



# Strategy and Policy Committee Informal Workshop Pack

DATE: TUESDAY 6 AUGUST 2024

COMMENCING AT TIME: 9.30 AM

VENUE: Council Chambers, Ground Floor, Regional  
House, 1 Elizabeth Street, Tauranga

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The table below sets out the general subject of each paper to be considered while the public is excluded from the proceedings of this workshop, the reason for excluding the public, and the specific grounds under section 48(1) of the Local Government Official Information and Meetings Act 1987 for excluding the public:

Item No.	Subject of each paper to be considered	Reason for excluding the public in relation to each paper	Grounds under Section 48(1) for excluding the public	When the paper can be released into the public
4	Update on draft PC11 Geothermal Plan Change provisions and Tauranga System Management Plan draft	Withholding the information is necessary to maintain the effective conduct of public affairs through the free and frank expression of opinions by or between or to members or officers or employees of any local authority, or any persons to whom section 2(5) applies, in the course of their duty.	48(1)(a)(i) Section 7 (2)(f)(i).	On the Chief Executive's approval.

## **4 Update on draft PC11 Geothermal Plan Change provisions and Tauranga System Management Plan draft**

Attachment 1 - Working draft PC 11 Geothermal chapter - Clean version - Public Excluded

Attachment 2 - High-level Overview: Working draft PC 11 Geothermal provisions table - Public Excluded

Attachment 3 - Tauranga System Management Plan - Initial Working Draft

## Informal Workshop Paper



**To:** Strategy and Policy Committee Workshop  
6 August 2024

**From:** Adam Fort, Principal Advisor - Strategic Planning  
Namouta Poutasi, General Manager, Strategy and Science

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### Presentation - Update for Eastern Bay Spatial Plan

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#### 1. Purpose

The purpose of the presentation at the workshop is to give the Strategy and Policy Committee a comprehensive update on progress of the Eastern Bay of Plenty Spatial Plan - a 30+ year strategic plan for the future of the sub-region which includes three territorial authorities. There will be opportunities at the workshop to provide feedback on the preferred option for the long-term settlement pattern and proposed next steps for the project, particularly the planned engagement.

The presenters will be:

- Robert Brodnax (consultant)
- Vaughan Payne (Independent Chair of the Project Governance Group)
- Ben Petch (consultant)

Note that a similar presentation is being done concurrently in workshop formats with each of our three partner territorial councils, with Kawerau DC occurring on 24 July, Whakatāne DC on 31 July, and Ōpōtiki DC on 5 August.

#### 2. Guidance Sought from Councillors

Once complete, the Eastern Bay of Plenty Spatial Plan will guide future planning and investment decisions for councils, iwi partners and government agencies such as Waka Kotahi, the Ministry of Housing and Urban Development and the Ministry of Education. As part of the early stages of development, three scenarios have been created which consider what the future could look like if different growth patterns were to occur across the sub-region. The scenarios use a medium population growth projection of +11,800 people in the sub-region over the next 30 years. The project team are now looking to share the scenarios with the wider community and seek feedback.

The project team is specifically looking for feedback from BOPRC on:

- the draft recommendations for the future settlement pattern.

- the collective approach to engagement, which is proposed to be led on the ground by the territorial authorities, including iwi/hapū engagement in the respective areas. Key messages will be agreed between partners to ensure consistency.

### 3. Background

The Eastern Bay of Plenty Spatial Plan is a key project under our Regional Planning and Development group of activities in our new LTP 2024-24. It is a collaborative project that primarily contributes to our community outcome of Sustainable Development. BOPRC support for the project was confirmed through papers to the Strategy and Policy Committee as follows:

- 8 August 2023 - full update about the project
- 9 April 2024 - update on the project as part of an overview of the spatial planning work programme 2024 - 2026.

The Project Governance Group (including Councillor Campbell) held a recent workshop on 24 June 2024 to receive input from a range of partners on the project, particularly the draft Economic Development Strategy, housing and business capacity requirements, and future development scenarios.

Ongoing support for this project will ensure that it maintains momentum to achieve the aim of an approved Plan by August 2025. Once complete, we will have full coverage of sub-regional spatial plans across the wider region, alongside the new SmartGrowth Strategy and the Rotorua FDS.

#### 3.1 National Policy Statement on Urban Development

In terms of statutory context for this project, the NPS-UD requires local authorities to provide sufficient development capacity to meet expected demand for housing and business in the short (1-3 years), medium (4-10 years) and long (11-30 years) term.

In terms of Central Government's recent 'Going for Housing Growth' policy announcements, these are only proposals at this stage and pre-engagement with local authorities and other key partners is expected later this year to test and refine policy options, led by MfE/MHUD. The Minister's announcements reinforce the need for proactive spatial planning across our region, recognising the differing needs and aspirations of communities and land use constraints.

### 4. Next Steps

The target for completion is August 2025, when the Project Governance Group will endorse the final draft version and recommend to each partner Council to approve. We can expect one or two more workshops with BOPRC Elected Members before then, as well as regular updates through weekly emails and the Strategy and Policy Committee Operating Environment papers.

Community engagement is planned in two phases and will meet the requirements of a Special Consultative Procedure under the Local Government Act:

- Phase 1 October-November 2024 - online and face to face, includes feedback on proposed urban growth management options
- Phase 2 May 2025 - to close the loop and receive final feedback on the draft plan.

After the plan is approved/becomes operational it is proposed to:

- establish a governance framework to oversee implementation
- progress a series of local area plans for places that will see the most change
- align implementation tools like District Plans, Long-term Plans (2027-37), etc. to deliver infrastructure and achieve development outcomes.

## Informal Workshop Paper



**To:** Strategy and Policy Committee Workshop

6 August 2024

**From:** Santiago Bermeo, Economist and Stephen Lamb, Natural Resources Policy Manager

Chris Ingle, General Manager, Integrated Catchments  
Namouta Poutasi, General Manager, Strategy and Science

### Possible new approaches for improved water quality and mitigation options for Ōhiwa Harbour

#### 1. Purpose

This paper responds to a 5 March 2024 Monitoring & Operations Committee resolution requesting additional “information on the health of the Ōhiwa Harbour and viable options for mitigation measures”.

This paper also introduces two new possible approaches for improved water quality: *collective investments* in catchment infrastructure and Council loans for land management interventions. A collective investment refers to a catchment community agreeing to invest in catchment infrastructure<sup>1</sup> to improve water quality.

#### 2. Guidance Sought from Councillors

Feedback and direction on:

- the concepts of collective investments in catchment infrastructure and Council loans for land management interventions;
- what catchment infrastructure, Council financial support/incentive options to pursue further, either just for the Ōhiwa Harbour Freshwater Management Unit, or across the region; and

<sup>1</sup> “Catchment infrastructure” is defined broadly and includes hard infrastructure like detainment bunds, “leaky weirs” in the upper catchment, sediment traps, streambank and in-stream bed stabilisation structures but also nature-based infrastructure like constructed treatment wetlands and forests. These types of interventions can provide relatively large reductions in contaminants but are also very expensive for an individual landowner. However, at a catchment level, they could be cost-effective.

- how to distribute costs for water quality solutions (or the process to consider that), including consideration of Council financial support for compliance costs.

### 3. Discussion

#### 3.1 The challenge of reducing diffuse contaminants (particularly from farming)

##### 3.1.1 *Rules and regulations*

During a previous workshop on 25 June 2024, staff discussed the challenge of managing diffuse sources of contaminants (such as sediment, nutrients and faecal) that get in to water, particularly from farming. As a result of the previous workshop and matters raised, staff are working on a freshwater direction setting paper/business case for the Strategy and Policy Committee to consider.

There are substantial water quality and ecological health effects in several locations around the region, particularly in estuaries and lakes. By their nature, and in contrast to point sources, it is not possible to monitor diffuse contaminant loss at a property level. At the same time, farming (including pastoral, horticultural and arable) is a complex, dynamic, responsive and highly variable activity, further complicating its management and regulation. Biophysical characteristics (e.g., climate, slope, rainfall, soil type, etc.) as well as a range of on-farm practices and management activities affect how much contaminants are generated and lost from land into water.

Regulation of diffuse contaminant loss from farming is complex and highly contentious. However, it is essential as part of an integrated solution to achieve the change needed to halt degradation and improve water quality and ecosystem health. These contaminants are largely unregulated in the Bay of Plenty (except for nitrogen in parts of the Rotorua Te Arawa Lakes FMU) and in many other parts of the country.

**The previous draft rules would only achieve part of the total contaminant reduction needed in some catchments.**

##### 3.1.2 *Grants and incentives*

Ahead of any new rules (and potentially alongside them in the future), the Land Management Teams deliver a range of mitigation measures (including catchment infrastructure) through grants under the [Environmental Programme \(EP\) Grants Policy](#). However, as discussed during the 5 March Monitoring & Operations Committee meeting, there are a range of limitations to how much can be achieved through incentives alone. First, EP agreements are currently entirely reliant on landowners' will. In most cases, landowners are expected to contribute at least in part to project costs and this can be a significant barrier. Likewise, landowners can be reluctant to retire productive land for mitigation. Second, regulatory requirements can significantly increase construction costs, timeframes and complexity for certain types of catchment infrastructure (e.g., detainment bunds, treatment wetlands), including through the need to obtain consents and to engage specialist professionals. Some of these barriers may be addressed through PC19. Third, in the absence of effective regulation, there is a risk that gains achieved can be lost through intensification or worsening practices elsewhere. Nonetheless, incentives are expected to continue to contribute to achieving water quality objectives across the region. However, particularly in highly degraded catchments, it is highly unlikely that incentives alone (at least in their current form) would be sufficient to achieve required levels of contaminant reductions.

3.1.3 **A possible third lever: collective investments for catchment infrastructure**

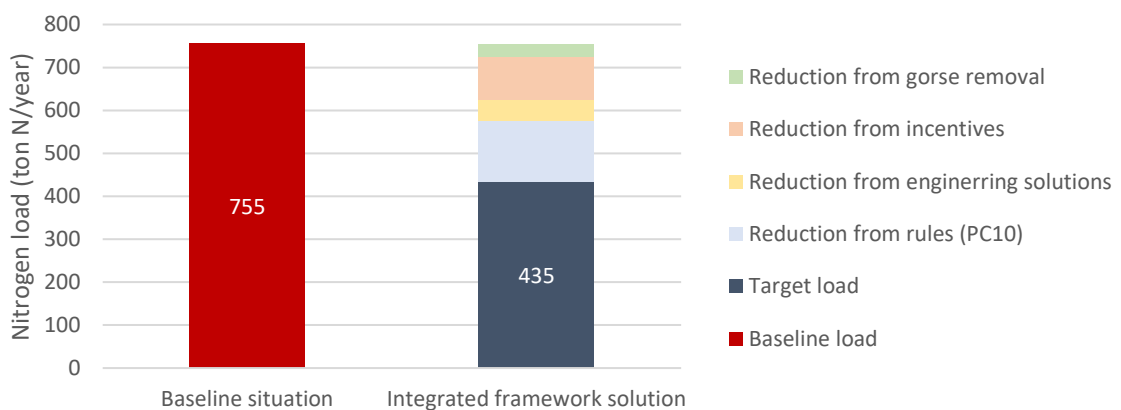
As a possible alternative to funding catchment infrastructure through EP grants, and recognising these are generally expensive yet effective, catchment communities could agree to fund catchment infrastructure directly. They could do this through a catchment group, with or without Council involvement/intervention, or have it done by Regional Council and funded through rates. Funding options are discussed in more detail in section 3.2. In this case, catchment infrastructure could be a recognised alternative means to achieve required contaminant reductions under PC19, potentially reducing the extent to which we need to rely on minimum standards. Likewise, catchment infrastructure could complement rules, achieving more than would be achieved with rules and incentives alone. Catchment infrastructure options and viability in different catchments would need further investigation.

For example, a catchment community could agree to fund the establishment of catchment infrastructure like a treatment wetland or hill country afforestation. In addition to establishment and maintenance costs, this could include a yearly compensation to owners of the land where that infrastructure is to be established, for the ecosystem services provided and in lieu of the forgone pastoral income. This may be cheaper than acquiring land upfront.

3.1.4 **Credible and effective water quality solutions are likely to rely on a combination of methods**

As described above, particularly in highly degraded catchments, it is unlikely that a single method would be sufficient to achieve the required level of contaminant reductions. Under the Lake Rotorua integrated framework, BOPRC is implementing an integrated framework - a combination of rules (Plan Change 10), incentives and engineering solutions to achieve required reductions in nitrogen loads to the lake (Figure 1). Although the context of each catchment is very different, the Lake Rotorua integrated framework provides a useful blueprint for credible solutions to water quality issues elsewhere in the region. It is worth noting that the Lake Rotorua integrated framework was originally a stakeholder-initiated solution.

Figure 1: Lake Rotorua catchment integrated framework



Credible and effective water quality solutions ideally have tangata whenua and community buy-in and could include a combination of rules (such as those discussed on 25 June), incentives and catchment infrastructure. How much of each would depend on:

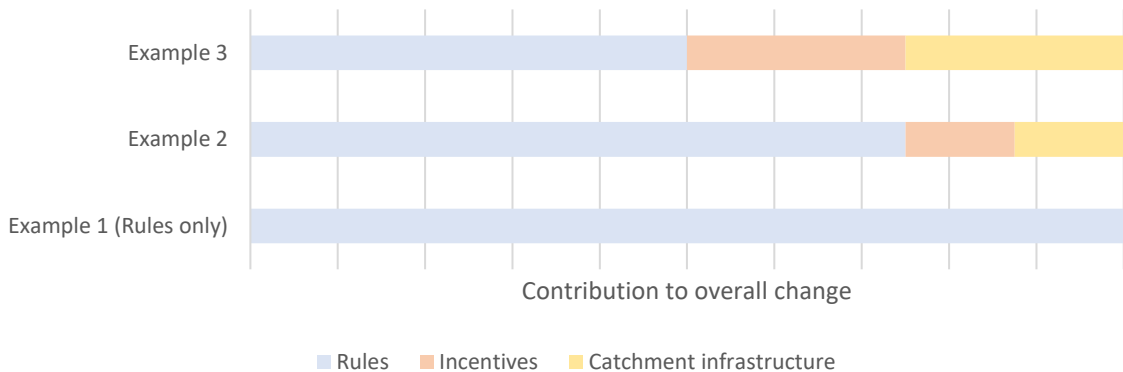
- the nature and scale of water quality issues in each catchment;



- how far (and how quickly) the community wants to go towards achieving environmental targets;
- the viability of any infrastructure options; and
- how costs are distributed.

Conceptual examples of these combinations are illustrated in Figure 2.

*Figure 2: Conceptual examples of possible collective investments for water quality improvement*



### 3.1.5 Risks

A collective investment approach is not without risks. However, these are well understood by Council and would need to be managed as part of the process of developing credible water quality solutions in each catchment. These risks would include:

- resistance to the size of the challenge based on the underpinning science;
- establishing who should be contributing what;
- reaching consensus on funding, including assessment of [Local Government Act 2002](#) (LGA) s101(3) considerations (particularly how to distribute costs fairly and equitably);
- setting new precedents for funding that could have implications for funding of similar work in other parts of the region;
- achieving adequate tangata whenua/community/stakeholder acceptance; and
- under-delivery by catchment infrastructure projects or rules towards the outcomes.

## 3.2 Funding and distribution of costs for improved water quality

Inherent to the concept of a collective investment is the idea of sharing costs and responsibilities in achieving water quality improvements. Particularly in the current fiscal environment, it is unlikely that central government (or any other third party) would provide significant funding to achieve water quality improvements, as was the case for Lake Rotorua. It is therefore expected that costs would have to be shared primarily between farmers and ratepayers (general or targeted, based on location or land use) in some way.

### 3.2.1 **Broad scope and little guidance on cost distribution**

The LGA and [Local Government \(Rating\) Act 2002](#) provide broad latitude to consider how activities (such as those agreed in an integrated water quality solution) could be funded, but prescribe the matters that Council must consider in developing its [Revenue and Financing Policy](#) (RFP). Key considerations under the LGA s101(3) are:

- (a) in relation to each activity to be funded,—
  - (i) the community outcomes to which the activity primarily contributes;
  - (ii) the distribution of benefits between the community as a whole, any identifiable part of the community, and individuals [“beneficiary pays”];
  - (iii) the period in or over which those benefits are expected to occur;
  - (iv) the extent to which the actions or inaction of particular individuals or a group contribute to the need to undertake the activity [“polluter pays”];
  - (v) the costs and benefits, including consequences for transparency and accountability, of funding the activity distinctly from other activities; and
- (b) the overall impact of any allocation of liability for revenue needs on the current and future social, economic, environmental, and cultural well-being of the community.

In particular, there is little guidance in how to consider the distribution of benefits from improved water quality across the community. Likewise, there is little guidance in how to consider the extent to which actions or inactions of particular individuals (e.g., farmers) are responsible for the current degraded state of water quality in many catchments across our region. Consequently, assessments of fairness and equity in how costs are distributed are likely to be very subjective and contentious.

### 3.2.2 **Rules and incentives**

It is generally assumed that farmers would be primarily responsible for compliance costs associated with any rules and regulations. However, Council could explore options for time-limited transitional financial assistance to meet the rules, (e.g., grants or loans [see section 3.2.4]).

It is important to note that existing incentives for voluntary action under the current [EP Grants Policy](#) are unlikely to be appropriate to fund compliance with rules and regulations. First, the policy explicitly excludes funding of works required to comply with rules and regulations. Second, even in the absence of that exclusion, it is likely that the demand for such grants would increase substantially once rules requiring certain actions come into force, potentially beyond available funds. Nonetheless, EP grants could complement rules. For instance, they could continue to fund riparian planting or planting of steep erosion-prone pasture with native species (as opposed to exotics), as these specific activities are unlikely to be required under rules. However, as noted above, Council could consider the use of time-limited transitional grant funding to assist farmers with compliance costs; this would be a shift from current practice.

Currently, incentives under the Coastal Catchments Land Management activity are funded by general rates (to the extent that government subsidies are not available) and for the Rotorua Catchments Land Management activity, Council has previously used a combination of general and targeted rates. However, the 2024 review of the RFP resulted in a decision to phase out targeted rates for Rotorua Catchments in favour of general funds, over three years starting in 2025/26. Capital works (e.g., for “hard” catchment infrastructure) are typically funded from borrowing, which is repaid over time through rates.

### 3.2.3 **Catchment infrastructure**

Catchment infrastructure could be funded in a variety of ways. As noted above, many of these works can already be funded through EP grants. If such infrastructure is demonstrated to be a viable alternative to minimum standards, farmers could also choose to pay for that infrastructure directly (e.g., through a catchment group). Alternatively, catchment infrastructure could also be funded as new Council activity and a funding approach proposed after evaluating the LGA s101(3) considerations for the proposed activity.

Certain types of catchment infrastructure may also have significant flood protection benefits. The RFP sets out the current approach to fund flood protection works and services (i.e., a combination general and targeted rates, and reserves, depending on the catchment).

### 3.2.4 **A possible new funding mechanism: loans for land management**

BOPRC successfully advocated for an [exemption for local government from “responsible lending” legislation requirements](#). While the original purpose for this was a previously proposed Sustainable Homes Scheme and the Rotorua airshed loans, there is scope in the exemption to use Council loans for land management interventions on rating units as well. Loans would be repaid through voluntary targeted rates by the landowner at nil or low interest rates over a long period.

This mechanism could help address the issue of landowners’ limited ability to contribute upfront to EP project costs, which as described above may be limiting EP uptake. Furthermore, it could be a way to help landowners with the compliance costs of rules and regulations, without putting these costs on general ratepayers.

Access to private credit is already identified as an issue for the farming sector<sup>2</sup>, particularly for activities that are likely to have mainly public (e.g., environmental) rather than private financial benefits. Environmental loans have been identified as a novel financial mechanism to help enable changes in land use and land management practices.<sup>3</sup>

While administration of a loan scheme would require additional resourcing, BOPRC’s experience with the Rotorua airshed loans demonstrates this can be done successfully.

### 3.2.5 **Summary**

Table 1 summarises possible funding sources for the potential components of an integrated water quality solution. Where funding for new Council activity is required, the suitability of each source would need to be considered once work programmes for each catchment are more certain, because LGA s101(3) considerations cannot be made prior to this.

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<sup>2</sup> See for example: [Farming families facing ‘huge pressure’ from rural lending and banks - Federated Farmers | RNZ News](#); [New Zealand central bank says defaults in agricultural lending portfolios to rise | Reuters](#).

<sup>3</sup> See for example: [Going with the grain: Changing land uses to fit a changing landscape | Parliamentary Commissioner of Environment \(pce.parliament.nz\)](#); [Novel financing solutions for land use change - Our Land & Water - Toitū te Whenua, Toiora te Wai \(ourlandandwater.nz\)](#).

Table 1: Possible funding sources for an integrated water quality solution

Method	Possible funding sources
Rules and regulations <sup>4</sup> (compliance with)	<ul style="list-style-type: none"> <li>- Primarily resource users (e.g., farmers)</li> <li>- Option for Council to consider time-limited transitional financial support through grants or loans (funded through rates, third party funding, borrowing or reserves).</li> </ul>
Incentives for low-moderate cost mitigation (e.g., EP grants, loans)	<ul style="list-style-type: none"> <li>- Rates (according to RFP)</li> <li>- Third party funding (e.g., central government)</li> <li>- Borrowing (repayable over time through rates, according to RFP) and/or reserves</li> </ul>
Catchment infrastructure for high-cost or collective mitigation	<ul style="list-style-type: none"> <li>- As per Incentives (see above)</li> <li>- Collective investment:                             <ul style="list-style-type: none"> <li>• Landowner direct funding (e.g., through a catchment group)</li> <li>• Rates (according to RFP)</li> </ul> </li> </ul>

### 3.3 Ōhiwa Harbour

The Ōhiwa Harbour FMU is a practical example of the challenge describe above. The key contaminants of concern in this FMU are *E. coli* and sediment. Please refer to Appendix 1 for a summary of information on the health of Ōhiwa Harbour, the sources and causes of current issues, and what is being, and could be, done to improve water quality. Some of this background was also covered at the [5 March Monitoring & Operations Committee meeting](#).

#### 3.3.1 Mitigation options

Table 2 lists key mitigation options for *E. coli* and sediment, including indicative estimates of effectiveness and cost. In addition to the anticipated water quality and ecosystem health benefits from these mitigations, many also have several co-benefits. These include biodiversity, cultural and aesthetic values, carbon sequestration (including carbon income from the Emissions Trading Scheme where applicable), flood control and storm-flow moderation.

Table 2: *E. coli* and sediment mitigation options, indicative effectiveness and costs

Mitigation	Estimated <i>E. coli</i> load reduction	Estimated sediment load reduction	Estimated costs
Good practice farm dairy effluent management <sup>5</sup>	-60% from dairy (Muirhead 2017)	Nil	\$150k - \$500k per farm

<sup>4</sup> Including complying with national regulations, and permitted activity or resource consent conditions.

<sup>5</sup> As of June 2022, only 3 out of 17 dairy farms in the Ohiwa Harbour FMU had lined effluent storage. However, 14 of these farms have FDE discharge consents expiring before 2026, at

	Mitigation	Estimated <i>E. coli</i> load reduction	Estimated sediment load reduction	Estimated costs
	Stock exclusion from waterbodies and setbacks	~11% from dairy ~24% from drystock (adapted from Muirhead 2017)	15% <sup>6</sup> (Vale et al 2021)	Fencing: \$8 - \$40/m + maintenance + weed control Pastoral profit forgone: up to ~\$300 for drystock, ~\$1,500 for dairy (/ha/yr)
	Retirement of steep erosion-prone pasture into native or exotic forest or scrub	<i>Subject to consequential changes in stock numbers</i>		Pastoral profit forgone: up to ~\$300 for drystock, ~\$900 for dairy (/ha/yr) Planting & pest control Fencing
	Detainment bunds or "leaky weirs" in upper catchment	Moderate* (Tanner et al 2023)	51-59%* (Levine 2020)	\$1,500 - \$3,540/ha of treated catchment (Matthews et al 2024)
	Treatment wetlands <sup>7</sup> (low-lying sites)	Moderate* (Tanner et al 2023)	High >20%* (Tanner et al 2023)	\$100k - \$248k/ha + maintenance + opportunity costs (Matthews et al 2024)
	Sediment traps (low-lying sites)	Nil/Minimal (Tanner et al 2023)	Moderate 5-20%* (Tanner et al 2023)	Low (but subject to size) (Tanner et al 2023)
	Streambed control structures	Nil	<6% (based on Vale et al 2021)	TBC
	Streambank battering/stabilisation	Nil		TBC
*Effectiveness applies to treated catchment/sub-catchment only, subject to finding locations that would be suitable.				
	Rules & regulations	Incentives		Catchment infrastructure

#### 4. Next Steps

Subject to any feedback or direction from Councillors:

- continue delivering Focus Catchment land management interventions through EPs, subject to landowners' voluntary agreement;

which time good practice FDE management would generally be required as a consent condition, if those consents are renewed.

<sup>6</sup> Based on existing SedNetNZ modelling. Note that the draft minimum standards are slightly different to the mitigation scenarios modelled. Staff are currently seeking to run an additional mitigation scenario that more closely aligns with the draft minimum standards.

<sup>7</sup> Initial performance results for the Maniatutu treatment wetland show an 80% reduction in *E. coli* concentration and a 43% reduction in total suspended sediment concentration.

- note that a separate paper/business case on freshwater direction setting will be provided in due course;
- seek third party funding for catchment infrastructure (e.g., Kanoa Regional Infrastructure Fund);
- adopt the concept of *collective investments* for catchment infrastructure for targeted public engagement on PC19, flagging that incentives and catchment infrastructure could contribute to meeting water quality objectives, complementing rules;
- develop the concept of Council loans for land management interventions and/or other forms of Council incentives/financial support, either as a trial just for the Ōhiwa Harbour or region-wide, subject to future Council decisions;
- further develop and assess the viability of catchment infrastructure options, either just for the Ōhiwa Harbour or region-wide.

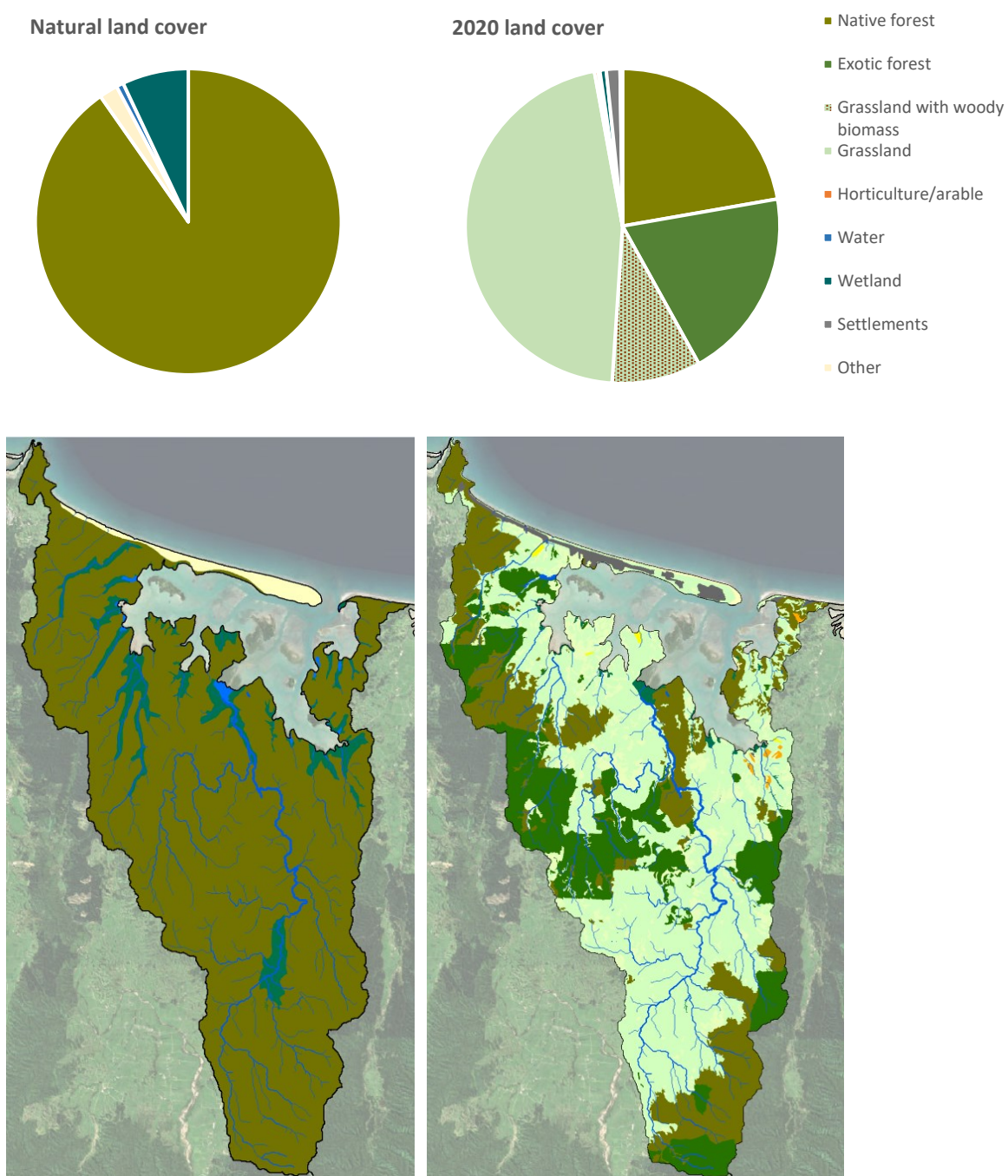
Note that any new incentives or catchment infrastructure that rely on additional Council funding would need to go through a future Annual Plan or Long-Term Plan process.

## Attachment 1 – Ōhiwa Harbour: current issues and responses

### A highly modified catchment

Please refer to the [Ōhiwa Harbour FMU story booklet](#). Like many catchments around the region and country, the Ōhiwa Harbour FMU has been significantly modified from its natural state (*Figure 3*). Only a fraction of the original wetlands and native forest remain today, with these having been replaced mostly by pasture and exotic forestry. The environmental issues observed in the harbour and catchment today are largely a result of historical land development and those ongoing land uses.

Figure 3: Ōhiwa Harbour, natural vs. current land cover



## Key issues and what needs to change

The Ōhiwa Harbour is considered a sensitive estuarine receiving environment.

Sediment loss, particularly from pastoral land uses, plantation forestry harvest and recently harvested areas are affecting ecological health of the Ōhiwa Harbour. Much of the land is very steep and erodible. Seagrass extents in the Harbour are declining, and mangroves are naturally expanding into the muddier substrates. Climate change impacts are likely to increase this problem significantly over time. A high reduction in sediment load (i.e., >30%) is required to support ecosystem health in the Harbour and catchment.

Faecal contaminants from animals run off the land into water during heavy rainfall. This can make shellfish from the harbour unsafe to eat and safe thresholds for swimming at harbour bathing water quality sites are breached occasionally. Risk of infection for human contact is also elevated in the Nukuhou River due to faecal contaminants. A 49-69% reduction in *E. coli* loads is required to meet the C band for human contact in the Nukuhou River (it is currently in the E band). Ōhiwa Harbour mud content and faecal contaminants need to reduce, and nutrients should not increase.

These are large sediment load reductions, and very large *E. coli* reductions. Although nutrients are not currently considered to be a significant issue, the ecological health of Ōhiwa Harbour will decline if nutrient concentrations continue to increase.

**Indicative scale of nitrogen, phosphorus, sediment and *E. coli* load reduction needed to improve water quality and meet draft environmental outcomes.**



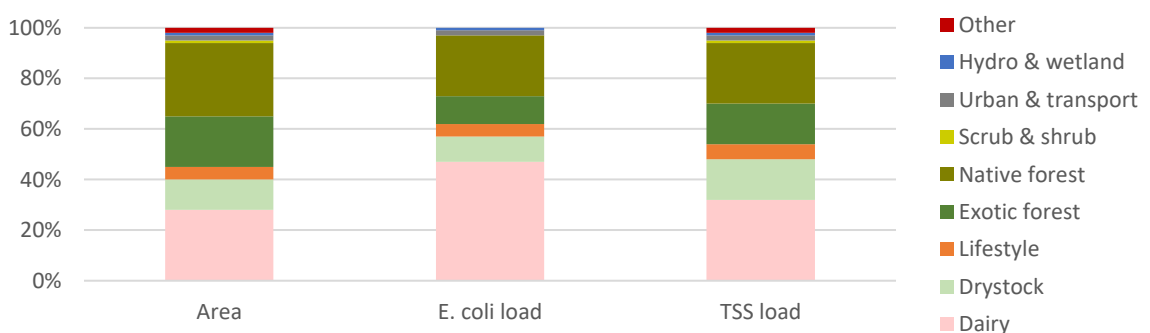
**KEY:** Indicative scale of change needed to improve water quality, or likely water quantity constraint.



## Where are contaminants coming from?

Figure 4 below summarises the Water Quality and Ecosystem Health Expert Panel assessment of where *E. coli* and sediment loads are coming from, relative to the area of each land use in the catchment. All land uses contribute to *E. coli* and sediment loads. However, dairy farming is considered to contribute disproportionately more *E. coli* compared to proportion of land area, and pastoral land uses are considered to contribute a proportionately larger percentage of sediment loads compared to their land area.

Figure 4: Water Quality & Ecosystem Health Expert Panel assessment of *E. coli* and sediment sources in the Ōhiwa Harbour FMU

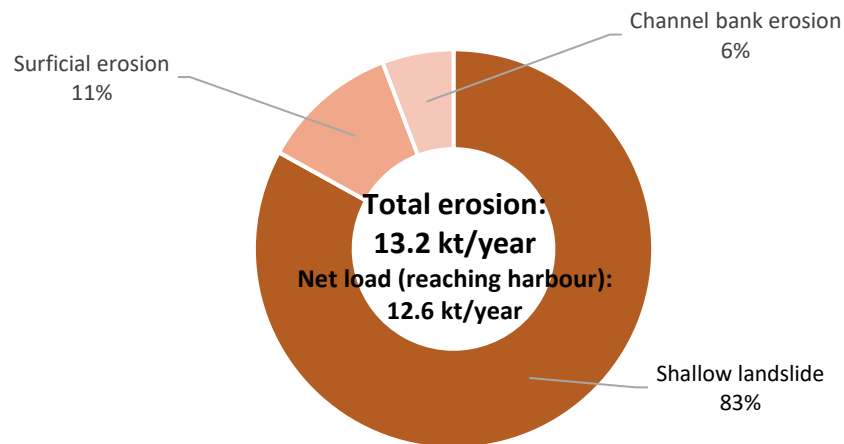




### Sediment modelling

[SedNetNZ modelling](#) (Vale et al 2021) for the Ōhiwa Harbour estimates that total erosion under a natural land cover would be 4.87 kt/year (4.64 kt/year net load) while total erosion under the contemporary land cover is estimated at 13.2 kt/year (12.6 kt/year net load). The load caused by human activity is therefore estimated to be 8.3 kt or about 63% of the current load. Approximately 73% of the current net load reaching the harbour comes from the Nukuhou catchment. *Figure 5* shows the contribution of each erosion process to the total erosion load across the FMU, as estimated by the SedNetNZ model. Shallow landslide is the dominant process. This is important when considering potential effectiveness of management options.

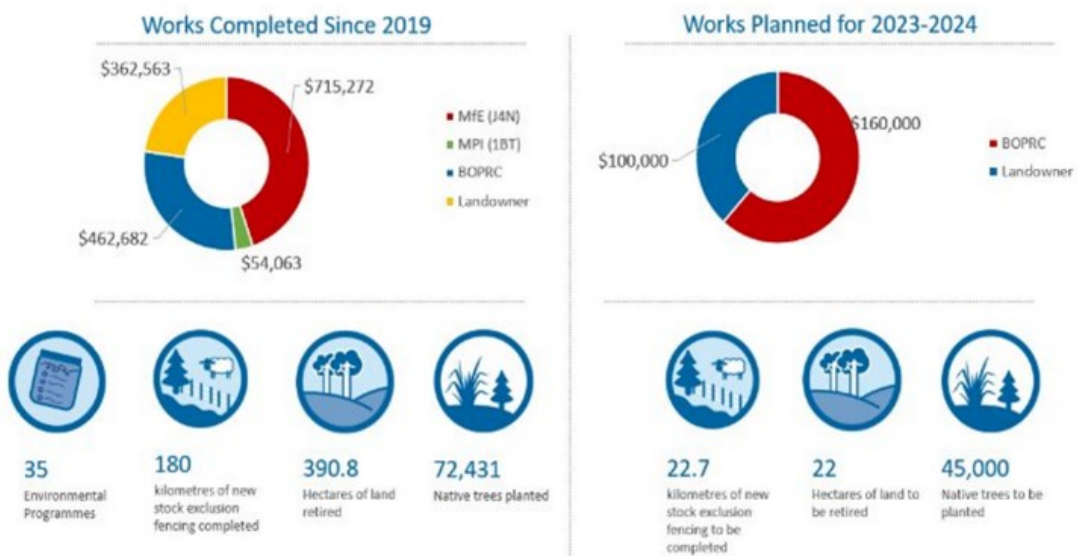
*Figure 5: Estimated total erosion and net load for Ōhiwa Harbour, broken down by erosion process (as estimated by SedNetNZ model)*



SedNetNZ modelling also estimated that the extensive amount of riparian fencing in place in the FMU is already resulting in a 12% reduction in total erosion. The model also tested a mitigation scenario involving retirement of pasture on steep slopes (>25°) and LUC6-8, and full riparian fencing on all streams running through pastoral land with 3m setbacks. This mitigation scenario is estimated to achieve a 2 kt/year, or 15%, reduction in total erosion (1.91 kt/year net load reduction).

### Existing Land Management intervention

#### Ōhiwa Focus Catchment Progress Report Card, February 2024



Land Management interventions in the Ōhiwa Harbour FMU are guided by the Ōhiwa Harbour Implementation Forum and Strategy. Please refer to the [5 March Monitoring & Operations paper](#) and key results summarised above. It is important to note that the 2024/25 opex budget for the Ōhiwa Harbour Focus Catchment is \$375k, making it the best-funded Focus Catchment on a per hectare basis, and second only to Waihi Estuary in absolute terms. At least for low-moderate cost mitigations, Land Management staff do not consider that funding is a key limiting factor for uptake of EPs but rather landowner willingness, as described above.

### **Draft rules (Plan Change 19)**

Note that a further separate paper to seek direction in relation to next steps for freshwater provisions will be provided in due course. Relevant provisions previously presented to Council included: stock exclusion and setbacks; and retirement of steep erosion-prone pasture.