

**Waikato Regional Council Proposed Waikato Regional Plan Change 1  
Waikato and Waipa River Catchments**

**Submission Form**

Submission on a publically notified proposed Regional Plan prepared under the Resource Management Act 1991.

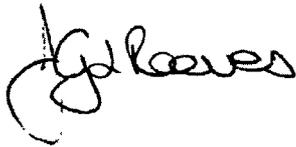
**On:** The Waikato Regional Council's proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments

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We are not trade competitors for the purposes of the submission but the proposed plan has a direct impact on our ability to farm. If changes sought in the plan are adopted they may impact on others but we are not in direct trade competition with them.

**We wish to be heard in support of this submission.**



08/03/2017

Signature

Date



08/03/2017

Signature

Date

# Waikato Regional Council Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments

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## **1.0 Introduction**

Thank you for the opportunity to submit on the Waikato Regional Council's proposed Plan Change 1. Our names are James Reeves and Amy Taylor, and together with our three children we farm in the Waingaro Road Bridge sub-catchment, part of the Waipa River Freshwater Management Unit. I have a Masters degree majoring in Economics and International Trade from the University of Waikato, while Amy has a Bachelor of Soil Science from Massey University. In addition to the farming operation, both of us have employment off-farm, and it is from these backgrounds that our submission is developed.

## **1.1 Background**

Our property is 66 hectares and is farmed in conjunction with an 85 hectare lease block owned by the same family but under two different legal entities, also in the catchment, with a small part of both lease blocks sub-leased to a vegetable grower. The blocks are a mix of flat and rolling country, with some steeper faces. Large wetlands run through and border each block, in conjunction with both ephemeral and permanent streams. Over a number of years, and as budget allows, both ourselves and the family owning our lease blocks have been gradually fencing off, and planting, these streams and wetlands, while also planting specimen trees over our properties.

We operate a mixed farming enterprise that constantly changes according to where we see opportunity, with a stocking ratio that also changes from month-to-month and year-to-year, ranging anywhere from approximately 7su/ha to 14-15su/ha. Currently we graze dairy heifers and grow maize silage for the dairy sector, we rear calves and take these through until they are finished, and also finish wagyu beef steers and a small number of lambs each year. In addition we have a largely organic olive grove of approximately 1000 trees, with the fruit pressed for oil.

Our property has been in the family for nearly 50 years, and it is our aim that this should be passed on to our children. We wish to leave them a property that is not only a beautiful place in which to live, but also one on which it is possible to make a sustainable living.

## **1.2 Preamble**

Amy and I are both of the opinion that the Waikato Regional Council (WRC) is deserving of praise for setting in place the structure from which a huge amount of work has been done in preparing the information that underpins Plan Change 1. In particular, the Technical Leadership Group (TLG), the Collaborative Stakeholder Group (CSG), and their WRC support staff deserve congratulations for the time and effort they have put in. In our preparation of this submission, we have read more than 1500 pages of reports, minutes, and other related material, all of which has clearly been produced in a highly professional manner designed to inform decision-making.

We do have issues with the manner in which some of the proposed rules have been framed, and will go on and suggest changes or amendments to the proposed rules that we believe offer better, more equitable methods of achieving the aims of Te Ture Whaimana o Te Awa o Waikato, the Vision and Strategy for the Waikato and Waipa River (the Strategy).

We also believe that the information relied on by the CSG and TLG in making recommendations of the proposed rules was incomplete, and did not go far enough. It is our opinion that this has meant an incomplete dataset upon which the TLG and CSG based their decisions about the proposed rules, and that the Section 32 (S32) requirements of the Resource Management Act 1991 have also not been meant. We will explain where these holes lie in the dataset, both in terms of the information that was produced and in the information, that should have been produced, and then to discuss the changes or amendments to the proposed rules that we believe would better meet both the aims and outcomes desired by the Strategy.

This begins with a discussion of water quality and how it is measured in Section 2, and whether water clarity should be used as measure that will inform future allocation. Section 3 then discusses the economic modelling that was conducted for HRWO, before Section 4 moves on to examine the areas in which we believe the Section 32 analysis done by the Waikato Regional Council could have been improved.

The final two sections will look at the proposed Rule Change itself. Section 5 examines the key Policies that were developed for Plan Change 1. The proposed rules only cover the 10-year period up until 2026, yet the Strategy is an 80 year vision. The S32 report only alludes to rule changes after this date within which a nutrient allocation framework will be set up, yet we believe the framework should be set out now to provide greater certainty of decision-making, both for future Regional Plans, and for individual stakeholders. We examine how nutrients could be allocated beyond 2026 in Section 6.

The final part of this submission, Section 7, deals with the provisions in Plan Change 1 itself. It details the provisions supported or opposed, what amendments we propose, our reasons for these and the decision sought.

## **2.0 Water quality measures**

Any planned rule change must be consistent with, and give effect to, Te Ture Whaimana o Te Awa o Waikato, the Vision and Strategy for the Waikato and Waipa River, in accordance with the terms of the Waikato-Tainui Raupatu Claims (Waikato River Settlement Act) 2010. The principle of health and wellbeing reflects the overarching purpose of the settlement, which is to restore and protect the health and wellbeing of the Waikato River.

The vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come, and the key outcome within the Vision is the restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length. Achieving Te Ture Whaimana is not negotiable.

The ideal expressed in Healthy Rivers Wai Ora (HRWO) was for water quality in the Waikato and Waipa rivers to return to their state as at December 1863, the date when Crown forces occupied Ngaruawahia, the home of the King and the political centre of the Kingitanga. While the historical Crown actions are expressed in the Act, returning water quality levels to their 1863 levels as a target was not. However, this has been accepted as the ideal. What water quality levels actually were in 1863, and most importantly what water quality trends were at the time is a matter of conjecture, although attempts have been made by the WRC to model these.

This submission is fully supportive of the Healthy Rivers Wai Ora (HRWO) goal of having the Waikato and Waipa rivers swimmable and fishable along their entire length. However, we believe that basing rules, regulations, and compliance around nebulous targets such as 'swimmable' and 'fishable' only creates uncertainty.

We support the regular and ongoing monitoring of nitrogen, phosphorus, and *E.coli* levels within each sub-catchment to assess ongoing trends in these areas, and to use this data as the basis for determining the relative health of the rivers. We agree that any rules should be based around the relative levels of these contaminants. Using clarity (m) as one of the measures of water quality is badly flawed, for the reasons outlined below.

There is also the confusion around definitions used for what constitutes a water body. We suggest using the same definition as that used in the National Policy Statement for Freshwater, that being a continually flowing waterbody with a bed of one metre or greater.

### **2.1 Swimmable and Fishable**

What are we actually trying to achieve? One of the key issues is that the goal we are aiming for is not quantifiable – how are "swimmable" and "fishable" measured? How the water quality targets in

table 3.11-1 were derived are poorly defined in both the proposed rules and the information produced by the WRC supporting these rules.

Plan Change 1 proposes the beginning of what promises to be a series of changes in the Regional Plan designed to achieve the idea of swimmable and fishable rivers, defined in Scenario 1 as “Swimmable in all seasons for microbes and clarity. Water quality supports ecological health.”<sup>1</sup> . However, we believe the targets must be better defined. As an example, people currently take watercress from streams and rivers in the catchment, whitebait from the river mouth, trout from the upper reaches of both rivers and consume them, apparently with no ill-effects. Does this mean one of the targets – fishable along their entire lengths - has already been met?

Clarity and certainty of rules and laws are two key aspects of our justice system. While the proposed rule changes are reasonably clear, the intent behind them – what they are trying to achieve – is not. What defines swimmable and fishable limits or targets for nitrogen or sediment leaving farms, main tributaries, and sub-catchments? Are these defined anywhere, and if so how were these limits derived? The debate must first be had about what levels we need to get to before we can debate the appropriateness of rules designed to get there. As it currently stands, the proposed rule changes do not provide this certainty or clarity – far from it, as in fact all they have achieved is to introduce the exact opposite. Stakeholders still have no real idea what will be required of them in the future.

***It is our recommendation that clearly defined swimmable and fishable water quality targets for nitrogen, phosphorus, and E.coli levels, and how these limits were derived, be produced for all sub-catchments and FMUs.***

## 2.2 Water clarity

Water clarity has been identified as a key water quality attribute of interest, and TLG Report *Waikato River suspended sediment: loads, sources & sinks* notes that ultimately, erosion from catchments is the ultimate source of sediments (although this excludes stormwater runoff from urban environments, another key source of sediment entering rivers). Landslides and streambank erosion are the dominant process of sediment generation, particularly in the Waipa catchment.

Studies would suggest that sediment loss from pastoral land falls somewhere between that lost from native forest and pine forest, even allowing for streambank erosion from stock. A study conducted on central North Island pumice soils concluded:

“Annual rates of sediment export were small by New Zealand standards and were crudely estimated at 27, 22, and 40 t/yr/km for the native forest, pasture, and pine forest catchments, respectively.... The average concentration from the pasture catchment was about midway between that from the pine forest and native forest catchment. This was probably due to the net effect of highest erosive power (i.e.,

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<sup>1</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*,p15.

highest peak flows, surface runoff, and stock disturbance) modified by the stabilising effect of luxurious channel grass growth.”<sup>2</sup>

Another study of the source of sediment loads on the Coromandel concluded:

“The results, converted to % soil contribution demonstrate that soil from pasture generally contributes a minor amount to the harbour sediments at most sites, but there is a substantial soil contribution from native scrub or forest at many sites. This is consistent with minimal erosion of lowland farm land and the presence of native forest and scrub in the steep-sided gullies where erosion is more likely to occur. High country slippage during severe storm events, such as occurred in March 1995, is the most likely cause of the large native soil component in the harbour (Marden & Rowan 1995).”<sup>3</sup>

However, the key issue why sediment should not be used as a measure of water quality is that sediment levels may become worse before they get better, and that this process may go on for decades. As the *Waikato River suspended sediment: loads, sources & sinks* report notes:

“Headwater pastoral streams have become narrower due to the input of sediment from recent catchment disturbance. This sediment became readily stored in channels due to the high light conditions which promotes the growth of pasture grasses on exposed in-channel bars as well as on stream banks. A number of studies have suggested that this stored sediment could be released (over a number of decades) if these channels are revegetated in tree species (as is often done during riparian rehabilitation efforts) due to the shading effect of a riparian tree canopy inhibiting the growth of groundcover vegetation.”<sup>4</sup>

Thus the very actions that will be required of landowners – that being riparian planting of waterways – will increase the amount of sediment in the Waikato and Waipa rivers, potentially for many decades. Therefore using water clarity as a key indicator of water quality improvement is flawed, as it is inconsistent with actions deemed as necessary for long-term water quality improvement. Indeed, an increase in sediment may potentially indicate improved water quality. Basing regulation on sediment levels therefore must not happen. This is particularly so when one considers the long-term impact on sediment loads of large landslips, such as the 1991 Tunawaea slip on the Waipa River<sup>5</sup>, that can occur during major storm events at any time.

We do not suggest that sediment levels should not continue to be monitored – at some point way off in the future, potentially beyond the timeframes envisaged by this Plan Change, improvement in sediment levels will occur. However as one study prepared for the TLG pointed out: “People appear

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<sup>2</sup> *Hydrology and sediment regime of a pasture, native forest, and pine forest catchment in the central North Island*, A. Dons, Department of Scientific and Industrial Research, 9 April 1987), p16.

<sup>3</sup> *Whangapoua Harbour Sediment Sources*, Environment Waikato Technical Report 2006/42, p26.

<sup>4</sup> *Waikato River suspended sediment: loads, sources & sinks*, Healthy Rivers Wai Ora Report No. HR/TLG/2015-2016/2.4, 8 December 2015, p7.

<sup>5</sup> *Waikato River suspended sediment: loads, sources & sinks*, p12.

to assume clear water means low levels of bacteria and contaminants and vice versa but the monitoring data tells us this is not always the case.”<sup>6</sup>

***It is our recommendation that the WRC should continue monitoring a measure(s) of sediment and measure water clarity but exclude water clarity as a measure of achievement of water quality, and instead, should use the amount of water body fencing and/or riparian planting, and other mitigations such as wetland construction and detention bunds as proxy measures of water clarity.***

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<sup>6</sup> *Non-market values for fresh water in the Waikato region: a combined revealed and stated preference approach*, p14.

### 3.0 Economic Modelling

As a necessary part of the process, a number of economic reports about the potential impacts of HRWO were commissioned by the TLG and CSG to help inform decision-making. While we have no issue with the manner in which the economic modelling was conducted, or of most of the results of this modelling, we would argue that the modelling did not go anywhere far enough. The economic and social implications of HRWO are potentially of such a magnitude as to warrant a significant further investment by the WRC in commissioning additional reports whose aim must be to examine these implications, and the impacts on sub-regional, regional, and national economies and communities.

We are of the opinion that such reports are a critical component of Plan Change 1, and failing to produce such reports is not only a failure of the proposed rules under S32 of the RMA, but more importantly an incomplete data set presents the very real risk of poor decision-making through misinformed debate. The necessity of wide-ranging economic analysis of individual and societal costs associated with this plan was pointed out by the authors of the main economic report done thus far for HRWO when they said: "Using costs as a measure of the suitability of alternative management plans is commonplace because of the central importance of societal cost when designing environmental policy".<sup>7</sup>

The S32 analysis identified that the input-output model used in conducting the economic analysis of Plan Change 1 was "not well suited to predicting the impacts of large-scale, medium to long term changes in the structure of regional economies. In the absence of any alternatives, they are relied on to provide an indication of the magnitude of impacts. The results of input-output models must be interpreted with particular caution because these models do not provide any guide as to how long it will take for the estimated impacts to be realised."<sup>8</sup>

This section will discuss where we believe the holes in the economic modelling lie, and it is our firm opinion that these holes must be addressed as a matter of urgency by the WRC.

#### 3.1 Impact on regional and national Economies

One of the key omissions from the economic analyses of Plan Change 1 is a detailed report on the impact on sub-regional, regional, and national economies of the proposed rules, and the achievement of some, or all, of the objectives of Scenario 1. Instead analysis contents itself with using loss of farm profitability and value added, and merely commenting about the potential social impacts of this, as a proxy. It is our opinion that this not only massively understates the true costs of HRWO, but severely understates the potential impacts of the proposed rules on individuals and communities.

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<sup>7</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, p7. Emphasis added.

<sup>8</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p52.

In report commissioned for a pan-American think-tank, the authors noted: “Agriculture’s performance and its contribution to economic development has traditionally been undervalued, since it is measured using information about harvests and the sale of raw materials, mainly crops and livestock. As a result, the backward and forward linkages with agroindustry, the services and trade sectors, and, in general, the rest of the economy, are undervalued... If agriculture’s contribution is calculated using the extended approach that takes into account its interdependence with the food and agroindustry sector, the figures are usually higher than those of official statistics. Measured in this way, AgGDP ranges from 8.12% in the case of the United States to 34.75% in the case of Uruguay. This new indicator suggests that agriculture and agrifood’s true contribution to GDP is considerably greater, ranging from three times more (in the case of Costa Rica) to a maximum of 11.6 times for the United States. This means that, except in the United States, Canada and Venezuela, where the percentage is lower, in the countries studied agriculture and agrifood contributed around 30% of GDP during 1997. This is much higher than reported by official statistics (7%).”<sup>9</sup>

Data from Statistics New Zealand suggests that from 2009–14, Waikato’s economy increased 23.8 percent (above the national movement of 22.4 percent). The 2009–14 increase was driven by the agriculture industry. In 2012, Waikato’s economy increased 6.9 percent due to manufacturing, which accounted for nearly half the region’s increase. In 2013, Waikato’s GDP increased just 0.4 percent due to a decline in agriculture, driven by dairy cattle farming. The region was one of the most affected by the drought that year. In 2014, Waikato’s GDP increased 10.1 percent due to dairy cattle farming.<sup>10</sup>

The key point to take from the above is that agriculture’s contribution to sub-regional, regional and national GDP can only really be understood if one takes into account the through-economy flows of money generated by the sector. Such flows begin on-farm with all the industries servicing the sector (such as farm machinery or accountancy services), and continue downstream. Farmers generating profits will spend some of such profits in their local and regional communities. The raw products they produce will then be taken and used by businesses, with profits (and wages) from these industries then also further spent in the community.

Economists term this the ‘multiplier effect’, where dollars earned in one sector flow through the rest of the economy, and economists would argue that multiplier effects in primary sectors are larger than any other sector of the economy. While the economic modelling conducted for HRWO did look at some aspects of this – the ‘value-added’ impact of changes in on-farm profitability, we believe this understates the true impact of changes.

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<sup>9</sup> *More than food on the table: Agriculture’s true contribution to the economy*, Inter-American Institute for Co-operation and Agriculture, p xi-xiii.

<sup>10</sup> [http://www.statisticsnz.govt.nz/browse\\_for\\_stats/economic\\_indicators/NationalAccounts/RegionalGDP\\_HO\\_TPYeMar15/Commentary.aspx#waikato](http://www.statisticsnz.govt.nz/browse_for_stats/economic_indicators/NationalAccounts/RegionalGDP_HO_TPYeMar15/Commentary.aspx#waikato)

“The analysis of multipliers shows that each additional unit demanded from the primary sector has a strong effect on other sectors. In Canada, 3.1 additional units derived output are generated, and in Argentina as many as 5.5.”<sup>11</sup> Thus for every additional dollar generated in agriculture, the wider economy benefitted by \$3 in Canada and \$5.5 dollars in Argentina. Those countries where agriculture makes up a larger percentage of GDP will have larger multiplier effects, so NZ would tend towards the Argentinian end of the spectrum. The opposite also holds true, where a reduction in units generated by the agricultural sector leads to a much larger reduction further on.

It is undeniable that the movement towards achieving water-quality improvement will have negative flow-on impacts in both the regional and the wider NZ economy, in terms both of jobs lost and the reduction in value-added – largely profits that would otherwise have been made by downstream industries, including processing, utility, retail, service, and transport sectors. The *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments* identifies that achievement of 50% of the water-quality goals outlined in Healthy Rivers Wai Ora with constrained land use would cost \$221million in lost value-added, and lead to the loss of 2389 jobs in the Waikato region. The cost to the wider NZ economy of achieving these goals is estimated to be \$438million and 4684 jobs.<sup>12</sup> When one considers the average wage in NZ is approximately \$42000/yr, this equates to another \$100 million removed from the regional economy, or \$200 million nationally in lost wages alone. And remember that these are annual figures. If one considers simply the projected lost profits from farming, the reduction in value added, and the dollar value of the lost jobs in the Waikato region of achieving only 50% of the HRWO goal, this amounts to \$467 million removed from the regional economy every year.

The paper makes the point that some of this loss will be made up by an expected increase in the forestry sector, as farmers take land out of pastoral production and plant plantation forests, and a large upsurge in paper and wood manufacturing.<sup>13</sup> We believe these figures are overstated. The I/O model that is used effectively operates with current prices held to continue over the timeframes of the model, and this is simply unrealistic. Paper manufacturing in particular has been in long-term decline in New Zealand and around the world owing to the steady reduction in paper usage worldwide as people move to electronic forms of communication. Furthermore, flooding the export log market with a massively increased supply of logs will inevitably see prices fall, yet this is not accounted for in this study – and for that matter neither are potential new rules around harvesting of logs that will make it more difficult and expensive both to gain a consent to harvest, and to harvest the logs themselves.

Economic analysis for HRWO also failed to take into consideration the dollar value of employment lost to the regional and national economy, and what the cumulative impact of these job losses

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<sup>11</sup> *More than food on the table: Agriculture's true contribution to the economy*, Inter-American Institute for Co-operation and Agriculture, p xv.

<sup>12</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, pp39-45.

<sup>13</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, p40.

would be. The below table indicates what additional impact this would have. Note that these figures do not account, as we believe they should, for a much higher multiplier effect:

<b>Annual Financial Impact of Achieving Scenario 1 Goals (\$m)<sup>14</sup></b>			
<b>Waikato Region</b>			
	<b>10% of S1</b>	<b>25% of S1</b>	<b>50% of S1</b>
Reduction in farm profit	26	68	229
Reduction in value added	101	164	221
Value of job losses	50	82	100
<b>Annual \$\$ lost to economy</b>	<b>177</b>	<b>314</b>	<b>550</b>
<b>New Zealand</b>			
	<b>10% of S1</b>	<b>25% of S1</b>	<b>50% of S1</b>
Reduction in farm profit	26	68	229
Reduction in value added	212	339	438
Value of job losses	96	157	197
<b>Annual \$\$ lost to economy</b>	<b>334</b>	<b>564</b>	<b>864</b>

The WRC's *Waikato Regional Economic Profile* estimates the Waikato Economy to be the 4<sup>th</sup> biggest in the country, generating 8.5% of national GDP. NZ GDP in 2015 was \$140 billion. 8.5% of this is \$12 billion. So to put the HRWO-modelled impact of this into perspective, a reduction of \$550 million represents a 5% reduction in the size of the regional economy. And \$550 million less profit per year also substantially reduces the tax take, both at a national and regional level – so that means either higher taxes or a reduced level of services – and remember that this level of regional economic contraction occurs only achieving 50% of the desired Scenario 1 outcome.

Furthermore, NZ Inc. also benefits from agricultural exports in other ways, as this improves our current account deficit, improves how international lenders view the NZ economy as a risk and thus lowers the interest rate we have to pay when we borrow money. It is estimated the growth in the dairy sector alone has meant New Zealanders have paid \$1.2 billion less in interest than they otherwise would have.<sup>15</sup> This is put at risk given the estimated losses in farm profit that would ensue under the HRWO, but none of this type of analysis has yet been conducted, as we believe it must be to provide a more accurate assessment of the impact of this Plan Change.

<sup>14</sup> Figures taken from *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, Tables 2, 13, 16, 17. Dollar value of job losses based on 2015 Statistics NZ average wage.

<sup>15</sup> *Dairy's role in sustaining New Zealand – the sector's contribution to the economy*, p E.

The assumption is made that long time-frames would be put in place to allow 'adjustment', but what is never considered in the analysis is what this adjustment might look like or the time-frames involved, both to individual stakeholders and the wider community. Certainly though, the adjustment period will be considerably shorter for those stakeholders in Priority 1 catchments.

**We recommend a thorough economic investigation into the regional and national macro-economic impacts of the proposed rules, building on the analysis already conducted, with a focus to better understand the regional and nation-wide impacts throughout the various sectors of the economy.**

### **3.2 Social impacts on individuals and communities**

Another area where the analysis conducted by the WRC falls down is in the area of the individual and community-wide social impacts of the proposed changes. Except in very general terms, these impacts are not discussed. However, the way the rules are currently proposed, and the implications hinted at in the economic modelling in terms of where these impacts may fall, suggest that a much greater degree of social and economic modelling should have been conducted to inform the debate.

To put these comments into perspective, an economic report prepared by the NZIER for Fonterra in December 2010 found that in Matamata-Piako, as an example, the dairy sector directly accounts for one in four jobs, and will indirectly account for others.<sup>16</sup> Achieving Scenario 1 would devastate this region both from a spending, and employment perspective, as the necessary reduction in dairy output to achieve this scenario would result in widespread job losses both on farm and within the towns servicing the farming community, and far less spending by agricultural concerns. A lot of these lost jobs, both on-farm and in industry directly concerned with the processing of agricultural produce, are considered low skilled, thus disproportionately impacting lower socio-economic groups.

However, job losses would not simply be lost in farm service-related, or agricultural processing sectors. Both small towns and larger urban centres benefit from agricultural producers spending well over half of everything they earn on goods and services. This spending will inevitably decline, with impacts felt throughout the regional economy.

"Communities that are already in decline, will be more affected by a decrease in jobs, which influence population decline and can have flow on effect of a loss of key services such as schools, healthcare, stores and shops. Providing levels of service and infrastructure relies on having a large enough rateable population base. Working age population brings employment and children to an area. The dairy industry is the most affected by the large number of job losses in scenario 1, and people 18-40 years being important to some parts of the industry. So a loss in this sector may impact on this working age population in the area. This is especially so in the Upper FMU. How

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<sup>16</sup> *Dairy's role in sustaining New Zealand – the sector's contribution to the economy*, NZIER, Report to Fonterra and Dairy NZ, December 2010, p C.

close a community gets to a tipping point will depend on how close it is now.”<sup>17</sup> The upper FMU is expected to have the biggest job losses, “impacting most particularly on Tokoroa and the surrounding areas, which has existing high levels of deprivation and so a change will have a compounding effect for that community”.<sup>18</sup>

Modelling that has been done for HRWO has attempted to understand the impact of the proposed change on some key indicators. In its report *Integrated Assessment Two: Achieving water quality for swimming, taking food and healthy biodiversity. Assessment of Scenario 1 steps 10%, 25% and 50% from case 1 of modelling round two*, a team assessed the impact of the Plan Change on some key social, environmental, economic, and cultural indicators, and ranked these on an impact scale of 1 to 5, with 1 being low impact and 5 being high impact.

The study found that there would be a negative impact on vibrant and resilient communities, with these impacts unevenly shared across the Waikato, and that the impact was ranked at -3 if achieving 10% of Scenario 1, rising to -4 at 100%. The study concluded that differing support measures would be critical to assist in the change and reduce unintended negative consequences.<sup>19</sup> Note however that no support measures of any kind have been taken into account in any of the economic or social modelling done thus far. On the scale the authors developed, employment impacts ranked -4.5 on the +5 to -5 scale.

A reasonably well researched aspect of increased unemployment rates across the world, is the impact that this has on the social fabric of communities, yet this aspect of the proposed rules was not touched by the analysis done thus far. Again, the point we are trying to make here is that we must have a thorough understanding of the impacts, potential risks, as well as the rewards, associated with HRWO. Having such analysis available is crucial for balanced debate and informed rule-making. And it is critical, as much as is possible, to place dollar values on the community costs.

**We recommend further analysis of the sub-regional and regional social impacts of the proposed rules, focusing on those sectors and sub-regions expected to bear the brunt of the move towards Scenario 1, and some idea of whether support measures would be used to mitigate against these impacts, and what these measures would be.**

### **3.2 Amenity values & non-quantified benefits from agriculture**

What is the value provided by open green farmland to the tourist sector in the Waikato region and wider NZ? What is the amenity value, in dollar terms, of this to non-agricultural businesses and the

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<sup>17</sup> *Integrated Assessment Two: Achieving water quality for swimming, taking food and healthy biodiversity. Assessment of Scenario 1 steps 10%, 25% and 50% from case 1 of modelling round two*, Healthy Rivers Wai Ora Report No. HR/TLG/2015-2016/6.3, p9.

<sup>18</sup> *Integrated Assessment Two: Achieving water quality for swimming, taking food and healthy biodiversity. Assessment of Scenario 1 steps 10%, 25% and 50% from case 1 of modelling round two*, p8.

<sup>19</sup> *Integrated Assessment Two: Achieving water quality for swimming, taking food and healthy biodiversity. Assessment of Scenario 1 steps 10%, 25% and 50% from case 1 of modelling round two*, p9.

urban population currently living in the Waikato region? What would be the reduction if this was replaced by hectare after hectare of plantation forest in certain sub-catchments, or would this mean an increase in value? How much better is the air quality in the Waikato region because of the influence of agriculture?

We believe it is necessary for such questions to have been asked and, despite the difficulty, an attempt made to answer them. As has been signalled by the analysis so far conducted by the WRC, achieving 100% of Scenario 1 will bring massive change to the face of the Waikato. Economic modelling suggested that in order to bring this about, a huge amount of land currently in pastoral agriculture – either sheep and beef or dairy – would need to be replaced with plantation forestry. This has potential implications for the wider Waikato regional economy, and New Zealand as a whole, purely from an amenity value perspective. This is an area that has not even been addressed by the analysis done thus far.

The types of things mentioned above are some of the unseen benefits to the wider community that accrue from agriculture. Those benefitting from an activity without paying for it are termed ‘free riders’ in economic terms. In the truest economic sense, we should all be paying the providers of such benefits, but because these are generally difficult to capture on an individual basis, usually this is impossible. It is not impossible, though, to attempt to assess the benefits that accrue to all of us from the current state of agriculture in the Waikato region.

We believe this needs to be quantified in order to properly address the ‘free rider’ issue. As currently written, the proposed rules will largely impact one sector – the agricultural sector. We are firmly of the belief that agriculture is, to a large degree, responsible for the degradation of water quality in the Waikato catchment (point source discharges, including urban sewerage and stormwater run-off, are other key pollutants and are dealt with later on in this submission), and thus must be responsible for a share of the clean-up costs. However, what this share equates to can only be understood if we also price the unpaid-for benefits from agriculture the wider community receives.

All members of the community have benefitted from agriculture in the region – as another example in large part the infrastructure of the region has been built on the profits earned by the agricultural sector and its downstream industries. We have all been happy to accept these benefits in the past but now only one sector is largely being asked to pay the costs associated with this development. This is inequitable, simply because everyone derives a value from living in agriculture’s shadow in some way or form. What we don’t know is the level of inequity because no attempt has been made to quantify the additional benefits derived from pastoral agriculture.

**We recommend that analysis includes quantifying the amenity value and other benefits derived from agriculture in order to work out an equitable distribution of the costs of the proposed plan.**

### 3.3 Understanding costs of HRWO – will these be spread efficiently?

#### 3.3.1 Modelled costs of mitigation

In the economic analysis conducted for HRWO thus far, one thing is clear: the further down the path we move towards achieving the Scenario 1 outcome, the more expensive mitigation costs become. As was pointed out in one of the HRWO reports: “The relationship between nitrogen leaching and profit for all enterprises is a critical component of the economic model used within the HRWO process. The protocol generated and applied by DairyNZ Economics Group results in abatement-cost curves that are directly upward-sloping; that is, mitigation cost increases as the amount of abatement performed increases.”<sup>20</sup>

Economic modelling of the impact of proposed rule changes identified that there were few, if any, win-win solutions when mitigating. Even when a win-win outcome was identified for an individual farm, the actual adoption of such outcomes may not even occur due to other barriers to uptake that aren't normally considered during standard financial evaluations. And further, win-win solutions may actually increase pollution levels as improvements in efficiency are likely to encourage further intensification, as these improvements open up other opportunities.<sup>21</sup>

Analysis of the costs of mitigation included modelling mitigation practices as assets. By doing so, the modellers were able to follow standard financial practice and, rather than expressing the up-front capital cost of this mitigation, instead convert this capital cost to annual equivalent payments at an interest rate of 8% over a payback period of 25 years (and included in this a maintenance cost component).<sup>22</sup>

There are two crucial problems with this modelling. The first is defining all mitigation as an ‘asset’. By definition an asset produces revenue over the lifespan of that asset (deemed to be 25 years in the model). However, no evidence has been produced showing that such mitigation measures such as fencing waterways, riparian planting, or edge of field mitigation produces any additional revenue. As such this type of mitigation should instead be considered sunk costs and the capital costs of them not be converted to annual equivalent payments, with only the maintenance costs treated in such a manner. This would dramatically change the cost structure of the model.

The second issue is that the model never considered that farmers must be in a financial position strong enough that they are able to finance the cost of these mitigation measures in the first place – though to be fair this was probably never part of the model brief. Nevertheless this should be an important part of the economic modelling. Expecting an individual to perform certain mitigations brings with it the presumption that they are able to pay for this up-front, but the pastoral sector is already one of the most heavily indebted in the entire economy. Some individuals may simply not

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<sup>20</sup> *General principles underlying the development of the Healthy Rivers Wai Ora (HRWO) economic model*, p15.

<sup>21</sup> *General principles underlying the development of the Healthy Rivers Wai Ora (HRWO) economic model*, p16-17.

<sup>22</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, p10.

be able to afford the expected costs of mitigations. Meanwhile, the financial sector's appetite for increased exposure to the agricultural sector, particularly if funds are being used for non-income generating activities, may not be high and thus interest rate charges (currently 8% in the model) may underestimate the financial cost. Data is readily available from both the sheep and beef and dairy industries on average debt levels across the sectors, while the banking sector would have been able to provide long-term funding rates on non-asset spending.

The last issue to raise concerns the cost structures of mitigation technologies that were utilised by the model. These were not clearly spelt out. In particular, stream fencing costs will differ widely, depending on the calculation of how much fencing is required, and the costs associated with building a fence. Comments appeared in both the economic analysis and the S32 analysis to the effect that the per metre cost of such fencing was derived from WRC staff. With the greatest of respect we believe this information should have been derived from professional fencers. In terms of length of fencing, we have no way of knowing the accuracy of the data. The danger with both being that the modelling may severely under- or over-state total mitigation costs, yet without understanding how such information was derived it is difficult to make an informed judgement either way.

**Our recommendation is to re-visit the economic modelling, with detailed explanations given of how average mitigation costs were arrived at, and further analysis conducted accounting both for non-revenue generating mitigations as sunk costs, and average farm debt levels.**

### 3.3.2 Diminishing marginal returns – efficient allocation of resources

Achieving the goals of HRWO will cost substantial amounts of money, and as we head higher up the scale towards Scenario 1, so these costs increase: "It can be appreciated that the costs associated with 10% and 25% movements towards Scenario 1 are low to moderate, indeed, they are 3% and 7% of total profit respectively... these catchment-level costs become more significant as the steps move to 50% and above, demonstrating how strongly diminishing returns to mitigation are expressing themselves when water-quality improvement at this level is required."<sup>23</sup>

At some point, and this would be different in each sub-catchment, we reach a plateau where it doesn't matter what mitigation is conducted, no further water quality improvements are possible with current technologies regardless of spend. "Further mitigation may be possible in some locations in the catchment, but it will not help attain further water-quality improvements. This highlights the limited efficacy of some mitigations; for example, the limited tools available for reducing *E.coli* incidence."<sup>24</sup>

"It is evident that as greater movement towards Scenario 1 is achieved - demonstrated in Figure 4 as a movement from left to right – that water quality improves, but also cost increases at an increasing

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<sup>23</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, p17.

<sup>24</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, p18.

rate. The second most-leftward point is associated with a 10% [cost] step; yet, it achieves more than a 10% improvement in water quality, relative to the current state. All other steps achieve a less-than proportional increase in water quality, relative to the current state.”<sup>25</sup>

The above issues discussed in the economic modelling point towards two key ideas: firstly, that we should account for the diminishing marginal return from mitigation actions; secondly, that we should also be concerning ourselves with the efficient allocation of resources – in other words, are the costs assessed in the model the most efficient way to spend this money? Will the community achieve the maximal return from the dollars expended or are they better directed elsewhere? It is this second point, in particular, where the modelling falls down badly. As an example, some farmers (particularly those on extensive sheep and beef farms) under the proposed rules will be forced to spend huge sums of money expensively fencing off waterways – in some cases into the hundreds of thousands of dollars. Yet it may be that for a fraction of this cost they could contribute to some other form of mitigation, potentially not even on their own property, that would achieve the same, or better outcomes.

The rules developed for HRWO, both those in Plan Change 1 and in any further plan changes going forward should aim, as much as possible, for the most efficient allocation of resources. We know that as we get further along the water quality spectrum towards Scenario 1 that the cost of achieving a one unit improvement in water quality increases – we experience diminishing marginal returns. What we don’t know is whether the rules as they are currently expressed achieve the best return from the dollars spent. Would we be better off, for example, if we were to take the expected cost of fencing streams and divert this instead towards absolutely state-of-the-art stormwater systems in urban areas?

Analysis of this kind was not conducted for HRWO. Yet both from an economic perspective, and if the S32 analysis conducted for Plan Change 1 is to meet the requirements of S32(1)(b)(ii) of the RMA, then this analysis must be conducted. Such an analysis necessarily needs to start from a perspective of what exactly needs to occur if Scenario 1 water quality goals are to be met (which also requires these goals are defined properly). Then all possible mitigation or attenuation possibilities must be examined from a cost perspective. It is only after this has been completed that we have the ability to choose the lowest-cost options that achieve the various steps towards Scenario 1. The final step is to frame rules and regulations that will achieve this, and couple this with

**We recommend further analysis of mitigation costs, broken down into a cost vs outcome perspective, based on well-defined water quality goals.**

### **3.3.3 Impact on land values – landowners and communities**

One area of much concern to landowners that was only addressed in the vaguest terms by any of the analysis conducted for HRWO was the potential impact on land values that would ensue to achieve the steps towards 100% of Scenario 1 water quality outcomes – both with and without constrained land use. The comment, in the S32 analysis of Plan Change 1, suggested land values are driven by

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<sup>25</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, p21.

the highest value use, not actual use, and potential impacts could occur on land values for some industries.<sup>26</sup> No dedicated work was done by HRWO in this area. Yet such are the potential individual and community ramifications of declining land values that this is a major oversight that must be addressed urgently.

Potential change in land value:

<b>Potential Change in Land Values Achieving 100% of Scenario 1 expressed in 2016 dollars<sup>27</sup></b>		
	\$ billion	\$ billion
	<b>Current value</b>	<b>Value at 100% of S1</b>
Dairy	17.248	2.703
Drystock	6.666	5.951
Horticulture	1.160	0.424
Forestry	1.440	4.017
<b>Total Land value</b>	<b>26.514</b>	<b>13.095</b>

The table above is a rough approximation of the impact of achieving 100% of the water quality outcomes of Scenario 1. The figures have been arrived at by taking average per hectare values for the various land uses in the Waikato catchment, and simply multiplying these by the current total hectares in use to arrive at current total value, and the expected hectares in each land use at 100% of Scenario 1 (with these figures expressed in 2016 dollars). Note that these figures do not account for the impact of mitigation costs on farm profitability. If, as the economic modelling would suggest, farm profitability declines across the sheep and beef and dairy sectors, we would expect this to have a further negative impact on land values – and that this decline will begin effectively as soon as mitigation costs begin to bite.

The key change between current value and value at 100% of Scenario 1 is the massive decline in total dairy farm values. This is due to the hundreds of thousands of hectares that the model suggests is necessary to be retired from dairying and shifted into forestry – a hectare of forestry land being worth only a fraction of that of a dairy farm. Overall total agricultural land values will potentially halve in value.

<sup>26</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p183.

<sup>27</sup> Figures derived from multiplying the hectares under each land use in both the current state and 100% of Scenario 1 contained in Figure 8 of *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments* (p31), by per hectare farm prices reported by the REINZ and obtained from <http://www.interest.co.nz/rural/resources/farm-sales>. Note no reported sales of forestry blocks took place in the Waikato, so the national average was used. Note also that forestry block figures will contain not just bare but planted blocks, so the forestry land value at 100% of S1 almost certainly overstates the value of this land.

These total values obscure the impact on individual landowners. To achieve 100% of Scenario 1 requires a massive change from high-discharging land uses such as dairying and horticulture into less intensive, and so less polluting, land uses such as sheep and beef and forestry. For an enormous number of farmers, this means farm values will plummet – remembering land values reflect their highest value land use. For comparison, imagine the impact on homeowners if they were told they faced a 50% decline in their house values.

A study has been done on the cost of implementing the various mitigation options, with these varying wildly from farm to farm, dependent on topography, size, and stock classes utilised. The average implementation cost for sheep and beef farms was \$138000, while for dairy farms this was \$41000. However, some farms will have to spend upwards of \$250000 (and some potentially more than \$750000) under planned rules.<sup>28</sup> To put this into perspective, sheep and beef farm profits over the past 25 years, and after taking 2004-05 as the base year and adjusting for inflation were<sup>29</sup>:

1990s average = \$44800

2000s average = \$65100

2010s average = \$88200

The major problem with this is that even while land values decline, the amount of debt held by these landowners will, in all likelihood, increase. Average implementation costs on sheep and beef properties will be equal to 1.5 times their average annual profit, and these costs need to be paid up-front. Expecting farmers to be able to pay these costs based on cashflows is nonsensical. The vast majority will need to borrow to do so. The banking sector will balk (as they should) if they are asked to finance mitigation actions at the same time as they will see declining equity values on-farm.

Equity levels plummeting while debt stands still is not a good recipe for individuals or communities. While the HRWO has built in long time frames, supposedly to allow 'adjustment', we must consider how this adjustment would work. Imposing land use constraints in the short term impacts land that could otherwise move to a more intensive land use – the switch from sheep and beef to dairying for example. Currently this land is valued based on the higher value land use. Imposing constraints means land values will immediately drop to the lower value land use. In the longer term, when the HRWO plan is for unconstrained land use change, land values will also begin to reflect the profit that can be generated from that land. As all analysis conducted suggests large declines in on-farm profit, regardless of land use, this will also begin to be reflected in land prices.

The true cost to individuals can only be calculated based on the costs imposed by proposed nutrient management regime, lost annual profitability and the decline in land values. Such information is readily available through the experience of farmers farming under nutrient caps in the Lake Taupo

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<sup>28</sup> *Farm Environment Plan Project*, Report to Waikato Federated Farmers prepared by Phil Journeaux of AgFirst Waikato, 4 November 2016, p5.

<sup>29</sup> <http://www.beeflambnz.com/news-events/media-releases/2016/march/sheep-and-beef-farm-profits/>

and Rotorua Lakes districts.<sup>30</sup> Analysis conducted by the WRC ignored these real-life examples of the financial impacts. Just as important is an analysis of the social impacts. Such decreases in equity puts severe mental strain on individuals, families, and communities. The risks that these pose have not yet been addressed, despite S32(2)(a) and (b) of the RMA requiring such assessments.

**We recommend that analysis re-visit the costs that will accrue to individuals and communities, and assess these costs not simply on profitability reductions, but also expected declines in land values, and the impacts this will have on individuals, families, and communities. Such an assessment must also include the likely response of the New Zealand banking sector to increased debt levels to fund mitigation while land values decline.**

#### 3.3.4 Non-accounted for costs

A further area that the economic analysis conducted for the TLG and CSG did not consider, and the S32 report considers in only general terms, is the additional costs to individuals and society over and above mitigation costs and lost profits. Again, this may not have been in the purview of the modelling team, but without such analysis we do not have a truly accurate picture of what achieving HRWO will cost, and thus risk making poor decisions that will only result in bad or unforeseen outcomes.

One cost that was not considered is the increase in rates that will be required. The amount that every ratepayer will be required to pay - whether urban or rural – will increase substantially. This is due to the impact of declining land values, discussed in the previous section, with this cost will fall on non-rural ratepayers. The second is due to the additional reporting, monitoring, and compliance resources that will be required by the WRC if the proposed rules are implemented – with HRWO estimating a minimum of 16.5FTE employees will be required, to say nothing of the additional expense in systems to manage the information generated by the proposed regime. Neither the costs of this additional resourcing, nor the potential rates increase necessary to pay for this, have been considered in modelling.

The total capital value used for rates calculations in the WRC region is \$120 billion, and based on this \$41 million in rates was collected last year. Again based on land values, agricultural landowners would have contributed around 22% of this, or approximately \$9 million (agricultural land values being around \$26 billion). Based on the expected decline in land values this contribution would be expected to halve. This \$4.5 million shortfall can only be made up by increases in everybody's rates. To make up the shortfall, rates would need to increase by an average of 10% for each of the 196000 ratepayers in the Waikato. However, given the large land value reductions that will be experienced by farmers, their actual rates bill, even after the rates adjustment will probably end up a little lower

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<sup>30</sup> For example, see such reports as: *The Lake Taupo Catchment Experience*, Beef and Lamb NZ, June 2015, or *The Effect of Environmental Constraints on Land Prices*, Phil Journeaux, AgFirst Waikato Ltd, or *Land Values in the Rotorua area and Lake Rotorua catchments*, Telfer Young Ltd, 2015. These (and others) all show the negative impact on land values of environmental constraints, particularly constraints on land use change.

than now, such is the decline they experience in land values. Thus this rates increase will fall upon urban ratepayers, with actual increases probably closer than 15% per ratepayer – and this just to maintain current rates take.

These increases will not just occur to WRC ratepayers, but to all District Council ratepayers as well, with declining land values for farms having a much larger impact on ratepayers in those District Councils where rural capital values currently make up a large percentage of the total capital value. In these areas – such as the Waikato District Council or the Waipa District Council, the average rates increase across all ratepayers to account for the decline in farm land values and maintain current rates takes could be anywhere between 15-40%. Given the potential scale of the impact, this sort of information must be conveyed to the general public, but has been ignored by current modelling.

However, this doesn't even begin to consider the budgetary increases that will be necessary to collect, store, and manage the data associated with Plan Change 1, that will also impact on rates. A report for the WRC done by Dragten Consulting estimated the costs start at approximately \$1.6M per year, and rise to approximately \$3.0M per year by year 10. Full time equivalent staff numbers increase from 7.5 FTEs in year 1, through to 16.5 FTEs by year 10.<sup>31</sup> Thus at a minimum, an additional \$3 million (or about a 7.5% increase) will need to be added to WRC ratepayer's bills. The S32 analysis also discusses the need for far more robust sets of data to inform decision-making as to the allocation of nutrients after the 10 year period is up. To gain this information the WRC will need to spend considerable sums of money gathering and analysing large water quality data sets. This expense is nowhere to be seen in the various reports, but also needs to be included in estimates of potential rates increases.

The S32 analysis suggests monitoring costs will either fall to ratepayers or landowners.<sup>32</sup> Arguably, given the benefits of farmers actions will be captured by everyone else in the community (forgetting for a moment the loss in profits, declines in land values, and cost of implementation that farmers will also have to deal with) landowners should not be responsible for monitoring costs, and these should be spread amongst the community. The speed with which this occurs will be a determinant of how quickly the proposed rules begin to impact on land values.

And there are other cost areas that the analysis did not consider, but should be included in the modelling. While the *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments* report did consider the impacts of the costs of various mitigation activities on average farm profits, some costs were not considered. As an example, the cost of developing an average Land and Environment Plan – a requirement for all farms greater than 20 hectares under the proposed rules - has been estimated at close to \$4700 per farm.<sup>33</sup> Then there are the ongoing

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<sup>31</sup> *Healthy Rivers Wai Ora Plan Change 1. Regulatory Implementation Implications*, Report prepared for WRC by Dragten Consulting, 24 June 2016, p27.

<sup>32</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p170.

<sup>33</sup> *Farm Environment Plan Project*, p5.

transaction costs. For those farms operating under a Controlled - rather than Permitted – status what will be the costs of getting a consent from the WRC? How long will this consent run for?

There have been no estimates or modelling of the equity of the proposed rules, and the modelling of costs of the rules have significant blanks, including ongoing costs to ratepayers of the policy and likely effects, impact of social costs on rural communities, impact on land values and resulting viability of farm businesses given the historically high debt levels in the pastoral sector, expected levels of rates increases, and impact on the regional economy. Because of these oversights, both the economic modelling done for HRWO and the S32 analysis have not met the level required given the scale and significance of the proposed rule changes.

**We recommend that analysis re-visit the costs that will accrue to individuals and communities under both the proposed rules and the impact of nutrient limits proposed by HRWO. Assessments must account for all up-front and ongoing costs, both to landowners and the WRC, how these costs will be spread, and the expected rates increases that will result.**

### 3.3.5 Measuring benefit to the community

Another key oversight of both the HRWO economic modelling, and the S32 analysis conducted by the WRC, was a detailed assessment of the financial benefit to the community of the proposed rules. We believe it is not enough simply to state what the benefits will be. Rather this must also attempt to quantify, to place a dollar value, on these benefits. Again the key point here is that it is only by doing so that individuals and communities can make fully informed choices (and it is also a requirement under S32(2)(b) of the RMA). While such benefits are difficult to quantify, this analysis was conducted by the TLG and CSG yet do not appear to have used in the economic analysis.

One report looking at recreation values that would accrue from achievement of the various steps along the path to Scenario 1, analysed the potential outcomes of achievement of HRWO, and concluded that there would be no change in recreation use even if 50% of Scenario 1 was achieved, and only at 100% of Scenario 1 was there an increase in the recreation indicator. Further, the report also concluded there would ultimately be no net change for fish and eel populations, even at 100% of Scenario 1, while expecting little to no change in pest weeds and fish living in the rivers and their tributaries.<sup>34</sup>

The Waikato Economic Impact Joint Venture Project studies were set up to inform and support decision-making on the potential impacts of setting freshwater objectives and limits in the Waikato River catchment. In *Non-market values for fresh water in the Waikato region: a combined revealed and stated preference approach*, an attempt was made to place a dollar value on the increase in cultural and recreational values that would occur with improvements in water quality in the Waikato

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<sup>34</sup> *Integrated Assessment Two: Achieving water quality for swimming, taking food and healthy biodiversity. Assessment of Scenario 1 steps 10%, 25% and 50% from case 1 of modelling round two, p15-37.*

catchment.<sup>35</sup> This study determined that the total value derived from users of the Waikato and Waipa river systems was in the range \$28-91 million per year if a 30% reduction was made in the total amount of nitrogen and phosphorus entering the rivers, and/or if median water clarity at Hamilton improved from 1.6m to 2.5m.<sup>36</sup> The report also detailed the number of other studies that have been conducted that attempt to measure the dollar value derived from the Waikato catchment, noting that a non-market value of \$1376 per household per year was received. Of this, fishing, swimming and water quality made up \$449 of the value, while \$481 was made up of landscape values, ecosystem health, and biodiversity.<sup>37</sup>

Thus only 32% of the value to the community was made up in factors that the rural sector will be directly responsible for with the proposed Plan Change (fishing, swimming and water quality). However, an additional 35% of the value (landscape values, ecosystem health, and biodiversity) will be captured by the wider community as a result of the improvements made if achieving Scenario 1. Arguably, given that the wider community hugely benefits in ways other than those the Plan Change is designed to address, either the rural community should be able to recover this from river users, else the wider community must pay this cost, including the significant proportion of the community of Waikato catchment users that do not live in the region.

From an economic perspective, the reason we should attempt to quantify such things is all about the trying to decide on the most efficient allocation of resources. We need to understand where the breakeven point of environmental regulations lies – where the cost of one additional dollar invested in improving river health equals one dollar of benefit received by the community – and this is arguably the whole point behind Section 32 of the RMA. It is too easy otherwise to go round and round in circles arguing from one point of view or another, but bald figures of costs and benefits (backed up by robust peer review of how these were derived) are much harder to simply ignore.

In this instance, the rules should be targeting the areas where the greatest gains will be made for the least cost. When all these gains have been realised, then the next cheapest options for making gains should be employed, and so on, either until the desired outcomes have been achieved, or the costs to individuals and the community of implementing the rules outweigh the benefits gained from them. As examples, it may be more cost-effective for a dairy farmer to pay a drystock farmer to retire land and plant trees to reduce sediment loads, and for the dairy farmer to be able to account for this, but mechanisms such as this ('offsetting') are only mentioned for point source dischargers but not diffuse dischargers.

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<sup>35</sup> *Non-market values for fresh water in the Waikato region: a combined revealed and stated preference approach*, Waikato Regional Council Technical Report 2014/17, pvii.

<sup>36</sup> *Non-market values for fresh water in the Waikato region: a combined revealed and stated preference approach*, pix.

<sup>37</sup> *Non-market values for fresh water in the Waikato region: a combined revealed and stated preference approach*, p4.

From the current research conducted for HRWO, the maximum level of identified benefits is valued at approximately \$90 million per year. Even forgetting for a moment those cost areas identified in this submission as having been left out of the analysis of total costs, the economic modelling identifies lost profits alone totalling more than \$700 million per year. We believe that such a situation would be incredibly wasteful of scarce resources. To draw an analogy, would you spend \$7 on a good that you only receive \$1 of value from?

**We recommend that further analysis is done to quantify the benefits of improved water quality to the community, expressed as a dollar value. Additional analysis is also required identifying those areas that achieve the most water quality improvement for the lowest cost. From these two pieces of data, the breakeven point where the marginal benefits to improving water quality equal the marginal cost of doing so should be calculated.**

Need a statement here, of what you actually want

Within three years the WRC will complete the further analysis as recommend in these sections and compile a publicly available document that quantifies all the costs and benefits of plan change 1 and the proposed allocation framework of plan changes going forward. This will then enable the public to make an informed decision on future plan changes.

## 4.0 Section 32 Analysis – Must Do Better

While there are other subsections of S.32 of the RMA, the below sections are the most pertinent to the analysis that was undertaken by the Waikato Regional Council to meet the S32 requirements:

### *32 Requirements for preparing and publishing evaluation reports*

*(1) An evaluation report required under this Act must—*

*(a) examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act; and*

*(b) examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—*

*(i) identifying other reasonably practicable options for achieving the objectives; and*

*(ii) assessing the efficiency and effectiveness of the provisions in achieving the objectives; and*

*(iii) summarising the reasons for deciding on the provisions; and*

*(c) contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.*

*(2) An assessment under subsection (1)(b)(ii) must—*

*(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—*

*(i) economic growth that are anticipated to be provided or reduced; and*

*(ii) employment that are anticipated to be provided or reduced; and*

*(b) if practicable, quantify the benefits and costs referred to in paragraph (a); and*

*(c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.*

The key idea behind Section 32 of the Resource Management Act, and the reason Regional Councils are required to prepare and publish an Evaluation Report, is the idea of trade-offs. Win-win solutions, particularly regarding the environment, are rare. Far more often individuals and societies are required to make decisions to try and achieve a balance between two desirable but incompatible features. We are required to make a compromise, to trade the benefits (or costs) we receive from one option off against the benefits (or costs) we receive from the other.

In order to make the best or the most favourable trade-off – the one where the most value (or least cost) is gained - both individuals and societies require a clear idea of what it is they are trading off. As an example, the response to any survey that asks people the simple question: “would you like better water quality?”, will be yes. In this question, nothing is being traded, respondents only see a benefit, so the answer is easy. However, if the question is: “would you like better water quality, but the cost to you annually will be \$1000?”, then all of a sudden not only are you requiring people to make a trade off, but you are giving them a clear idea of what this trade-off entails.

The better that the detail of the transaction is understood, the better individuals and society are able to weigh up the positives and negatives of each outcome – for example an even better question would be: “if you pay nothing, water quality will not change, but if you pay \$100, water quality will improve by 25%, if you pay \$500 water quality will improve by 50%, and if you pay \$1000 water quality will improve by 80%. Which option offers you the best compromise?”

The quality of the information presented will determine the quality of the decision that is made. Plan Change 1 presents us with a trade-off: on the one hand we will benefit from better water quality. On the other hand achieving this will only be at a cost. Section 32 of the RMA describes how a Council should go about assessing these benefits and costs - and it is important to mention that S32 specifically states that these costs and benefits should be quantified, which means they should be measured. If you want a community to make informed decisions, this measurement should be in a language that all members of the community understand. This is the reason we believe that, where possible, all costs and benefits of the proposed plan should have had a dollar value assigned to them.

The previous Section 3 Economic Modelling detailed some of the areas where analysis for this Plan Change should have been conducted. Effectively the WRC has not given the community all the information it requires to make a fully informed decision about the trade-off between the benefits of improved water quality and the costs of doing so. Even the way the rules themselves have been drafted will have been influenced by this lack of quality information.

If the wider community truly values high quality water, then the consequences of rules required to achieve this will be that additional investment will be required in stormwater or sewerage treatment that costs ratepayers more, and that the production of vegetables, dairy, meat, or indeed many other products will be compromised in some way forcing up prices, and that a particular sector or sectors will see job losses. This is simply the cost to achieve our community goals. However, it cannot be understated just how important it is that the community understand what these costs will potentially be.

**Thus it is our contention that the Waikato Regional Council has not provided either individuals or the wider community the quality of information that is required to make a good decision on Plan Change 1, especially in light of the scale and potential significance of the effects that should have been anticipated if the proposals are implemented. This is even more so if one considers the full implications of Healthy Rivers Wai Ora.**

**The wider community must understand the true costs and benefits of the trade-offs involved in this Plan Change. The development of data and information that allows people to understand these trade-offs is the true intent of Section 32 of the RMA. The only conclusion that can therefore be made is that the WRC has not yet completed its statutory requirements under the RMA.**

#### **4.1 Gaps in the S32 analysis**

As part of the S32 analysis performed in accordance with the Resource Management Act 1991, the WRC assessed the effectiveness of the options in achieving the objectives of the proposed Plan Change. The key criteria of effectiveness, as identified by the WRC to be used for this assessment, were assessing the level of equity and the fair distribution of impacts of the proposed rules, and in addition ensuring the proposed rules allowed for flexibility and intergenerational land use.<sup>38</sup>

However, this is one of the key holes in the S32 analysis. Nowhere in the analysis is a discussion of where the main impacts would fall, whether this was a fair distribution of these impacts, or whether this was equitable. In fact, the CSG's policy selection criteria, noted in *B.9.2 Appendix 2* of the S32 Analysis does not mention equity or the distribution of impacts at all.

Another key failing of the S32 analysis is that, aside from minor references only, it does not assess the economic implications of the current proposals or the long term implications of HRWO. As noted in the Economic Modelling section of this submission, the Report also does not attempt to put a dollar value on the environmental, social, and cultural value derived vs the social and economic cost of the proposed rules, despite some of this information being available through the various reports commissioned by the CSG and TLG.

One of the requirements of the RMA is that any evaluation report must contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposed Rule Change. Given the huge impacts Plan Change 1 will have, with economic modelling predicting up to \$800 million wiped from annual farm profits to achieve the objectives desired by HRWO, the level of detail contained in the S32 analysis does not meet either the standard required by the RMA, or that required by the WRC itself. This submission has attempted to identify the areas where more detail is required. Other areas where we believe the S32 analysis is substandard are discussed below.

#### **4.2 The S32 analysis and the objectives of Plan Change 1**

The S32 report noted: "There will need to be more information gathered and technology developed in order to be able to set limits and targets at a property level. Therefore the first stage is realistic for landowners to start understanding and make social and economic changes for the future."<sup>39</sup>

However, one of the issues is that the proposed rules will set targets and limits at a property level. Admittedly these will, in all likelihood, not be the final limits. Nevertheless it is difficult to reconcile a report that notes it needs more information to be able to set targets, and rules that do exactly that.

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<sup>38</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p7.

<sup>39</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p87.

The WRC believes it is necessary to do so to meet Objective 3 of the 6 Objectives it identified as necessary to achieve the goals of HRWO. In order, these are:

Objective 1 is long term restoration and protection of water quality

Objective 2 is social, economic and cultural wellbeing is maintained in the long term

Objective 3 is short term improvements in water quality in the first stage of restoration

Objective 4 is people and community resilience

Objective 5 is Mana tangata – protecting and restoring tangata whenua values

Objective 6 is Whangamarino wetland

The key point here is, did the S32 analysis actually assess the efficiency of the proposed rules against the desired objectives, and choose the most appropriate from the different policy options?

Objective 2 is to maintain social, economic, and cultural well-being in the long term. All the modelling done thus far would suggest that economic well-being will not be maintained in the long term, but will instead be hugely degraded. And while the whole community is expected to be impacted to some degree, the financial costs will largely fall on a small minority of the community. Objective 4, that being people and community resilience, will be severely degraded in some areas.

The modelling suggests that the environmental benefits that will accrue will be massively outweighed by the economic costs, with these being more than 700% greater than the expected social benefit. No modelling has been conducted on the social costs of the expected large job losses that will occur, largely in smaller communities in the Waikato region, where the potential impact could be devastating. While the reports do consider the need to allow for a staged approach to enable people and communities to undertake 'adaptive management', no work has been conducted outlining what this might look like, or the costs of doing so.

The most appropriate mitigation actions are those that will be water quality-effective and cost-effective, both socially and economically. This is the key area where the proposed rule changes as they stand fall down, and thus the key failing of the S32 analysis conducted by the WRC. As an example, by explicitly stating that all farmers must fence off all waterways, the rule changes, while meeting the requirement of water quality-effective, may not meet the bar of cost-effectiveness (the stock exclusion rule will be discussed in detail in a later section).

### **4.3 Evaluation of the potential options**

*S32 analysis must examine whether the proposed provisions are the most appropriate way of achieving the objectives, to assess other reasonably practicable options, and then determine whether the proposed provision is the most efficient and effective.*

*Effectiveness was determined as the success of the proposed policy in achieving the Plan Change 1 objectives, while efficiency was assessed as to the anticipated costs and benefits of the effects based on economic, social, and cultural impacts.*

*As part of this, the provisions had to be 'Acceptable', with this term being defined by the Provisions'; level of equity and fair distribution of impacts, the level of community acceptance, and the likely political acceptance, with such assessments to reflect the potential scale and significance of the effects of the proposed changes.<sup>40</sup>*

The above is taken directly from the S32 report, and states what the report needed to achieve. However, as already noted in other sections of this submission, the report completely neglected to place values on many of the key economic and social impacts of the proposed rules. Thus it is difficult to see how it could reasonably hope to assess the effectiveness and efficiency of any of the proposed options. Similarly, the report does not address the level of equity or assess the fair distribution of impacts.

*"In order for policy provisions in Plan Change 1 to be a complete package to achieve the objectives, there must be confidence that sufficient information is available now to make decisions."<sup>41</sup>*

The intent of taking a staged approach to water quality improvements recognises there is a need to move forward with some caution in light of gaps in current knowledge. The S32 report acknowledges this is so, but despite the clear paucity of data as to the efficiency and cost-effectiveness that fencing off small streams and drains on steeper hill country will have on water quality outcomes, but clear knowledge that this would be an expensive proposition for many hill country farmers, this is the only hard-and-fast rule that has been selected. Little or no assessment of the viability and effectiveness of other options was considered.

Rules, and any allocation of nutrients, must be based on hard data, and is a key policy of HRWO. The S32 report noted that in order to prepare for the future, information had to be collected and research undertaken to support this allocation, as there currently exists a paucity of hard data on which to base any proposed allocation scheme, or, for that matter, the proposed rules covering the next ten years.

The *Review of historical land use and nitrogen leaching* report, commissioned by the TLG, identified some issues with using OVERSEER to calculate nitrogen leaching. In particular these are: the lack of actual hard data, the limited number of farmlet experiments that can be used to evaluate the model, the limited number of soil types and climatic conditions represented in the model, the relative lack

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<sup>40</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p123.

<sup>41</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p127.

of attenuation methods defined in the model, and the lack of empirical data to reconcile the results of the attenuation methods that are in the model.<sup>42</sup>

In another report commissioned by the TLG that explained the development of the economic modelling that was conducted for Plan Change 1, the authors made the following comment: "It is difficult to identify how farmers will adapt across time to limits placed on contaminant loss from farmland. Indeed, there remains no work in New Zealand addressing how a population of producers can be expected to perform such adaptation. The development of such information, especially based on empirical data, therefore remains a critical research gap... Economic theory broadly postulates that people act according to a rule of perfect rationality: the alternative outcomes that they face are known with certainty and they select that action with the highest payoff. In reality, humans have limited cognitive abilities and uncertainty complicates a decision maker's assessment of relative options."<sup>43</sup>

The S32 analysis identified these issues, yet failed to outline the programme of work involved that would be required over the next ten years to fill in these holes, and the costs associated with this work. This oversight needs to be corrected as quickly as possible, firstly to enable a more accurate picture of costs associated with the proposed rule change, secondly to assess how impacted parties will respond to the potentially massive change thrust upon them, and thirdly to assure all stakeholders that any resulting allocation scheme will be based on fact-based information. It is only with such information on board that realistic assessments can be made and rules formatted that will achieve the desired outcomes at least cost to individuals and communities.

As another report noted: "Baseline loads of each contaminant vary by sub-catchment and FMU [Freshwater Management Unit]. Cost-effective mitigation relies on implementing diverse mitigation strategies to differing degrees for different contaminants across space."<sup>44</sup> Until we understand the scale and scope of the problem at a sub-catchment level, we cannot use a one-size-fits-all rules approach, because differing catchments have different needs, and differing mitigations will work differently in different catchments. We must first gather the information, understand what the problem is, then implement strategies that offer the most cost-effective mitigation in each sub-catchment.

#### **4.4 Effectiveness of rules**

The mitigation costs that will be incurred by individuals are inequitable when one considers the likely impact these will potentially have on contaminant loads. Average sheep and beef farms are much larger than average dairy properties, so the costs of mitigation will be subsequently larger. However, less intensive farming practices, and less polluting stock classes such as sheep mean in

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<sup>42</sup> *Review of historical land use and nitrogen leaching...* p33.

<sup>43</sup> *General principles underlying the development of the Healthy Rivers Wai Ora (HRWO) economic model*, Healthy Rivers Wai Ora Report No. HR/TLG/2016-2016/4.7, 23 February 2016, p5.

<sup>44</sup> *Evaluation of scenarios for water-quality improvement in the Waikato and Waipa River catchments*, p57.

general less discharges of contaminants from these properties overall. The amount of contaminant reduction possible is less, but the costs of applying mitigation techniques is higher, so on sheep and beef farms a much higher cost per unit of contaminant reduced will apply. How is this equitable?

There will not be an equivalent level of effort undertaken to reduce contaminant loads. In reference to nitrogen reductions, the S32 analysis says: “this principle of proportionality is evident in the policy requiring reductions to be commensurate to the current degree of discharge (that is, those discharging more must make greater reductions).”<sup>45</sup> But the rules are not set out in a manner that encourages proportionality. It comes back to economic effectiveness. Spending \$1000 to achieve a 1kg reduction in sediment loading on one farm makes no sense if the same thing can be achieved for \$10 down the road. This should be the driver for deciding on the policy mix.

Equally as bad, those farmers that have already put in place mitigations against nitrogen loss on their properties are at a clear disadvantage under the proposed rules if sub-catchment limits based on land suitability determine that the emission limits are higher than their Nitrogen Reference Point (NRP). Again, nowhere is there any certainty for farmers that if they spend potentially large sums of money on effective mitigation (or have already spent money) that this will be taken into account.

Under the NRP regulations as they stand, a farmer that already has mitigation in place will effectively be unable to do anything more to intensify their operations – they must keep to their NRP, and this NRP will likely be lower than other farmers without mitigation. This is in direct contrast to those farmers with no mitigations in place. These farmers, whom will start with higher NRPs (all other things being equal) will potentially be able to further intensify their operations so long as they also put mitigations in place at the same time to manage the extra contaminants. So the farmers that have proactively tried to improve their environmental footprint will be effectively discriminated against.

Having a rule stating farmers must first calculate their NRP and then keep to that NRP over the next ten years is neither proportional nor equitable when we look at where that nitrogen is coming from. Nitrogen leaching losses from dairy land have increased 240 percent since 1972, due both to an increase in the amount of dairying land, and a more than doubling of the N leached per hectare on dairy land. To put this into perspective, the amount of N leached from non-dairy pastoral use only increased by 4% since 1972 (this includes horticulture and commercial vegetable production).<sup>46</sup> A truly proportional system would simply calculate the amount of nitrogen being lost, and then allocate this on a per hectare basis amongst all landowners up until 2026 when it is proposed the new allocation regime will come into force.

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<sup>45</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p164.

<sup>46</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p59.

S32 analysis continually refers to undertaking a tailored approach, noting that doing so is risk-responsive and more cost-effective than requiring everyone to carry out the same actions, regardless of relevance or effectiveness, and this is the rationale used for all farms to operate under a Farm Environment Plan or similar<sup>47</sup>. However in the same breath they then go on and say that stock exclusion must be undertaken, with this requirement to be met across all landowners irrespective of different cost. This does not meet the economic efficiency guidelines, nor may it be as cost-effective as other options.

**The wider community must understand the true costs and benefits of the trade-offs involved in this Plan Change. The development of data and information that allows people to understand these trade-offs is the true intent of Section 32 of the RMA. The only conclusion that can therefore be made is that the WRC has not yet completed its statutory requirements under the RMA.**

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<sup>47</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p169.

## 5.0 Analysis of policies of Plan Change 1

*“The proposed plan change sets out an 80 year timeframe for the Waikato and Waipa rivers and their tributaries to be swimmable and safe for food collection along their entire lengths, and in doing so, achieving the requirements of the Vision and Strategy/Te Ture Whaimana, the primary direction setting document for the rivers. In achieving this outcome, it sets a higher bar than the National Policy Statement for Freshwater Management 2014’s requirement of wadeable water bodies.”<sup>48</sup>*

The goal of the initial 10 years is: *“Preparing for future requirements on what can be undertaken on the land, with limits ensuring that the management of land use and activities is closely aligned with the biophysical capabilities of the land, the spatial location, and the likely effects of discharges on the lakes, rivers and wetlands in the catchment....[and] to put in place and implement the range of actions in a 10 year period that will be required to achieve 10 percent of the required change”<sup>49</sup>*

*“The 80 year timeframe recognises the ‘innovation gap’ that means full achievement of water quality requires technologies or practices that are not yet available or economically feasible. In addition, the current understanding is that achieving water quality restoration requires a considerable amount of land to be changed from land uses with moderate and high intensity of discharges to land use with lower discharges.”<sup>50</sup>*

Plan Change 1 developed a series of policies that the WRC wishes to achieve, and used these as the justification for which the actual rule changes were developed. Some of these policies in and of themselves need examining in light of the chosen rules contained in Chapter 3.11 of the Regional Plan.

### 5.1.1 Policy 2

Policy 2 is to take a tailored approach to reducing diffuse discharges from farming activities, defining the mitigation actions on the land via Farm Environment Plans, and requires the degree of reduction in diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens to be proportionate to the amount of current discharge, and proportionate to the scale of water quality improvement required in the sub-catchment, and requiring stock exclusion to be completed by no later than July 2026, and in many cases earlier.<sup>51</sup>

This policy actively discriminates against those that have already put mitigation actions in place on their own properties. Farm owners that have most or all of the mitigation actions in place would be expected to have lower levels of diffuse discharges in comparison with those owners that have not, yet are still being asked to further reduce discharge levels, in proportion to their current level of discharge. For those landowners that have already completed a high level of mitigation already, it

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<sup>48</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments*, Waikato Regional Council Policy Series 2016/xx, 12 September 2016, p2.

<sup>49</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments*, p10.

<sup>50</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments*, p11.

<sup>51</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments*, p22.

may not even be possible to further reduce discharges given current technologies. For this policy to be equitable and fair, the degree of reduction required in each sub-catchment should instead be based on the average reduction required only, not what individual farmers have, or have not, done to reduce discharges.

Requiring stock exclusion from all waterways by 2026 runs completely counter to the idea of a tailored approach to reducing diffuse discharges. This is largely because, particularly for extensive sheep and beef properties, usually those that contain significant changes in elevation and slope, stock exclusion may not be the most cost-effective mitigation. Stock exclusion runs counter to the idea of taking a tailored, cost effective approach because it demands one mitigation option only.

### 5.1.2 Policy 7

Policy 7 is to prepare for nutrient allocation in the future. "To ensure this occurs, collect information and undertake research to support this, including collecting information about current discharges, developing appropriate modelling tools to estimate contaminant discharges, and researching the spatial variability of land use and contaminant losses and the effect of contaminant discharges in different parts of the catchment that will assist in defining 'land suitability'.<sup>52</sup>

We support this Policy as it stands, but believe a comprehensive plan to achieve this, including expected costs, should have been a part of the Plan Change 1 information. We are unaware as to whether a programme has even been developed about this, along with the implications for individual farm owners and ratepayers.

### 5.1.3 Policies 11, 12, and 13

These three policies are all to do with point source dischargers. By way of comparison with agriculture, point sources are estimated to contribute about 7 per cent of the nitrogen and 18 per cent of the phosphorus,<sup>53</sup> but only 2% of the entire catchment is considered as urban. Thus on a per hectare basis, right now urban environments produce approximately 350% more nitrogen, and 900% more phosphorus than the average hectare of farmland, to say nothing of heavy metals, sediment, *E.coli*, and other pollutants. Indeed, one of the most heavily polluted lakes in the entire catchment, Lake Rotoroa, is located in the centre of Hamilton.

Policy 11 talks of point sources applying the best practicable option and mitigation, and if this not possible to be able to offset their effects either within the same subcatchment, or FMU.

Policy 12 discusses additional considerations for point source discharges in relation to water quality targets, and suggests that when these are being looked at by WRC staff, the consenting process

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<sup>52</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments*, p24.

<sup>53</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p60.

should take into account past upgrades undertaken to reduce discharges, to take into account the ability to stage future mitigation options to allow investment costs to be spread over time, and the diminishing return on investment when processes are already achieving a high level of contaminant reduction.<sup>54</sup>

Policy 13 talks about consents lasting for a minimum of 25 years for point source discharges where the applicant demonstrates the approaches in Policies 11 & 12 will be met, and WRC to also consider the magnitude and significance of the investment being made, and the need for the WRC to provide appropriate certainty of investment where contaminant reduction measures are proposed.

Our issues with these three policies revolve around the issue of equality, and the fact that the proposed rules will treat point sources and diffuse sources differently.

Policy 11 suggests point source dischargers should apply the best practicable option, and if this is not possible or considered too expensive, then they are able to use off-sets so long as these are within the same sub-catchment or FMU. The idea of using off-sets is a good one, as it allows increased flexibility to a discharger. Should a discharger believe that a mitigation is not the best practicable option, and that they can achieve the same discharge reduction by undertaking action in another part of a sub-catchment, then they should be able to do so. We believe that diffuse dischargers should have the same option. Not to do so is inequitable.

Policy 12 is all about taking into account the past actions of point source dischargers that have reduced discharges, to allow them to stage their mitigations over time, and the additional expense involved when a certain level of mitigation has already been done. Again, we believe the same principles should be applied to diffuse dischargers. This should mean when consents (for which read nutrient discharge limits) are issued to farmers, these should account for mitigation that has already been ("past upgrades"), they should have ability to spread investment over time, and increased cost of mitigation if farmers have already done some.

The S32 analysis noted: "For 95<sup>th</sup> percentile *E.coli* 12 out of 61 sites currently met Scenario 1 and this doubles to 25 sites with implementation of the policy mix, whilst for clarity 3 out of 58 sites currently meet Scenario 1 and this increases 15-fold to 44 sites with implementation of the policy mix. The responsiveness of these contaminants to the policy mix reflects the efficacy of mitigations associated with stream fencing, soil conservation, and bunds and wetlands."<sup>55</sup>

So we see a 100% improvement for *E.coli*, and a 1500% improvement in water clarity – acknowledged by the WRC as the key issues for sheep and beef farmers – when the named mitigations were used. The rules, and the consenting process, should recognise those farmers that

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<sup>54</sup> Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments, p25.

<sup>55</sup> Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016, p72.

have proactively applied some or all of these mitigations. However, under the proposed rules these farmers are being discriminated against in favour of high polluters, and will continue to be so at least until 2026.

Policy 13 again should be applied to diffuse dischargers as well. One of the shortcomings of the proposed rule structure under Plan Change one is that those farmers that will be required to get a consent to farm have no idea how long this consent will be for. Farmers, and other investors in agriculture, also require certainty of investment where contaminant reduction measures are proposed. The fact that this policy is being used in one sector, and not another, is inequitable.

## 6.0 How to allocate nutrients beyond 2026

The S32 Evaluation Report produced by the WRC did discuss, in general terms, how allowable nutrient discharges would be allocated post-2026, and what the Council would be required to do in the meantime: "In order to prepare for allocation based on land suitability, two types of information will need to be gathered – land management information, in terms of both land use practices (such as, fertiliser use, stocking rate) and mitigations that have been implemented, and information on the effect on water quality of these land use practices."<sup>56</sup> This information must be collected both at an individual farm level, sub-catchment and catchment level in order to properly inform both the models, and the allocation that will occur from 2026.

"The judgement has been made that further work is needed to set allocation limits from land using an allocation framework that is not derived from current discharges, but is based instead on land suitability. This includes collecting data at a property level to establish catchment loads, and developing knowledge of the land's ability to assimilate contaminants that is spatially specific enough to support property-level limits."<sup>57</sup>

### 6.1 Our preferred option

We do not agree with the plan to base nutrient limits at a sub-catchment level. Rather, we prefer a catchment-wide cap and trade system, that includes every hectare of land in the catchment. Note that it is our intent here to offer a potential method of allocation that hopefully will stimulate reasoned debate about the merits of various allocation schemes. Our goal is to allow consensus to form well ahead of the next Plan Change that will then decide the actual allocation scheme that will be implemented. This then allows all stakeholders to begin preparation for the allocation scheme hopefully well in advance of its actual implementation, an outcome that we believe will improve water quality faster than that required.

Our reasons for preferring a catchment-wide cap and trade allocation scheme is that we believe this is the only way that efficient outcomes will be delivered. Regardless of activity - be this an urban environment, farm, forestry block, or native bush – all these activities have some level of nutrient discharge. All this must be accounted for, and should then be aggregated to determine the current 'bucket' of nutrient discharge. From this a per hectare discharge allowance can be calculated.

In order to meet 25%, or 50%, or 100% of the goals of HRWO, the level of the bucket needs to drop – and the 80-year timeframe of HRWO means it is likely the bucket level will go down in predetermined steps. Say the first step is a 25% reduction, so the level in the bucket drops 25%. This mean that the per hectare discharge allowance drops 25%. This becomes the nutrient discharge limit that all within the catchment must keep to.

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<sup>56</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p129.

<sup>57</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p133.

If your discharge allowance is lower than this level, then you have choices; you can increase the intensity of your activity, or change your activity, till you reach the limit; you can keep doing what you are doing and sell or lease the surplus; you can do a combination of the two; you could sit on your hands and do nothing. If your allowance is higher than this level, you too have choices; decrease the intensity of your activity; change your activity; invest in mitigation that reduces your discharge; buy or lease some allowance; or any combination of these.

The beauty of such a system is its economic efficiency. Individual enterprises will be able to make decisions based on what they conclude offers the best economic sense. For example, say the Hamilton City Council is 1000kgs over its allowance for nitrogen discharge from its sewerage treatment plant. Their choice is whether they should invest in upgrades to the plant that remove this nitrogen, or whether it would be cheaper to purchase or lease 1000kgs of allowance from other parties, or whether it would be cheaper to invest in mitigation somewhere else in the catchment that mitigates the 1000kgs, or some combination of this. They will also have in the back of their mind that limits will lower over time, so this will help inform their investment decision. At the same time, other enterprises will be making similar decisions, thus a true economic value for each contaminant will quickly form.

The one area that may be of concern are those sub-catchments, like the Whangamarino sub-catchment, currently labelled as 'high priority'. Under proposed rules, in these sub-catchments individuals are expected to make changes that will reduce their discharges faster. This is neither fair nor equitable to individual enterprises within this sub-catchment when considered against the rest of the wider catchment.

These areas are where the idea of 'value' truly works. We have long held the view, expressed in Section 4 of this submission, that it is impossible to understand the true costs of trade-offs if values are not known. The wider community has expressed its desire for the WRC to move quickly to improve water quality in the Whangamarino sub-catchment. This may mean 1000kgs of nitrogen, and 2000kgs of phosphorus, must be removed from the sub-catchment. All the WRC has to do is purchase this amount from individuals in the sub-catchment, and could then turn around and sell these entitlements in other catchments better able to handle the nutrient discharge. They may make a loss in doing so, but effectively this loss becomes the 'value' of protecting the wetland. If the WRC cannot find enough willing sellers, effectively all this means is that the WRC is unwilling to pay enough – it has determined that the price is simply too high for the benefit that would be achieved.

As an aside, in a catchment-wide system such as this, the WRC, as custodians of all Crown-owned native bush blocks, would presumably be in a position to influence both the price of nutrients, and/or the amount of nutrients entering waterways, far more readily than they are now. Native bush discharges would be well under the average, and thus owners of them would hold tradeable nutrient rights which they could either sell, or hold on to.

One argument against such an allocation scheme is that this means that farming would not be conducted on the basis of land suitability. We are of the view that even without the proposed rules, the vast majority of land is already farmed according to its suitability for the type of activity being conducted on it. Indeed, all a Farm Environment Plan actually tries to achieve is to formally plan what on-farm resources are present, and how best to manage these resources on that farm in a manner that ensures the sustainability of these resources, and thus sustainability of the farm business itself. Any farmer that is not farming in a manner that is suitable for the land quickly finds this leads to higher costs and lower profits (though it is worth noting that farming suitable for the land does not necessarily mean that this activity is suitable for maintaining or improving water quality).

## **6.2 Allocation based on land suitability**

Should the community decide that nutrient limits based on land suitability at a sub-catchment level is the preferred option, clear guidelines will be required from the WRC about what mechanisms will be put in place in ten years time to manage to these limits. Will farmers well under the nutrient limits be able to increase the amount of nutrients they apply and/or the intensity with which they farm? Will they also be able to trade nutrients –will a farmer under the limit be able to sell the excess to another? Knowledge of the framework that will be used sends clear messages to all parties, promotes certainty, and clarifies where investment is best channelled. What follows is a brief discussion about what we believe this allocation framework would look like.

We are of the opinion that the fairest method for allocating nutrient limits is to calculate the sub-catchment-wide amount of discharge that is permissible to achieve the water quality goals, then divide this figure by the hectares in the catchment, regardless of land usage (and this should include point source discharge as well). This becomes the per hectare reference point across the catchment. Stakeholders that are under that reference point then have the option to intensify up to the limit. Those over the limit have the choice either to put in place management or mitigation to reduce their discharges to the new limit, else trading could occur at a catchment level.

As Lake Taupo Variation 5 proved, some form of trading system is the most effective and efficient method of achieving the desired water quality outcomes at the lowest cost. This method requires a robust allocation and accounting system to be put in place, coupled with accurate modelling and measurement, and a willingness from all stakeholders to accept that as models become more accurate, and/or include new forms of mitigation, that the nutrient targets may move over time.

“There are mitigations that could be used by a landowner that are not currently set out in OVERSEER. Recent guidance on the topic (Freeman et al., 2016, Document #6309849 p23), notes that there is a risk that if policy provisions focus solely on the achievement of an OVERSEER threshold, this ignores other methods of reducing nutrient losses that are not currently recognised in

OVERSEER.”<sup>58</sup> The use of OVERSEER to model inputs and outputs is effectively the default model of choice, but WRC must commit to ensuring all potential mitigation options are modelled when they set property-level limits, and that the model is updated with new data as soon as practically possible. Using OVERSEER to calculate limits when this may not include all mitigations means that a farmer may have put in place a mitigation, subsequently increased inputs, and an audit based on OVERSEER would calculate that farmer is in breach of their consent.

Whatever policy approach is selected will place significant costs and restrictions on individual landowners, and significant costs on local communities. However, the Lake Taupo catchment cap-and-trade system showed that the trading system provided useful flexibility for landowners and decreased the cost of achieving the goal of limiting the amount of nitrogen leaving agricultural land. Allowing trading improved the cost-effectiveness of achieving the environmental target.<sup>59</sup>

### 6.3 Allocation principles

Regardless of the final choice of allocation method, we believe the following principles should be signalled in Plan Change 1, to take effect after the initial 10 year information gathering period has ended and new nutrient allocation rules will take effect:

- Any nutrient allocation must not be based on historical nutrient use. That certain farm owners have chosen to practice land management activities that have led to lower nutrient discharges than other owners should not be a reason to allocate these owners lower nutrient limits.
- Those contributing to water quality problems should be required to take responsibility for them in proportion to their nutrient discharges. Those that have managed their land responsibly should not have their land use constrained as a result of the activities of others.
- Land use should remain unconstrained, and land users should retain the flexibility to change land use as required, provided they remain within the allocated limits of nutrient discharge.
- The allocation system used to allocate nutrients, whether at a sub-catchment or catchment-wide level, must be based on accurate data, and be easy to understand, to manage, and to operate.
- Any system of allocation should be reviewed regularly, both as to its effectiveness in achieving desired outcomes, and to allow for new information, techniques, and methods to be incorporated.
- Appropriate timeframes must be set to allow for an orderly transition to a nutrient allocation regime
- Any changes to a nutrient allocation regime must be signalled as far out as possible.
- Auditing of the nutrient allocation regime should be clear, concise, and robust

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<sup>58</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p141.

<sup>59</sup> *Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments: Section 32 Evaluation Report September 2016*, p143.

- At a sub-catchment or FMU level, the ability to transfer nutrient allocations should be used to maximise efficiency of land use
- All enterprises, including commercial vegetable growers and point source dischargers, should be included in a nutrient allocation regime
- Further, we believe that no industry should receive “special” treatment. If we are serious about improving water quality, then no allowances should be made for any particular type of land use – whether this be high discharging point sources, or high discharging diffuse sources.

## Section 7: Plan Change provisions supported or opposed, reasons and decision sought

	Section of Plan Change	Provision and/or page number	Support or Oppose	Decision Sought	Reason for submission
	<b>Background and explanation</b>	Co-management of the Waikato and Waipa Rivers Pg 13	Support with amendments	To quantify what "safe for people to swim in and take food from" actually means in terms of absolute limits of nitrogen, phosphorus, microbial pathogens, and sediment. This is the fundamental goal of this change yet it is not defined other than in words.	What does safe for people to swim in and take food from actually mean? The tables beginning on page 57 note what the short-term and 80-year limits will be, but it is not made clear how these limits were derived, nor how these limits rank on both New Zealand, and international, swimmable and fishable scales. These should be explained if targets and timeframes will be set to achieve these limits. Explaining where these limits come from should be part of the background and explanation.
	<b>Background and explanation</b>	Full achievement of the vision and strategy will be intergenerational Pg 15	Support with amendments	This section includes a note about high, medium, and low discharges. It requires more detail about what these discharges actually are.	If made this statement then what do they consider low, medium and high? What land uses fit into these categories? Does this include urban discharges as well (as it should, given the huge per hectare discharge that emanates from urban environments)?
	<b>Background and explanation</b>	Full achievement of the vision and strategy will be intergenerational Pg 15		Pg15 bullet point beginning "stock exclusion..." should be re-written "stock exclusion from all water <u>bodies of less than 15 degrees slope</u> as a priority mitigation action, <u>with alternative mitigations put in place elsewhere where this is a more efficacious solution.</u> "	Pg 15 bullet point needs amending to line up with the NPSFM, and to account for the fact that stock exclusion may not be practicable in all situations, nor for that matter the most effective option available.

Section of Plan Change	Provision and/or page number	Support or Oppose	Decision Sought	Reason for submission
3.11.2 Objectives	Objective 1	Support		
3.11.2 Objectives	Objective 2	Support		
3.11.2 Objectives	Objective 3	Support with amendments	Needs to include a statement that notes that many water quality target locations already meet some (or all) of the 80-year targets, as noted in Table 3.11-1.	As much as we need to improve water quality in many sub-catchments, in some areas water quality is already at very high levels. This should be noted.
3.11.2 Objectives	Objective 4	Support		
3.11.2 Objectives	Objective 5	Support		
3.11.2 Objectives	Objective 6	Support		
3.11.2 Objectives	Reasons for adopting Objective 1	Support		
3.11.2 Objectives	Reasons for adopting Objective 2	Support with amendments	The WRC must explain how restoration and protection of water quality will continue to support communities and the economy	The WRC has not described how they plan to minimise disruption when the modelling of the full social and economic costs of the proposal have yet to be completed, as discussed in Section 3 of this submission.
3.11.2 Objectives	Reasons for adopting Objective 3	Support with amendments	<del>Point source discharges are currently managed through existing resource consents, and further action required to improve the quality of these discharges will occur on a case-by-case basis at the time of consent renewal, guided by the targets and limits set in Objective 1.</del>	Remove sentence that refers to point source discharges. Point source discharges are managed through existing resource consents, which is exactly how the Plan Change proposes to manage sheep and beef farms. It would therefore be inequitable to note that point source discharges will be handled in a manner any differently to these farms.
3.11.2 Objectives	Reasons for adopting Objective 4	Support with amendments	This section notes that land use type or intensity at July 2016 will not be the basis for any future allocation of property-level contaminant	This section acknowledges that in order to maintain the social, cultural and economic wellbeing of communities during the 80-year journey, the first stage must ensure that overall costs to people can be

			<p>discharges. It should go on and state what the basis for any future allocation will be, and the probable framework that will be used for this allocation.</p>	<p>sustained.</p> <p>This submission has argued that this area – overall costs to the community - is a major omission from the background information that informs the proposed rules. This omission we consider serious enough as to warrant putting the proposed change on hold until such point as these costs have been quantified. We believe this represents a fundamental breach of the requirements of S32 of the RMA.</p> <p>It also notes that Chapter 3.11 sets out the framework for collecting the required information so that the most appropriate approach can be identified, but does not identify the most likely allocation framework. Failure to do so provides uncertainty and should be corrected.</p> <p>It notes that the goal of the objective is to minimise social disruption while encouraging preparation for possible future requirements. We fail to see how, by not providing any of the above detail, this allows anyone to prepare for the future. Giving stakeholders as clear a picture as possible of what the future will hold is a necessary requirement for them to begin putting in place actions that will mean they are prepared.</p>
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Section of Plan Change	Provision and/or page number	Support or Oppose	Decision Sought	Reason for submission
Policies	Policy 1	Support with	Amend Policy 1 to include point	More detail is required to not how this management of

	Manage diffuse discharges of nitrogen, phosphorus, sediment and microbial pathogens	amendments	<p>source discharges</p> <p>Amend first sentence to read: "Manage and, <u>where necessary</u>, require reductions in...."</p> <p>Amend point (b) to cover off what actually constitutes moderate to high levels</p> <p>Amend part (c) to read: "Progressively excluding cattle, horses, deer and pigs from <del>rivers, streams, drains, wetlands, and lakes</del> all waterbodies more than 1m wide that hold water year round" (or any other definition that provides better clarity as to what actually constitutes a waterbody)</p> <p>Add a part (d) detailing how contaminants will be measured.</p>	<p>sub-catchment discharges will be conducted - It is confusing as to whether they are measuring sub catchment outputs or actual values in water FMU's. Will the WRC model sub catchments?</p> <p>While additional detail is better placed elsewhere, the WRC should also provide a high level of detail as to what actually constitutes a high, medium, or low level of discharge. The proposed rules do not appear to be based on anything other than size of property, stocking rate, and slope. Policy 1(a) says that activities with low discharge levels will be enabled, and many sheep and beef farms may fit into this category, yet under the proposed rules if they are over 20ha and/or run more than 6su/ha, will be required to get a resource consent to farm. If these properties have discharge levels under a certain amount (i.e. are at a low level of discharge), they should not be required to do so, so long as those discharges do not increase.</p>
<b>Policies</b>	Policy 2	Support with amendments	<p>Amend point 2a. to remove the words 'that will reduce' to the word 'for'</p> <p>Amend point 2d. to include, 'and proportionate to the average on-farm discharge in the sub-catchment.'</p> <p>Delete point (e), else re-write to say: "Requiring stock exclusion, <u>or</u></p>	<p>Point (d): This point actively discriminates against those farmers that already have conducted on-farm mitigation. These farmers would be expected to have much lower levels of discharge already, but are being required to further reduce discharges. Insisting they further reduce their diffuse discharges in proportion to both their current discharge and the scale of water quality improvement in the sub-catchment ignores the fact that their discharges may be well under the limits required to achieve these desired water quality improvements. Instead, proportionality should be</p>

			<u>acceptable alternative mitigation</u> , to be completed.....”	based on average per hectare discharge reductions required. This also means that like land will be treated alike.  Point (e): This point should be removed or amended, as it not only runs contrary to the idea of taking a tailored approach to mitigation actions, but is also contrary to NPSFW. On steeper farms in particular, stock exclusion may not be the most appropriate or effective mitigation
<b>Policies</b>	Policy 3	Support		
<b>Policies</b>	Policy 4	Support		
<b>Policies</b>	Policy 5	Support		
<b>Policies</b>	Policy 6	Support with amendments	Remove the 2 <sup>nd</sup> sentence, that begins: “Land use change consent applications that demonstrate clear and enduring decreases in existing...”	Land use change should remain possible in this information-gathering phase until 2026, so long as it does not increase diffuse discharges of contaminants. As long as the land use change can demonstrate it will keep to, or under, its NRP, it should be able to go ahead.  As the policy already notes, land use change that will lead to an increase in discharge will not generally be granted. Preventing land use change (so long as a cap is kept on discharge), runs counter to Objective 4, which seeks to encourage preparation for future requirements.
<b>Policies</b>	Policy 7	Support with amendments	Amend 1 <sup>st</sup> sentence of Policy 7, by removing ‘that will be required by subsequent regional plans’, and replacing with ‘ <u>that may be required by subsequent regional plans to meet defined water quality objectives,</u> ’	Policy 7 should have been linked back to a comprehensive plan designed to achieve this Policy, and a plan to identify and fill information gaps should have been outlined in the Plan Change 1 supporting information. We are unaware of any such plans, or that the Council is aware where information gaps lie, except in the most general terms.

				<p>The WRC, in conjunction with technical and industry groups, should have committed itself to courses of actions it deemed necessary to fill the significant holes outlined in this submission.</p> <p>We agree with the idea that like land should be treated same way, but we submit that this idea should have informed all of the proposed rules under this Plan Change, not just any future Plan Change.</p> <p>Again, Part(c) refers to minimising disruption and costs. The WRC has a clear hole in its dataset to enable it to make this determination.</p>
<b>Policies</b>	<b>Policy 8</b>	<b>Support</b>	<b>75<sup>th</sup> percentile leaching value</b>	<p>The definition of the 75<sup>th</sup> percentile leaching value in the Glossary of Terms only refers to dairy farms. We believe this is inequitable, and against the idea of treating like land as like. All enterprises, including commercial vegetable growers, and point source dischargers, should be included in the calculation of what constitutes the 75<sup>th</sup> percentile leaching value.</p> <p>Further, we believe that no industry should receive “special” treatment. If we are serious about improving water quality, then no allowances should be made for any particular type of land use – whether this be high discharging point sources, or high discharging diffuse sources.</p> <p>If the wider community values high quality water, and one of the consequences of rules required to achieve this is that additional investment is required in</p>

				<p>stormwater or sewerage treatment that costs ratepayers much more, or that the production of vegetables, meat, or indeed any other product is compromised in some way forcing up prices, or that a particular sector or sectors will see job losses, then this is simply the cost to achieve our community goals.</p> <p>What is important is that the wider community understand the true cost of these trade-offs. The development of data and information that allows people to understand these trade-offs is the true intent of Section 32 of the RMA. The WRC has failed thus far in this Plan Change to develop information required to allow the community to understand the true costs of this trade-off.</p>
<b>Policies</b>	Policy 9	Support	Add part (e), detailing how this will be measured.	This is a great policy, allowing flexibility, innovation, and the ability for landowner groups to work together to achieve good outcomes. Our question is, do the proposed rules and methods, not forgetting OVERSEER modelling, give effect to such a policy? If they do not, then they need to be re-written, along with how these outcomes will be measured, before they can be apportioned. How will this be accounted for, given the current version of OVERSEER is incapable of doing so?
<b>Policies</b>	Policy 10	Oppose	This Policy should be deleted in its entirety	This Policy suggests point source discharges will be treated differently to diffuse discharges. As we have discussed, all dischargers should be treated in a like manner. Policies 11, 12, and 13 deal with how point source discharges will be treated. There is no need for Policy 10. And as was discussed in Policy 8, no industry or sector should receive "special" treatment.
<b>Policies</b>	Policy 11	Support with amendments	Policy 11 should read: "Application of Best Practicable Option and	The ability to offset discharges within the same sub-catchment or FMU is an option that should also apply

			mitigation or offset of effects to <u>diffuse and point source discharges</u> ".  The remainder of the policy should be re-worded to the same effect.	to diffuse discharges. This improves flexibility and equity, and ensures cost-effective mitigation for all, not just point source discharges.
<b>Policies</b>	Policy 12	Support with amendments	Policy 12 should read: "Additional considerations for diffuse and point source discharges in relation to water quality targets"  The remainder of the policy should be re-worded to the same effect.  Part (d) remove the words "treatment plant" in the two instances these words occur in this Part.	Again, the intent here is to provide fairness across the catchment. Diffuse discharges should be treated in the same manner. Why should a consent given to point sources be required to take into account past upgrades, the ability to allow a point source to spread investment over many years, and that further upgrades face a diminishing return on investment when diffuse dischargers do not have these things taken into account? This is particularly so when one considers that the average point source contributes more than 300% of the nitrogen and 900% of the phosphorus than pastoral land contributes to contaminant loads, when measured on a per hectare basis.
<b>Policies</b>	Policy 13	Support with amendments	Policy 13 should read: "Diffuse and point sources consent duration"  Part (c): delete: "(including investment in treatment plant upgrades or land based application technology)"	Where consented, diffuse discharges should be entitled to the same certainty as point source discharges, including consent term, certainty of investment, and magnitude and significance of investments made or proposed and their impact on water quality.
<b>Policies</b>	Policy 14	Support		
<b>Policies</b>	Policy 15	Support		
<b>Policies</b>	Policy 16	Support		

Section of Plan Change	Provision and/or page number	Support or Oppose	Decision Sought	Reason for submission
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<b>Implementation Methods</b>	3.11.4.1	Support		
<b>Implementation Methods</b>	3.11.4.2	Support		
<b>Implementation Methods</b>	3.11.4.3	Support	Waikato Regional Council will take a risk based approach to monitoring Farm Environment Plans, starting with more frequent monitoring and then moving to monitoring based on risk assessment. Robust third party audit (independent of the farmer and Certified Farm Environment Planner) and monitoring will be required.	While we recognise individual landowners will have to pay for the production of their Farm Environment Plan, the Council has not clearly signalled who will be responsible for monitoring, compliance, and auditing of these plans. This should be included as this process will cost into the millions of dollars per year. Again, it is about giving the community the information it requires to make an informed decision about trade-offs.
<b>Implementation Methods</b>	3.11.4.4	Support		
<b>Implementation Methods</b>	3.11.4.5	Support the intent, but this method requires a lot more detail	Explanation needed about sub-catchment scale plans “where it is shown to be required”. Who assesses the need for it and what determines this requirement? Who is responsible for funding and allocating costs? What if a landowner wishes to opt-out of such a plan? How will the reduction in discharge be determined, and apportioned?	While we believe this method builds on the idea that edge of field mitigation allows flexibility, innovation, and for stakeholders to work together and achieve potentially significantly better outcomes than going it alone, the devil is in the detail, and nowhere near enough detail is contained in the Plan Change.
<b>Implementation Methods</b>	3.11.4.6	Support		How much will this cost and how will it be funded?

<p><b>Implementation Methods</b></p>	<p>3.11.4.7</p>	<p>Support with amendments</p>	<p>Add a new part iv): Potential new mitigation tools and technologies.</p> <p>Add a new part v): Partner with OVERSEER owners to ensure all current mitigation technologies are modelled, and where this is not possible because of a lack of actual data, partner with other Regional Councils/science providers to ensure this research is conducted.</p>	<p>Of all the Implementation Methods, arguably this is the most important, and we are disappointed that the process of gathering information and commissioning appropriate scientific research to inform any future framework has thus far not been done – or, at least, nowhere in the supporting information is it stated where the information gaps lie, and how these gaps will be addressed. We go into this Plan Change 1 with a much more muddled picture than we otherwise should have.</p>
<p><b>Implementation Methods</b></p>	<p>Methods 3.11.4.8</p>	<p>Support with amendments</p>	<p>Add a new part c): Part c) should outline a proposed allocation framework</p>	<p>We support this amendment with the codicil that the amendments we propose in 3.11.4.7 are inserted into the Plan.</p> <p>However we would also suggest that if an allocation framework has been decided then why has it not been outlined in this Plan Change? There is obviously clear intent to do so, and the WRC has experience with Lake Taupo Variation 5 to understand what works or does work, so arguably an allocation framework should have been proposed.</p> <p>By outlining a proposed allocation framework, in effect the WRC would be putting up a ‘straw man’, allowing stakeholders time before 2026 to have a robust debate about its pros and cons, to suggest and agree on what the framework would actually be, which would then have allowed individuals to begin preparing, years in advance, for what will be put in place. The absolute limits or allocations don’t matter at this stage. What</p>

				does is the form the allocation will take.
	Methods 3.11.4.9	Support		
	Methods 3.11.4.10	Support		
<b>Implementation Methods</b>	Methods 3.11.4.11	Support with amendments	Amend part b): "Research and identify methods to measure <u>actual</u> actions, and <u>implement these methods</u> at a sub-catchment, ...."	b. The more measurements we can make on actual data the better. Obviously this carries some expense, but the Council should be trying to ensure its modelling is made more accurate by the use of actual data. b. would suggest that there aren't currently available good methods to measure actions and their contribution to the reduction of discharge contaminants so how can it then be monitored in 3.11.4.10 d.?
	Methods 3.11.4.12	Support		

Section of Plan Change	Provision and/or page number	Support or Oppose	Decision Sought	Reason for submission
<b>Rules</b>	3.11.5.1	Support		
<b>Rules</b>	3.11.5.2	Support		
<b>Rules</b>	3.11.5.3	Support		
<b>Rules</b>	3.11.5.4	Support with amendments	5a. refers to "dates specified in I-III below below", but these dates are not included. Earlier versions had dates of I=1 July 2020, II= 1 July 2023, III = 1 July 2026. These dates should be re-inserted in this rule. 5d. Delete: "Cattle, horses, deer and pigs are excluded from water bodies in conformance with Schedule C." and replace with: "The consent holder	5a. We believe the lack of dates is a simple oversight in the latest amendment to the Proposed Waikato Regional Plan Change 1 document. The dates contained in prior document #8783431 should be used. 5d. Stock exclusion may not be the most appropriate or effective mitigation on some farms. Where it is not, other mitigations will be specified in the Farm Environment Plan. Making

			<p>performing the mitigation activities identified in the Farm Environment Plan within the timeframes set out in the Farm Environment Plan.”</p> <p><b>Matters of Control:</b> The latest version of Proposed Waikato Regional Plan Change 1 has removed the <u>Matters of Control</u> section. We believe this decision is appropriate. Should it be reinstated, the following amendments should be made:</p> <p>Section i: keep as written  Section ii: delete this section  Section iii: keep as written  Section iv: keep as written  Section v: the term of the resource consent must be specified, not left to WRC discretion.  Section vi: should be deleted, and replaced with “The monitoring, record keeping, reporting and information provision requirements for the holder of the resource consent will be specified in the resource consent.”  Section vii: delete this section  Section viii: delete this section</p> <p><b><u>Dates</u> and <u>Notification:</u></b> The latest version of Proposed Waikato Regional Plan Change 1 has removed these two sections. These should be re-inserted with no change.</p>	<p>the change to 5d would also bring WRC policy into line with the NPSFM.</p> <p><b><u>Matters of Control:</u></b> Should this Section of the Rule be reinstated, it needs a complete re-write to bring it into line with Rule 3.11.5.3. If this is not done, the Rule would otherwise be inequitable, with those farmers requiring resource consent at a disadvantage from those operating under a Certified Industry Scheme. The key issue here is as originally written, these Matters of Control effectively create uncertainty as the Rule would allow the WRC to change any part of the consent at any time, and require any mitigation to be done at any time. To allow effective investment decisions to be made, farmers must operate with as much certainty about their operating environment as possible. This includes the term of their resource consent, contained within which are actions and timeframes they will be required to follow. These certainties will be granted to point source discharges, but as Rule 3.11.5.4 is written, such certainties are not being granted to diffuse discharges.</p>
	3.11.5.5	Support		
	3.11.5.6	Support		
	3.11.5.7	Support		

Section of Plan Change	Provision and/or page number	Support or Oppose	Decision Sought	Reason for submission
Schedules	Schedule A Registration with Waikato Regional Council	Support with amendments	Amend 1 to the following: Registration must occur between 1 September 2018 and 31 March <del>2019</del> 2020.	We do not believe the timeframes are long enough to allow all properties over 2 hectares to comply with this. Also, such a timeframe allows this Schedule to be in line with the timeframe amendment we suggest in Schedule B below. Most landowners will collect the information required in Schedule A at the same time as they calculate their Nitrogen Reference Point, as set out in Schedule B. It makes sense to have these align.
Schedules	Schedule B Nitrogen Reference Point	Support with amendments	c. The Nitrogen Reference Point must be calculated using the <del>current</del> most up-to-date version of the OVERSEER <sup>®</sup> Model (or any other model approved by the Chief Executive of the Waikato Regional Council). Should a newer version of OVERSEER become available, the Waikato Regional Council must use this version to recalculate the Nitrogen Reference Point for all affected parties prior to any change in the	c. Use of the current model does not allow for changes to the versions of OVERSEER in the future. Healthy Rivers reports have already noted that not all mitigation is modelled in the current OVERSEER model, as well as admitting that there are large holes in current data around how, and how much, contaminants move from farms and into waterways. Over time these holes will be filled in, and OVERSEER updated. This potentially will materially impact on NRPs and water quality outcomes, thus must be accounted for.  e. We do not believe that there will be the time or available certified personnel to complete all

			<p>Regional Plan. Affected parties may provide a new NRP, calculated from the latest OVERSEER version, to the WRC at any time.</p> <p>c. The Nitrogen Reference Point and the Nitrogen Reference Point data must be provided to Waikato Regional Council within the period 1 September 2018 to <del>31 March 2019</del> 31 March 2020.</p> <p>g. Needs to be amended as follows: “The following records (where relevant to the land use undertaken on the property or enterprise), <u>from which the Nitrogen Reference Point has been calculated,</u> must be retained <u>until 1 July 2022,</u> and provided to the Waikato Regional Council at its request.</p> <p>g) iii: needs to be rewritten to include invoices from contractors that have applied fertiliser to the land, so long as these specify fertiliser type and tonnages applied, and the property where these were applied</p> <p>Part (g) also requires a new part viii: “Invoices containing details of numbers and ages of animals grazed on the property on behalf of another owner(s).</p>	<p>the properties or enterprise required by March 31<sup>st</sup> 2019. Just pulling together the records required for our farming property requires a significant amount of time and we have already begun this process. Meanwhile the WRC has yet to list those persons they believe are qualified to complete the NRP.</p> <p>g. This section needs clarity around what records need to be kept, and for how long an owner needs to keep them. As this section is part of the wider Section on calculating the Nitrogen Reference point, we believe the part refers to the records used to calculate this point, and the end date for retention of these records simply reflects common accounting practice of keeping such records for 7 years.</p> <p>g) iii: some farmers may use contractors to both purchase and apply fertiliser on their behalf (we ourselves are in this category). Thus in calculating the Nitrogen Reference Point farmers must be able to use records supplied from such contractors.</p> <p>g) viii: This is a clear oversight of this section. Many farmers graze animals on behalf of other owners. Calculation of an accurate Nitrogen Reference Point necessarily needs to include such animals.</p>
<b>Schedules</b>	Schedule C Stock Exclusion	Support with amendments	3. Needs amending to say: Livestock, <u>with the exception of sheep and goats</u>	Stock exclusion should not reference sheep and goats, as these animals are accepted as having

			<p>must not be permitted to enter onto or pass across the bed of a water body, except when using a livestock crossing structure, <u>or as provided for by Exclusion III.</u></p> <p>iii. Needs amending to say: Any wetland, including a constructed wetland. <u>For the purposes of this section, a natural spring that forms a wet, swampy area as it runs down a hill, and that dries out in summer is not considered a wetland.</u></p> <p>Needs a new Exclusion III: "Where another mitigation option has been specified in the Farm Environment Plan that is designed to mitigate against the impact of stock in water bodies."</p>	<p>little impact on water bodies.</p> <p>The definition of a wetland needs refining in some way to account for springs that create ephemeral swamps or wetlands, just as rivers and drains have this accounted for.</p> <p>The new exclusion III needs to be inserted to line up with Schedule 1 Part (2), where alternative mitigations, other than livestock exclusion, are provided for.</p>
<b>Schedules</b>	Schedule 1 – Requirements for Farm Environment Plans	Support with amendments	<p>Section 2(a) needs to be amended as follows: "<u>Except as otherwise provided for in part (ii) below</u> a description of where and how stock shall be excluded from water bodies for stock exclusion including:</p> <p>Section 2(a)(ii) needs deleting, and new sentence that says: "for areas with a slope exceeding 15 degrees where stock will not be excluded from water bodies, the provision of alternative mitigation measures"</p>	<p>The reasons for these amendments is to line up with Schedule C Stock Exclusion, and to bring both into line with the NPSFM.</p> <p>Again, stock exclusion may not be either the most practical mitigation measure, nor the most effective mitigation measure (both in terms of cost and efficacy). Where alternative mitigations are deemed to be either; 1) more effective at mitigating discharge; or 2) achieve the same outcome as stock exclusion but are less expensive, then these mitigations should be able to be applied in lieu of stock exclusion.</p>