fit for purpose or well integrated with the drinking water regime, and are not consistently monitored or enforced;

30.6 a narrowly focused and inadequately implemented framework for addressing risks to sources of drinking water, with little real connection to broader drinking water regulation.

Challenges facing the wastewater system

31. The best evidence available indicates that council wastewater systems are facing similar system-wide challenges as for drinking water, spanning funding challenges to core infrastructure, variable capability, weaknesses in regulation, and inadequate system stewardship. Wastewater plants are impacting on freshwater and coastal water quality, and sewage overflows are occurring at a frequency that is no longer acceptable for communities. Māori in particular have a strong aversion to the direct discharge of wastewater to water, often regardless of the degree of treatment prior to discharge.

Environmental impact and infrastructure challenges

32. It is clear that agricultural practices are placing the most pressure on freshwater environments. However, discharges from wastewater plants are also having an impact, particularly where multiple plants are scattered across a catchment or are operating poorly. Tackling this publicly-owned infrastructure will be necessary to make progress towards the Government's freshwater priorities, and wider environmental and urban outcomes.

33. National freshwater policy and community expectations are driving a push for better environmental outcomes from wastewater infrastructure. Under the National Policy Statement for Freshwater Management, regional councils must set objectives to maintain water quality for ecosystem health, and improve water quality for human health. Many communities are also expressing a strong desire to reduce or eliminate the discharge of sewage to freshwater and the coast. Together, these factors are expected to place significant demands on councils to upgrade wastewater treatment plants:

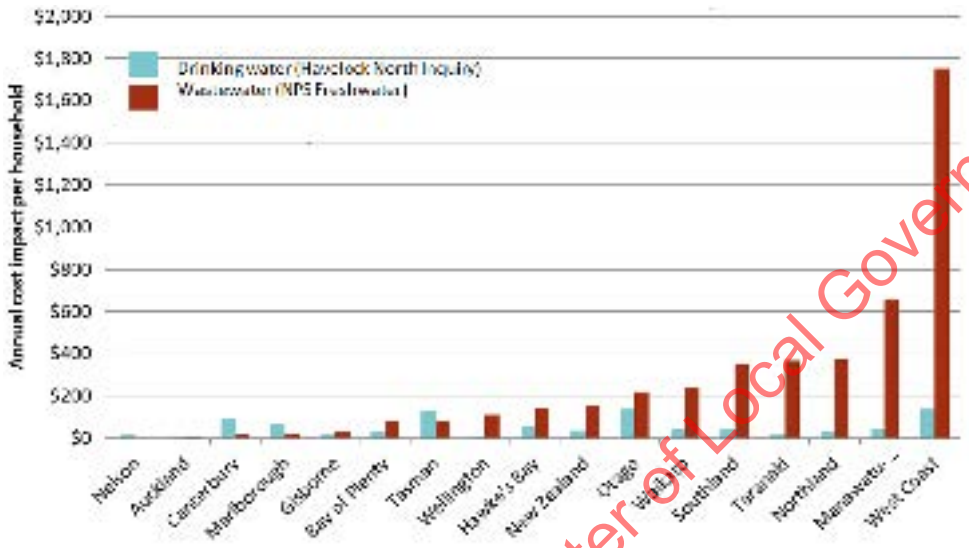
33.1 a report commissioned by the Department of Internal Affairs from GHD and Boffa Miskell estimates the potential national cost of $1.4 to $2.1 billion to upgrade wastewater plants so that the associated catchments can achieve the "B" water quality state under the National Policy Statement for Freshwater Management;

33.2 these costs would fall most heavily on small provincial towns: of 145 treatment plants discharging to freshwater, 122 service towns of 5000 people or less;

33.3 a key challenge for these towns is to transition from relatively simple waste stabilisation pond infrastructure, which has variable performance and is difficult to upgrade, to more advanced treatment methods that are more costly and require more specialist skills to operate.

IN CONFIDENCE

34. The following chart demonstrates the scale of the funding challenges by region, comparing the annual cost impact per household quantified by Beca for drinking water (Havelock North Inquiry)[1] to the annual cost impact per household quantified by GHD and Boffa Miskell for wastewater (National Policy Statement for Freshwater Management).



35. These figures are only a portion of the costs facing the wastewater system and do not include significant additional unquantified funding challenges, including:

    35.1 the cost of upgrading wastewater systems that discharge to the coast or to land, which in overall terms service a significantly larger portion of the population;

    35.2 the cost of upgrading underground pipe infrastructure to significantly reduce the frequency of sewage overflows to rivers or beaches. Industry indications are this is the largest single cost facing wastewater services;

    35.3 maintenance and upgrading of ageing plant and pipe infrastructure, to keep pace with population growth, and reduce impacts of disruptions or infrastructure failure from climate change or other natural hazards such as earthquakes.

36. The experience of Watercare in Auckland, and in similar overseas jurisdictions that have engaged in three waters reform, is that upgrading drinking water infrastructure is the public health priority, and generally occurs first. From that point, there is a longer term challenge, and significantly larger cost, to improve the environmental performance of wastewater systems, because of the scale and complexity of the infrastructure upgrades required.

[1] Beca's report was targeted at estimating the national cost of infrastructure upgrades associated with two key areas raised by the recommendations of the Havelock North Inquiry: mandatory compliance with drinking water standards, and abolition of secure bore status.

IN CONFIDENCE

Regulatory weaknesses relating to wastewater

37. While each region is facing a different set of challenges, there is a growing national picture of regulatory weakness and lack of stewardship over wastewater services. Many regional councils do not provide assurance that good environmental outcomes are being reached. Key problems are:

    37.1 the absence of a clear national framework for regulating the performance of wastewater services. Many overseas jurisdictions have adopted minimum wastewater discharge standards, including the European Union, the USA, and Canada;

    37.2 lack of public reporting on the environmental performance of wastewater treatment plants and the extent to which they comply with discharge consents. Many regions do not provide any public reporting around this public infrastructure at all, and are not required to by the current regulatory regime. In the Waikato and Manawatu-Whanganui, 50 per cent of plants were non-compliant with consent conditions in 2017-2018, yet this information is not readily available and there is limited transparency or accountability for this poor performance;

    37.3 high numbers (one in 10) of wastewater treatment plants legally operating on expired consents for long periods of time (in some cases, decades), with a bow wave of consents (one in five) due to expire by 2022;

    37.4 little formal enforcement action on the part of regional councils where consent conditions are breached, and concerns over the technical capability of some regional councils to effectively regulate wastewater services to achieve good outcomes for the environment and local communities;

    37.5 no quality assurance procedures for the safe production of biosolids from sewage sludge, and social and cultural resistance to the safe re-use of biosolids, which limits the ability of wastewater operators to recover resources from wastewater and contribute to wider environmental outcomes.

Challenges facing the stormwater system

38. There are significant challenges facing council stormwater services. The challenges (and the options for responding to them) are, however, different to those facing drinking water and wastewater. In large part, this is because stormwater is an open system that is closely associated with roading and urban land use, and does not include a significant treatment component.

39. In terms of environmental challenges, stormwater discharges are the main contributor to poor water quality in urban areas, which is generally worse than in agricultural catchment areas. This is because impervious surfaces predominate in urban areas, which channel contaminated run-off (such as animal faeces, heavy metals, and industrial contaminants) into stormwater systems and often directly into downstream water bodies. These impervious surfaces also increase the volume and speed of runoff, contributing to significant erosion and habitat degradation.

IN CONFIDENCE

40. The solution to improving urban water quality lies across a range of areas: council planning, urban design, development practices, and consumer behaviour. In many cases, urban growth will exacerbate water quality pressures unless councils and developers take a proactive approach to "water-sensitive design" and increasing porous surfaces. This means that improving urban water quality is a longer-term challenge that councils will have to plan their way out of, in addition to investing in significant network upgrades.

41. In many cities and towns, the stormwater network is engineered to provide overflow points where the wastewater network is inundated in high rain events. This means reduction of sewage overflows will need to take account of both networks in a system-wide way.

42. Other challenges facing stormwater systems are maintenance, resilience, and climate change. However, the magnitude of the challenges, where the vulnerable areas are, and whether councils are able to respond on their own, are not well understood. There is currently a lack of consistent information both about the condition of stormwater infrastructure and the impact of climate change and other natural hazards, to which stormwater is particularly susceptible.

Conclusion – there is a clear case for change

43. The best evidence available about the three waters system indicates that the status quo is not sustainable in the long term. There is, moreover, an opportunity to do things differently. Models both domestically and internationally demonstrate that better quality services can be delivered to consumers more efficiently, and the regulatory systems sitting around them can provide much greater safeguards to public health and environmental performance than are currently in place.

44. In terms of service provision, there is no clear way forward for many communities, particularly those that are small or in provincial areas, to fund the infrastructure maintenance and upgrades necessary to safeguard public health, reduce the environmental impact of wastewater systems, or meet national standards.

45. Even if the funding and financing challenges are addressed, population changes and climate change will continue to place long-term pressure on the system. Alongside this, the existing fragmentation of service provision means that many councils will continue to face capability challenges because of their small scale.

46. In terms of regulation, we think the case has been made for step change reform to regulation of drinking water. There is also a case for targeted reform of environmental regulation of wastewater services within the existing Resource Management Act 1991 framework, and greater transparency of the operation of both wastewater and stormwater systems. Across all three waters services, there is a case for significantly better system coherence and stewardship than currently exists. Finally, there is likely to be a case for economic regulation (as is common in overseas jurisdictions) to provide assurance that the system is providing value for money to consumers, and give better oversight of service performance and infrastructure resilience.

IN CONFIDENCE

Engagement with stakeholders – activities and feedback so far

47. There has been active engagement to date with local government and peak industry representatives on the Three Waters Review, led by the Minister of Local Government. The emphasis has been on an open environment, where stakeholders are encouraged to lead the discussion where possible, and bring any and all options to the table for consideration.

48. Engagement has occurred in a range of forums, including large forums such as:

    48.1 the Water Summit convened by Local Government New Zealand, Water New Zealand, and the Institute of Public Works Engineers Australasia, in May 2018;

    48.2 the 2018 Local Government New Zealand Annual Conference;

    48.3 the 2018 Society of Local Government Managers Annual Summit;

    48.4 the 2018 Infrastructure New Zealand Building Nations Symposium.

49. Officials from the Department of Internal Affairs have convened a Three Waters Reference Group with Local Government New Zealand as a forum where ideas can be shared and discussed with selected mayors and local government chief executives.

50. Feedback from stakeholders to date indicates there are a broad range of views:

    50.1 there is a widespread view that significant reform of drinking water regulation is required, and many feel this needs to occur as a priority;

    50.2 some in the sector do not believe the case has been made for change to environmental regulation;

    50.3 views on service provision are mixed among local government stakeholders:

        50.3.1 some believe there should be little or no change to current service delivery arrangements;

        50.3.2 some believe that central government should set the regulatory framework, and leave local government to sort out service delivery – and if changes to regulation mean infrastructure upgrades are required, central government should contribute funding to enable this to occur;

        50.3.3 some local government stakeholders are considering aggregation of service delivery and other shared service arrangements;

    50.4 there is greater consensus among peak industry bodies and leading water practitioners about the need for significant reform across both regulation and service provision;

    50.5 small communities have highlighted the unaffordability of upgrades of three waters infrastructure for their communities.

Engagement with iwi and Māori

51. Engagement with iwi and Māori is important not only from a Crown/Māori relationship and Treaty of Waitangi perspective, but also because of the significant expertise and experience iwi and Māori have in resource management, infrastructure development, and water issues. It will be necessary to engage at the national, catchment, and local levels given the range of iwi and Māori interests, and also the different and often localised way that three waters challenges are experienced by Māori communities.

IN CONFIDENCE

52. The Minister of Local Government has commenced initial discussions with iwi and Māori. The approach she intends to take is to engage at different levels and use existing mechanisms and forums wherever possible, given many Māori communities are at engagement saturation point with other government processes.

Road map for decisions on three waters reform – timetable and work programme

53. We propose that the Government embark on a process of three waters reform over the next 18 months, seeking detailed policy decisions in tranches in 2019, and with a view to introducing legislation in 2020.

54. The proposed timetable for this work is as follows:

    54.1 In **June 2019**, the Ministers of Local Government, Health, and Environment will report back to Cabinet with detailed policy proposals for drinking water and environmental regulation of the three waters system, to enable drafting of legislation to commence. Proposals will also include the institutional form and oversight and stewardship arrangements necessary to give effect to these reforms.

    54.2 In **late 2019**, the Minister of Local Government will report back to Cabinet with detailed policy proposals for service delivery arrangements, to enable drafting of legislation to commence if required. These decisions will be informed by ongoing engagement, led by the Minister of Local Government, with local government and other stakeholders, about the service delivery reform options summarised in **Appendix 1** to this paper.

    54.3 In **late 2019**, the Minister of Commerce and Consumer Affairs, and the Minister of Local Government, will report back to Cabinet with any desired policy proposals for the economic regulation of three waters services, to enable drafting of legislation if appropriate. These proposals will be dependent on decisions about service delivery arrangements.

    54.4 Finally, in **late 2019**, the Ministers of Local Government, Health, Environment, and Commerce and Consumer Affairs will report to Cabinet on proposals to improve oversight and stewardship across the whole three waters system. These proposals will take account of decisions on service delivery arrangements and economic regulation, as well as previous decisions on oversight and stewardship to support drinking water and environmental regulation. This approach will ensure coordination, integration, and regulatory coherence across all components of the wider system.

55. This sequencing reflects that it is important for decisions on service delivery to be made after the June 2019 decisions on regulation, to give local government and other stakeholders the opportunity to engage on the options in light of the proposed new regulatory environment. The phasing and sequencing of oversight and stewardship arrangements reflects the need to ensure a whole-of-system perspective continues to be taken as the new three waters system is progressively established.

56. The policy and legislation reform process will continue to be overseen by the group of Ministers with portfolio interests in water infrastructure, comprising the Ministers of Local Government, Finance, Environment, Health, Infrastructure, Climate Change, Commerce and Consumer Affairs, Civil Defence, Housing and Urban Development, Transport, Conservation, and Rural Communities.

IN CONFIDENCE

A whole-of-system approach to reform

57. The response to the challenges facing the three waters requires a whole-of-system approach, from source to tap and back again. Regulation and service provision for the three waters are complex and interdependent, spanning multiple central and local government responsibilities. A response that simply targets one area carries the risk of falling short or undermining outcomes in other areas, even in the short term.

58. Key interdependencies are as follows:

    58.1 *for service provision*, any future state needs to treat reticulated council drinking water and wastewater services as a single network, where the only gap is between the tap and the drain, where the consumers are the same, and where the expertise and capability are best housed together;

    58.2 *for regulation*, any future state needs to recognise that public health, environmental and economic regulation of the three waters have cross-impacts and are synergistic; that is, the combined sum of regulation across these areas is greater than the separate parts. Regulations across these areas therefore need to be viewed as a single coherent system;

    58.3 finally, any future state needs to recognise that *regulation and service provision* are interdependent. Good outcomes across the three waters (such as safer drinking water, better environmental performance, or better outcomes for consumers) will only occur if regulation and service provision are dealt with together.

Proposed outcomes for three waters reform

59. We have identified the following high-level outcomes for three waters reform, and propose that these guide the reform process and form the basis for the future state of the system:

    59.1 existing three waters assets and services must remain in public ownership, and the system will incorporate safeguards to protect public ownership of this essential infrastructure both now and in the future;

    59.2 there needs to be a sustainable three waters system that operates in the long-term interests of consumers, communities, tangata whenua, and New Zealand generally;

    59.3 drinking water needs to be safe, acceptable and reliable;

    59.4 environmental performance of wastewater and stormwater needs to realise the aspirations of communities in which services are situated, including tangata whenua, and New Zealand generally;

    59.5 there needs to be effective, efficient, accountable, and resilient three waters services, with transparent information about performance, and delivered at prices that consumers can afford;

    59.6 regulatory stewardship and systems need to be fit for purpose, and provide assurance that these outcomes are being achieved and safeguarded.

IN CONFIDENCE

Engagement from this point forward

60. There will be ongoing engagement with stakeholders, iwi and Māori throughout the reform process. The Minister of Local Government will lead engagement with these groups on the reform proposals outlined in this paper, and will report back to Cabinet and the group of Ministers overseeing this work as part of the ongoing policy process.

Proposed scope of June 2019 Cabinet paper(s)

61. In June 2019, the Ministers of Local Government, Environment, and Health will report back to Cabinet with detailed policy proposals for regulation of drinking water, wastewater, and stormwater, to enable drafting of legislation to commence. This work will cover the following areas.

Components of a more effective approach to ensuring drinking water safety

62. Work in this area will include the components of a new drinking water regulatory system, including:

    62.1 the purpose and intended outcomes for drinking water regulation;

    62.2 the scope of drinking water regulation;

    62.3 the roles, functions, duties and responsibilities of organisations and persons for ensuring drinking water safety, including the establishment of a dedicated drinking water regulator;

    62.4 how the regulator will work to achieve compliance with regulatory objectives and duties, including:

        62.4.1 how drinking water standards and other regulatory requirements will be set, maintained, and promoted;

        62.4.2 how risks to drinking water safety will be assessed and managed;

        62.4.3 how drinking water suppliers will be encouraged and supported to meet regulatory requirements; and

        62.4.4 compliance, monitoring and enforcement arrangements;

    62.5 how information about the performance of drinking water suppliers and their compliance with regulatory duties will be reported, to provide improved transparency and assurance to the public of the safety of drinking water;

    62.6 how the regulator will interface with statutory public health protection functions, including those undertaken by the Director-General of Health, Director of Public Health, Ministry of Health, medical officers of health, and health protection officers (including public health surveillance, investigation and response).

Managing risks to drinking water sources

63. Work in this area will comprise a new risk management regime for drinking water sources that is effectively integrated with the other components of the drinking water regulatory system, including the drinking water standards. Key components will include:

    63.1 the purpose and intended outcome of the new regime;

    63.2 how risks to drinking water sources will be assessed and managed;

IN CONFIDENCE

63.3 roles, functions and responsibilities of organisations and persons in identifying and managing risks to drinking water sources;

63.4 the interface with regional planning and regulation of land use under the Resource Management Act 1991.

Environmental regulation of wastewater and stormwater

64. Work in this area will comprise targeted reform of environmental regulation of wastewater, aimed at lifting environmental performance within the existing framework of the Resource Management Act 1991. It will also include measures to give greater transparency around the operation of wastewater and stormwater systems, and to promote better practice. These proposals could comprise the following elements:

64.1 national-level environmental performance requirements for wastewater networks. Such requirements could include minimum standards for discharges from wastewater treatment plants, and targets for wastewater overflows;

64.2 good practice guidelines to promote the uptake of water-sensitive urban design in stormwater networks, and for the recovery and re-use of biosolids produced by wastewater treatment plants;

64.3 transparent public information about the environmental performance of wastewater and stormwater networks, and their compliance with regulatory requirements;

64.4 improved compliance, monitoring and enforcement arrangements for wastewater and stormwater services, including for consent holders that rely on section 124 of the Resource Management Act 1991 (which enables resource consent holders to continue operating on expired consents). A focus of this workstream will be to explore links with the Compliance Oversight Unit for the Resource Management Act 1991.

65. Officials' advice will include sequencing and prioritisation of proposed functions, and their relationship to broader regulatory arrangements.

Institutional arrangements, oversight and stewardship for drinking water and environmental regulation

66. Work in this area will consider the institutional arrangements, and oversight and stewardship needed to support and enable the drinking water and environmental regulatory reforms arising from the work described above. This will include:

66.1 options for the establishment of regulatory functions and the associated institutional arrangements, including the potential for co-location of environmental and drinking water regulatory functions;

66.2 advice on the resources needed to provide for the proposed regulatory and other interventions, and how these could be funded;

66.3 advice on oversight and stewardship arrangements for drinking water and environmental regulation.

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Proposed scope of late 2019 Cabinet paper(s)

Service delivery arrangements

67. In late 2019, the Minister of Local Government will report back to Cabinet with detailed policy proposals relating to service delivery arrangements for the three waters. If required, this Cabinet paper will seek the necessary decisions to enable drafting of legislation to commence.

68. Significant work will be required during late 2018 and 2019 to enable the development of policy proposals in this area. This will involve a thorough analysis of the high-level options outlined below, including cost-benefit analyses, and an examination of implementation issues.

69. Engagement with the local government sector and other stakeholders will be a crucial part of this process. This engagement will be based primarily around the high-level options below, but with sufficient flexibility to ensure the most effective solutions are identified and discussed. It will also be informed by options analysis exercises, and decisions made in June 2019 on the drinking water and environmental regulatory regimes.

70. An aggregation option has been included because the experience of Watercare in Auckland, which provides drinking water and wastewater services for Auckland Council, and Wellington Water, which provides all three waters services for five councils in the Wellington region, has been that significant benefits can flow from aggregation of service delivery.

71. The primary difference between the two organisations is that Watercare owns its assets and has a direct contractual relationship with customers. It is thus able to set standard charges across the entire region, and invest where need is greatest. In contrast, Wellington Water does not own its assets and simply provides services on behalf of its parent councils. Rates continue to be levied by each council, and Wellington Water cannot move this income across council boundaries.

72. In essence, this means that the scale benefits of Wellington Water are largely limited to capability, as it can employ a significantly larger, more specialised workforce than each council could on its own. Watercare, in contrast, has been able to address both funding and capability challenges in the Auckland region, and has been able to upgrade infrastructure in areas that historically have otherwise been unable to afford this (such as Franklin and Rodney). Both Wellington Water and Watercare have been able to take a more strategic regional and catchment view of water services.

73. While there are many potential options and geographical configurations for three waters service delivery arrangements, the following high-level options appear to provide the best fit for the New Zealand context and will be the subject of further analysis and engagement.

    73.1 **Proceed with regulatory reforms only, with voluntary, sector-led reforms to service delivery arrangements.** This approach reflects the majority view from elected local government officials and Local Government New Zealand that any reform should be a local government decision. It also reflects that councils in some parts of the country are discussing the development of collaborative arrangements and shared service organisations voluntarily.

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73.2 **Establish a three waters fund to support voluntary service delivery improvements.** This approach involves the creation of a national, long-term fund, as a mechanism for supporting improvements to current service delivery arrangements and/or incentivising voluntary changes (the approach described above). Revenue sources for such a fund are yet to be determined.

73.3 **Create an aggregated system of dedicated, publicly owned drinking water and wastewater providers.**[2] This approach would involve the creation of statutory, aggregated, self-funding water utilities. These providers could be configured in various ways, such as:

73.3.1 on a regional[3] basis, with approximately 12 providers;

73.3.2 on a multi-regional basis, with approximately three to five providers.

74. Further details about these options, including their key features, and some of the high-level advantages and disadvantages, are provided in Appendix 1.

Economic regulation to protect consumers

75. In late 2019, the Minister of Commerce and Consumer Affairs and Minister of Local Government will report to Cabinet on any desirable policy proposals for economic regulation, to protect the interests of consumers.

76. These proposals would be influenced by decisions on future service delivery arrangements, including the numbers and scale of service providers, their purpose, and how they are governed. Once decisions on these areas have been taken, officials will be able to determine whether economic regulation should occur, and what form of economic regulation is likely to be appropriate (for example, relatively light-handed information disclosure, or stronger and more costly price-quality regulation).

Three waters system oversight and stewardship

77. Finally, in late 2019, the Ministers of Local Government, Health, Environment, and Commerce and Consumer Affairs will report to Cabinet on proposals to improve oversight and stewardship across the whole three waters system.

78. Work in this area will include:

78.1 the arrangements necessary for effective stewardship and oversight of the drinking water, wastewater and stormwater systems, including linkages between the regulatory and service delivery functions, how system performance will be measured and reported, and how system-wide outcomes will be delivered;

78.2 the resources needed to support effective stewardship and oversight functions;

78.3 the statutory architecture needed to give effect to improved stewardship and oversight across the three waters system, and regulatory and other interventions that are required.

[2] If established, aggregated providers would be responsible for both drinking water and wastewater services. There could be potential for stormwater service delivery to be retained within councils.

[3] With a regional model, it is likely that most water organisations would be based within existing regional council boundaries. However, we would need to explore the possibility of having fewer than 16 service providers (the number of regional councils). Some regions have relatively small populations (under 50,000), and may not be able to provide water services on a sustainable, affordable basis even if aggregated to this level.

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79. This work will be informed by the June 2019 decisions on drinking water and environmental regulatory institutional and stewardship arrangements (such as the functions, form and location of the regulator/s), and by later decisions on economic regulation and service delivery arrangements. It will ensure these decisions align effectively to produce a well-coordinated, integrated and coherent regulatory system across the three waters.

Interim measures to improve the current drinking water system

80. Until Government decisions on a new regime for drinking water are implemented, it will be essential for those who have roles and responsibilities in the current drinking water system to continue their focus on drinking water safety.

81. The Government has already adopted a number of the Havelock North Inquiry's recommendations to improve how the current drinking water regime functions.

82. The Ministry of Health is leading the implementation of a range of interim measures, based on recommendations made by the Havelock North Inquiry. For example, the Director-General of Health issued a formal statement under the Health Act 1956 recommending treatment of any untreated drinking water supplies. The majority of previously untreated supplies are now being disinfected with chlorine (although some suppliers intend this to be a temporary measure). Other interim measures have included updated training for statutory officers with a focus on compliance and enforcement, and updating drinking water guidance materials for suppliers.

83. In April 2018, Cabinet invited the Ministers of Finance, Local Government, and Health to report back with further advice on two key recommendations made by the Havelock North Inquiry: mandatory residual treatment of drinking water (such as chlorination), and mandatory full compliance with drinking water standards by networked suppliers (CAB-18-Min-0147 refers).

84. Advice to Cabinet on these matters is dependent on proposals for system-wide reform of the drinking water regulatory regime and a new risk management regime for sources of drinking water, and will therefore occur in June 2019.

Consultation

85. The Three Waters Review is a cross-departmental working group led by the Department of Internal Affairs, comprising the Ministry of Health, the Ministry for the Environment, the Ministry of Business, Innovation and Employment, the Treasury, the New Zealand Transport Agency, the Ministry for Primary Industries, and the Ministry of Civil Defence and Emergency Management. These agencies, along with the Department of the Prime Minister and Cabinet, and Te Puni Kōkiri, have been consulted on this Cabinet paper.

86. The Department of Conservation, Ministry of Education, New Zealand Defence Force, and Department of Corrections have operational responsibility for three waters services and have been consulted on this Cabinet paper in this capacity.

Financial implications

87. 9(2)(f)(iv) [redacted]

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Human rights / gender implications / disability perspective

88. There are no human rights, gender implications, or disability implications arising from the proposals in this paper.

Legislative implications

89. There are no direct legislative implications from this paper. However, proposals arising from some of the work programmes described in this paper are likely to require legislation to implement. This would be discussed in the papers to Cabinet proposed for 2019.

Regulatory impact analysis

90. A regulatory impact statement may be required for the proposals arising from this paper and will be covered in the report back to Cabinet in 2019.

Publicity

91. There is widespread stakeholder interest in policy proposals for the future state of the three waters. We therefore propose to proactively release this Cabinet paper.

92. This paper proposes ongoing engagement with stakeholders, iwi and Māori as part of the development of policy options for the future state of three waters throughout 2019. As outlined in this paper, this engagement will be led by the Minister of Local Government.

Recommendations

93. The Ministers of Local Government and Health recommend that the Cabinet Economic Development Committee:

Background

1. **note** that on 9 April 2018, Cabinet invited the Ministers of Local Government and Health to report back on the options for the future regulation and service delivery of the three waters, including the Government response to the Havelock North Drinking Water Inquiry (CAB-18-Min-0145 and CAB-18-Min-147 refer);
2. **note** that Cabinet directed that oversight of this work be provided by a group of Ministers with portfolio interests in water infrastructure, comprising the Ministers of Finance, Environment, Health, Infrastructure, Climate Change, Commerce and Consumer Affairs, Civil Defence, Housing and Urban Development, Transport, and Conservation, and that the Minister for Rural Communities subsequently joined this group;

Challenges facing the three waters

3. **note** that the best evidence available indicates there are system-wide challenges facing the three waters, and the response will require a whole-of-system approach, from source to tap and back again;
4. **note** that, while the challenges vary across communities and for each of the three waters services, a number of themes have emerged that taken collectively mean the status quo is not sustainable in the long term:

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4.1 funding to upgrade infrastructure is unaffordable for many communities, with councils struggling to fund plant and pipe infrastructure to the level required to meet standards and community aspirations, keep pace with population growth, or ensure resilience to climate change and other natural hazards such as earthquakes;

4.2 capability is a challenge for many councils, particularly in rural and provincial areas, which can struggle to find and retain staff with specialist skills to design, procure, deliver, and manage three waters services;

4.3 across many areas, the challenges increase as population size decreases, and for many small towns and sparsely populated regions there is no clear way forward;

4.4 regulation of three waters is weak across the system, with drinking water and environmental regulation not properly providing assurance that good outcomes are always being reached, and no real system of economic regulation to ensure that the long-term interests of consumers are being protected or that services are value for money;

Road map for future decisions on three waters reform – timetable and scope

5. **agree** that the Government embark on a process of three waters reform over the next 18 months, seeking detailed policy decisions in tranches in 2019, with a view to introducing legislation in 2020;

6. **agree** that the overall three waters reform process will be led by the Minister of Local Government, with shared accountability with the Minister of Health (drinking water regulation), Minister for the Environment (environmental regulation), and Minister of Commerce and Consumer Affairs (economic regulation);

7. **agree** that oversight will be provided by a group of Ministers with portfolio interests in water infrastructure, comprising the Ministers of Finance, Environment, Infrastructure, Climate Change, Commerce and Consumer Affairs, Civil Defence, Housing and Urban Development, Transport, Conservation, and Rural Communities;

8. **agree** that the outcomes for reforms will be as follows:

8.1 existing three waters assets and services must remain in public ownership, and the system will incorporate safeguards to protect public ownership of this essential infrastructure, both now and in the future;

8.2 a sustainable three waters system that operates in the long-term interests of consumers, communities, tangata whenua, and New Zealand generally;

8.3 drinking water that is safe, acceptable and reliable;

8.4 environmental performance of wastewater and stormwater realises the aspirations of communities in which they are situated, including tangata whenua, and New Zealand generally;

8.5 three waters services are delivered in a way that is efficient, effective, resilient and accountable, with transparent information about performance, and prices consumers can afford;

8.6 regulatory stewardship of the three waters system is fit for purpose, and provides assurance that these outcomes are being achieved and safeguarded;

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9. **agree** that in June 2019, the Ministers of Local Government, Health, and Environment will report back to Cabinet with detailed policy proposals for drinking water and environmental regulation of the three waters, to enable drafting of legislation to commence in the following areas:
   - 9.1 system-wide reform of regulation of drinking water;
   - 9.2 a new risk management regime for sources of drinking water;
   - 9.3 targeted reform of environmental regulation of wastewater, aimed at lifting its environmental performance within the existing framework of the Resource Management Act 1991;
   - 9.4 measures to give greater transparency around the operation of wastewater and stormwater systems, and to promote better practice;
   - 9.5 the institutional arrangements, and oversight and stewardship needed to give effect to these reforms;
10. **agree** that in late 2019, the Minister of Local Government will report back to Cabinet with detailed policy proposals for service delivery arrangements, to enable drafting of legislation if required, following further analysis and engagement on the following high-level options:
   - 10.1 regulatory reforms only, with voluntary, sector-led reforms to service delivery arrangements;
   - 10.2 a three waters fund to support voluntary service delivery improvements;
   - 10.3 an aggregated system of dedicated, publicly-owned, drinking water and wastewater providers;
11. **agree** that the identification of these three high-level options does not preclude or constrain the investigation or development of other options that could be effective in responding to the challenges identified, and deliver a long-term, sustainable three waters system;
12. **agree** that in late 2019, the Minister of Local Government and the Minister of Commerce and Consumer Affairs will report back to Cabinet with policy proposals for the economic regulation of three waters services, to enable drafting of legislation to commence, if appropriate;
13. **agree** that in late 2019, the Ministers of Local Government, Health, Environment, and Commerce and Consumer Affairs will report back to Cabinet with proposals to improve oversight and stewardship across the three waters system (taking account of decisions on service delivery arrangements and economic regulation, as well as previous decisions on oversight and stewardship to support drinking water and environmental regulation);

Engagement

14. **agree** that there will be ongoing engagement with stakeholders as part of the development of policy options for the future state of three waters, which will be led by the Minister of Local Government;
15. **agree** that ongoing engagement with iwi and Māori, which is important from a Crown/Māori relationship and Treaty of Waitangi perspective, will also be led by the Minister of Local Government;

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Financial implications

16. 9(2)(f)(iv) [redacted]

Publicity

17. **agree** that, because there is widespread stakeholder interest in policy proposals for the future state of the three waters system, the Minister of Local Government will proactively release this Cabinet paper and the associated minute of decision.

Authorised for lodgement

Hon Nanaia Mahuta

Minister of Local Government

Hon Dr David Clark

Minister of Health

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Appendix 1: High-level options for water service delivery arrangements, for further analysis and engagement

	Regulatory reforms only, with voluntary, sector-led reforms to service delivery arrangements	Establish a three waters fund to support voluntary service delivery improvements	Create an aggregated system of dedicated, publicly owned drinking water and wastewater providers

Key features	• Relies on changes to the three waters regulatory system, and a focus on outcomes, with voluntary, sector-led changes to service delivery arrangements.	• Involves the creation of a centrally collected and administered three waters fund.
		• Funds would be distributed according to nationally consistent criteria.
		• Conditions could be attached to receipt of funding to support or incentivise voluntary reforms under the 'regulatory reform only' option.
			• Involves the statutory creation of aggregated, dedicated, self-funding water utilities, which could be configured:
			  ○ on a regional basis (e.g. with approximately 12 providers – to reflect that regions with relatively small populations may need to join with neighbouring regions)
			  ○ on a multi-regional basis (e.g. with approximately 3 to 5 providers).
			• The water utilities would be asset owning (similar to the Watercare model), with professional skills-based boards of directors, mechanisms to ensure local democratic input, and local service delivery presence.

Potential benefits	• Least change for the local government sector.
	• Likely to have significant support from local government elected members.
	• Builds on existing models, such as Wellington Water, and interest in voluntary approaches to 'aggregation'.
		• Low to moderate change for the sector.
		• Likely to have significant support from local government elected members.
		• Use of conditions or incentives could deliver the desired outcomes faster than the regulatory reform only option.
			• Fastest approach to delivering significant, system-wide improvements.
			• Long-term sustainability – large scale and self-funding.
			• Addresses key challenges identified, including:
			  ○ system-wide capability and capacity gains – ability to attract and retain appropriate numbers of staff, with range of specialist skills
			  ○ affordability for consumers/communities – ability to generate significant revenue streams and spread costs over a wide area; potential for economies of scale.
			• Small number of similar providers enables benchmarking and a more efficient regulatory system.

Potential disadvantages and risks	• Unless large scale voluntary reform is undertaken across all councils it is unlikely to address the:
	  ○ capability challenge at a system level
	  ○ affordability challenge, unless assets are transferred as per the Watercare model (which was not a voluntary reform).
	• Likely to take the longest time to deliver a long-term sustainable system.
	• Having a large number of service providers would make it costly to operate an efficient regulatory system and deliver nationally consistent information to consumers.
		• Uncertainty over the source and security of revenue for the fund (Crown funding or a form of water levy/tax).
		• Cost and bureaucracy of collecting and administering a national fund.
		• Potential for blurring of responsibilities between the fund administrator and three waters regulators/standard-setting agencies.
		• Added complexity for the regulatory system of multiple revenue sources.
			• Potential for a significant impact on local government – including concerns about:
			  ○ long-term viability of smaller councils, if they no longer have responsibility for water services
			  ○ possible impact on the ability of some councils to raise debt if they do not own water assets
			  ○ maintaining links between water infrastructure and council roles in planning and development.
			• Weaker links between elected governance arrangements and local communities.
			• Low level of support from local government elected members.

Agenda Memorandum

Date 5 February 2019

Memorandum to
Chairperson and Members
Policy and Planning Committee

Subject: Key Native Ecosystems programme update

Approved by: S R Hall, Director - Operations

B G Chamberlain, Chief Executive

Document: 2184471

Purpose

The purpose of this memorandum is to present for Members' information an update on the identification of eleven new Key Native Ecosystem (KNE) sites.

Executive summary

- The *Biodiversity Strategy for the Taranaki Regional Council* ('the Biodiversity Strategy') sets out four strategic priorities for the Taranaki Regional Council (the Council), one of which relates to protection of KNEs on privately owned land.
- KNEs refer to terrestrial (land) areas identified by the Council as having regionally significant ecological values and which are targeted for ongoing protection.
- Officers work with interested landowners, including iwi, and community groups to promote the voluntary protection and enhancement of ecological values associated with the sites.
- All landowners can seek an assessment of their particular site for potential involvement in the KNE programme. When opportunities arise, new sites are assessed in relation to their regional significance, and/or existing information and databases updated.
- Protection of KNEs is part of the Council's **non-regulatory** work and involves working with interested land owners and others through the preparation and implementation of biodiversity plans, the provision of environmental enhancement grant funding, and/or assisting with pest and weed control.
- The ongoing identification and assessment of sites with potentially regionally significant indigenous biodiversity values has resulted in 11 new sites being identified as KNEs so far this financial year. The 11 new KNE sites total 168 ha.
- With the addition of the new sites, the Council has so far identified 276 KNEs covering approximately 122,657 hectares in the region.
- 223 of the KNE sites are partially or completely privately owned. Together, they cover approximately 12,743 hectares or 20% of the total area of indigenous vegetation in Taranaki in private ownership.

- KNE sites target the most vulnerable and at risk types of indigenous vegetation and do not cover all indigenous vegetation types.

Recommendations

That the Taranaki Regional Council:

1. receives this memorandum and the attached inventory sheets for Mount View, Cotebrook, Kaka Creek Bush, Hann Bush and Kahikatea Block, Te Huia Holdings Wetlands, Lowe South Block, BMW Farms, Corbett Road QEII Covenants, Te Urenui and Pohokura Pa, Ralph Arnold, and Mathews QEII
2. notes that the aforementioned sites have indigenous biodiversity values of regional significance and should be identified as Key Native Ecosystems.

Background

To assist it in giving effect to its statutory functions for indigenous biodiversity under the *Resource Management Act 1991*, the Taranaki Regional Council (the Council) has recently reviewed and adopted the *Biodiversity Strategy for the Taranaki Regional Council* ('the Biodiversity Strategy'). The Biodiversity Strategy sets out four strategic priorities, one of which relates to the Council focusing on protecting KNEs on privately owned land.

The Council's management approach is to work with interested landowners, community groups and other interested parties to promote the voluntary protection and enhancement of ecological values associated with KNE sites on privately owned land. It involves the provision of a property planning service and other assistance, including the preparation and implementation of biodiversity plans, the provision of environmental enhancement grant funding, and/or assisting with pest and weed control.

The identification of KNEs is ongoing by Council. All landowners can seek an assessment of their particular site for potential involvement in the KNE programme. When opportunities arise, new sites are assessed in relation to their regional significance, and/or existing information and databases updated.

KNE site inventory process

Council officers have recently investigated and consulted with landowners to identify a further eleven sites totalling 168 hectares and recommend they be adopted as a KNE. The candidate sites are:

- Mount View
- Cotebrook
- Kaka Creek Bush
- Hann Bush and Kahikatea Block
- Te Huia Holdings Wetlands
- Lowe South Block
- BMW Farms
- Corbett Road QEII Covenants
- Te Urenui and Pohokura Pa

- Ralph Arnold
- Mathews QEII.

All the sites have been assessed by officers as significant in accordance with criteria set out in Bio Policy 4 of the *Regional Policy Statement for Taranaki* (2010), i.e. rarity and distinctiveness, representativeness or ecological context. Copies of the inventory sheets for the new sites are attached to this item.

With the addition of the new sites, the Council has so far identified 276 KNEs (covering approximately 122,657 hectares), which includes public conservation land. Of the 289,000 hectares of indigenous vegetation in the region, approximately 64,000 hectares is in private ownership.

A total of 223 of the KNE sites, covering approximately 12,743 hectares, are partially or completely privately owned. This represents around 20% of the privately owned indigenous vegetation in the region. However, of note KNE sites do not cover all indigenous vegetation in the region but rather the most vulnerable and at risk types of indigenous vegetation.

Identification of a site as a KNE does not have any extra bearing on the rules or controls that already apply to such sites in regional or district council plans. Identification of sites is undertaken by the Council to focus its **non-regulatory** efforts to work with and support landowners to protect biodiversity values on their land. As previously noted, protection is implemented through the preparation and implementation of biodiversity plans, the provision of environmental enhancement grant funding, and/or assisting land occupiers and/or care groups with pest and weed control.

The *2018–2028 Long Term Plan* includes, amongst other things, a target to maintain and regularly update the Council's Inventory of KNEs. The identification of the additional KNEs gives effect to that commitment.

Decision-making considerations

Part 6 (Planning, decision-making, and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the Act.

Financial considerations—LTP/Annual Plan

This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991,* the *Local Government Official Information and Meetings Act 1987*, and the *Biosecurity Act 1993*.

Iwi considerations

This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the *Local Government Act 2002*) as outlined in the adopted long-term plan and/or annual plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

Legal considerations

This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document No. 2163867, 2163921, 2163953, 2164015, 2164183, 2166675, 2168748, 2118360, 2190589, 2190622, 2190628.

Te Urenui & Pohokura Pa

At a glance

TRC Reference: BD/9633

Ecological District: North Taranaki

Land Tenure: Private

Area(ha): 3.71

GPS: 1720945X & 5683137Y

Habitat: Coastal/Forest Remnant

Bioclimatic Zone: Coastal

Ecosystem Type: WF13: Tawa, kohekohe, rewarewa, hinau, podocarp forest

LENZ: C1.2a Acutely threatened

National: Priority 1 – Threatened Land Environment

Priority 4 – Threatened Species

Regional: Key Native Ecosystem

Regional Ecosystem Loss: Chronically threatened 10-20% left

Protection Status: DOC Covenant

Local Government

Catchment: Urenui (399)

General Description

The Te Urenui & Pohokura Pa KNE is located within 500 metres of the Urenui township in North Taranaki and are within the North Taranaki Ecological District and Urenui River catchment. The site consists of two pa (Te Urenui and Pohokura) which are fine examples of old pa with much of the evidence of former occupation (ditches, banks, terraces, middens and graves) preserved under regenerating native vegetation. The sites are next to the Urenui river and are respectively 400m and 700m from the Urenui river mouth. The combined area of the two Pa covers 3.71ha.

Ecological Features

Flora

Both pa sites are located on a land environment classified as 'Acutely Threatened' (less than 10% of this type of indigenous vegetation left remaining in Taranaki). The main canopy of both sites is a mix of kohekohe, karaka, mahoe, pigeonwood, kowhai and rewarewa and is generally in good condition. The understorey and ground cover is in good condition and is made up of a number of shrub species including kawakawa, kanono, rangiora, red mapou and hangehange along with a wide range of ferns including mamaku. New Zealand hazel Tainui (planted) is also present at Pohokura Pa.

Fauna

Native birdlife recorded in and around the site includes kereru, grey warbler, fantail, ruru, kahu, silvereye, tui, black shag, white-faced heron and kingfisher. No native lizards have been recorded at the site, however there is adequate habitat for terrestrial and arboreal species in the remnants, ranging from deep leaf litter and logs on the forest floor.

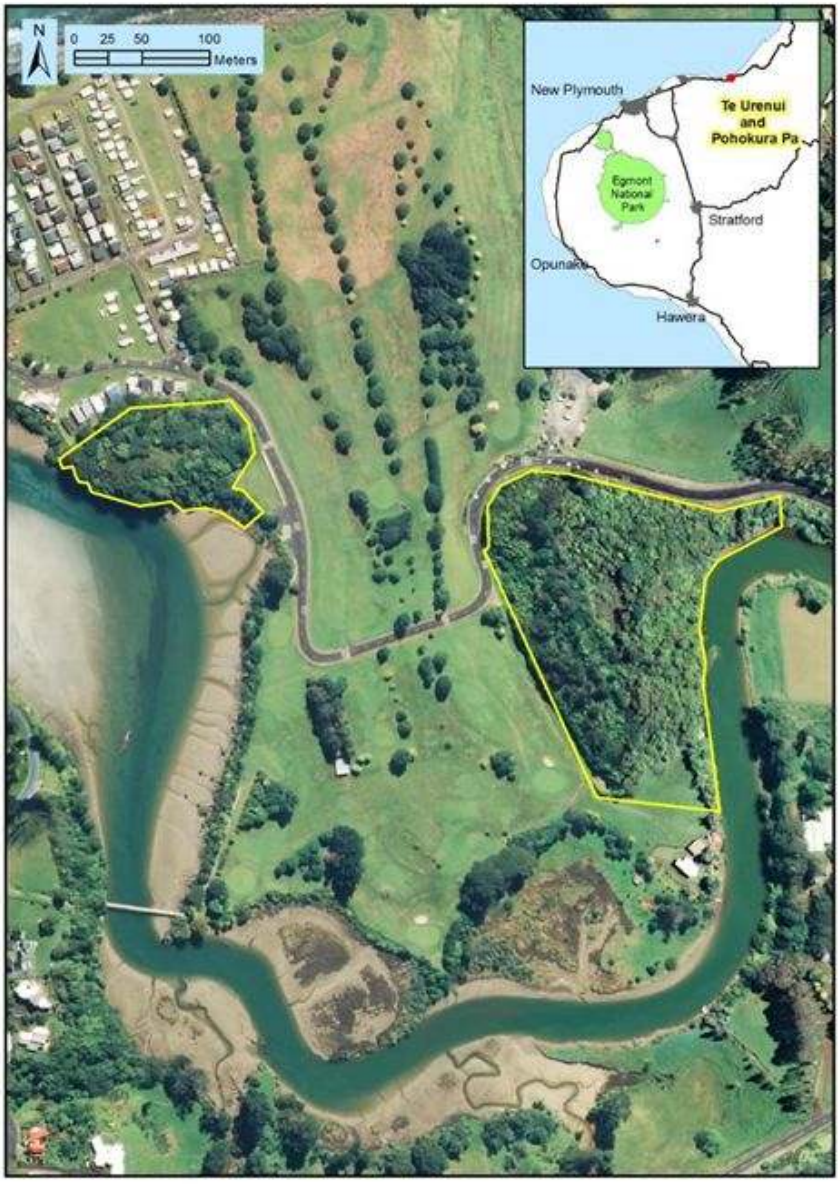
Ecological Values

Sustainability - Positive	In very good vegetative condition and likely to remain resilient to existing or potential threats.
Rarity and Distinctiveness - Medium	The recent discovery of myrtle rust in New Zealand has led to all myrtle species being listed as Threatened or At Risk. Te Urenui and Pohokura Pa sites have three climbing rata species, all of which are from the plant family Myrataceae. A Nationally Vulnerable species of poroporo is also known from the site.
Representativeness - High	Contains vegetation on a land environment classified as 'Acutely Threatened' (C1.2a) and is valuable as a remnant of a greatly reduced ecosystem type within the region.

Ecological Context - Medium	Regenerating coastal forest remnants like these help to link estuarine and terrestrial ecosystems and provide habitat for indigenous species. The pa sites are also relatively close (approx.2.5km) to other Key Native Ecosystems in the area, including Pukemiro and Okoki pa.

Other Management Issues

Herbivores - Low	Both sites are secure from stock
Predators - High	Possum, cats, rats, hedgehogs and mustelids. No current predator control. Property lies outside of possum self-help programme. Possum control had been carried out in the past by DOC.
Weeds - High	Tradescantia, climbing asparagus, kahili ginger, woolly nightshade and pampas were observed at the site.
Habitat Modification - Low	Low potential risk of further habitat modification.



Ralph Arnold

At a glance

TRC Reference: BD/9638

Ecological District: Egmont

Land Tenure: Private

Area(ha): 4.69

GPS: 1688267X & 5668272Y

Habitat: Coastal/Forest Remnant

Bioclimatic Zone: Semi-Coastal

Ecosystem Type: WF13: Tawa, kohekohe, rewarewa, hinau, podocarp forest

LENZ: F5.2b Acutely threatened

Local: Significant Natural Area

National: Priority 1 – Threatened Land Environment

Priority 4 – Threatened Species

Regional: Key Native Ecosystem

Regional Ecosystem Loss: Acutely Threatened <10% left

Protection Status: Local Government

Catchment: Tapuae (386)

General Description

Arnold KNE is located on privately owned land on Hurford road, 4km South of Omata. The site lies in the Egmont Ecological District and Tapuae Stream catchment. The Arnold KNE consists of a 4.69ha semi-coastal kohekohe, tawa forest remnant and lies in close proximity to other Key Native Ecosystems in the area including the McNeil KNE, Woodside and Berridge Twin Bush.

Ecological Features

Flora

The covenanted areas contain a good representation of semi coastal forest (classified as an 'Acutely Threatened' indigenous vegetation type under LENZ environment F5.2b). The forest canopies predominantly consist of tawa, pukatea, puriri and kohekohe.

Fauna

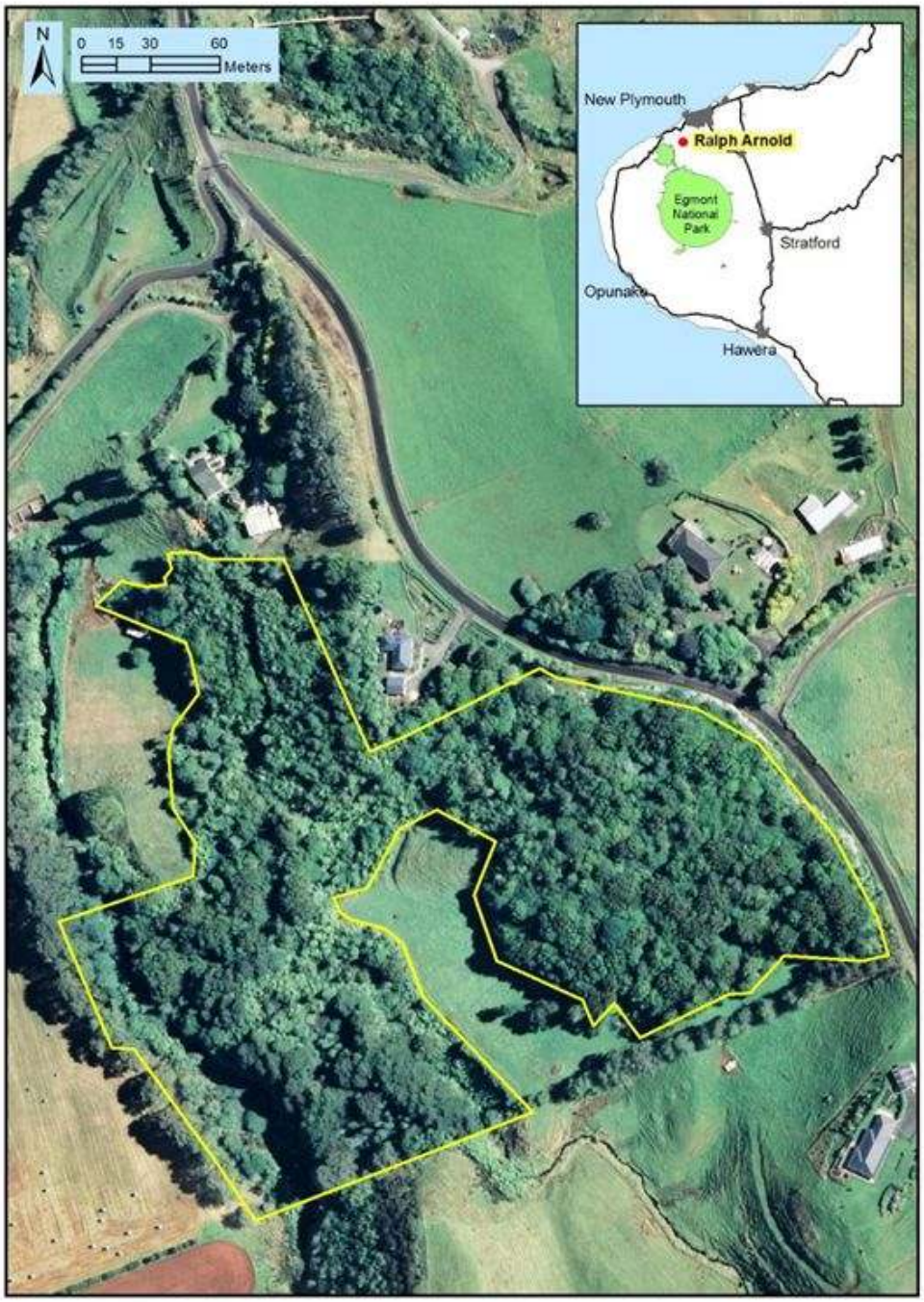
Native birdlife recorded in and around the covenanted area include the New Zealand pigeon, grey warbler, fantail, bellbird, tui and morepork. Good habitat exists for terrestrial and arboreal reptile species at this site and notable species are likely to be present. Notable freshwater species are present including 'At Risk' species such as longfin and kokopu.

Ecological Values

Sustainability - Positive	Key ecological processes still influence the site and with appropriate management, it can remain resilient to existing or potential threats. The site has the additional benefit of being formally protected.
Ecological context - High	Provides additional habitat and greater connectivity with other Key Native Ecosystems in this area such as the adjacent covenants, Berridge Twin Bush, Woodside and McNeils.
Representativeness - High	Contains indigenous vegetation classified as an 'Acutely Threatened' (F5.2b) LENZ environment.
Rarity and Distinctiveness - Medium	Contains several threatened and at risk plant species including poroporo and climbing rata. Good habitat exists for terrestrial and arboreal reptile species at this site and notable species are likely to be present. Notable freshwater species are present including 'At Risk' species such as longfin eel and kokopu.

Other Management Issues

Possum Self-help	This site is in the Possum Self Help programme.
Herbivores - Low	Currently fenced and stock proof. Currently under good possum control although vulnerable if possum numbers were high.
Predators - Medium	Predators including rodents, mustelids, possums, feral cats and hedgehogs will be having an impact on native species at the site.
Habitat Modification - Low	At risk from modification although no immediate threats.
Weeds - High	Small areas of blackberry, woolly nightshade, tradescantia, inkweed and cherry.



Mathews QEII

At a glance

TRC Reference: BD/9609

Ecological District: Egmont

Land Tenure: Private

Area(ha): 3.9

GPS: 1687380X & 5671910Y

Habitat: Forest Remnant

Bioclimatic Zone: Semi-Coastal

Ecosystem Type: WF13: Tawa, kohekohe, rewarewa, hinau, podocarp forest

LENZ: F5.2b Acutely threatened

National: Priority 1 – Threatened Land Environment

Regional: Key Native Ecosystem

Regional Ecosystem Loss: Chronically threatened 10-20% left

Protection Status: QEII Covenant

Catchment: Waireka 1 (Waireka) (904)

General Description

Mathews QEII is located on private land approximately 3km south west of New Plymouth in North Taranaki. The site consists of a semi coastal forest remnant on the slopes of a small hill and gully system in the Waireka Stream catchment. The Mathews QEII area provides good connectivity with other Key Native Ecosystems nearby such as Twin Bush KNE, Woodside and Omata School Bush and is located in the Egmont Ecological District.

Ecological Features

Flora

The Mathews QEII contains a very good example of semi coastal forest. The main forest canopy consists of tawa, miro, pukatea, kaihikatea, rewarewa, puriri and kohekohe. Also present are some excellent examples of the 'Regionally Distinctive' jointed fern and tawhirikaro. The area is classified as an 'Acutely Threatened' land environment (F5.2b). Native vegetation in these areas is rare and important for species threatened by habitat loss.

Fauna

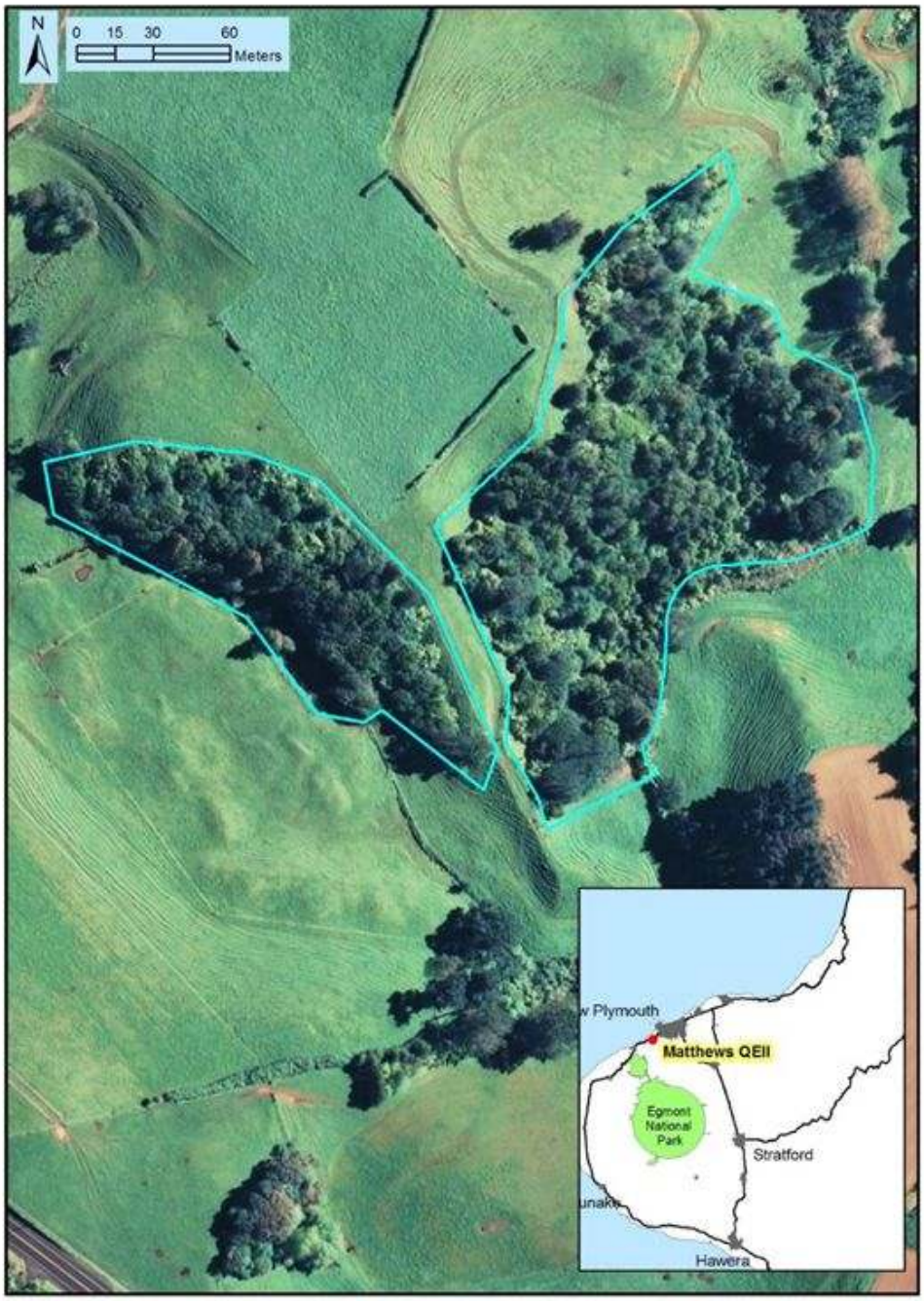
Native birdlife recorded in and around Mathews QEII include the New Zealand pigeon/kereru, grey warbler/riroriro, fantail/piwakawaka, tui and morepork/ruru. Notable freshwater species are present in the Waireka stream catchment within the forest including 'At Risk' species such as longfin eel. Native freshwater crayfish/koura are also present. The site is likely to contain other notable species such as the banded kokopu, notable native reptiles and invertebrates.

Ecological Values

Ecological context - High	Enhances connectivity between fragmented indigenous habitats and KNE's in the area such as Berridge Twin Bush, Woodside, and Tapuae Wetland etc.
Rarity and Distinctiveness - High	Contains the 'At Risk' longfin eel and 'Regionally Distinctive' jointed fern and Tawhirikaro.
Representativeness - High	Contains vegetation on a 'Acutely Threatened' land environment (F5.2b) and is a remnant of a regionally threatened ecosystem (WF13: Tawa, kohekohe, rewarewa, hinua, podocarp forest).
Sustainability - Positive	In very good vegetative condition and likely to remain resilient to existing or potential threats.

Other Management Issues

Possum Self-help	This site is in the Possum Self Help programme.
Herbivores - High	Currently fenced and stock proof. Currently under good possum control although vulnerable if possum numbers were high.
Predators - Medium	Predators including rodents, mustelids, possums, feral cats and hedgehogs will be having an impact on native species at the site.
Habitat Modification - Low	Protected by QEII covenant conditions.
Weeds - High	Small areas of holly, blackberry, woolly nightshade, tradescantia, inkweed and cherry.



BMW Farms

At a glance

TRC Reference: BD/7145

Ecological District: Egmont

Land Tenure: Private

Area(ha): 4.09ha

GPS: 1680336X & 5634634Y

Habitat: Forest Remnant

Bioclimatic Zone: Semi-Coastal

Ecosystem Type: WF13: Tawa, kohekohe, rewarewa, hinau, podocarp forest

WF8: Kahikatea, pukatea forest

LENZ: F5.2a Acutely threatened

H1.3a Acutely threatened

National: Priority 1 – Threatened Land Environment

Priority 4 – Threatened Species

Regional: Potential KNE

Representative ecosystem type

Regional Ecosystem Loss: Acutely Threatened <10% left

Chronically threatened 10-20% left

Protection Status: QEII Covenant

Catchment: Waiteika (362)

General Description

BMW Farms QEII forest remnants are located on privately owned land approximately 6km North East of Opunake township at the junction of Waiteika and Eltham roads. Both sites lie in the Egmont Ecological District and Waiteika Stream catchment. The site is comprised of two QEII covenants (2.57ha & 1.52ha) which protect remnant patches of semi-coastal forest now rare in Taranaki. Both sites have been identified as priority representative areas for management in Taranaki (Top 30%) and enhance connectivity between fragmented indigenous habitats in this area.

Ecological Features

Flora

The forest canopies of both remnants are dominated by tawa rewarewa, pukatea, and kahikatea. The understory and ground cover is a mix of pigeonwood, mahoe, coprosma, NZ gloxinia, tree ferns and ground ferns. Climbers and epiphytes are fairly common. Three species of threatened rata are present and are notable for the site. Poroporo is also present.

Fauna

Native birds recorded at the site include kereru, tui, silvereye, grey warbler, fantail, kingfisher and kahu. Ruru will also be present. A small stream running through the larger 2.57ha remnant may contain notable species such as kokopu species and the longfin eel and freshwater crayfish will be present. There is very good habitat for a range of other notable native species including reptiles and invertebrates.

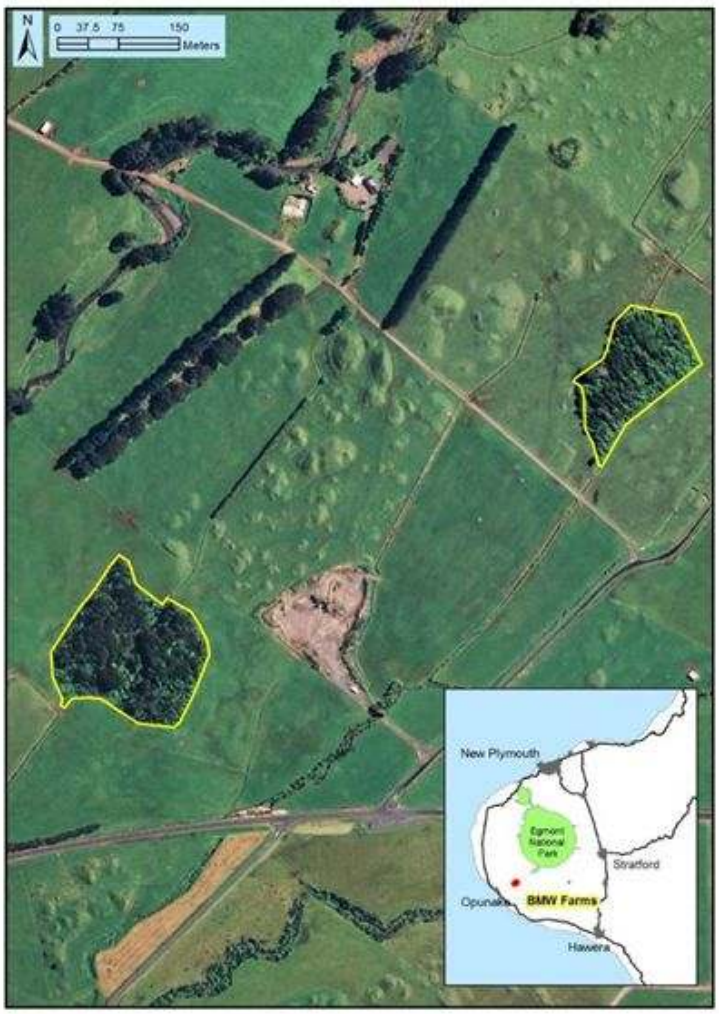
Ecological Values

Rarity and Distinctiveness - Low	The recent discovery of myrtle rust in New Zealand has led to all myrtle species being listed as Threatened or at Risk. Three climbing rata species from the Myrtle family are present at this site and are listed nationally as 'Threatened'.
Representativeness - High	The remnants are of a forest type that is now rare in Taranaki (WF13 Tawa, kohekohe, rewarewa, hinau, podocarp forest, <20% original extent remaining in region). Contains indigenous vegetation on F5.2b and H1.3a- 'Acutely Threatened' LENZ environments.

Ecological Context - Medium	This site provides additional habitat and greater connectivity within the local landscape and lies within close proximity to other Key Native Ecosystem such as Te Kiri Bush.
Sustainability - Positive	Key ecological processes still influence the site and with appropriate management, it can remain resilient to existing or potential threats and will mature over time to provide increased biodiversity and ecological function. The site has the additional benefit of been formally protected.

Other Management Issues

Possum Self-help	The site is within the possum self-help area. There are a small number of bait stations and possum master traps at the site.
Predators - High	Mustelids, feral cats, rats and hedgehogs are present at the site.
Habitat Modification - Low	Localised areas of modification to the 1.52ha forest remnant with the removal or treatment of macrocarpa trees present.
Weeds - High	Both sites have Japanese honeysuckle present along the forest margins. Inkweed, gorse, pampas, macrocarpa, blackberry and barberry also present.
Herbivores - Low	Both sites are well fenced with no evidence of recent stock entry.



Kaka Creek Bush

At a glance

TRC Reference: BD/9628

Ecological District: Matemateaonga

Land Tenure: Private

Area(ha): 107

GPS: 1757495X & 5598887Y

Habitat: Forest Remnant

Bioclimatic Zone: Lowland

Ecosystem Type: MF21: Tawa, kamahi, rimu, northern rata , black beech forest

LENZ:	F1.3b Not threatened
National:	Priority 4 – Threatened Species
Regional:	Key Native Ecosystem
	Close proximity to a representative ecosystem site
Regional Ecosystem Loss:	Less reduced >50% left
Catchment:	Waitotara (339)

General Description

The Kaka Creek Bush site is located on privately owned land 11kms northeast of Waitotara in south Taranaki. The site is within the Matemateaonga Ecological District and Waitotara River catchment. The remnant covers around 107 hectares and is dominated by well-established regenerating native forest with intermittent patches of original lowland forest. The majority of the remnant sits on steep south facing slopes of the Mangaone Stream. The whole site is proposed to be protected with a QEII covenant in the near future. The remnant is connected and contiguous with another large KNE to the east (Mangapuni) and two DOC reserves on the northern boundary.

Ecological Features

Flora

The well-established regenerating native forest area that makes up the majority of this remnant is dominated by kanuka with a good mix of mahoe, rewarewa and tree ferns present in places. Patches of older forest are also present with a dominant canopy of tawa or black beech. Kanuka (‘Threatened, Nationally Vulnerable’) and Black beech ('Regionally Distinctive') are notable for the site and other notable species may be present.

Fauna

Notable birdlife recorded nearby and likely to be present at this site includes the 'At Risk' New Zealand falcon and the North Island brown kiwi. The 'At Risk' North Island robin is present. Common native birds in the area include the fantail, tui, bellbird, grey warbler, pied tomtit and New Zealand pigeon. Other notable native fauna likely to be present includes the 'Threatened' long-tailed bat and the 'At Risk' redfin bully and inanga. Other notable native fauna will also be present such as additional native fish, reptiles and invertebrates.

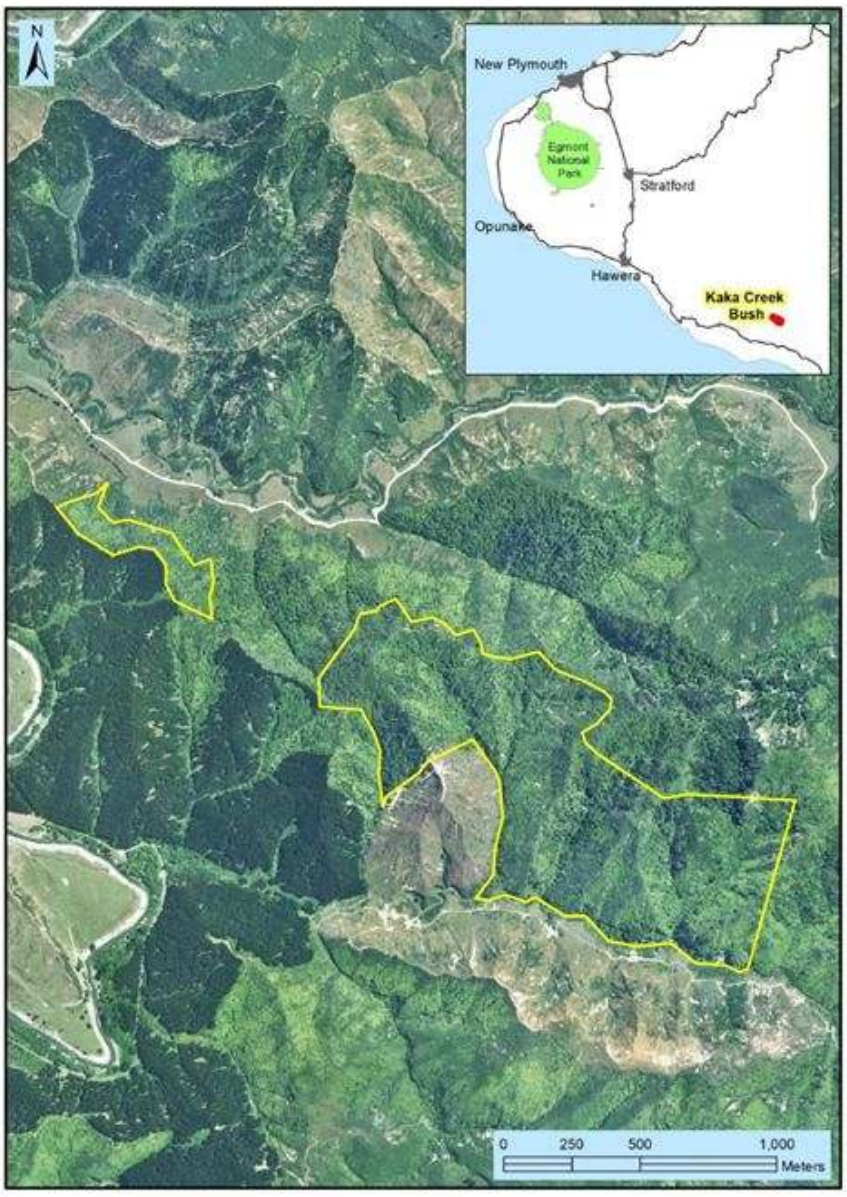
Ecological Values

Ecological Context - Medium	Provides greater connectivity to other priority sites, DOC reserves and other habitats in this area. Provides core habitat for 'Threatened' and 'At Risk' species.
Rarity and Distinctiveness - High	Very likely to contain the ‘Threatened’ New Zealand falcon, North Island brown kiwi and long-tailed bat. Contains the 'At Risk' North Island robin and very likely to contain other 'At Risk' fauna species. Contains the ‘Threatened, Nationally Vulnerable’ kanuka and 'Regionally Distinctive' black beech.
Representativeness - Low	Contains indigenous vegetation on F1.3b (‘Less reduced, better protected’) LENZ environment.

Sustainability - Positive	In good vegetative condition and large in area. Key ecological processes still influence the site. Under appropriate management, it can remain resilient to existing or potential threats.

Other Management Issues

Habitat Modification - Medium	Soil geology makes this site potentially more at risk from erosion.
Herbivores - High	Potential high risk from browsers such as possums, goats and deer in this area although current threat is medium with control of some browsers in this area.
Predators - Medium	Predators including rodents, mustelids, possums, feral cats and hedgehogs will be having an impact on native species at the site.
Weeds - Low	Low impacts of weeds in this area as the gorse present acts as a good nursery for native forest regeneration.



Cotebrook

At a glance

TRC Reference: BD/9627

Ecological District: Manawatu Plains

Land Tenure: Private

Area(ha): 4.4

GPS: 1719003X & 5618071Y

Habitat: Forest Remnant

Bioclimatic Zone: Lowland

Ecosystem Type: MF7.3: Tawa, pukatea, podocarp forest

LENZ: F5.2c Acutely threatened

National: Priority 1 – Threatened Land Environment

Regional: Key Native Ecosystem

Regional Ecosystem Loss: At risk 20-30% left

Protection Status: QEII Covenant

Catchment: Tangahoe (348)

General Description

The Cotebrook forest remnant is located on private land 8 kilometres east of Hawera off the Meremere Road in South Taranaki. The remnant lies within the Manawatu Plains Ecological District and Tangahoe River catchment. The 4.4 hectare forest remnant is made up of a steep south and west facing gully and gully sidelings of the Katewheta stream. The remnant consists of a mix of older cut over semi coastal / lowland forest with a dominant canopy of tawa, pukatea and karaka. The Cotebrook forest remnant enhances connectivity between fragmented indigenous habitats in this area including the nearby Punarima Forest and Wetlands KNE.

Ecological Features

Flora

The 4.4 hectare forest remnant is made up of a steep south and west facing gully and gully sidelings of the Katewheta stream. The remnant consists of a mix of older cut over semi coastal / lowland forest with a dominant canopy of tawa, pukatea and karaka. The younger lower canopy is dominated by mahoe, pigeonwood, mapou and tree ferns. The ground cover is intact and is dominated by native ferns and large areas of parataniwha on the wet areas of the slopes and valley floor. Good specimens of ngaio (listed as Regionally Distinctive) are present and notable for the site.

Fauna

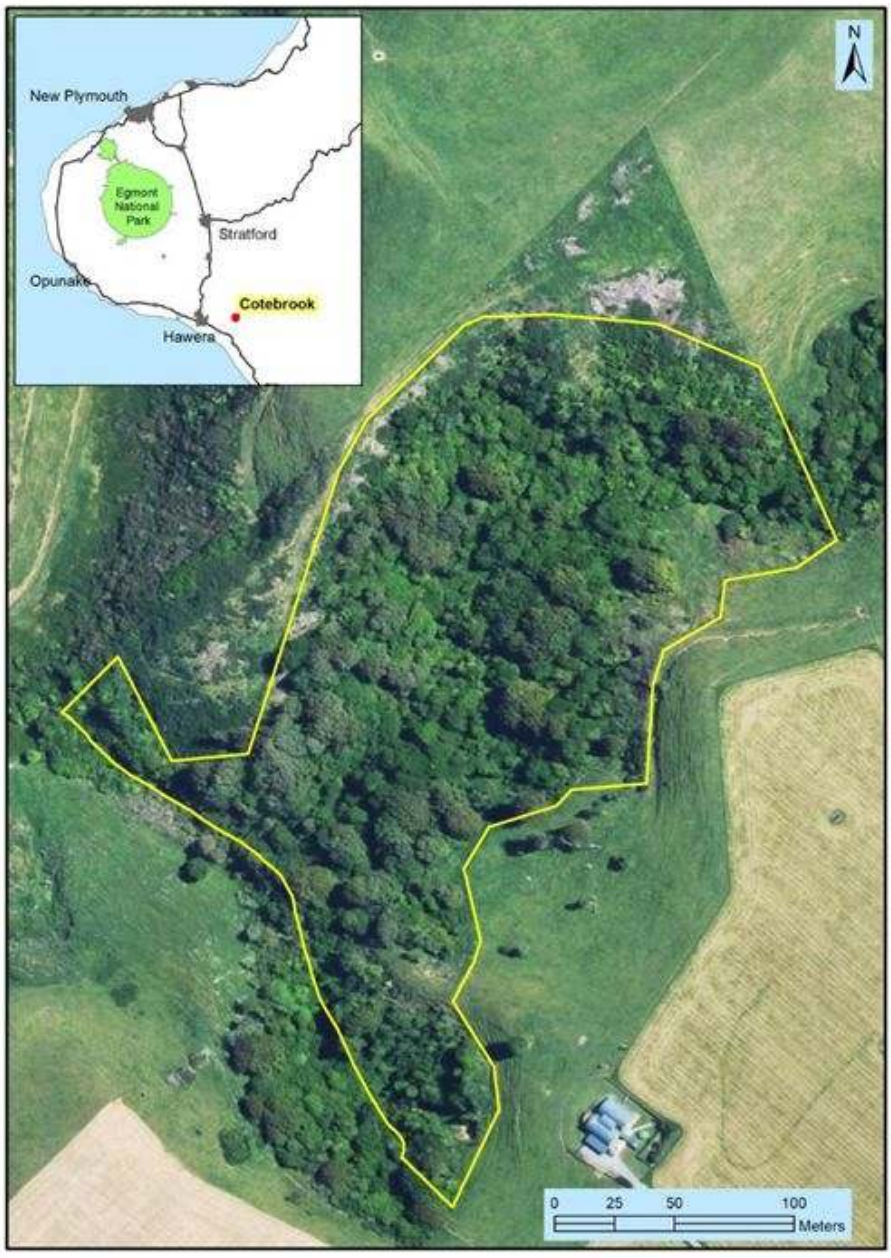
Native birds present include kereru, tui, bellbird, silvereye, shining cuckoo, grey warbler, fantail, kingfisher and morepork. A small stream in the valley floor is very likely to contain notable freshwater fish such as banded kokopu. There is very good habitat for a range of other notable native species including reptiles and invertebrates.

Ecological Values

Ecological context - High	Enhances connectivity between fragmented indigenous habitats including the nearby Punarima Forest and Wetlands KNE.
Rarity and Distinctiveness - Medium	Contains the 'Regionally Distinctive' ngaio and provides habitat for other priority native fauna such as native fish and reptiles.
Representativeness - High	Contains vegetation on an 'Acutely Threatened' land environment (F5.2c) and is a remnant of ecosystems that are considered 'At Risk' (MF7-3 Tawa, pukatea, podocarp forest) in Taranaki.
Sustainability - Positive	In good vegetative condition and likely to resilient to existing or potential threats.

Other Management Issues

Habitat Modification - Low	Currently a low threat although vulnerable to modification from potential slips and slumping.
Herbivores - Medium	Currently low impacts although a medium to high threat if possum numbers became high or a potential stock breach.
Predators - Medium	Predators including rodents, mustelids, possums, feral cats and hedgehogs will be having an impact on native species at the site.
Weeds - High	Currently a medium threat at the site with exotic passion fruit, pampas, cotoneaster etc. Potential threats through invasion of nearby weeds such as old man's beard and other environmental weed species.



Hann Bush & Kahikatea Block

At a glance

TRC Reference: BD/7043

Ecological District: North Taranaki

Land Tenure: Private

Area(ha): 11.54 (5.48 + 6.06)

GPS: 1715822X & 5660066Y

Habitat: Forest Remnant

Bioclimatic Zone: Lowland

Ecosystem Type: MF7.3: Tawa, pukatea, podocarp forest

LENZ: F5.2a Acutely threatened

F1.1b Not threatened

F7.2a At risk

National: Priority 1 – Threatened Land Environment

Regional: Key Native Ecosystem

Representative ecosystem type

Regional Ecosystem Loss: At risk 20-30% left

Protection Status: QEII Covenant

Catchment: Waitara (395)

General Description

The Hann Bush & Kahikatea Block site is located on privately owned land 12 km south east of Inglewood and lies in the North Taranaki Ecological District and Waitara River catchment. The site is comprised of two QEII covenants (5.48ha & 6.06ha) of cutover lowland tawa dominant forest. Both remnants have areas of modification and regeneration from historic or existing exotic forest management. The remnants are of a native forest type (MF7.3: Tawa, pukatea, podocarp forest) that has been greatly reduced in Taranaki. This site has been identified as a priority representative area for management (Top 30% priority ecosystem) and will enhance connectivity between fragmented indigenous habitats in this area.

Ecological Features

Flora

The forest canopies of both remnants are dominated by tawa with occasional pukatea, miro, titoki, kahikatea and rewarewa. The understory is intact in the west remnant although more sparse in the east remnant. The understory and ground cover is a mix of pigeonwood, mahoe, coprosma, NZ gloxinia, tree ferns and ground ferns. Climbers and epiphytes are fairly common. Two species of threatened rata are present and are notable for the site.

Fauna

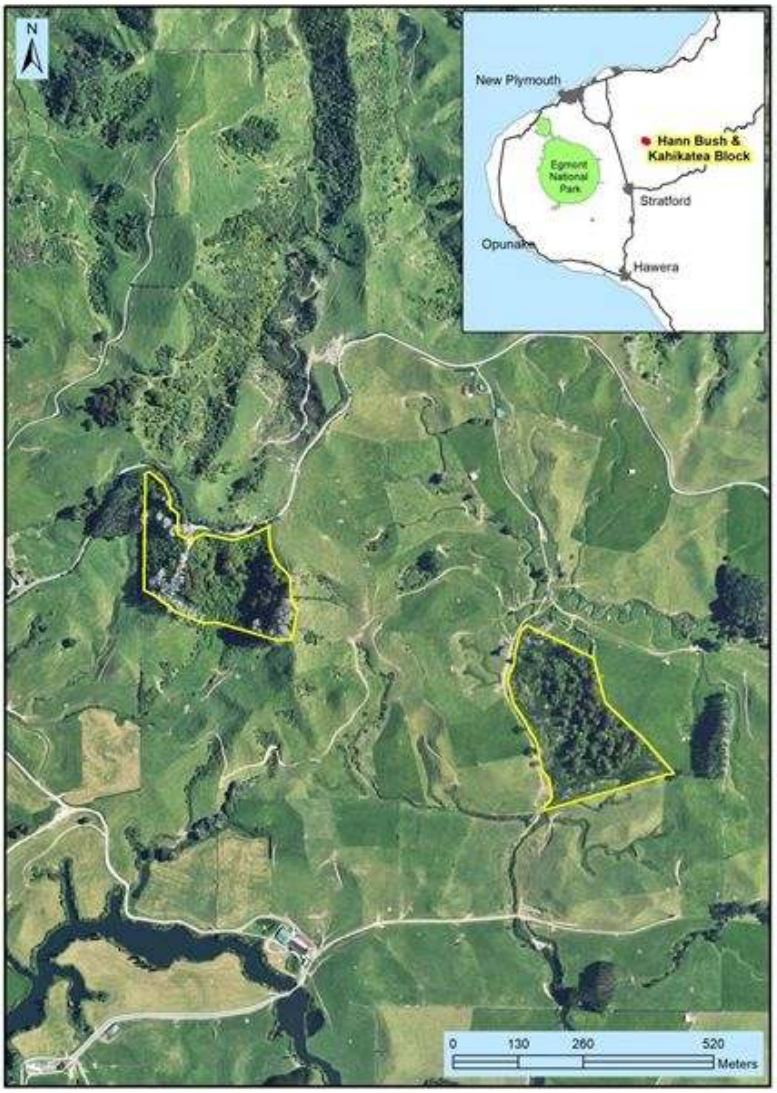
Native birds present include kereru, tui, silvereye, grey warbler, fantail, kingfisher and morepork will be present. A small stream on the east forest margin may contain notable species such as kokopu species and the longfin eel and freshwater crayfish will be present. There is very good habitat for a range of other notable native species including reptiles and invertebrates.

Ecological Values

Ecological Context - Medium	Enhances connectivity between fragmented indigenous habitats in this area.
Rarity and Distinctiveness - Medium	Contains two species of 'Threatened' rata. Provides habitat for and likely to contain other notable species including reptiles and invertebrates.
Representativeness - High	Remnants of a native forest ecosystem that have been identified as priority representative areas for management in Taranaki (Top 30% Representative Ecosystem type).
Sustainability - Positive	In relatively good vegetative condition and likely to continue to improve especially if goats are held at reduced levels.

Other Management Issues

Habitat Modification - Medium	Localised areas of modification to the forest remnants with the removal of pines and the treatment of remaining standing pines.
Herbivores - High	Stock have had an impact on areas of the east remnant forest understory and ground cover. Fence repairs have been undertaken although stock access through breaches in the fence will be an ongoing threat for the remnants.
Possum Self-help	The remnants are on the margin of the current possum self-help program boundary and receive occasional possum control by the landowner. High possum numbers have the potential to impact on forest health.
Predators - Medium	Predators including rodents, mustelids, possums, feral cats and hedgehogs will be having an impact on native species at the site.
Weeds - High	A variety of environmental weed species are present including wilding pines, wandering willy, Himalayan honeysuckle, blackberry, gorse etc.



Mount View

At a glance

TRC Reference: BD/9572

Ecological District: Egmont

Land Tenure: Private

Area(ha): 4.6

GPS: 1692307X & 5660534Y

Habitat: Forest Remnant

Bioclimatic Zone: Lowland

Ecosystem Type: MF8.2: Rimu, rata, kamahi forest

LENZ: F5.3b Not threatened

National: Priority 4 – Threatened Species

Regional: Key Native Ecosystem

Close proximity to a representative ecosystem site

Regional Ecosystem Loss: Less reduced >50% left

Protection Status: QEII Covenant

Catchment: Waiwhakaiho (392)

General Description

The Mount View site is located off the top end of Korito Road 14 kilometres south of New Plymouth. The covenant provides connectivity to other priority KNE's and habitats in the area as is within one kilometre of Egmont National Park and 500 metres west of the Korito Heights KNE. The covenanted area is within the Waiwhakaiho River catchment and Egmont Ecological District. Covering 4.6 hectares, the site is comprised of lowland forest and includes two small unnamed tributaries of the Mangorei Stream.

Ecological Features

Flora

The canopy of the remnant is dominated by kamahi and tawa with a mix of other species such as miro, toro, hinau, rimu and rewarewa. A good sub canopy and understorey is also present and includes mahoe, wineberry, raukawa, rangiora, pigeonwood and hangehange. Tree ferns and ground ferns are common in places and seedlings and saplings are also common. The area falls within the 'Less reduced, better protected' LENZ environment F5.3b.

Fauna

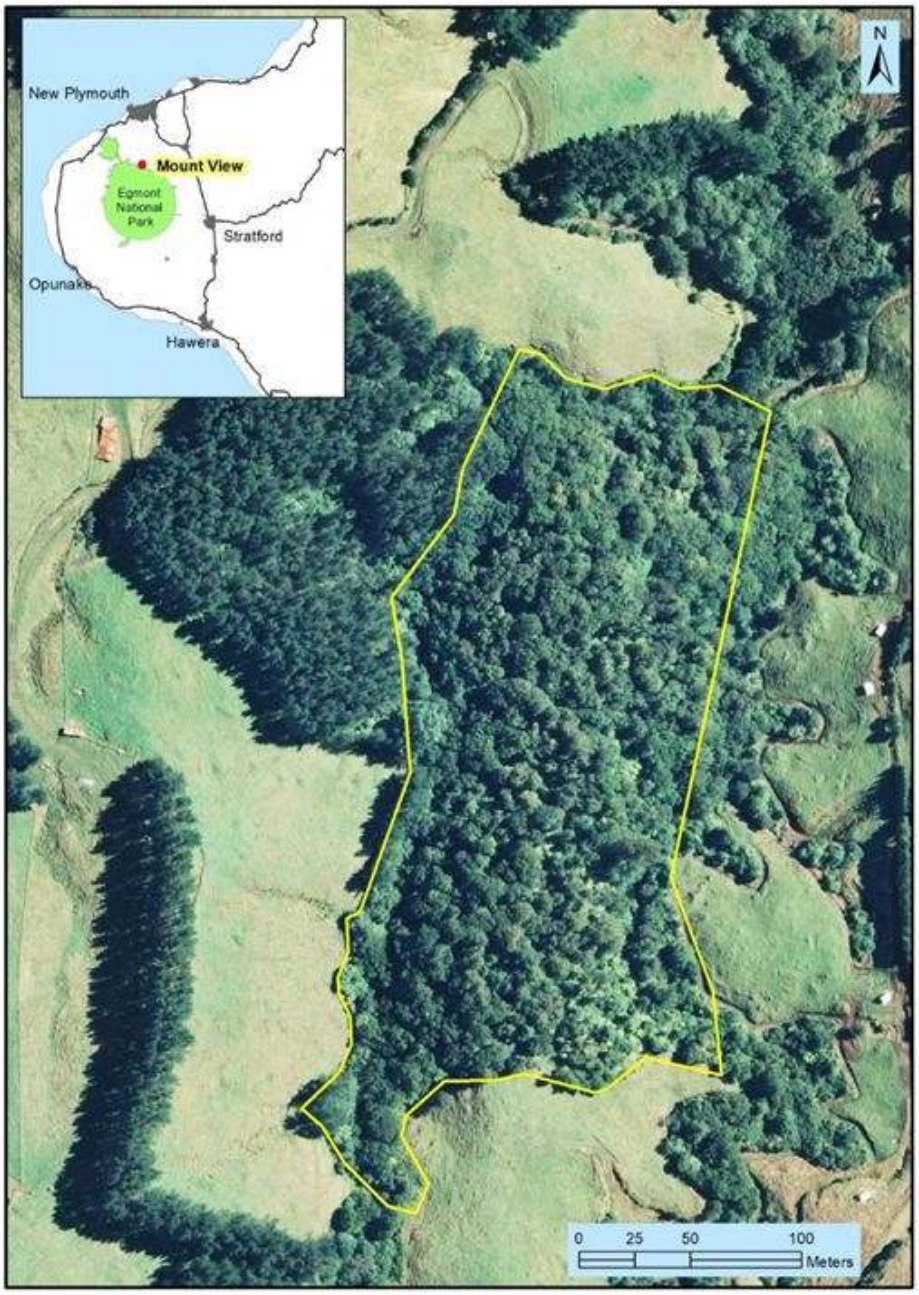
Native birdlife recorded in and around the covenanted area include the 'At Risk' whitehead. Other birdlife includes the New Zealand pigeon, grey warbler, fantail, tui, bellbird, tomtit and silvereye. Very good habitat exists for notable freshwater fish such as shortjaw kokopu and koaro. The 'At Risk' longfin eel will also be present along with the native freshwater crayfish.

Ecological Values

Ecological context - High	Close to and provides connectivity with other priority ecosystems, KNE's and habitats in the area such as Egmont National park and Korito Heights. Also provides core habitat for 'At Risk' native species such as native freshwater fish and reptiles.
Rarity and Distinctiveness - Medium	Contains two species of 'Threatened' rata and the 'At Risk' whitehead. Provides habitat and likely to contain other Threatened and At Risk native species.
Representativeness - Low	Contains indigenous vegetation on F5.3b ('Less reduced, better protected') LENZ environment.
Sustainability - Positive	In good vegetative condition. Key ecological processes still influence the site. Under appropriate management, it can remain resilient to existing or potential threats.

Other Management Issues

Habitat Modification - Low	The covenanted area is currently fenced and protected with the conditions of a QEII covenant.
Weeds - Medium	Scattered areas of exotic tree species and weeds such as blackberry and inkweed.
Herbivores - High	Ground vegetation would potentially be vulnerable to browsing from stock if the fences were breached and high possum numbers would be detrimental to the forest canopy.
Predators - Medium	Native fauna and flora will be impacted by predation at this site.



Te Huia Holdings Wetlands

At a glance

TRC Reference: BD/9635

Ecological District: Manawatu Plains

Land Tenure: Private

Area(ha): 6.4

GPS: 1740802X & 5593342Y

Habitat: Coastal/Wetland

Bioclimatic Zone: Semi-Coastal

Ecosystem Type: MF7.3: Tawa, pukatea, podocarp forest

Open Water

WF6: Tōtara, mataī, broadleaved forest[Dune Forest]

LENZ: F5.2c Acutely threatened

National: Priority 1 – Threatened Land Environment

Priority 2 – Sand Dunes and Wetlands

Priority 4 – Threatened Species

Priority 3 – Originally Rare Ecosystem

Regional: Key Native Ecosystem

Close proximity to a representative ecosystem site

Regionally Significant Wetland

Regional Ecosystem Loss: At risk 20-30% left

Protection Status: Memorandum of Encumbrance

Catchment: Unnamed catchment 3 (803)

General Description

The Te Huia Holdings wetlands are located on privately owned land, 3.7km south-east of Waverley and lie in the Manawatu Plains Ecological District. The wetlands are located in a catchment area referred to as 'Unnamed Catchment 3'. There are three separate wetlands at the site that are within 350m of each other and range from 1.0h to 2.9ha and total about 6.4ha. These wetlands provide additional habitat and connection to other priority KNE wetlands very nearby such as Lake Herengawe and Ihupuku Swamp.

Ecological Features

Flora

Wetland vegetation is varied over each wetland although a good range is present including kuta, raupo, carex, flax and a range of submersed aquatic vegetation. Buffer margin vegetation ranges from rank grass, exotic trees and a range of establishing planted native trees.

Fauna

A good range of wetland birds are present or are known to use the wetlands including notable species such as the Australasian bittern. Other native birds recorded were the kingfisher, NZ shoveller, grey duck, black swan, paradise shelduck, pukeko and little shag. Grey warbler were seen in the buffer vegetation and a range of exotic birds were present. There is good habitat for reptiles on the wetland fringes, wetland vegetation and retired buffer margins and notable species may be present. There is little information on aquatic life although surveys are planned in the future. A very large goldfish was observed at the southern end of the middle wetland.

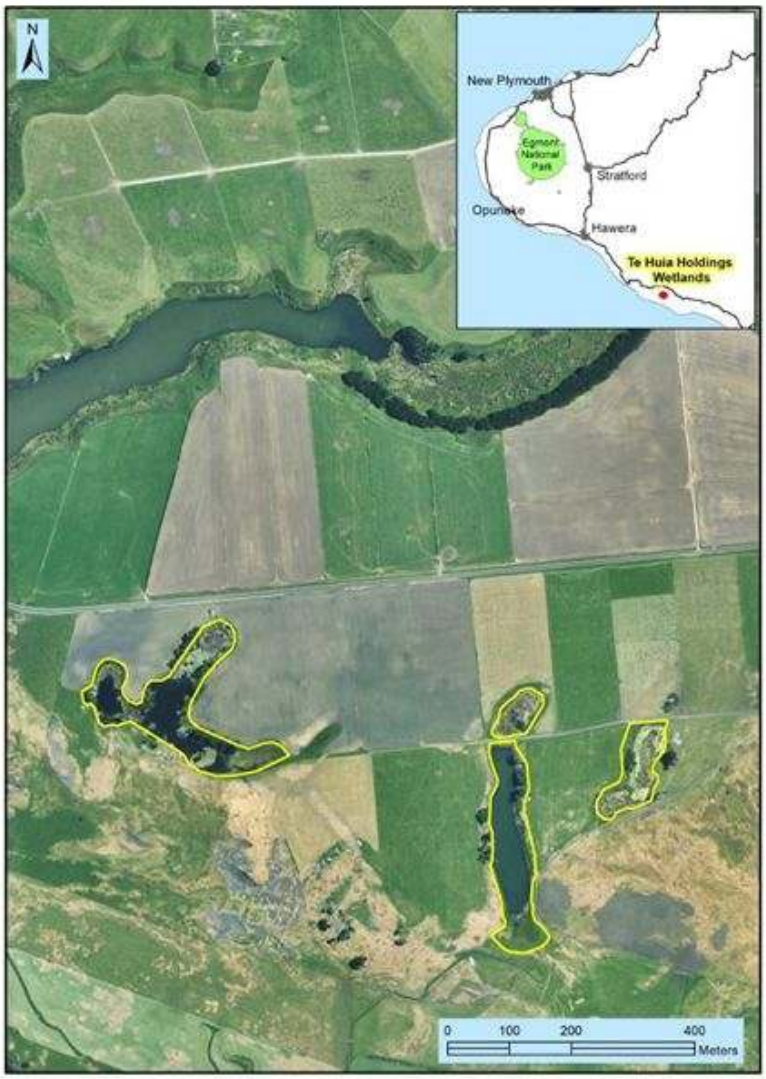
Ecological Values

Ecological context - High	Part of a series of southern coastal dune lakes and wetlands that together provide one of Taranaki's most significant habitats for the 'Threatened' Australasian bittern. Vegetation associated with wetland margins are an 'originally rare' ecosystem type.

Rarity and Distinctiveness - Medium	Contains habitat for the 'Threatened' Australasian bittern and other notable species will be present.
Representativeness - High	Remnant indigenous vegetation and habitat on F5.2c 'Acutely Threatened' LENZ environment. Close to and provides connectivity to a representative priority ecosystem.
Sustainability - Positive	Key ecological processes still influence the site. Under appropriate management, it can remain resilient to existing or potential threats.

Other Management Issues

Habitat Modification - Medium	At risk from modification although no immediate threats.
Herbivores - Medium	Potential high risk from stock browse of buffer vegetation if the fenced areas were ever breached.
Predators - Medium	Predators including rodents, mustelids, possums, feral cats and hedgehogs will be having an impact on native species at the site.
Weeds - Medium	Small localised areas of weedy species.



Corbett Road QEII Covenants

At a glance

TRC Reference: BD/9631

Ecological District: Egmont

Land Tenure: Private

Area(ha): 1.63

GPS: 1702637X & 5675654Y

Habitat: Forest Remnant

Bioclimatic Zone: Semi-Coastal

Ecosystem Type: WF13: Tawa, kohekohe, rewarewa, hinau, podocarp forest

LENZ:	F5.2b Acutely threatened
National:	Priority 1 – Threatened Land Environment
Regional:	Key Native Ecosystem
Regional Ecosystem Loss:	Chronically threatened 10-20% left
Protection Status:	QEII Covenant
Catchment:	Waiongana (394)

General Description

The Corbett Road QEII Covenants site is situated on private land in New Plymouth District, 4.8 kilometres south-east of Bell Block. The site is in the Egmont Ecological District and Waiongona River Catchment. The area is comprised of two near-by forest fragments that are protected by three QEII Covenants; two properties on the western side of Corbett Road and one on the eastern side of the road. In total there are 1.63 hectares of cut-over semi-coastal lowland forest, classified as ecosystem type WF13 'Tawa, kohekohe, rewarewa, hinau and podocarp forest'. The forest is in good condition with a dense mix of canopy and understory species. A common suite of indigenous species have been identified at the site, which provides good stepping-stone habitat between other forest fragments and wetlands in the area. There is no running water or wetland areas, though soil conditions are damper at the seaward ends of the fragments.

Ecological Features

Flora

The canopy of the forest remnant is dominated by tawa, puriri, kohe kohe and titoki, with occasional pukatea and karaka, rewa rewa, mahoe, pigeonwood and mamaku tree ferns on forest margins. The understorey is dense in places and relatively sparse in others, and comprises mapau, nikau palms, kawakawa and kanono. Ground cover seedlings and ferns are present throughout the forest, along with vines and epiphytes, mosses, lichens and fungi.

Fauna

Native birds present include kereru, tui, silver-eye, grey warbler, fantail and morepork. Kingfisher, shining cuckoo and Australasian harrier also use the site as part of their wider habitat. There is good habitat for a range of reptiles and invertebrates.

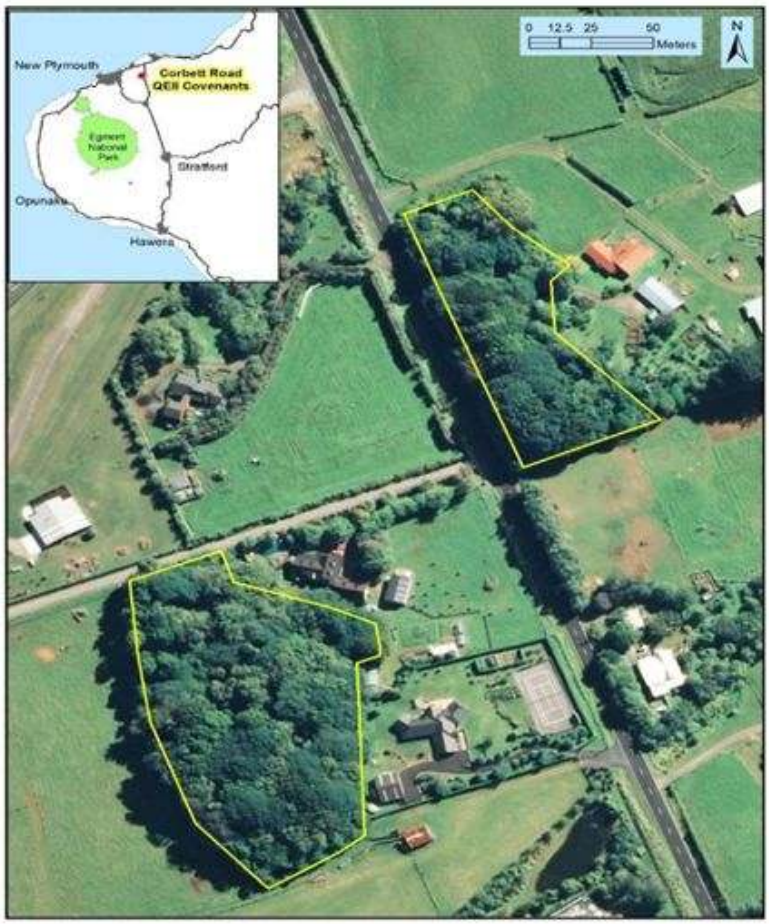
Ecological Values

Ecological Context - Medium	Enhances stepping-stone connectivity between fragmented indigenous habitat and Key Native Ecosystems in the area, such as Tegel Bush QEII, Lepperton Bush, Te Wairoa, Cardenica Woodlot, Tarurutangi Swamp and Townsend Road KNE's.
Rarity and Distinctiveness - Medium	To date no threatened, at risk or regionally distinctive species have been observed at the site. The ecosystem type is now rare owing to widespread development for agriculture and urban development.
Representativeness - High	Contains indigenous vegetation on an 'Acutely Threatened' LENZ environment (F5.2b) and is of an ecosystem type (WF13: Tawa,

	kohekohe, rewarewa, hinau, podocarp forest) considered to be 'Chronically Threatened' as only 16% remains in the region.
Sustainability - Positive	In good vegetative condition. Under appropriate management, the forest fragments can remain resilient and continue to contribute to the wider ecological context.

Other Management Issues

Possum Self-help	The fragments are situated within the 'Bell Block' zone of the regional Possum Self Help programme.
Habitat Modification - Low	Both fragments are legally protected with QEII covenants, and are securely fenced to exclude livestock.
Predators - High	Species that prey on native birds, lizards and invertebrates include rodents (rats & mice) and hedgehogs, along with possums, mustelids and feral cats roving the wider landscape.
Weeds - High	Weeds are currently present in localised areas and present the main priority for management in the short term. In the eastern fragment Tradescantia is the priority species for control. In the fragment west of Corbett Road a range of garden escapee's form the priority species for control, and include jasmine, Plectranthus, aroid lilly, Abutalon and palms, along with climbing asparagus.
Herbivores - Medium	Possums will be present in low densities, and also prey on insects and chicks, but present greatest threat to vegetation through browsing.



Lowe South Block

At a glance

TRC Reference: BD/9618

Ecological District: Matemateaonga

Land Tenure: Private

Area(ha): 16.3

GPS: 1732277X & 5656805Y

Habitat: Forest Remnant

Bioclimatic Zone: Lowland

Ecosystem Type: MF7.3: Tawa, pukatea, podocarp forest

LENZ: F7.2a At risk

Regional: Potential KNE

Close proximity to a representative ecosystem site

Regional Ecosystem Loss: At risk 20-30% left

Catchment: Patea (343)

General Description

The Lowe South forest remnant is privately owned land and is located near Kiore approximately 25kms north east of Stratford in central Taranaki. The 16.3ha forest remnant lies in the Matemateaonga Ecological District and Patea River catchment. The forest is situated on upper hill slopes on the north west end and a south east facing valley system. The forest canopy is dominated by tawa with occasional pukatea, miro and rimu. The forest is close to a site considered as a priority representative area for management.

Ecological Features

Flora

The forest canopy is dominated by tawa with occasional pukatea, miro, rimu and rewarewa. The understory and ground cover is mainly sparse although climbers and epiphytes are fairly common. Recent myrtle rust threats have elevated potentially vulnerable native flora species to 'Threatened' status. Notably, five of these new threatened species are present at this site including three species of rata, ramarama and manuka.

Fauna

Native birds present include kereru, tui, bellbird, silvereye, grey warbler, fantail and kingfisher and morepork will be present. Notable birds such as whitehead and the North Island robin are known nearby and may be present. Also notable is the likely presence of the 'Threatened' long-tailed bat. There is very good habitat for a range of other notable native species including reptiles and invertebrates.

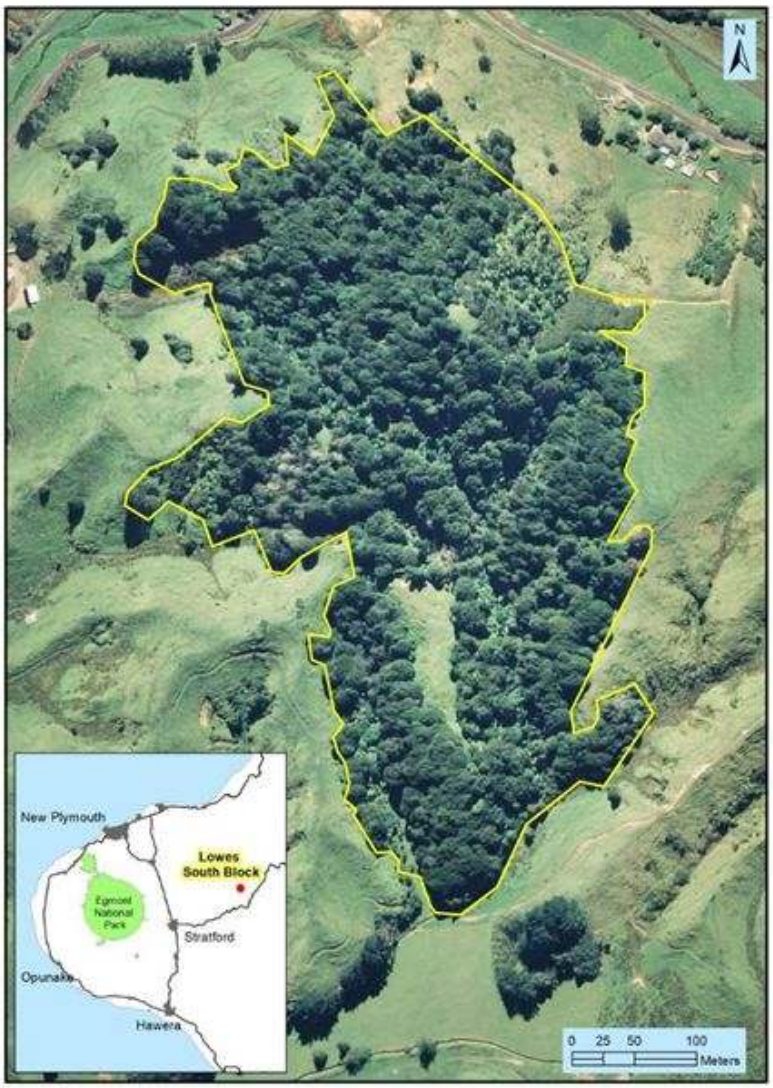
Ecological Values

Ecological context - High	Enhances connectivity between fragmented indigenous habitats in this area including nearby remnants on this property and nearby KNE's such as the Te Wera wetlands.
Rarity and Distinctiveness - Medium	Likely to contain notable fauna species such as the 'Threatened' long-tailed bat. Provides habitat for and also likely to contain other notable fauna species including reptiles and invertebrates. Also contains five newly listed 'Threatened' and 'At Risk' flora species due to potential vulnerability to myrtle rust including three species of rata, ramarama and manuka.
Representativeness - Medium	Similar to and close to a remnant of a native forest ecosystem (MF7.2: Rata, tawa, kamahi, podocarp forest) that has been identified as a priority representative area for management in Taranaki (Top 30% Priority Representative Ecosystems).

Sustainability - Positive	In moderate vegetative condition although would improve dramatically if fenced and goats were held at reduced levels.

Other Management Issues

Possum Self-help	The site is outside the current possum self-help program boundary although receives occasional possum control by the landowners. High possum numbers have the potential to impact on forest health.
Weeds - Low	Currently a low threat at this site with occasional pasture weed species.
Predators - Medium	Predators including rodents, mustelids, possums, feral cats and hedgehogs will be having an impact on native species at the site.
Herbivores - High	Stock and occasional feral goats have had a large impact on the forest understory and ground cover typical in this area and remain a high threat without management.
Habitat Modification - Low	Patches of the remnant have been cleared in the past and although the habitat is vulnerable to modification there are no immediate threats.



Whakataka te hau

Karakia to open and close meetings

Whakataka te hau ki te uru	Cease the winds from the west
Whakataka te hau ki tonga	Cease the winds from the south
Kia mākinakina ki uta	Let the breeze blow over the land
Kia mātaratara ki tai	Let the breeze blow over the ocean
Kia hī ake ana te atakura	Let the red-tipped dawn come with a sharpened air
He tio, he huka, he hauhu	A touch of frost, a promise of glorious day
Tūturu o whiti whakamaua kia tina.	Let there be certainty
Tina!	Secure it!
Hui ē! Tāiki ē!	Draw together! Affirm!

Nau mai e ngā hua

Karakia for kai

Nau mai e ngā hua	Welcome the gifts of food
o te wao	from the sacred forests
o te ngakina	from the cultivated gardens
o te wai tai	from the sea
o te wai Māori	from the fresh waters
Nā Tāne	The food of Tāne
Nā Rongo	of Rongo
Nā Tangaroa	of Tangaroa
Nā Maru	of Maru
Ko Ranginui e tū iho nei	I acknowledge Ranginui above and
Ko Papatūānuku e takoto ake nei	Papatūānuku below
Tūturu o whti whakamaua kia tina	Let there be certainty Secure it!
Tina! Hui e! Taiki e!	Draw together! Affirm!