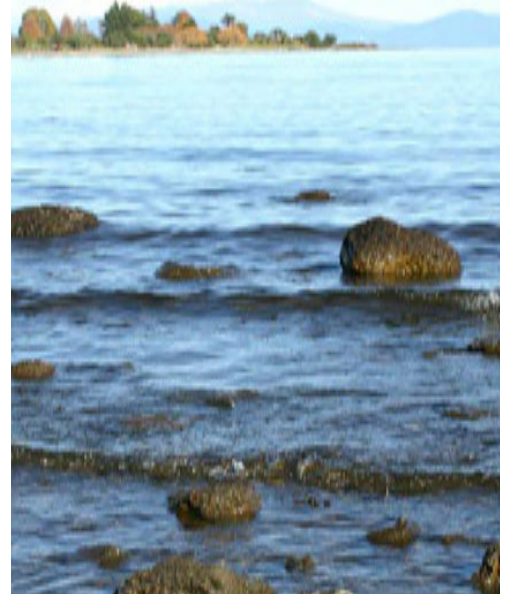




LAKE TAUPŌ ZONE PLAN

TE MAHERE MŌ TE ROHE
ROTO O TAUPŌ

TAUPŌ – HEALTHY
CATCHMENT,
HEALTHY PEOPLE



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EXECUTIVE SUMMARY

HE KŌRERO WHAKARĀPOPOTO

Located in the heart of the North Island, surrounding Lake Taupō, the Lake Taupō catchment covers an approximate area of 349,655ha (nearly 9 per cent of the Waikato region). Lake Taupō is the largest lake by surface area in New Zealand at some 61,491ha and comprises 17.5 per cent of the Lake Taupō catchment area. The catchment contains significant geothermal resources, 11 other smaller lakes, part of New Zealand's oldest national park and dual World Heritage area, and significant hydroelectric schemes.

The Lake Taupō Zone Plan sets the strategic direction for Waikato Regional Council's integrated catchment management activities within the Taupō Zone over the next 10 years. The plan provides a summary of the key activities undertaken within the zone and the implementation actions required to achieve the vision.

While the work proposed builds on past achievements, it also signals a shift to a broader focus that, in addition to the traditional emphasis on water quality and soil conservation, will also increase the focus on water quality and contribute to:

- maintaining and protecting indigenous biodiversity
- reducing biosecurity risk within the catchment.

The purpose of this plan is to ensure the council's activities within the zone contribute to improving the health of the Taupō catchment and work toward the vision established by the Lake Taupō Catchment Committee of:

TAUPŌ – HEALTHY CATCHMENT, HEALTHY PEOPLE

As well as the vision, the plan identifies key principles (how the council will work), focus areas and implementation actions for the zone in the following areas:

- asset management
- biodiversity
- biosecurity
- catchment management
- lake foreshore
- natural hazards management.

1

INTRODUCTION

HE KUPU WHAKATAKI

1.1 PURPOSE

The Lake Taupō Zone Plans sets the strategic direction for Waikato Regional Council's integrated catchment management activities within the Taupō Zone over the next 10 years. The plan provides a summary of the key activities undertaken within the zone and the implementation actions required to achieve the vision.

The plan provides broad directions to guide the council's operational activities, and also informs key partners and the community working in the catchment.

While the work proposed builds on past achievements it also signals a shift to a broader focus that, in addition to the traditional emphasis on water quality and soil conservation, will also increase the focus on water quality and contribute to:

- maintaining and protecting indigenous biodiversity
- reducing biosecurity risk within the catchment.

Of specific focus for this zone plan is the acknowledgement that the Taupō catchment enjoys good water quality and maintaining this water quality underpins the future management strategies for the zone.

The purpose of this plan is to ensure the council's activities within the zone contribute to improving the health of the Taupō catchment and work towards the vision established by the Lake Taupō Catchment Committee of:

"TAUPŌ – HEALTHY CATCHMENT, HEALTHY PEOPLE".

The council cannot achieve this vision alone and maintaining and growing partnerships with iwi, agencies and key stakeholders such as the Tūwharetoa Māori Trust Board, Department of Conservation, Taupō District Council, the agricultural and forestry sectors, landowners and the wider community will be essential.

The plan is informed by the council's strategic direction and implements provisions of the *Waikato Regional Policy Statement 2016* (RPS) and other documents.

1.2 SCOPE

Waikato Regional Council is responsible for the overall management of the region's rivers and their catchments. This is carried out in partnership with local communities. Zone plans are the primary tools for implementation of all river and catchment management activities within each of the eight zones in the region. Delivery is largely the responsibility of the council's Integrated Catchment Management (ICM) directorate.

A key focus of the ICM directorate is on delivering practical services and advice to landowners to improve catchment health. Its key work areas include:

- catchment and river management
- natural hazard management and flood protection
- flood management
- services that care for the natural environment and heritage
- support and advice for industry and landowners on sustainable land management practices.

This zone plan identifies actions for delivering these services in a complementary way to make best use of limited resources. It does not cover all of the council's work in the zone – rather it must be seen as one component of a suite of activities being undertaken in the zone.

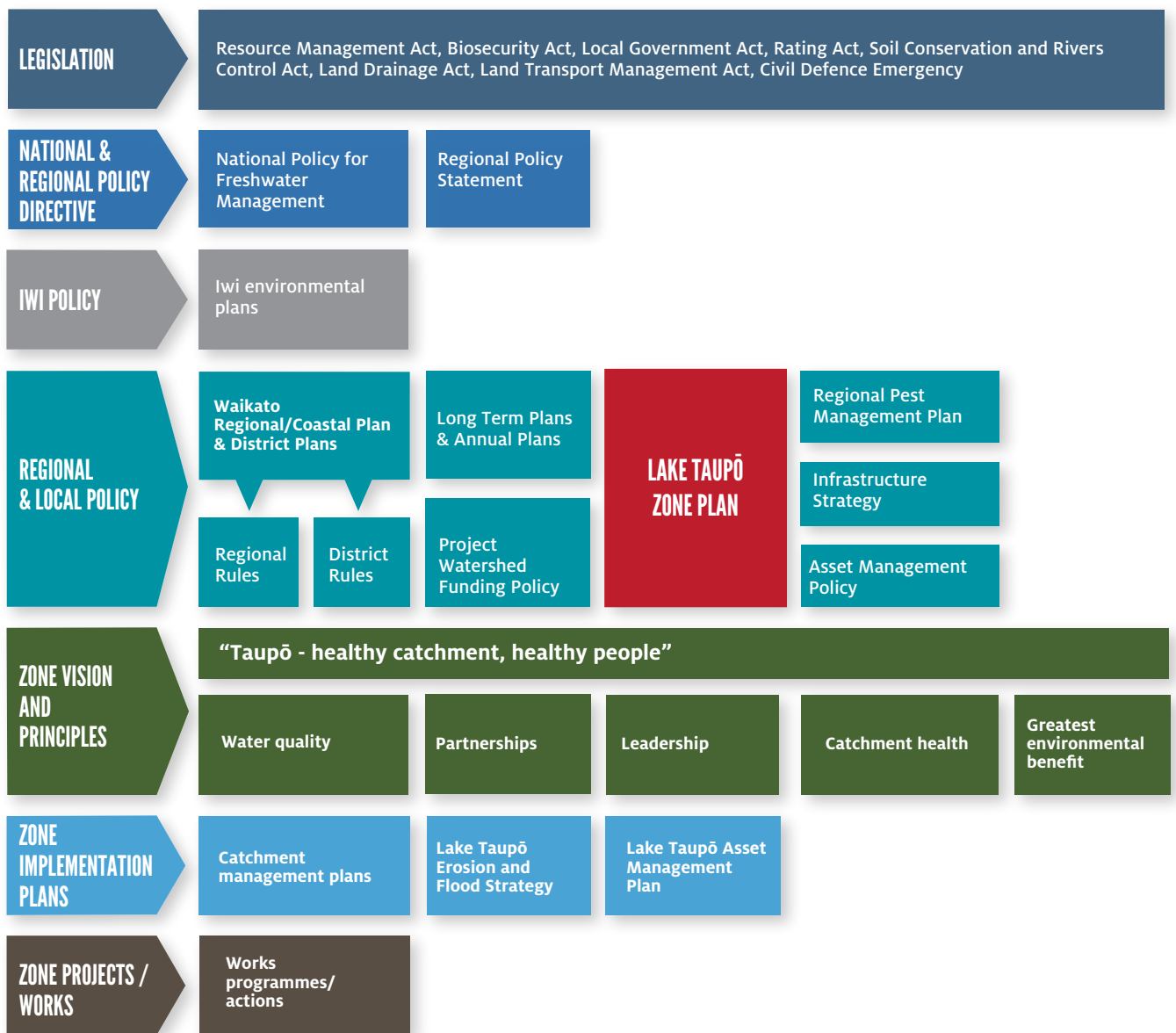
The plan identifies a vision for the zone as well as key principles (how the council will work), focus areas and implementation actions for the zone in the following areas:

- asset management
- biodiversity
- biosecurity
- catchment management
- lake foreshore
- natural hazards management.

This plan provides the overarching strategies relating to the way the council will undertake catchment management. It is supported by the 'Taupō Asset Management Plan' that focuses on flood protection and river management infrastructural assets. Figure 1 below shows the relationship between the plan and other operational plans the council may develop for a particular zone.

Waikato Regional Council is one of a number of organisations working to improve catchment health within the zone. Iwi, district councils, government departments, industry, community groups and individual landowners are all active in implementing initiatives to improve the health of the catchment. The intention of the plan is to complement and support the work of these other agencies and individuals, and align programmes where opportunities arise.

Figure 1 - Relationship between operational documents



1.3 PLAN STRUCTURE

This zone plan is structured as follows.

- Section 2 sets out the legislative and policy context for the plan with further detail provided in Appendix One.
- Sections 3 describes the Taupō Zone and key stakeholders and agencies that work within it.
- Section 4 sets out the vision for the zone and the principles that are applied to zone activities.
- Section 5 sets out the implementation focus areas, implementation actions and monitoring measures.
- Section 6 describes the funding and monitoring and review framework for the plan.





LEGISLATIVE AND POLICY FRAMEWORK

TE ANGA Ā-TURE, KAUPAPAHERE HOKI

2.1 STATUTORY CONTEXT

The plan implements a number of the council's responsibilities under a variety of statutes including the:

- Resource Management Act 1991 (RMA)
- Soil Conservation and Rivers Control Act 1941
- Local Government Act 2002
- Biosecurity Act 1993.

The plan also assists the council in implementing provisions of the Waikato Regional Policy Statement (RPS), the Waikato Regional Plan (WRP) and the Regional Pest Management Plan (RPMP). Further information on the relevant statutes can be found in Appendix One.

2.2 POLICY CONTEXT

There are a significant number of national and regional policies that are relevant to this zone plan. This plan recognises and responds to this range of policy documents and applies them to the Taupō Zone. Some of the key policies are listed below and are further referenced in Appendix One.

- National Policy Statement for Freshwater Management 2014.
- Proposed National Policy Statement for Biodiversity.
- Waikato Regional Policy Statement.
- Waikato Regional Plan.
- National Direction for Pest Management.
- Waikato Pest Management Plan.

2.3 WAIKATO REGIONAL COUNCIL'S STRATEGIC DIRECTION

In 2016, Waikato Regional Council adopted a new strategic direction to guide work over the current council's term (2016-2019). It also sets the context for the 2018-2028 Long Term Plan.

The strategic direction sets priorities for the council's work up to 2019. It also reflects community desires and needs and identifies key factors that will determine whether the council is successful in achieving its strategic direction.

The strategic direction contains seven priorities. Further information on the council's strategic direction can be found on the Waikato Regional Council website (waikatoregion.govt.nz/strategy). How the plan contributes to the achievement of these priorities is illustrated below.

		ZONE PRINCIPLES					
		Water quality	Partnerships	Leadership	Catchment health	Greatest environmental benefit	
STRATEGIC PRIORITIES	1	Support communities	✓	✓		✓	
	2	Partnerships	✓	✓		✓	
	3	Positively influence future land use	✓	✓	✓	✓	✓
	4	Effective management of fresh water	✓	✓		✓	
	5	Understanding risks and resilience		✓		✓	
	6	Coastal and marine	✓				
	7	Quality of life	✓	✓	✓	✓	✓

Figure 2 - Relationship of Taupō Zone Plan to the council's strategic direction

2.4 WORKING TOGETHER

As noted earlier, there are other organisations with management responsibilities and doing complementary and valuable work within the zone. It is important these organisations are recognised and the objectives and strategies of these organisations are understood. Outcomes will be achieved most efficiently when objectives, strategies and work programmes align.

2.4.1 Ngāti Tūwharetoa

Ngāti Tūwharetoa hold mana whenua, rangatiratanga and kaitiakitanga over the central North Island including the Lake Taupō Catchment and part of the Upper Waikato, Whanganui, Rangitikei and Rangitaiki Catchments.

As kaitiaki, Ngāti Tūwharetoa has an intrinsic duty to ensure the mauri, and the physical and spiritual health of the environment (inclusive of the whenua and water resources) is maintained, protected and enhanced. Ngāti Tūwharetoa are in a unique position of holding legal ownership of most of the waterways and waterbodies within their rohe, as well as retaining ownership of most of the private land within the Lake Taupō Catchment.

By deeds with the Crown dated 28 August 1992 and 10 September 2007, the Tūwharetoa Māori Trust Board (TMTB) is the legal owner of Taupō Waters. The term Taupō Waters refers to property including the bed, water column and air space of Lake Taupō and the Waihora, Waihaha, Whanganui, Whareroa, Kuratau, Poutu, Waimarino, Tauranga-Taupō, Tongariro, Waipehi, Waiotaka, Hinemaiaia and Waitahanui rivers, and the Waikato River from the outlet of Lake Taupō to a place known as Te Toka a Tia, downstream and inclusive of the Huka Falls.

The TMTB is involved in a range of resource management, conservation and local government processes including the 2007 Deed with the Crown for Taupō Waters, the 2010 Deed with Crown in relation to the Waikato River Co-Governance and Co-Management Arrangements, membership on the Lake Taupō Protection Project Joint Committee, membership on Catchment Committees, Joint Management Agreements with Taupō District Council and Waikato Regional Council, and mitigation agreements with hydroelectric operators. Necessarily, Ngāti Tūwharetoa must be involved in any proposals that impact or effect their rohe, and in-particular TMTB as the owner of Taupō Waters.

TMTB is an iwi authority under the Resource Management Act 1991 and is able to facilitate consultation with appropriate hapū and marae. However, it is important to note the autonomy of Nga Hapū o Ngāti Tūwharetoa who shall be involved in aspects of this zone plan in their own right. TMTB is involved in a range of resource management matters due to its fiduciary responsibilities to Taupō Waters and iwi authority status.

In December 2016 Ngāti Tūwharetoa and the Crown initialed a Deed of Settlement. One of the outcomes of the settlement will be the establishment of a joint committee called Te Kōpua Kānapanapa that will develop a Taupō Catchment Plan (Te Kaupapa Kaitiaki). The settlement is progressing but at this time it is unknown when the process will be completed and the resulting settlement legislation passed.

The effectiveness of zone activities is predicated on a good working relationship between council and the TMTB, and meaningful engagement with Ngā Hapū o Ngāti Tūwharetoa and Tūwharetoa Economic Authorities (landowners).

2.4.2 Taupō District Council

The entire zone lies within the Taupō District. The council has a legislative and strategic relationship with Taupō District Council (TDC) in respect of achieving the sustainable management of natural and physical resources within the zone. TDC is primarily responsible for controlling land use within its district. It is therefore important to the efficient and effective management of council controlled schemes that the two councils continue to work together to ensure the integration of land use planning and infrastructure delivery.

The Local Government Act (Schedule 10) requires that future growth and anticipated demand is considered as part of long term asset management planning. This enables future requirements for new assets, or upgrades to existing assets, to be identified and planned in advance. For example, by identifying locations for future urban growth and the projected timing of that growth, management of the control schemes can align with that planned growth.

Taupō District Council's work is guided by its long term plan (LTP). The current LTP is for 2015-2025 and identifies TDC's goals as:

- Ensure the Taupō District remains a great place to live.
- Promote economic development.
- Protect our water resources and use them wisely.
- Maintain the quality infrastructure that we have.
- Keep rates and debt affordable.

In addition to the above goals, TDC's community outcomes outline the outcomes it wants for the district. The community outcomes were last reviewed in 2011 and are:

- Economy – our communities prosper in a thriving local economy with a diverse range of rewarding employment opportunities.
- Environment – a shared responsibility for places we are proud of.
- Engagement – council is connected with its communities, advocating for their social and cultural wellbeing.

The Lake Taupō Zone Plan clearly supports the goals and outcomes sought by Taupō District Council, particularly by maintaining and enhancing resources that support economic development, and working to protect water resources within the district.

2.4.3 Department of Conservation

The Department of Conservation (DOC) manages 9542ha of public conservation land comprising reserves and conservation areas within the Lake Taupō basin. Most of this land lies within the western and northern bays of Lake Taupō and was originally protected via the 1970s Lakeshore Reserve Scheme. These reserves continue to provide an important buffer from pastoral activities occurring on land at higher elevations in the north and west of the catchment.

DOC's management objectives for the Taupō basin are to achieve an integrated approach to ensure the continued protection of the natural and historic values of all land within it, regardless of tenure, in co-operation with other landowners and local authorities and to protect the soil and water conservation values of land managed by the department, primarily by animal pest control, fire prevention and fencing where appropriate. DOC continues to work with community conservation groups to increase areas of native restoration planting within lakeshore reserves.

DOC also manages the Lake Taupō Sports Fishery on behalf of the Crown and Ngāti Tūwharetoa. The fishery is managed with a philosophy to allow the wild fishery to flourish with a minimum of management intervention. DOC is committed to ensuring that fishery management is a collaborative partnership between iwi and the Crown with a focus on a sustainable wild fishery serving iwi, recreational anglers and future generations.

DOC prepares statutory management plans that set out how it will manage lands and resources under its control. Conservation management strategies (CMS) are 10 year regional strategies that provide an overview of conservation issues and give direction for the management of public conservation land and waters, and species for which DOC has responsibility. Their purpose is to implement general policies and establish objectives for the integrated management of natural and historic resources, and for recreation, tourism, and any other conservation purposes. The Lake Taupō Catchment lies within the Tongariro/Taupō Conservancy. The most recent CMS for this conservancy was 2002-2012. There are no reviews currently programmed. Although dated, the CMS contains nine principles and these remain relevant.

- Protection and enhancement of the natural environment within the conservancy.
- Protection of historic resources where they are managed by the department.
- Development of an effective conservation partnership with Tangata Whenua.
- Fostering recreation use of public conservation land.
- Limiting non-recreation commercial use of public conservation land.
- Enhancing advocacy outcomes and community relations.

2.4.4 Lake Taupō Protection Project

The Lake Taupō Protection Project was established in 2007 with Ngāti Tūwharetoa as kaitiaki of the lake, the Crown, Waikato Regional Council and Taupō District Council. The objective of the project was to prevent the further deterioration of water quality in Lake Taupō by reducing the volume of nitrogen entering the lake by 20 per cent. The Crown, Waikato Regional Council and Taupō District Council committed \$79.2 million to reduce nitrogen inputs to the lake.

The original project agreement set out four specific strategies for achieving the purpose but also acknowledged that the project may vary over time. The project agreement established the Lake Taupō Protection Trust and Lake Taupō Protection Project Joint Committee. The project is governed by the joint committee.

By mid-2015, the Lake Taupō Protection Trust secured nitrogen reduction agreements totalling 171.2 tonnes, meeting the project target. This was achieved through strong collaboration and commitment from all parties, but particularly landowners through land use change.

The project is now focusing on monitoring to ensure water quality is sustained for future generations.



LAKE TAUPŌ ZONE

TE ROHE ROTO O TAUPŌ

3.1 CATCHMENT DESCRIPTION

Located in the heart of the North Island, surrounding Lake Taupō, the Lake Taupō catchment covers an approximate area of 349,655ha (nearly 9 per cent of the Waikato region). Lake Taupō is the largest lake by surface area in New Zealand at some 61,491ha and comprises 17.5 per cent of the Lake Taupō catchment area. The catchment contains significant geothermal resources, 11 other smaller lakes, part of New Zealand's oldest national park and dual World Heritage area, and significant hydroelectric schemes. Key settlements in the zone are Taupō and Turangi. It is an important tourist destination and well known for its trout fishery. The catchment is entirely contained within one territorial authority (Taupō District).

The landscape around Lake Taupō is relatively young and dynamic, with over 28 eruptions in the last 27,000 years. Of most significance was the eruption in 186 AD which resulted in the formation of the crater that was subsequently filled to form Lake Taupō. As a result of this volcanic history, much of the southern and eastern parts of the lakeshore are made of looser pumice and ash which are more susceptible to erosion.

Lake Taupō is of national importance. It is recognised as a valuable tourism draw card, a source of water for communities and a wonderful place to swim, fish and enjoy other recreational activities. The lake, its tributaries and landscape also provide important habitat for many of New Zealand's unique indigenous plants and animal species.

Ngāti Tūwharetoa are tangata whenua in the catchment. The culture and history of Ngāti Tūwharetoa is an intrinsic feature of the catchment landscape and waterscape. Each water body in the catchment is a natural taonga of Ngāti Tūwharetoa. Ngāti Tūwharetoa's aspiration to protect the water quality of their waterways is bound by their tikanga and the values that bind them to these waterways.

Lake Taupō has some of the best trout fishing in the world and receives the highest level of angling use of any fishery in New Zealand, accounting for approximately 40 per cent of New Zealand's total freshwater sports fishing. It provides exciting river and lake fishing all year round in a stunning natural setting. It attracts anglers from around the world and is integral to the economic wellbeing of Taupō and the wider region.

Around 40 rivers, streams and tributaries feed into Lake Taupō with a combined length of 597km, however, the combined length of all watercourses that drain the catchment encompasses some 1468km. The Tongariro and Tauranga Taupō are the largest rivers that feed into the eastern side of Lake Taupō by length and also by volume.

With the exception of Lake Taupō, there are 11 other smaller lakes in the Lake Taupō catchment of which Lake Rotoaira is the largest.

Land use in the catchment has changed dramatically since 1840. The four major changes have been:

- loss of tussock or shrubland and indigenous forest cover
- development of urban areas and hard infrastructure
- an increase in exotic production forestry
- an increase in areas used for primary production (pasture).

Pastoral farming was relatively slow to develop due to the soil conditions of the area which did not naturally support intensive pastoral farming. However, major land clearances did occur in the Taupō Zone in the 1930s and 1940s which took land cover away from river margins. These changes, combined with the fragile nature of the soil, resulted in accelerated erosion within the catchment. In 1965 Tūwharetoa and the former local authorities took these issues to the government. In 1976 the Lake Taupō Catchment Control Scheme (LTCCS) was developed to control soil erosion and protect water quality.

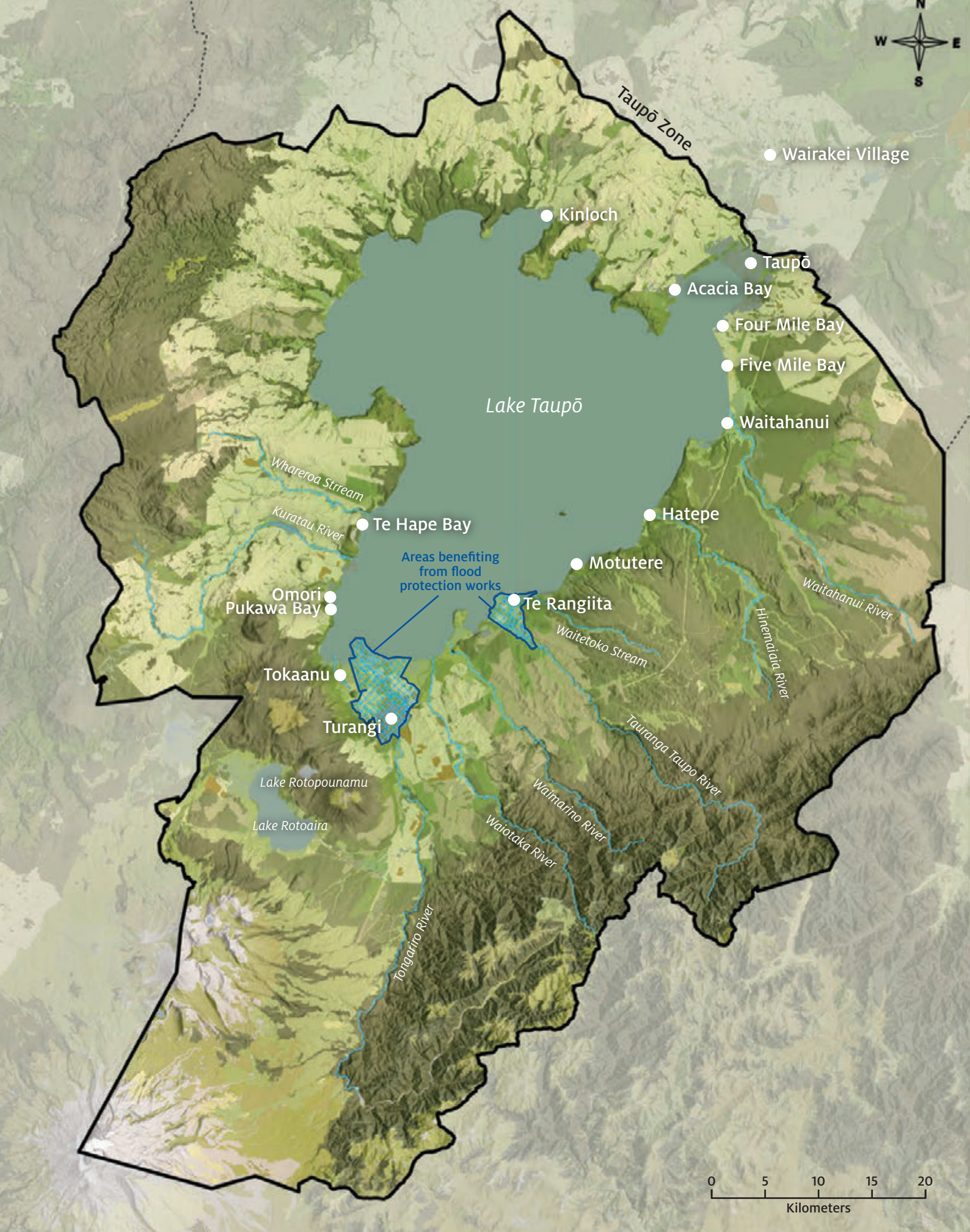
The Taupō community's passion for protecting the water quality of the lake and their advocacy for change culminated in the creation of the 2020 Taupō-nui-a-Tia Action Plan. This plan was completed in 2004 and represented commitments from Tūwharetoa Māori Trust Board, Waikato Regional Council, Taupō District Council, the Department of Conservation and Department of Internal Affairs.

FEATURES OF THE ZONE

The Lake Taupō Zone operates in a unique context compared to the rest of the Waikato region due to the following factors:

- Water quality defines the Lake Taupō catchment. The Taupō catchment has very high water quality and the importance of this high water quality was recognised in the development of "Variation 5 – Lake Taupō Catchment" to the Waikato Regional Plan. This variation was put in place to protect the water quality of Lake Taupō. This variation (since incorporated into the Waikato Regional Plan) places controls on discharges into the lake. A multi-agency government funded and independent trust has removed 20 per cent of the manageable nitrogen within the catchment to try to offset the "load to come" of nitrogen still in the groundwater system, with the aim of maintaining lake water quality at early 2000 levels into the future.
- The zone contains much high biodiversity value, including unique geothermal areas.
- The Waikato region contains almost 70 per cent of New Zealand's geothermal areas with the majority of these areas located within the zone. Geothermal resources are hugely important for the region. They provide employment in the tourism, primary and secondary industrial sectors, and are used to generate 15 per cent of the nation's electricity. They also support some of the world's rarest and most vulnerable ecosystems, and have spectacular surface features such as geysers and the iconic Champagne Pool. Māori regard them as taonga and have a rich history of diverse traditional uses including cooking, bathing and healing. A large proportion of the zone is made up of public¹ and Māori owned land. In addition, 42 per cent of property owners are external to the district.
- There are a number of features of the zone that attract tourism including the trout fishery, Lake Taupō, walking and cycling and multi-sport and other recreational activities. Tourism spend within the zone continues to increase, as does the number of tourists visiting the areas.
- The Taupō area leads New Zealand in terms of its renewable electricity generation capacity, with a number of electricity generation companies being located here. Lake Taupō forms the source of the Waikato River which provides approximately 10 per cent of New Zealand's electricity through a series of eight power stations along the river. The tributaries that flow into Lake Taupō are also harnessed for hydroelectricity. Most geothermal power is generated within the Taupō volcanic zone, many of which are owned fully or partly by local iwi.
- The Taupō Zone is located centrally in the North Island. This location provides opportunities in terms of economic development, freight, logistics and attracting visitors. The high throughput of the area, combined with the large length of border with three other regions (Bay of Plenty, Hawkes Bay and Manawatu-Wanganui) also poses risks – particularly in terms of biodiversity and economic development through the introduction of animal and plant pests.
- The Tokaanu swamplands are part of the South Taupō wetland that has been recommended for listing as a RAMSAR site of international significance.

1 Prior to Variation 5 to the Waikato Regional Plan becoming operative (2011) land ownership was as follows - 28% Crown owned and 47% Māori owned. Please note these figures are likely to have changed since that time, however they provide a useful indication of significant land holdings within the zone.



Textured Landcover image derived from DEM data supplied by Landcare and the LCDB2 owned by the Ministry for the Environment and supplied by Terralink International Limited. Digital Boundary Data sourced from Statistics New Zealand. Urban Footprints Layer derived by Waikato Regional Council. COPYRIGHT RESERVED.

Figure 3 - Taupō Zone



LAKE TAUPŌ ZONE VISION

TE TIROHANGA WHĀNUI MŌ TE ROHE ROTO O TAUPŌ

4.1 VISION AND MISSION

The vision and mission for the Taupō Zone have been developed in recognition of the current state of the Lake Taupō catchment and the opportunities that exist within the activities that council manages. The zone plan vision and mission was developed through workshops with the Lake Taupō Catchment Committee.

TAUPŌ – HEALTHY CATCHMENT, HEALTHY PEOPLE

Valuing, protecting and restoring the mauri (life force and interconnectedness) of the Taupō catchment, and ensuring the waters of Lake Taupō remain drinkable and pristine by:

- working together as leaders and kaitiaki/stewards for future generations
- engaging communities and partners
- balancing differing views and values
- influencing policy and priorities
- making good decisions – delivering results.

4.2 WATER QUALITY

Maintaining and improving water quality within the catchment will underpin all activities managed through this zone plan and the activities of the Lake Taupō Catchment Committee. The Lake Taupō Catchment Committee has identified the maintenance of water quality as fundamental to catchment health. As a consequence, the value placed on water quality underpins the implementation actions proposed in this plan.

Lake Taupō is recognised as a nationally important water body and holds special significance to the local and regional community. Protection of lake water quality and catchment water quality more generally has been a focus of the Taupō community and is a core part of the plan’s vision for the Taupō catchment.

Water quality defines the Lake Taupō catchment. It is one of the few catchments nationally whose water quality is such that the focus is on maintenance rather than restoration. The water quality of the open water of Lake Taupō is currently excellent and average values of key indicators of water quality have remained largely stable over the past 17 years.

However, the health of Lake Taupō water quality is at risk due to changes in the Taupō catchment. Intensification of land use has led to higher levels of nutrients entering the lake. In 2003 scientific agreement was reached that the water quality in the lake was under threat from nitrogen inputs and to maintain the lake’s water quality the catchment needed to reduce the amount of nitrogen entering the lake by 20 per cent. In 2011 amendments to specifically achieve this target became operative in the Waikato Regional Plan.

The lake and rivers of the catchment are a significant draw card for visitors. However, increasing tourism places additional pressure on water quality through, for example, the impact of increased waste water, increasing boat traffic and summer visitors to remote bays.

The science surrounding water quality is constantly changing and improving. Given the improving scientific knowledge, ongoing education of the community on the risks to water quality and potential impacts of a degraded Lake Taupō are necessary.

Water quality is not a topic that has been traditionally addressed (or funded) in zone plans, where the focus has been more on soil conservation and erosion prevention – notwithstanding the water quality benefits of both of these activities. However, the move to a more integrated “healthy catchment” framework may provide opportunities to actively include water quality objectives alongside other aspects of catchment health. There are also opportunities to look at improving water quality through funding projects related to, for example, biodiversity and catchment maintenance.

In addition to non-point source discharges to water, which are more typically addressed through traditional catchment works such as planting and fencing, risks to water quality in the catchment include chemical spill incidents and biosecurity incursions. Both of these risks could have a significant impact in a short period of time and therefore it is important the council is prepared to respond should the situation eventuate.

IMPLEMENTATION ACTIONS		
ACTION	WHO	WHEN
Support agencies and projects working towards improvements in water quality such as the Lake Taupō Protection Project Joint Committee, the Lakes and Waterways Action Group Trust, Taupō Lake Care, and Advocates for the Tongariro River	LTCC	Ongoing
Actively seek reassurance that processes for quick and effective responses are in place to deal with any incident that could significantly affect water quality (e.g. chemical spill or biosecurity incursion)	LTCC	Ongoing
Actively advocate the importance of Lake Taupō water quality during any relevant regional plan review/plan change process	LTCC	Ongoing
Establish a programme of information to assist the Lake Taupō Catchment Committee maintain awareness of water quality information and monitoring	Zone Manager	Annually

4.3 SUPPORTING PRINCIPLES

The principles below have been developed to describe the overarching principles that will direct the manner in which work is undertaken within the zone. Regard should be given to the following principles when undertaking activities within the zone.

PRINCIPLE ONE: RECOGNISE THE IMPORTANCE OF MANA WHENUA AND COMMUNITY PARTNERSHIPS AND CONTINUE TO MAINTAIN AND IMPROVE THESE PARTNERSHIPS.

It is not possible for the council to achieve the vision for the Lake Taupō catchment alone. Supporting the community will assist in growing community capacity and resilience and will provide the most effective and efficient solutions to issues that arise within the catchment. A partnership approach will be critical to the long term delivery of a range of zone plan actions.

The council and Lake Taupō Catchment Committee value relationships with other agencies and stakeholders, including Taupō District Council, Ngāti Tūwharetoa, the Department of Internal Affairs, the Department of Conservation, power and forestry companies, landowners and community groups.

PRINCIPLE TWO: PROVIDE LEADERSHIP AND VISIBILITY

The Lake Taupō Catchment Committee is made up of elected councillors and representatives from interested partners and stakeholders. Given the make-up and knowledge of the committee they are in a unique position to champion the needs of the zone to the council and other agencies.

PRINCIPLE THREE: PROTECT AND ENHANCE THE ENVIRONMENTAL HEALTH OF THE CATCHMENT

Ultimately the council undertakes activities described in this plan to protect and enhance the environmental health of the catchment. Catchment health is also a key part of the zone plan vision.

PRINCIPLE FOUR: TARGET THE ACHIEVEMENT OF THE GREATEST ENVIRONMENTAL BENEFIT

The council has limited resources and the application of these resources needs to be prioritised to ensure the greatest benefits can be achieved. By prioritising activities that are either individually of high importance (i.e. protection of geothermal habitat) or that target multiple benefits (i.e. planting of indigenous species that may provide biodiversity, water quality and soil stability benefits), the most efficient use of council resources will be made. Wherever possible, the council will prioritise opportunities to leverage whole-of-catchment health objectives and achieve multiple outcomes (integrated catchment management). In addition, the council will also prioritise projects that involve working with others, particularly if additional funding can be leveraged by the partnership.

4.4 MONITORING

Monitoring closes the loop in the ‘plan-do-monitor-review’ cycle and informs decision makers of the consequences of actions and changes in the environment. Policy and plan monitoring provides a means for determining how well plans are working in practice. Monitoring the following indicators will assist the council in:

- understanding if this plan has been effective
- tracking progress towards the stated vision
- identifying actions or strategies that require review and/or amendment.

AREA	MEASURE
WATER QUALITY	<ul style="list-style-type: none"> • Summary of data collected within the zone as part of Waikato Regional Council’s regular monthly water quality monitoring.
PRINCIPLE 1: MANA WHENUA AND COMMUNITY PARTNERSHIPS	<ul style="list-style-type: none"> • Report on collaborative activities. • Number of workshops, forums, events and other networking opportunities attended annually. • Percentage of key stakeholders satisfied with the council’s zone management activities.
PRINCIPLE 2: LEADERSHIP AND VISIBILITY	<ul style="list-style-type: none"> • Number of submissions made. • Percentage of key stakeholders satisfied with the council’s zone management activities.
PRINCIPLE 3: CATCHMENT HEALTH	<ul style="list-style-type: none"> • Annual report on achievement of focus area implementation actions.
PRINCIPLE 4: GREATEST ENVIRONMENTAL BENEFIT	<ul style="list-style-type: none"> • Number of identified priority areas formally protected. • Percentage of new works targeting multiple focus areas.





FOCUS AREAS

NGĀ ARONGA

Work undertaken within the zone can be divided into seven focus areas.

- Asset management.
- Biosecurity.
- Catchment management.
- Indigenous biodiversity.
- Lake foreshore.
- Natural hazards.
- River management.

The following sections contain a description of each focus area as well as the implementation actions and monitoring indicators relevant to each area.

5.1 ASSET MANAGEMENT

The topic of asset management refers to assets the council owns within the Taupō Zone. The *Lake Taupō Asset Management Plan 2015 (AMP)* operationalises the management of assets in the zone. The council is currently developing a regional asset management plan. The AMP will sit within this regional context. The AMP provides detailed information to show that the flood protection and river management assets in the Lake Taupō catchment are designed for the services they perform to the community. Collectively, the assets have a total replacement value of approximately \$7,200,000.

The bulk of the council's assets relate to two flood control schemes located on the Tongariro and Tauranga-Taupō rivers. Smaller scale river management assets are also located within the Hinemaiaia River and the Hangarito canal. Asset management in the Tongariro and Tauranga-Taupō catchments is sensitive due to the importance of the rivers as trout fisheries.

Assets in the zone are currently well managed by the council and there is good historical and current information. The

council manages the Tongariro flood protection scheme. The scheme is designed to protect the community of Turangi and properties adjacent to the Tongariro River from flooding and inundation up to a 1 per cent annual exceedance probability (AEP). The council also manages the Tauranga Taupō flood protection scheme, which is designed to protect the communities of Oruatua and Te Rangiita, and property adjacent to the Tauranga Taupō River and within the river floodplain, from flooding and inundation up to a 2 per cent AEP. The flood schemes are reviewed frequently – every five years. The frequency of these reviews reflects the dynamic nature of the river systems and the relative newness of both flood control schemes. Frequent reviews of asset performance is considered necessary for improving the council's understanding of how these rivers behave and their future management requirements.

Future work planned for the flood schemes includes assessing the current level of service actually provided and incorporating the projected impact of climate change. Any changes to the level of service would be discussed with the community through the council's long term plan process. In the future it is likely a conversation will need to be had with the community around the future level of service provided by these assets and the affordability of that level of service.

The assets are currently assumed to be providing their stated level of service. However, it is acknowledged there is an incomplete section of the Awamate stopbank (part of the Tongariro flood protection scheme). The council proposes to complete this section, but requires satisfactory agreements with property owners in order to progress.

The council assets support community resilience by enabling the community to develop and live their day-to-day lives with a lower level of risk. Flood schemes provide protection to the community enabling them to go about their lives with a lower level of risk and enable additional community development (subject to appropriate controls) in areas where the risk may be considered too high if the schemes were not in place.

IMPLEMENTATION ACTIONS

ACTION	WHO	WHEN
Advocate for appropriate staff and funding to be directed towards the actions identified in the Lake Taupō Asset Management Plan	LTCC	Ongoing
Continue to maintain assets at the level of service outlined in the Lake Taupō Asset Management Plan and review these levels 5-yearly	Zone Manager	5 yearly

MONITORING INDICATORS

1. Achievement of Taupō Asset Management Plan levels of service and performance targets.
2. Implementation of the Taupō Asset Management Plan improvement plan.

5.2 BIOSECURITY

Biosecurity is the protection of an environment from biological threats. Throughout the zone there are a range of animal and plant pests which threaten indigenous species and habitats, and/or economic activity in the catchment.

Waikato Regional Council's primary direction setting document for biosecurity is the *Regional Pest Management Plan (RPMP)*. The RPMP details which plants and animals are declared pests in the region. It explains why they are pests, and outlines how each pest will be managed over a 10 year period.

The Lake Taupō Zone has existing biosecurity challenges and new threats e.g. wallabies, aquatic weeds, lake snow and didymo. However, comparative to other zones it has relatively few weed pests. The most significant pests within the zone are heather, legumes (such as gorse and broom) and wilding conifers. Programmes are in progress to address these threats and these are intended to continue.

The Taupō zone is valued for its water quality and biodiversity. Addressing biosecurity issues can also assist in protecting water quality and biodiversity. For example:

- Animal pests can cause vegetation damage which in turn reduces soil stability causing increased sedimentation in waterbodies.
- Aquatic pests can decrease water clarity as well as compete with native species for habitat.

The zone has a lot to lose from current and potential incursions of pests as it is a catchment of high biodiversity value and is nationally recognised for its waterbodies. Biosecurity is particularly critical in aquatic ecosystems where the response to pests is dramatic and there are very few tools to deal with incursions once they happen.

The catchment is also at high risk from new incursions as it borders three other regions where controls and pest management approaches may differ, and it is a tourism hotspot and popular visitor destination. This provides opportunities for pest incursions (e.g. didymo) being transported into the zone.

Pests could have a large economic impact in the zone, particularly as tourism is essential to the Taupō economy. A significant proportion of this tourism is based around the natural environment and consequently any impact of pests on this natural environment may also detrimentally impact on the local economy. In spite of the high potential impact, pest management within the zone has a low profile and therefore it is particularly important that biosecurity activities are actively promoted.

The Department of Conservation has recently released "Predator Free 2050" – an ambitious goal to rid New Zealand of the most damaging introduced predators possums, rats and stoats – by 2050. The Lake Taupō Catchment Committee strongly supports this programme. Predator Free 2050 will:

- remove the major threats to native wildlife
- enhance economic return from agriculture and forestry and reduce risk of disease
- create new opportunities for regional development
- reinforce New Zealand's trade and tourism brand
- provide a legacy for future generations.

Biosecurity activities will be a future focus for works in the catchment. The council will look for opportunities to link achievement of biosecurity objectives with other work programmes to enhance biosecurity specifically and to improve overall catchment health.

IMPLEMENTATION ACTIONS

ACTION	WHO	WHEN
Maintain an awareness of biosecurity threats	LTCC	Ongoing
Actively cultivate biosecurity partnerships with other regional councils, but in particular those that neighbour the catchment – Horizons, Bay of Plenty and Hawke’s Bay	Biosecurity Managers	Annually
Advocate for and support greater development of biosecurity partnerships with the Department of Conservation, Tūwharetoa and others	LTCC	Ongoing
Advocate for biosecurity managers to be able to use the best available tools to achieve a healthy catchment	LTCC	Ongoing
Advocate for activities that work towards maintaining the gains made in possum control and keeping possum numbers low (less than 10% RTC) – this includes submitting on regional biosecurity policy	LTCC	Ongoing
Advocate for priority funding for surveillance and pathway management due to the catchment’s high biodiversity and tourism value and high biosecurity risk	LTCC	Ongoing
Promote a shared funding model approach to future possum control e.g. the approach taken in Rotopounamu and Pihanga by the Department of Conservation, community groups and OSPRI	Biosecurity Managers	As required
Support the development of the Regional Pest Management Plan and make submissions to this plan where necessary	LTCC	Ongoing
Utilise communications to: <ul style="list-style-type: none"> • promote vigilance of biosecurity issues and the risk to the Lake Taupō Catchment • increase awareness of the value of the catchment’s natural environment and the threat biosecurity incursions could pose to the economy, agriculture and biodiversity 	Biosecurity Manager Zone Manager LTCC	Ongoing
Raise community awareness of pathway management and how to manage risks, such as through the didymo awareness programme, machine hygiene etc	Biosecurity Manager Zone Manager LTCC	Ongoing
Engage with science to ensure the council has the right tools to manage new pest incursions	Biosecurity Manager	Ongoing
When funds are available for possum control, consider targeting these activities toward high priority biodiversity sites (as determined by the council’s prioritisation process)	Zone Manager Biosecurity Manager	Ongoing
Encourage the development of a landowner-led programme that targets the management of mammalian pests on private land	Zone Manager Biosecurity Manager	Ongoing

MONITORING INDICATORS

1. Number of biosecurity activities undertaken as part of catchment management works.
2. Increased community awareness of biosecurity risks.

5.3 CATCHMENT MANAGEMENT

Catchment management works can be broadly divided into two categories – catchment maintenance and catchment new works. Traditionally the focus of catchment management works had been to reduce accelerated erosion, control sediment and water quality issues.

New catchment works receive 35 per cent council funding, which also comes with a commitment to provide advice, maintain a relationship with the landowners, inspect works and fund maintenance at 50 per cent.

Waikato Regional Council is undertaking a process of priority site identification. The identification of priority sites is scheduled for the zone in 2017-2018, but it is unlikely this process will identify many sites on private land that don't already have works completed.

Currently scheme works/new works undertaken on private land that are not owned or partially funded by the council are not listed on the asset register. This leaves a gap in the council's information which is problematic, as these works are important for catchment health. The council also provides significant advice to landowners and this added value to catchment health is not currently measured or recorded.

Given the few opportunities for new works specifically targeting soil conservation and water quality, the council will widen its application of this activity to target initiatives that include biodiversity, biosecurity, and the wider ecological health of the catchment.

Catchment maintenance has been focused on addressing soil erosion and water quality issues. The **soil compartments** of the Lake Taupō Catchment Control Scheme (LTCCS) are the fundamental platform for Lake Taupō water quality protection and thus are of critical importance.

The success of the LTCCS has contributed to 90 per cent of waterways within the Lake Taupō Zone having been fenced off (excluding public access waterways). The majority of these fences are on private land and whilst council contributes 50 per cent of the maintenance cost for these fences, they remain privately owned.

These works are protected either by a Land Improvement Agreement (LIA) or Memorandum of Encumbrance (MOE). These are a contract between the landowner and council. Generally it is expected the existing works will be owned, maintained and replaced by the landowner in accordance with the respective contract; however, some funding assistance will be provided if it meets the funding criteria. The council's role mainly involves providing advice and monitoring compliance. The current maintenance processes for LTCCS assets are working well and compliance of landowners is good.

Although current maintenance and compliance is good the majority of the infrastructure was installed prior to 1989, and is therefore at least 25 years old. The high age of the infrastructure is likely to result in increased maintenance costs over the next 15 years, particularly with the increased frequency of extreme weather events projected as a result of climate change. This increased maintenance could challenge financial resources.

IMPLEMENTATION ACTIONS

ACTION	WHO	WHEN
The amount of funding allocated to each landowner for new catchment works on private land will reflect the resulting public benefit to the zone. Soil conservation new works policy will guide allocation of funding	Zone Manager	Quarterly
Consider funding new works on private land where there are multiple benefits for catchment health, including benefits for: <ul style="list-style-type: none"> soil conservation water quality biodiversity and/or the wider ecological health of the catchment Priority will be given to projects that include collaborative funding	Zone Manager	Quarterly
Where new works are undertaken landowners will be encouraged to enter into legal protection of these works in order to protect these investments in perpetuity	Zone Manager	Ongoing
Include all new works that are not owned by the council but that contribute to catchment health on the soil conservation register (to be developed)	Zone Manager	2019
When undertaking new works to improve catchment health, in addition to soil stability and water quality, take biodiversity and biodiversity values into consideration where there are tangible benefits	Zone Manager	Ongoing
Continue to prioritise relationships with landowners responsible for catchment control assets in recognition of the importance of these assets	Zone Manager	Ongoing
Continue funding of the Lake Taupō Catchment Control Scheme through rates to the level agreed in the funding document	Zone Manager	Ongoing
Maintain an inspection programme for catchment control assets as follows: <ul style="list-style-type: none"> Years 0-10: No inspection Years 10-30: 5 yearly 30 years +: 3 yearly 	Zone Manager	Quarterly
Develop a communications programme that provides information to the wider zone community of the critical contribution that catchment control soil compartments make to protecting water quality	Zone Manager	Quarterly
Legal protection for catchment control assets will continue to be included on land titles and existing Land Improvement Agreements (LIA) will be retained. There are very few situations where it may be appropriate for an LIA to be removed. A policy will be developed that sets out the parameters when removal may be appropriate.	Zone Manager	Quarterly
Develop a soil conservation register for assets on private land that are not captured by the asset register i.e. assets that are owned by landowners rather than council, but that contribute to the health of the catchment and represent council investment in the form of advice	Asset Register Team	2019
Allocate sufficient resources to the council's information provision activities in recognition of the support these activities provide to landowners – particularly those activities that support the development of private assets that contribute to the council's catchment management objectives	Zone Manager	Annually
Recommend that Waikato Regional Council maintain a reserve specifically for any shortfall of catchment maintenance funds where maintenance in a catchment in a particular year exceeds the budgeted amount to allow for funding of all necessary maintenance	Zone Manager	Annually

MONITORING INDICATORS

1. Number of new works funded.
2. Results from five yearly survey of soil stability.
3. Summary of suspended sediment data collected within the zone as part of Waikato Regional Council's regular monthly water quality monitoring.
4. Visit each landowner associated with a protected area at least once every three years.

5.4 INDIGENOUS BIODIVERSITY

The Lake Taupō Zone is unique in that it has reached a mature stage of environmental management. One of the next elements to focus on to enhance catchment health is the maintenance and protection of indigenous biodiversity. Maintaining and protecting the indigenous biodiversity of the Lake Taupō Zone will preserve its intrinsic indigenous biodiversity value as well as protecting the ecosystem services that a healthy ecosystem provides. Thus we need to provide for biosecurity and biodiversity values in a way that is similar to how we provide for flood protection. Intact natural systems provide the best protection for the Taupō catchment's unstable catchment soils. There has been significant indigenous biodiversity restoration work already completed in the Taupō catchment and there is potential for many diverse biodiversity projects within the zone. Active management of biodiversity is essential to ensure overall maintenance of biodiversity and to promote long term catchment health.

The Lake Taupō Zone contains a high proportion of the region's high priority biodiversity areas, and this includes almost all of the water courses coming into the catchment which are all designated high priority. The majority of high priority biodiversity areas in the zone are owned by the Department of Conservation (DOC) or are on Māori land. About fifty-six per cent of the catchment is Māori owned, including the lake, making DOC and Tūwharetoa key strategic partners.

The Taupō area has been significantly modified by human use, but many important biodiversity features remain including Lake Taupō itself, some very important rivers, Pureora to the west and Kaimanawa to the east. Taupō is also the only zone in the region that contains alpine and subalpine habitats. In addition, the tussock lands of the central plateau leading up to the mountainous country are unique for the North Island and are significantly under threat from pests.

Geothermal biodiversity is an important feature of the zone, with the Taupō and Upper Waikato zones holding 80 per cent of New Zealand's geothermal vegetation. The geothermal areas in the Taupō zone are unique, highly visible, highly visited, and generally located close to urban areas.

Lakeshore and wetland ecosystems within the zone are seriously depleted in comparison to historic extent, thus any natural areas in those locations are important.

Pressures on biodiversity include the effects of pest species and land use change and development. In addition there is a tension between species such as deer and trout which are valued for their recreational value but have a potential impact on biodiversity.

There is also significant biodiversity risk associated with OSPRI withdrawing its TBfree possum control from private and public land (valuable biodiversity areas) around Taupō. The possum levels in Taupō have been significantly reduced and are now below 2 per cent residual trap catch (RTC), and the area is no longer considered TB reactive or under movement control. Biodiversity has been benefiting from OSPRI's work and biodiversity values have gone up dramatically where possums have been removed. The council is currently working with DOC to determine potential approaches to managing these areas.

Partnerships and collaboration with iwi, landowners and industry provide the greatest opportunities to achieve biodiversity objectives and to access additional funding. Several key partnerships already exist (e.g. DOC and Tūwharetoa) and there are opportunities to build on these. Landowners are voluntarily protecting biodiversity values on their land and their contributions should be recognised.

Whilst good information is held on areas of significant indigenous vegetation and significant habitats of indigenous fauna, the council is currently undertaking a broader inventory of regional biodiversity. Completion of this stocktake will provide good information on the extent of the biodiversity resource. Overlaying this information with what is known in regards to water quality and soil conservation will enable the more ready identification of areas where works can target multiple benefits. There is an opportunity to look at the ways that biodiversity relates to tourism, catchment works, biosecurity, soil retention, and ecosystem services to make greater use of opportunities to achieve multiple objectives.

The maintenance and enhancement of indigenous biodiversity will be an increased focus for works in the catchment. The majority of biodiversity within the catchment is located on Māori land, within the conservation estate or on private land. As such, collaborative partnerships with DOC, Tūwharetoa and landowners will be critical to achieving the council's biodiversity objectives.

IMPLEMENTATION ACTIONS

ACTION	WHO	WHEN
Support initiatives that recognise the voluntary actions of landowners to maintain and enhance biodiversity e.g. the land for wildlife initiative	Zone Manager	Annually
Stage biodiversity protection and restoration in a collaborative manner: Key relationships with the Department of Conservation, Tūwharetoa and community groups will be prioritised, well-resourced and supported by strong communication	Zone Manager	Annually
Encourage the council to become the facilitating agency working to protect high value biodiversity in the zone, while recognising that much of the responsibilities for action lies with landowners and other agencies	LTCC	As required
Support the regional biodiversity prioritisation process and review the biodiversity and biosecurity recommendations set out in this plan within three years to ensure consistency with this process	Zone Manager	3 years from date of this Zone Plan
Provide advice information and communication services that guide biodiversity partnerships and assist the council to access regional or community funding for biodiversity and facilitate the achievement of long term biodiversity goals	Zone Manager	Ongoing
<p>The following principles will be applied when prioritising biodiversity management activities:</p> <ul style="list-style-type: none"> • Connectivity (the connectivity of habitats and areas) • Extent of habitat • Condition of the ecosystem 	Biodiversity Managers	Ongoing
Consider developing a shared vision of biodiversity priorities with key partners	Zone Manager	Ongoing
Actively support innovation and effective investment to achieve protection of high biodiversity values	Biodiversity Managers	Ongoing
The protection and enhancement of geothermal areas will be prioritised, including through collaborative opportunities wherever possible	Biodiversity Managers	Ongoing

MONITORING INDICATORS

1. Number of projects targeting biodiversity maintenance and protection.

5.5 LAKE FORESHORE

Like coastal situations, the shoreline around Lake Taupō is also subject to natural processes of erosion and accretion. These processes are particularly noticeable around river mouths which can be very dynamic environments.

Historically, people have settled close to Lake Taupō and river mouths. While this close proximity has not traditionally been a significant issue, the cycles of erosion and accretion in close proximity to built-up areas has raised the level of risk. This has been exacerbated by the extensive removal of riparian vegetation throughout the catchment. Similarly, the knowledge of the potential flood risks in the future has also improved, placing a greater emphasis on planning for these. The management of the Lake Taupō foreshore is a multi-agency issue with significant science and policy behind it. It can be a highly emotive and visual issue that has potential environmental, economic and recreational impacts.

The Lake Taupō Erosion and Flood Strategy was ratified by Waikato Regional Council and Taupō District Council in 2009. The strategy defines the roles of each agency and provides principles to inform future decision making.

The nature and causes of foreshore erosion have been extensively researched and this research forms the basis of the strategy. This research has shown that lake foreshore erosion is caused by a complex range of natural and human factors including land use, geology, tectonic movement, wind, lake levels, sediment, climate change and lakeshore development. The strategy focuses on protecting infrastructure and amenity values on the foreshore, not addressing the causes of foreshore erosion itself.

Under Project Watershed (2002) Taupō District Council is responsible for foreshore management on land under public management, and it receives Waikato Regional Council funding (45 per cent) for foreshore management works. Waikato Regional Council part funds these works in recognition that the lake is part of a managed catchment system.

There is a high level of public interest in foreshore management and protection works. Given this and the range of agencies involved in foreshore management it is beneficial that these agencies work together.

IMPLEMENTATION ACTIONS

ACTION	WHO	WHEN
Support Taupō District Council in the development and delivery of a programme of works to address areas of lake foreshore erosion as soon as practicable including by: <ul style="list-style-type: none"> encouraging the development of a staged work plan exploring a range of funding options communicating risks of inaction 	Zone Manager	Ongoing
Continue to be involved in lake foreshore management in recognition of the complexity of the issue and the potential relationship of foreshore management works and activities with other zone activities	Zone Manager	Ongoing
Adopt an advocacy role for Lake foreshore management by: <ul style="list-style-type: none"> supporting the Lake Taupō Erosion and Flood Strategy in reserve lakeshore planning actively engaging with organisations who are reviewing or seeking to undertake works that may affect the foreshore 	LTCC	Ongoing
Advocate for continuing collection of rates funds for foreshore works and using council reserves to accelerate the implementation of an agreed work programme	LTCC	Ongoing
Advocate for a delay in the scheduled foreshore strategy review to allow for a focus on actioning works and enabling priority risk areas to be addressed	LTCC	Ongoing

MONITORING INDICATORS

- In collaboration with Taupō District Council, develop and maintain an active work plan targeting areas of concern affected or potentially affected by lake foreshore flooding or erosion.

5.6 NATURAL HAZARDS MANAGEMENT

Waikato Regional Council and Taupō District Council have shared roles in natural hazards management. Waikato Regional Council's role is to identify, collate, analyse and provide regional scale hazard information and advice to stakeholders, the general public and civil defence and emergency management agencies. The regional council also has flood event management responsibilities. Taupō District Council has the responsibility of controlling land use to reduce the impact of natural hazards.

There are a range of natural hazards that could occur in Taupō. The most prevalent hazards within the zone are lake and river flooding, and volcanic hazards². In addition to individual hazards there is also the potential for multiple co-occurring hazards to have compounding impacts. The impacts on the zone of hazards could include injury and loss of life, infrastructure and property damage and potential impact on economic activity.

The most frequently experienced hazard within the zone is river and lake flooding, closely followed by lake foreshore erosion and accretion. These hazards are likely to be affected by future weather variations including projected changes caused by climate change. The council is required to have particular regard³ to the effects of climate change, and the potential effects of climate change should be factored into zone management activities including the understanding of natural hazards.

The Lake Taupō Zone also plays a role in mitigating and/or responding to natural hazards experienced in other parts of the region. Lake Taupō is considered part of a managed system. As such, in times of high river flow the water level of Lake Taupō is held high to reduce the impact of flooding or high river levels on downstream communities. In addition, it is recognised that in a severe tsunami event the Lake Taupō zone would likely receive people evacuating from lower lying areas.

The LTCC has an interest in the management of the full range of natural hazards. Whilst the zone plan has a direct role in the management of river and lake flooding and responding to lake foreshore erosion, it is also relevant for the LTCC to understand natural hazard risk generally and where necessary advocate for natural hazard management consistent with the zone vision.

IMPLEMENTATION ACTIONS

ACTION	WHO	WHEN
Request that a Taupō Zone Hazard Management Plan be prepared	Zone Manager	2018
Take a multi-hazard management approach when approaching natural hazard management	Natural Hazard Manager	Ongoing

MONITORING INDICATORS

1. The percentage of the community aware of potential natural hazards within the zone.

² Refer to Appendix Two for additional hazard descriptions.

³ The Waikato Regional Policy Statement Implementation Method 4.1.13 requires local authorities to recognise and provide for the projected effects of climate change, having particular regard to: [...] b) projected increase in rainfall intensity, taking into account most recent national guidance and assuming a minimum increase in temperature of 2.1 C by 2090 (relative to 1990 levels, [...])

5.7 RIVER MANAGEMENT

River management refers to the council's river management activities outside of the two major flood control schemes on the Tongariro and Tauranga-Taupō rivers (which are dealt with under Asset Management).

As defined in Project Watershed:

"River management involves works and services in relation to streams and rivers to achieve stability, management of flows and integration of a range of activities. There are two major categories of river management:

- *routine river maintenance – provides for an annual and ongoing programme of low level river management activity including annual river inspections, removal of obstructions, vegetative management and minor erosion control works*
- *river improvement – provides for more substantial capital works including willow clearing over a significant length of channel, channel enlargements or major erosion control structures."*

For the purpose of this zone plan, river management deals with the river channel and the area of the margin that affects bank stability and channel capacity.

There are over 40 rivers that drain into Lake Taupō. The council only becomes involved in river management activities on private, trust or Department of Conservation land when there is potential for downstream consequences from any upstream land use.

Project Watershed prescribes the current funding model for these activities. Routine maintenance such as removing stream blockages and soft engineering works to stabilise banks will be undertaken by the council. However, where the need is for hard engineering works community contributions will be sought. Each request for funding is considered on a case by case basis. Typically river management works are a joint venture with the landowner or community.

The council inspects and provide routine river maintenance for the following rivers:

- Tongariro
- Tauranga-Taupō
- Waiotaka (involved in debris removal)
- Tokaanu (debris removal, vegetation)
- Waimarino
- Waitahanui⁴
- Kuratau
- Hinemaiaia
- Hangirito.

When undertaking river management activities the council works to allow rivers to run as naturally as possible. The council has a preference to manage the sustainability of the riverbed and banks to ensure the river continues to follow natural processes.

River breakouts can be a natural process, however when this impacts on people or property the council is often requested to intervene. It is important in these situations that the council engages with the affected communities to ensure communication of risk of any potential breakout. Currently the council is engaging with the community in relation to the Tongariro River mouth which is threatening to breakout.

The behaviour of rivers is unpredictable and can be significantly affected by storm and flood events. This is likely to be exacerbated by the projected impacts of climate change. It is therefore difficult to predict the quantum of river maintenance works required in any one year, which has challenged resource allocation.

⁴ The council is responsible for river improvement works on the Waitahanui system, which is a community owned scheme to which the Waikato Regional Council contributed 50 per cent for erosion protection works at the river mouth. The council does not own the asset but is responsible for maintenance.

IMPLEMENTATION ACTIONS

ACTION	WHO	WHEN
The council will bring the outcomes of river management risk assessments to the LTCC for guidance on appropriate community input into the risk management responses	Zone Manager Principal Technical Advisor	As required
Maintain the current flexible split funding approach for river management works by evaluation of potential projects on a case-by-case basis. The evaluation will acknowledge that projects should be: <ul style="list-style-type: none"> • Initiated by the community • targeted to Project Watershed river management objectives • achievable within the short term (3 years) 	Zone Manager	Ongoing
Continue to take a proactive, public risk based approach with regards to prioritising river management funding. The level of council funding for projects on private land will align with the level of risk to the public good	Zone Manager	Ongoing
Recommend that funds from the Catchment Oversight Fund be used to pay off the historical debt in the River Management Reserve	LTCC	Completed by Dec 2017

MONITORING INDICATORS

- Community and stakeholders are aware of and understand the role river management works play in achieving the vision for the Lake Taupō catchment.
- Area of river and/or stream bank defined as having high erosion potential.



FUNDING, MONITORING AND REVIEW

TE TAUTOKO Ā-PŪTEA, TE AROTŪRUKI ME TE AROTAKE

6.1 FUNDING

Waikato Regional Council collects rates (general and targeted) for river management and improvement, soil conservation works and catchment oversight, based on areas of benefit and activities that contribute to the matters being managed⁵.

The strategies and actions identified in this plan and funded by Waikato Regional Council will be implemented under the current levels of funding allocated to the Lake Taupō zone. No additional funding has been sought from general or targeted rates in the 2015-2025 LTP. Work programmes and funding levels will be subject to review.

The council will also actively explore opportunities for co-funding of projects with partner agencies. Opportunities for funding will be explored and actioned as appropriate.

6.2 MONITORING AND REVIEW

This zone plan will be subject to a full review every six years and a limited review three years after each full review.

Monitoring of the zone plan will be ongoing and will focus on demonstrating progress towards the vision of this plan, and completion of actions to measure the degree of implementation of the plan. Measures to be used for monitoring are set out in sections 4 and 5 of this plan.

The results of monitoring will be reported annually to the Lake Taupō Catchment Committee and the Integrated Catchment Management Committee. A three-yearly summary report will be published prior to each review of the zone plan. The annual reports and three-yearly summary will be used to inform future reviews of this zone plan.

⁵ Refer to the "Project Watershed Level of Service and Funding Policy." Docs# 752002.



GLOSSARY OF TERMS

TE KUPUTAKA

Annual Exceedance Probability (AEP)

The probability of a certain size of flood flow occurring in a single year. A 1 per cent AEP flood flow has a 1 per cent, or 1-in-100, chance of occurring in any one year, and a 10 per cent chance of occurring in any 10 year period.

Long term plan (LTP)

Established under the Local Government Act and is the key strategic funding document of local authorities.

Multi-hazard management approach

- An approach that considers more than one hazard in a given place (ideally progressing to consider all known hazards) and the interrelations between these hazards, including their simultaneous or cumulative occurrence and their potential interactions.
- A multi-hazard approach should also consider the dynamic nature of vulnerability. For instance, following a primary hazard event exposed assets will have an increased vulnerability to subsequent hazards.

Residual trap catch (RTC)

Residual trap catch was developed to provide a standardised method for estimating relative densities of possums.

Soil compartment

An area of private land under formal protection for the purposes of protecting and enhancing the natural functioning of catchments, preserving water quality, reducing contaminants or sediment entering waterbodies, or for the maintenance or protection of biodiversity.

REFERENCES

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APPENDIX ONE LEGISLATIVE AND POLICY FRAMEWORK

HE KŌRERO WHAKARĀPOPOTO

This appendix provides further information on the legislation and policy that affects the management of the Lake Taupō Zone.

Resource Management Act

The Resource Management Act (RMA) came into force in October 1991 and is New Zealand's main piece of legislation that sets out how we should manage our environment. The RMA was created to achieve a more coordinated, streamlined and comprehensive approach to environmental management.

Soil Conservation and Rivers Control Act

The overriding purpose of the Soil Conservation and Rivers Control Act 1941 is to make provision for the conservation of soil resources, the prevention of damage by erosion and to make better provision for the protection of property from damage by floods.

Local Government Act

The Local Government Act 2002 provides the general framework and powers under which New Zealand's 78 democratically elected and accountable local authorities operate. The purpose of this Act is to provide for democratic and effective local government that recognises the diversity of New Zealand communities. It provides a framework and powers for local authorities to decide which activities they undertake and the manner in which they will undertake them.

It requires local authorities to prepare a 10-year LTP, which is to be reviewed every three years. The LTP is designed to integrate decision-making and include information on the key policies of the local authority. It also describes linkages between activities and how they are funded. The Act also requires certain decisions, such as commencing a significant activity, to be undertaken in accordance with the LTP or by way of an amendment to the LTP.

The financial management provisions require local authorities to manage their revenues, expenses, assets,

liabilities, investments and general financial dealings prudently and in a manner that promotes the current and future interests of the community. Local authorities are also required to make adequate and effective provision for their expenditure needs that are identified in the LTP. The Act requires local authorities to consult their communities about funding and financial policies. It also requires consultation on the types and levels of services councils propose and how they will be paid for, and requires councils to explain to their communities the relationship between costs and levels of service provision.

Biosecurity Act

The Biosecurity Act 1993, administered by the Ministry for Primary Industries, is the primary legislation for biosecurity activities, providing a range of powers, duties and obligations. The Act was amended in 2012, introducing among other things new policy instruments such as the national policy direction and pest pathway management plans; and a requirement for the Crown to comply with good neighbour rules.

National Policy Statement for Freshwater Management 2014 (NPS FM)

The NPS FM requires regional councils to formulate freshwater objectives, set limits or targets and ensure over-allocation of water resources is avoided (or addressed where it has already occurred). Freshwater objectives must give effect to the NPS FM objectives and describe the state regional communities want for fresh water in the future.

Some of the key requirements of the NPS FM are to:

- safeguard fresh water's life-supporting capacity, ecosystem processes, and indigenous species
- safeguard the health of people who come into contact with the water through recreation
- maintain or improve the overall quality of fresh water within a region
- protect the significant values of wetlands and outstanding freshwater bodies

- follow a specific process (sometimes referred to as the National Objectives Framework or NOF) for identifying the values that tāngata whenua and communities have for water, and using a specified set of water quality measures (called attributes) to set objectives
- set limits on resource use (e.g. how much water can be taken or how much of a contaminant can be discharged) to meet limits over time and ensure they continue to be met
- determine the appropriate set of methods to meet the objectives and limits
- take an integrated approach to managing land use, fresh water, and coastal water
- involve iwi and hapū in decision-making and management of fresh water⁶.

National Policy Statement for Biodiversity (Proposed)

The proposed National Policy Statement on Indigenous Biodiversity (NPS) sets out the objective and policies about managing natural and physical resources to maintain indigenous biological diversity (biodiversity) under the Resource Management Act 1991.

It is intended to provide clearer direction to local authorities on their responsibilities for managing indigenous biodiversity. It outlines policies and decision-making frameworks for identifying and managing indigenous biodiversity found outside the public conservation estate.

Local authorities would be required to manage the effects of activities through district and regional plans and resource consent decisions (or be satisfied that effects are managed by other methods) to ensure there is no net loss of significant indigenous biodiversity.

The proposed NPS has not passed as legislation, and as such does not have legal effect.

Waikato Regional Policy Statement (RPS)

The RPS is the council's key RMA document, identifying the key resource management issues for the region. District and regional plans are required to give effect to the RPS. Implementation Method 4.1.12 of the RPS sets out that council should, where appropriate, seek consistency with the objectives and policies of the RPS in zone management plans.

The RPS has a number of objectives and policies which are relevant to integrated catchment management issues within the zone, including the management of fresh water, indigenous biodiversity, natural hazards and soil conservation. Objective 3.1 and Chapter 4 relate specifically to integrated management, however, a significant number of other objectives are relevant to the management of the zone and the statutory purpose of the RPS includes identification

of policies and methods to achieve integrated management of the natural and physical resources.

Relevant implementation methods in Chapter 4 of the RPS include:

- 4.1.3 (Co-ordinated approach): WRC will seek opportunities to align its own activities, including the provision of works and services, regulation, education programmes and environmental initiatives, to maximise the benefits achieved.
- 4.1.6 (Advocacy and education): WRC will promote an integrated approach to resource management, including by promoting sustainable land management practices; and educating landowners/managers about the adverse effects of land use practices, including off-site and cumulative effects.
- 4.1.13 (Incorporating effects of climate change): Local authorities should recognise and provide for the projected effects of climate change, having particular regard to historic long term local climate data and projected increase in rainfall intensity.

Waikato Regional Plan (WRP)

The Waikato Regional Plan contains policy and methods to manage the natural and physical resources of the region. Changes to the RMA since the current plan was developed mean the WRP must now give effect to the RPS. This will be addressed by the current review, with changes to the regional plan expected to be notified in three stages commencing 2017/18.

Waikato Regional Council's "Variation No. 5 - Lake Taupō Catchment" to the Waikato Regional Plan was proposed in 2005, and became operative in 2011. Variation 5 was a response to the threat to Lake Taupō from increasing nitrogen leaching from land uses in the catchment. Even maintaining the lake's water quality required a 20 per cent reduction in the amount of nitrogen coming from farmland and urban areas. The variation is now incorporated into the Waikato Regional Plan (Chapter 3.10). Objective 1 states that by 2080, water quality in the lake is restored to 2001 levels (indicated by nitrogen, phosphorus and chlorophyll a levels, and secchi depth). Objective 2 recognises that in order to achieve the long term water quality goal in Objective 1, activities which result in nitrogen leaching, particularly farming activities, need to be managed.

Water allocation issues are a core part of the council's natural resource management responsibilities. There is a need to ensure there is enough water in waterways to provide for such things as the health of aquatic ecology, ensuring towns and businesses are catered for, electricity is generated efficiently and that farmers can work their land successfully.

⁶ <http://www.mfe.govt.nz/fresh-water/national-policy-statement/about-nps>

National Policy Direction for Pest Management 2015

Following reforms to the Biosecurity Act in 2012, the National Policy Direction for Pest Management was introduced in 2015 with the aim of improving the alignment and consistency of pest management plans and programmes across New Zealand⁷.

The national direction:

- sets out the framework for developing national and regional pest or pathway management plans and small-scale management programmes
- clarifies the Biosecurity Act's requirements for these plans
- ensures that plans are aligned and consistent, both nationally and regionally
- outlines the requirements for developing good neighbour rules (to manage pests spilling across boundaries) in regional pest management plans.

Regional pest management plans must be consistent with the national direction.

Waikato Regional Pest Management Plan 2014-2024 (RPMP)

The purpose of the RPMP is to set out the strategic and statutory framework for the effective management of pest plants and animals in the region, so as to minimise the actual or potential adverse effects of pests on the environment and maximise the effectiveness of individual pest management action by way of a regionally coordinated approach.

Pest management is considered to be a tool that assists in achieving many of Waikato Regional Council's wider objectives (such as supporting agricultural productivity, maintaining and enhancing biodiversity and minimising flood risks through enhanced soil stability).

2015-2025 Long Term Plan (LTP)

A long term plan is a strategic planning document describing the activities a local authority will fund and provide to achieve desired community outcomes over a 10 year period. Community outcomes are the outcomes that a local authority aims to achieve in meeting the current and future needs of communities for good quality local infrastructure, local public services and performance of regulatory functions. They form the basis for the council's service delivery, thus determining the levels of service provided to the community. A long term plan is reviewed and prepared every three years, with the next review due in 2018.

Through the current LTP the council is focusing on strategic investments that will strengthen the region's future. Importantly, there's a strong focus through the plan on improving water quality and restoring biodiversity. Encouraging regional development is also a priority with the council working with others to help the region realise the potential of its prime location and the quality of its businesses, people and natural assets. Opportunities to partner with iwi, businesses, education and research institutions, community, local and central government organisations to deliver the best outcomes for people now and into the future have been sought.

The community outcomes in the LTP were developed to be consistent with the three themes from the council's mission statement – healthy environment, strong economy and vibrant communities.

Healthy environment

1. Land use is sustainable.
2. It is safe to swim and take kai from all fresh water.
3. The Waikato has become predator free, in line with the New Zealand 2050 target, without compromising indigenous biodiversity.
4. The full range of ecosystem types, including land, water and coastal and marine ecosystems, is in a healthy and functional state.
5. All soil quality indicators are trending positive.

⁷ <https://www.mpi.govt.nz/protection-and-response/biosecurity/national-policy-direction-for-pest-management/>

Strong economy

1. By 2034, household median incomes are above the New Zealand average (Waikato Means Business).
2. By 2034, value added per capita will grow by 2.8 per cent per annum so that the Waikato region is in the upper third of regions in New Zealand for economic performance (Waikato Means Business).
3. Economic growth ensures natural capital and ecosystem services are maintained.
4. The Waikato region is moving towards a low carbon economy.
5. We are achieving the best use of the region's fresh water.
6. New investment is attracted to the region through improved reputation and partnerships.
7. The Waikato economy benefits from having Auckland as our neighbour.

Vibrant communities

1. Our diverse communities feel like a valued part of the Waikato and take pride in the region.

2. Communities are empowered and supported to take action on agreed outcomes.
3. Communities are less vulnerable and more resilient to natural hazards, the effects of climate change and changes to society and the economy.
4. People and communities are well connected to each other, to services (including health and other essential services), and to opportunities including recreation, education and jobs.
5. There is increased benefit from the use and protection of our amenity and recreational features and values.
6. Significant reduction in boating fatalities and road related fatalities and serious injuries.
7. We support all parts of the Waikato to be as successful as they can be.
8. Co-governance with iwi is meaningful and effective.

The Lake Taupō Zone Plan has considered these outcomes and contributes to their achievement.

APPENDIX TWO RELEVANT NATURAL HAZARDS

HE KŌRERO WHAKARĀPOPO

HAZARD	DESCRIPTION
VOLCANIC	<p>The region is vulnerable to a number of volcanic hazards from various sources both within and outside the region. The most widespread, frequent and likely volcanic hazard is ash fall. Near source volcanic hazards include ballistic projectiles, ash fall, lahars, lava flows, pyroclastic flows and surges and debris avalanches.</p> <p>The primary sources of volcanic threat from within the region are located within the Taupō zone and include:</p> <ul style="list-style-type: none"> • Tongariro Volcanic Centre (the most active volcanic centre in New Zealand includes the recently active Mount Ruapehu, Mount Ngauruhoe and Mount Tongariro). • Taupō Volcanic Centre, a rhyolitic volcanic centre located in the south of the Waikato region, partially occupied by Lake Taupō. While there have been no eruptions in historic times, the pre-historic eruption record shows there have been numerous catastrophic eruption events – the most recent being in 180 AD. • Maroa Volcanic Centre: The Maroa Volcanic Centre is a rhyolitic volcanic centre located to the north of Lake Taupō, and consists of rhyolite domes and calderas. Although active, it is not considered to be a major hazard area due to the long timeframes between events.
CALDERA UNREST	Caldera unrest consists of earthquakes, ground deformation where gas flux occurs frequently and can pose hazards which need to be adequately managed. It does not include eruptive activity.
GEOHERMAL	<p>Geothermal activity that negatively impacts social, cultural, economic or environmental outcomes. Geothermal hazards include:</p> <ul style="list-style-type: none"> • scalding hot water • geyser eruptions • amoebic meningitis • geothermal chemicals in water • boiling mud • steam and other gases • geothermally altered ground • landslides • hydrothermal eruptions¹.
SUBSIDENCE (TECTONICS)	Dropping of the ground level caused by tectonic movements. This can increase the risk of flooding.
FLOODING	A flow that overtops the natural or artificial banks in any part of a stream or river. This includes high sediment concentration events (such as debris flows) that are triggered by landslides.
LAKESHORE EROSION	Accelerated changes in the equilibrium of the foreshore of a lake related to a number of natural and anthropocentric factors.

HAZARD	DESCRIPTION
EARTHQUAKES	<p>Earthquakes are natural hazards that occur when the earth's tectonic plates move against each other. They disturb the earth's surface, potentially putting people and property at risk from damage.</p> <p>The Waikato region includes some of the most seismically active parts of New Zealand with four large active faults including two within the Taupō Zone – the Ngangaiho/Rangipo fault and the Taupō Belt. The area between Taupō and Rotorua is the most vulnerable part of the region for earthquakes. It contains many active fault lines running in a north-east direction.</p>
LAND INSTABILITY	<p>Land shape (geomorphology) and composition (geology) are the main factors that contribute to land instability. Common examples of land instability include:</p> <ul style="list-style-type: none"> • landsliding (mass movement downslope of material under the influence of gravity), including rotational slides, translational slides, slumps, flows, falls • subsidence (can occur on flat land as well as sloping, usually the result of draining or overloading weak soils) • tunnel gully erosion (tunnels form below the slope surface and eventually collapse) • stream and river bank erosion • coastal erosion • topsoil erosion.
SUDDEN WEATHER EVENTS (SNOW, RAINFALL, WIND)	<p>Weather events which restrict or prevent a human activity (adversely impact on social, cultural, economic or environmental outcomes).</p>
PROLONGED WEATHER EVENTS (DROUGHT)	<p>Periods of prolonged abnormally low precipitation resulting in below average soil moisture levels.</p> <p>A drought is generally defined as a shortage of rainfall over an extended period of time, which restricts or prevents a human activity. This can lead to a reduced volume of water in water bodies such as rivers, dry ground and a lack of plant growth. These impacts affect activities such as agriculture and power generation, and can have flow on effects to other sectors of the community.</p>
SEICHE	<p>A standing wave in an enclosed or partially enclosed body of water. Seiches and seiche-related phenomena have been observed on lakes, reservoirs, swimming pools, bays and seas. The key requirement for formation of a seiche is that the body of water be at least partially bounded, allowing natural phenomena to form a standing wave.</p>

1 For more information please refer to <https://www.waikatoregion.govt.nz/Services/Regional-services/Regional-hazards-and-emergency-management/Geothermal-activity/#Heading1>

HE TAIAO MAURIORA

HEALTHY ENVIRONMENT

HE ŌHANGA PAKARI

STRONG ECONOMY

HE HAPORI HIHIRI

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