Section 32 report:
Discharges to water

for the Proposed Natural Resources Plan for the Wellington Region

greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao

Issues and Evaluation Report

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1. Overview and purpose

This report gives an analysis of the appropriateness of objectives, polices and methods for managing point source discharges, including wastewater and stormwater, to water contained in the proposed Natural Resources Plan for the Wellington Region (the proposed Plan). This report is guided by the requirements of section 32 of the Resource Management Act 1991 (the Act).

The proposed Plan integrates resource management across land, water and the coast and as such, the proposed provisions for discharges to water relate to discharges to fresh and coastal water. Discharges that are primarily to land are evaluated in the report entitled, Section 32 report: Discharges to land.

1.1 Legislative background

Discharges of water and contaminants into fresh and coastal water are restricted activities under section 15(1)(a) and 15(1)(b) of the Act, and are not permitted unless there a national environmental standard, a rule in a regional plan or a resource consent authorises the discharge. The nature of section 15 is restrictive, meaning that these discharges are not permitted unless there is a rule in a regional plan, or resource consent, permitting the discharge.

The discharges to water provisions in the proposed Plan are also directed by the National Policy Statement for Freshwater Management 2014, the New Zealand Coastal Policy Statement 2010 and the Regional Policy Statement for the Wellington Region (RPS). In particular, the RPS identifies the significant regional resource management issues facing the region for water quality, including the adverse effects of discharges, including stormwater discharges, on people's well-being, their recreational opportunities, amenity and the ecosystem health of fresh and coastal water. The RPS contains policies providing specific direction to the Wellington Regional Council (WRC) and local authorities as to how these issues may be addressed through the regional and district plan processes.

1.2 Report methodology

To fulfil the requirements of section 32(2) of the Act, this report identifies and assesses the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions.

In accordance with section 32(2), the analysis identifies the opportunities for economic growth that are anticipated to be provided or reduced and the employment that is anticipated to be provided or reduced. In addition, the analysis, where practicable, quantifies the benefits and costs and assesses the risk of acting or not acting if there is uncertain or insufficient information.

Because of the restrictive nature of section 15 of the Act, permitted rules are needed in the proposed Plan for discharges with negligible effects. These permitted rules avoid costs to resource users that would be associated with applying for resource consents. This is a common sense approach that benefits the resource user and the community. The costs and benefits associated with this approach are not quantified in this report, although they are acknowledged.

Similarly, the assessment in this report of the social and cultural costs and benefits associated with water quality is primarily qualitative. Where available, international, national and regional evidence are used for the quantitative and qualitative assessments.

The structure of the report is shown below:

- *Resource management issues*: an outline of the main issues identified by the community (section 2)
- *Regulatory and policy context:* identification of relevant national and regional legislation and policy direction (section 3)
- *Evaluation of objectives*: an evaluation of the extent to which the proposed objectives are the most appropriate way to achieve the purpose of the Act as required by section 32(1)(a) (section 4)
- *Assessment of the policies, rules and other methods*: an assessment of the efficiency and effectiveness of the provisions of the proposed Plan as to whether they are the most appropriate way to achieve the objectives, in accordance with s32(1)(b) and s32(2) of the Act. This assessment (in section 5) is broken into :
  - General discharges
  - Wastewater discharges
  - Stormwater discharges
- *Appendices*: summaries of appropriateness of proposed Plan objectives O50 and O51 and of the efficiency and effectiveness of the options to give effect to these objectives

1.3 Reference to other evaluation reports

This report should be read in conjunction with the following related section 32 reports:

- Section 32 report: Ki uta ki tai – mountains to the sea
- Section 32 report: Māori values
- Section 32 report: Water quality
- Section 32 report: Discharges to land

2. Resource management issues

WRC identified five key regional resource management issues relating to discharges to water, including wastewater and stormwater discharges, through a region wide public engagement process (Parminter 2011). These issues were articulated in the issues report supporting the draft Natural Resources Plan (GWRC 2014). They are listed below (note that the issue numbers below relate

to those used in the 2014 issues report) and further expanded from their explanation in the issues report.

The issues outlined here are:

- Issue 1.12 – adverse effects of regionally significant infrastructure
- Issues 5.1 and 6.1 – impacts of stormwater discharges on fresh and coastal environments (respectively)
- Issue 5.2 – impacts of land use practices on stormwater discharge quantity
- Issue 5.3 – impacts of wastewater discharges to water on mauri and the health of people

2.1 Issue 1.12

Regionally significant infrastructure can have adverse effects on the surrounding environment, including people and communities.

Regionally significant infrastructure is defined in the RPS and includes infrastructure from which contaminants are discharged to fresh and coastal water such as the road network, airports, ports, rail network, stormwater and wastewater networks and wastewater treatment facilities. This infrastructure forms part of national and regional networks and enables communities to provide for their social, economic and cultural well-being and their health and safety. Most importantly for the purpose of this report, wastewater and stormwater infrastructure move human sewage, trade waste and stormwater runoff away from people and property.

The development, use and ongoing operation of regionally significant infrastructure can, however, also have adverse effects on the surrounding local environment. Examples of the adverse effects are earthworks and associated sediment discharges, stream piping and changes to the form and pattern of flows to water bodies when developing roads and greenfield subdivision. Stormwater runoff from impervious surfaces such as industrial and commercial land uses and road networks contribute a range of contaminants to fresh water and to the coastal environment. For instance, the project to construct a new multi-lane state highway through Transmission Gully is estimated to deliver between 271 and 645 additional tonnes of sediment to the Pauatahanui Inlet over the six years of construction the project will take to complete (SKM 2011).

Wellington, in common with many other urban areas in New Zealand, has an issue of sewage contamination of stormwater (Milne and Warr 2011). The interaction of wastewater and stormwater through network infrastructure and through illegal cross connections on individual properties is a substantial problem for most urban areas with older infrastructure. For example, in the Wellington city area, around 80% of the network is between 40 and 60 years old, and of which only 10% meet Wellington City Council's standards for flow capacity (WCC 2011).

Infiltration and inflow (I/I) cause problems not only for water quality and human health in the waterways that overflows discharge into, but also for the management of wastewater infrastructure. Typically, areas where the wastewater network is older than 80 years (e.g. the Wellington City CBD and Newtown areas) are prone to very high levels of I/I (WCC 2011). High I/I leads to very high volumes flowing into wastewater treatment plants which can in turn lead to problems with the ability of the plants to treat and discharge wastewater appropriately – see, for instance, the overflow that occurred at the Moa Point Wastewater Treatment Plant in 2013 which resulted in over 6,000m^3 of untreated wastewater being discharged to the south coast after a heavy rainfall event (Hunt 2013).

People using fresh and coastal water for cultural activities, swimming and other recreational activities may be at risk of illness and infection from contact with water that is contaminated by wastewater, including human sewage. There are risks associated with skin infections, respiratory problems and infections from 'primary' or 'secondary' contact with water contaminated with bacteria, viruses and parasites.

Stormwater and wastewater infrastructure cross-contamination adversely affects human health in the freshwater environment. For example, a recent analysis against the National Objectives Framework showed that the only stream regularly monitored by WRC below the national bottom line for 'human health from secondary contact with water' was the Karori Stream (Greenfield et al. 2015). The Karori Stream catchment is a large urban catchment with no pastoral land use, so the likely source of faecal contaminants is cross-contamination between stormwater and wastewater networks.

The region's coastal environment is also impacted by faecal contaminants from the wastewater and stormwater infrastructure. For example, elevated enterococci bacteria counts in Wellington's marine waters are often related to urban stormwater and wastewater overflow discharges during rainfall events (Milne and Wyatt 2006). A recent example of faecal contamination of coastal water via the stormwater network led to the temporary closure in 2013 of the popular jump platform next to Te Papa in the Wellington City CBD (Chapman 2014). Analysis of coastal water quality at beaches where there is regular monitoring for bathing water quality shows that all of those beaches adversely affected by faecal contamination over the three years to summer of 2014/2015 are at the bottom of the highly urbanised catchments of Wellington and Porirua (Greenfield et al. 2015).

2.2 Issues 5.1 and 6.1

Stormwater discharges are contributing to the degradation of the region's water quality and aquatic ecosystems, particularly in urban streams, estuaries and harbours.

Discharges of stormwater, sewage, sediment and other contaminants to the coast are adversely affecting the health and function of coastal ecosystems.

Stormwater discharges contain contaminants that are carried or dissolved in rainfall runoff, primarily from the urban areas. The contaminants in stormwater

discharges can include natural soil particles and nutrients, eco-toxicants and pathogens dissolved or bound to silt or sediment. The sources of contamination include, but are not limited to, runoff from impervious surfaces such as roads and roofs, earthworks and construction activities, sewerage systems, the operation of industrial sites and the settling of atmospheric discharges of particulate matter. These contaminants adversely affect water quality, mauri (life force), the health of urban freshwater and coastal aquatic ecosystems, and the suitability of freshwater and coastal water for recreation, the suitability of coastal areas for shellfish gathering and amenity values.

Urban streams can carry high concentrations of faecal bacteria, nutrients and toxicants, and many have poor aquatic ecosystem health. Stormwater outfalls and the poor water and sediment quality in the urban streams is affecting coastal receiving waters, especially in Porirua and Wellington harbours that act as natural 'sinks' for contaminant accumulation. There is also frequent faecal contamination in the region's coastal waters arising from urban stream inputs and stormwater outfalls (Milne and Warr 2011). Recent work shows that the main source of faecal contamination entering the Onepoto arm of Te Awarua-o-Porirua during wet weather comes from the Porirua and Kenepuru Streams and affects large parts of the harbour, including the popular recreational area at the rowing club area directly across the harbour from the Porirua Stream mouth (DHI 2015).

Stormwater is often contaminated by toxicants derived from a range of sources, most typically from vehicle movements and industrial activities. For instance vehicle use of roads contributes contaminants including heavy metals (e.g. copper and zinc) and hydrocarbon derivatives through vehicle tyre and brake wear, exhaust emissions and wear of the road surface (Moncrieff and Kennedy 2004). Contributions of contaminants from vehicles are typically higher where brake and tyre wear are high (i.e. where more braking is required) (Moores et al. 2010). Stormwater networks servicing the state highway network may also become pathways for contaminants from nearby land use activities to be transported to fresh and coastal water.

Streams and rivers are the means by which many stormwater contaminants end up in coastal receiving waters. A study of urban streams in Wellington, Porirua and the Hutt Valley found elevated concentrations of one or more stormwater contaminants in stream sediments in nearly all sites sampled, and in all stream water samples collected during runoff events (Milne and Watts 2008). In particular, this study found elevated zinc and copper concentrations in base flow and stormwater samples in the Porirua, Kaiwharawhara, Ngauranga and Opahu streams.

While the quality of water in the coastal marine area in the region is generally considered to exceed the minimum acceptable quality standards, there are some hot spots and environments that have problems (Oliver and Milne 2012). Toxicants in stormwater discharges have led to the contamination of the Wellington Harbour (Port Nicholson) and the Porirua Harbour (Te Awarua-o-Porirua Harbour). Estuarine sediments around stormwater outfalls draining Porirua city centre have been shown to be contaminated with heavy metal and other toxic pollutants (Milne and Sorenson, 2009). Concentrations of copper,

lead and zinc in sediments in the Onepoto arm of the Te Awarua-o-Porirua Harbour Harbour are above the 'early warning' levels for adverse effects on marine life (Milne et al. 2009). High heavy metal concentrations have also been found in the inner basin of the Wellington Harbour (Milne 2006). Areas within the Te Awarua-o-Porirua Harbourand Wellington (Port Nicholson) Harbour have been found to have sediments contaminated with harmful compounds including polycyclic aromatic hydrocarbons and DDT at concentrations above 'early warning' sediment quality guidelines (Oliver and Milne 2012).

This contamination is considered to be consistent with pollution patterns observed in urban coastal environments elsewhere in the country (e.g. see McHugh and Reed 2006, Kelly 2007, and Milne et al. 2009). In contrast, concentrations of heavy metals in sediment from the Pauatahanui arm of the Te Awarua-o-Porirua Harbour, which is not affected by urban land use to the same extent, have been found to be below early warning levels (Oliver and Milne 2012). Heavy metal contamination in the flesh of shellfish has been found to be elevated in shellfish in the Te Awarua-o-Porirua Harbour, Wellington Harbour (Port Nicholson) and the Kāpiti coast (Milne 2006).

Nutrient contamination of stormwater is not generally considered to be a common issue in urban environments unless there is a substantive element of wastewater contamination in the catchment (Kelly 2010). In the Wellington Region, it has been suggested that the sewage contamination causing nutrient enrichment in waters in the Te Awarua-o-Porirua Harbour may be adversely impacting the extent of seagrass beds and driving nuisance macroalgal growth (Matheson 2012; Stevens and Roberston 2015).

2.3 Issue 5.2

Some land use practices increase the volume and velocity of stormwater discharges raising the risk of flooding, scouring of streambed habitat, bank instability and erosion.

The volume and velocity of stormwater discharges is directly influenced by urban land use practices. Urban growth and the intensification of existing urban areas has resulted in an increasing amount of impervious cover in some of the region's catchments and altered the natural landform. Increasing impervious cover and landform modifications through greenfields development and road building alter the natural hydrology of a catchment and increase the overall quantity and peak discharge of stormwater into natural water bodies.

Increased stormwater volumes and the rates that it enters streams and rivers can also impact on the aquatic ecosystem health of the region's urban streams. Work carried out in the Porirua, Wellington, Hutt and Kāpiti catchments found that macroinvertebrate community health, a strong indicator of ecosystem health, declines with increasing imperviousness within a catchment, so that as little as 10% of impervious cover in a catchment leads to a meaningful reduction in stream health (Perrie et al. 2012).

Increased stormwater flows can have a further effect on aquatic ecosystem health through exacerbating streambed and bank erosion and scour.

Sedimentation is a more pervasive water quality issue for low energy coastal water than for higher energy fresh water environments, particularly for estuarine and harbour communities because they act as a sink for fine sediments and mud. Muddy sediments have a higher tendency to concentrate pollutants and become oxygen depleted, and so impact the distribution of invertebrate communities, such as cockles, and key habitat-forming species, such as sea grass. Water quality degradation in coastal environments is chronic and pervasive.

The increased risk of flooding for people and property has been a driver for stormwater quantity management in the Wellington Region, rather than streambed and bank erosion. Management responses have tended to be focused on catchment scale mitigation rather than on at-source prevention. For example, in the 1990s a series of capital works were undertaken within the Porirua Stream catchment in order to mitigate the effects of existing and future development on flood flows (Gardner 2012). This included the straightening of some sections of the Porirua Stream and the construction or alteration of detention dams in the Stebbings Valley and Belmont Stream catchments to manage the future development of these areas.

2.4 Issue 5.3

Discharge of wastewater (including human effluent) to fresh and coastal water has adverse effects on the mauri of fresh and coastal water, and on people's health.

Discharges of treated sewage often contain high levels of disease-causing organisms that can make rivers and coastal waters unsafe for recreational use, and nutrients which can promote nuisance aquatic weed and algal growth. Wastewater discharges typically adversely impacts on human health values through affecting the ability of people to interact safely with water. Such discharges are sources of pathogens, organic matter, nutrients, gross pollutants and emerging contaminants of concern.

The discharges to water and associated infrastructure in the Wellington Region are a legacy of past policies and actions. Discharging wastewater to water rather than to land was once a common practice for getting rid of wastewater. As cities and towns have grown, wastewater infrastructure (wastewater networks and treatment plants) serving these communities has grown, involving large capital and maintenance costs.

Every community is different and will have different solutions and timeframes for reducing wastewater discharges to water over the long term (beyond the lifetime of the proposed Plan). The management of wastewater should be considered in the context of long-term goals given that there are significant costs involved. Communities in the region are at different stages of addressing wastewater discharges to water. Each community is responding to very different sets of social, economic and environmental issues.

In the recent past some communities have already considered, in detail, alternatives to discharging wastewater to water with an expectation that the use of resulting infrastructure will continue for some time in the future. Such is the

case for the Wellington City Council discharges at Moa Point and Karori Stream, and the Hutt Valley councils' discharges at Fitzroy Bay. Prior to consent applications being received in the early and mid-1990s for these discharges there was consultation with mana whenua and investigation of alternatives including discharges to land in the Wainuiomata Valley, Gollans Valley (in the case of Wellington's discharge, a pipeline across Wellington Harbour was considered) and to the west of Wellington. Investigations were overseen by a joint committee of Wellington City, Hutt City, and Upper Hutt city councils. Discharges to land were not preferred for reasons of environmental effects, feasibility of discharges to land, and costs. Insufficient land area was available to receive discharges and adverse effects on land and water resources were sometimes high, such as on Lake Kohangatera in the Gollans Valley.

Adverse effects on natural resources of discharging to land may sometimes be as great as discharging to water. Discharging to land does not necessarily lead to reduced adverse effects on natural resources compared with discharging to water. This is because the suitability of soils to receive and assimilate wastewater discharges is critical to the successful application of discharges to land. Discharges to land in unsuitable soils where groundwater is directly connected to surface water can result in wastewater contaminants being discharged directly to surface water when the soil becomes saturated in wet weather conditions.

Discharging to land where it is feasible to do so rather than to water will involve significant economic costs. Moving a greater proportion of wastewater to land will be costly and different timeframes will be appropriate for different communities. For Wellington and Hutt Valley discharging wastewater to land was not considered technically or economically feasible in the investigations leading to their current consents and there were significant adverse effects on natural resources, as described above (HCC 1995). In 2015 the feasibility of moving these wastewater discharges to land is reduced further because of population growth and reduced land availability. In contrast, some other communities such as Porirua and the Kāpiti Coast have not yet undertaken comprehensive examination of alternatives to discharging to water. The communities of Martinborough, Greytown, Featherston, Carterton and Masterton have programmes in place to progressively move from discharges of wastewater to land rather than directly to water.

Discharges to water from networks are a different but related issue to discharges to water from treatment plants. Wastewater networks transfer wastewater from the source in households, businesses and factories to a treatment plant where it is treated and discharged. Wastewater networks are large and sprawl across entire communities. Discharges occur from networks as a result of leaks and because, in high rainfall events, overflows occur due to insufficient capacity to carry volumes that infiltrate networks.

Wastewater networks and treatment plants will both receive amounts of wastewater they are designed for. Any change in the capacity of a network or treatment plant will have implications for the other. For example, if the network is made larger the design capacity of the treatment plant may be

exceeded. The converse also applies. If treatment plant capacity is altered, changes may be needed to the network. Changes to either a wastewater network or a wastewater treatment plant will have infrastructure costs associated with both network and treatment plants.

Wastewater networks can also infiltrate stormwater networks and vice versa. The issue of wastewater and stormwater interaction is addressed in the parts of this report that deal with stormwater.

Discharges of wastewater into water bodies are of particular concern to mana whenua because waste, particularly human effluent, degrades the mauri (life force) of the water body. The discharge of human effluent to water is offensive to the cultural and spiritual values of mana whenua. Such a perspective has been endorsed by comments from mana whenua groups on drafts of the proposed Plan. Their preference is for discharges of wastewater to go to land rather than directly to water.

Progressively improving existing wastewater discharges to fresh water in the region will address the most significant concerns in the region about adverse effects of discharges of wastewater to water. As indicated in the description of the issue above, some progress has already been made working with mana whenua and communities on outcomes for some wastewater discharges to the coast. The greatest opportunities to promote discharges to land over discharges to water currently lie with wastewater treatment plant discharges to fresh water in the region.

3. Regulatory and policy context

3.1 National level

3.1.1 Resource Management Act 1991

Section 5(2)(a) of the Act) directs the sustainable management of the use and development of natural resources while sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations. Section 5(2)(b) of the Act identifies water and ecosystems as important resources to be safeguarded for their life-supporting capacity. These are two key legislative directions for the management of discharges of contaminants in water quality.

Section 6 of the Act requires that WRC recognises and provides for identified matters of national importance. Most relevant to this section 32 evaluation report is section 6(e) relating to the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga, as affected by discharges to water. Section 7 of the Act also identifies important matters relevant to determining the appropriate approach to the management of discharges to water.

Section 30 of the Act gives WRC control over discharges to water and land (s30(1)(f)) and the management of land for the maintenance and enhancement of water quality (s30(1)(c)).

The Act also provides specific direction in section 70 to regional councils drafting regional plan rules on discharges of contaminants that will enter water. Section 70(1) directs that regional councils should not include a permitted activity rule in a regional plan for a discharge that enters water that would cause, after reasonable mixing, any of the following to occur (either as a result of that discharge or in combination with other contaminants):

- The production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials
- Any conspicuous change in the colour or visual clarity
- Any emission of objectionable odour
- The rendering of fresh water unsuitable for consumption by farm animals, or
- Any significant adverse effects on aquatic life

Section 70(2) provides further direction that if a rule for a discharge to water requires 'best practicable option' management to prevent or minimise adverse effects, the regional council should be satisfied that the inclusion of that rule is the most efficient and effective means of preventing or minimising those adverse effects on the environment.

3.1.2 National Policy Statement for Freshwater Management 2014

The National Policy Statement for Freshwater Management 2014 (NPS-FM) is of particular relevance in respect of this evaluation report as it supports improved freshwater management in New Zealand by directing regional councils to establish objectives and set limits for fresh water in their regional plans (see Policies A1 and A2). Under section 67(3)(a), regional councils must give effect to the NPS-FM (as well as any other national policy statement). The NPS-FM does not need to be implemented immediately, rather it sets a timeframe of 31 December 2025 for regional councils to progressively implement it under Policy E1(b).

The NPS-FM acknowledges iwi and community values by recognising the range of iwi and community interests in fresh water, including environmental, social, economic and cultural values. The two key directives of the NPS-FM relating to water quality are that fresh water is managed to safeguard ecosystem health and the health of people and communities from secondary contact with water (Objective A1), and that overall water quality within a region is maintained or improved (Objective A2). The NPS-FM sets national bottom lines for these two compulsory values and minimum acceptable states for other, non-compulsory national values (e.g. primary contact recreation).

Recent amendments to the NPS-FM give regional councils specific direction on how objectives and limit-setting should be achieved. The WRC's NPS-FM implementation programme (GWRC 2015) outlines how the NPS-FM will be progressively implemented in the region, principally through collaborative community processes known as whaitua processes. In particular, the whaitua processes will develop objectives and limits for water quality in accordance

with NPS-FM Policy CA2 in order to give effect to Policies A1 (setting objectives and limits) and A2 (freshwater quality limits and targets).

While the specific requirements around setting objectives and limits for water quality will be progressively implemented (GWRC 2015), this proposed Plan must still be consistent with the NPS-FM and give effect to Objectives A1 and A2, including in the management of discharges to fresh water. For a further discussion of the water quality provisions of the proposed Plan and the NPS-FM, see the Section 32 report: Water quality.

The NPS-FM also provides specific direction with regard to the management of discharges to water in Policy A3 which directs regional councils, where appropriate, to make rules requiring adoption of the 'best practicable option' to prevent or minimise the adverse effects of contaminants being discharged to water. Further, the NPS-FM directs under Policy A4 that for the time before objectives and limits are set in a regional plan in order to give effect to Policies A1 and A2, a policy is included in the regional plan that directs consideration of the impacts of discharges to fresh water on the life-supporting capacity of ecosystems and on the health of communities.

Because of the impacts of the discharges of contaminants, particularly of human sewage, on the mauri of water and the relationship of tangata whenua with water, the NPS-FM policies on tangata whenua roles and interests are particularly important in the development of the discharges to water provisions. NPS-FM Objective D1 provides for the involvement of iwi and hapu in the management of fresh water in order to ensure that tangata whenua values are identified and reflected in the management and decision-making of fresh water. Policy D1 states that WRC "shall take reasonable steps" to achieve this objective. This policy approach most particularly has impacts on the way that discharges of wastewater to fresh water should be managed.

3.1.3 New Zealand Coastal Policy Statement 2010

The New Zealand Coastal Policy Statement 2010 (NZCPS) is issued under section 56 of the Act and sets out policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand. This includes providing policy direction on national priorities for the preservation of the natural character, protection of the characteristics of the coastal environment of special value to the tangata whenua and activities involving the subdivision, use, or development of areas of the coastal environment. Under section 67(3)(b), a regional plan must give effect to the NZCPS.

The NZCPS provides direction to the development of regional plans and has particular relevance to water quality as impacted by stormwater and wastewater discharges. In particular, Objective 1 aims to maintain coastal water quality and enhance it where it has deteriorated. Unlike the NPS-FM, the NZCPS does not provide for a pathway for the regional council to progressively implement the requirements of the NZCPS, therefore the proposed Plan must give effect to the NZCPS in full in the management of discharges to coastal water.

The only specific policy direction in the NZCPS for discharges to coastal water is Policy 23. This policy directs the management of discharges that impact

water quality in the coastal environment, including management of stormwater and wastewater discharges. Policy 23(1) identifies specific matters to have particular regard to when considering discharges, including in respect to the nature or sensitivity of the marine receiving environment and the effects of discharges before and after reasonable mixing.

The rest of Policy 23 provides directions to different types of discharges. Policy 23(2) directs that in the management of sewage discharge to coastal water, there is no direct discharge of untreated human sewage, and that there are no discharges of human sewage to coastal water unless there has been adequate consideration of alternatives and that management of discharges is informed by an understanding of tangata whenua values. Policy 23(3) requires early and meaningful consultation with tangata whenua in respect to the development of regional plan provisions for discharges of treated sewage.

Policy 23(4) directs that steps are taken to avoid the adverse effects of stormwater discharges on a catchment basis. This policy direction then describes possible steps to avoiding these effects including avoiding and remedying cross-contamination between wastewater and stormwater systems, reducing contaminant loading of stormwater at source, promoting an integrated catchment management approach, and promoting design options that reduce flows to stormwater systems.

Policy 23(5) provides specific direction to the management of discharges from ports and marine facilities, including in relation to port activities, dumping and dredging and the use of port facilities in relation to wastewater and cleaning discharges from ships.

3.1.4 National Environmental Standard for Sources of Human Drinking Water

Under section 44A(7), local authorities must observe a national environmental standard, including by incorporating them into relevant plans. The Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007 (NES-Drinking Water) require regional councils to consider the effects of discharges and land use activities on drinking water sources, including for their effects on the suitability and palatability of water for drinking. Section 10 of the NES-Drinking Water directs that permitted activities in regional plans cannot result in community and group drinking water supplies becoming unsafe for human consumption after treatment.

3.1.5 National Environmental Standards for Electricity Transmission Activities

The National Environmental Standards for Electricity Transmission Activities (NES-ETA) includes direction sections 28 and 29 relating to the management of discharges from 'transmission lines'.[1] These sections require regional plans to manage discharges from transmission lines as permitted activities with conditions from section 70 of the Act, and as a controlled activity if not meeting these conditions, with control over water quality and effects on

[1] Defined by the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009:
(a) means the facilities and structures used for, or associated with, the overhead or underground transmission of electricity in the national grid; and
(b) includes transmission line support structures, telecommunication cables, and telecommunication devices to which paragraph (a) applies; but
(c) does not include an electricity substation.

ecosystems. The proposed Plan must be consistent and not duplicate the NES-ETA. For discharges to water from 'transmission lines' the proposed Plan notes that the NES-ETA applies and directs resource users to that document.

3.1.6 Local Government Act 2002

Under section 10 of the Local Government Act (LGA), local authorities are required to provide 'good quality' infrastructure where 'good quality' means infrastructure is efficient, effective and appropriate to present and anticipated future circumstances. While infrastructure planning and service provision decisions made under the LGA will have broader considerations than those directed by the Act, the directions that a regional plan provides on activities associated with local government infrastructure (such as wastewater and stormwater systems) form part of the context for what good quality infrastructure means.

As part of amendments made to the LGA in August 2014, local government agencies are required under section 101B to develop 30-year management strategies for infrastructure asset management as part of the long-term plan process. Section 101B(3)(d) directs that any such long-term asset management strategy should take into account the need to "maintain or improve public health and environmental outcomes or mitigate adverse effects on them".

The LGA requirements for infrastructure provision and the timeframes and processes around the long-term planning are important to note in drafting the proposed Plan provisions relating to discharges from the stormwater and wastewater network. Stormwater and wastewater network discharges can have adverse effects on the quality of fresh and coastal water. The LGA provides for a planning horizon for water quality management that is longer than the life of the proposed Plan, but which can be anticipated through long-term planning and 30-year asset infrastructure strategies.

Local authorities are not restricted to a specific format or approach to writing asset management programmes, so long as they deliver on the requirements of the LGA. For stormwater infrastructure, the key strategic driver of asset management is typically managing flooding of land, property, business and infrastructure while recognising the impacts that stormwater capture and discharge can have on receiving fresh and coastal waters (for example, see WCC 2011). Stormwater asset management may also consider the impacts of aging network infrastructure, changing land use within a catchment and the impacts of climate change in terms of changes in rainfall intensities and tide heights affecting the hydraulic capacity of network.

Long Term Plans (LTPs), describing local authority priorities and spending over the next 10-year period, and reviewed every three years, show the state of current and future investment in wastewater and stormwater infrastructure. At the time of writing, the Wellington Region is in the process of developing the 2016-2026 LTPs, with many councils going through draft consultation or hearing processes. In establishing the likely changes in costs that any provisions recommended in the proposed Plan might bring, examining the LTPs is useful in establishing estimated costs.

The draft LTPs of several local authorities (and including any associated infrastructure strategies, asset management plans and/or other plans relevant to water quality) are described briefly here for their anticipation of the implications of the proposed Plan in relation to programmes associated with stormwater and wastewater discharges. This is provided as a brief illustration of potential implications across three local authorities, rather than as an exhaustive analysis. For example, the Masterton District Council indicates that the new costs associated with the stormwater provisions in the draft NRP include one-off costs of $150,000 over two years from 2016, then $20,000 per year for consent compliance from 2019 onwards (MDC 2015a, p36).

3.1.7 Resource Management (Marine Pollution) Regulations 1998

The Resource Management (Marine Pollution) Regulations 1998 (RMMPR) regulate discharges and dumping from vessels and offshore installations in New Zealand's coastal waters from mean high springs out to 12 nautical miles at sea around the New Zealand coast line.

Specifically in relation to this report, the RMMPR includes regulations for different types of contaminants for which no rule in a regional plan may be written – this applies to Regulations 9, 10, 12, 13, 14, and 15 of the RMMPR. However, under Regulation 16, regional plans may contain rules in respect to the discharge of wastewater that is not treated in accordance with the standards set in Regulations 12 and 12A, if the rule increases the seaward distance of discharge from those stipulated in Regulation 11. Regulations 11(1) and 11(2) of the RMMPR stipulate distances within which no vessel or offshore installation may discharge sewage in relation to the shoreline, marine farms, marine reserves or mataitai reserves.

The discharge of contaminants from vessels is also subject to the regulations of the International Convention for the Prevention of Pollution for Ships 1973 as modified by the Protocol of 1978 (MARPOL 73/78). New Zealand law (via the RMMPR) gives effect to Annexes I, II, III, and V of MARPOL 73/78, regulating discharges of oil, chemicals, packaged marine pollutants and rubbish.[2] Annex IV requires vessels to have certain wastewater treatment means and prohibits the discharge of wastewater to the sea except if it has been treated and the vessel is further than 12 nautical miles from the nearest land (with the exception of ships leaving for Antarctica). New Zealand has not ratified Annex IV.[3]

3.2 Regional level

3.2.1 Regional Policy Statement for the Wellington Region 2013

The Regional Policy Statement for the Wellington Region 2013 (RPS) provides direction with regard to water quality in fresh and coastal waters through Objectives 6, 12 and 13. RPS Policies 5 and 12 direct regional plans to include policies, rules and other methods to require water quality and ecosystems to be managed for the purposes of maintaining or enhancing aquatic ecosystem health, as well as for and other purposes identified in the regional plan. These

[2] See http://www.maritimenz.govt.nz/Environmental/Legislation-regulations-conventions.asp
[3] See http://www.treaties.mfat.govt.nz/search/details/p/6/810

policies recognise the necessity for integrated management of the uses of land and water in order to reach stated environmental outcomes.

Policy 16 of the RPS promotes the discharge of human and/or animal waste to land rather than water, particularly sewage and the use of collective treatment systems that discharge to land. The RPS also provides specific guidance on the management of stormwater through Policies 14 and 42. Policy 14 directs regional plans to protect aquatic ecosystem health by minimising contamination in stormwater from new subdivision and development. Policy 42 directs both regional and local councils to have particular regard in plan changes and consent applications to minimising the adverse effects of stormwater on fresh and coastal environments and points to a range of low impact design or water sensitive urban design-type options to do so. Method 35 directs that WRC coordinates a regional stormwater action plan with local authorities.

3.2.2 Relevant regional plans

(a) General discharges to fresh water and coastal water

The operative Regional Coastal Plan (the Coastal Plan) and the operative Regional Freshwater Plan (the Freshwater Plan) include policies on receiving water quality. The Coastal Plan manages all water quality in the coast according to whether areas are identified for contact recreation or shellfish gathering. Water quality guidelines for each management purpose are identified in appendices of the Coastal Plan.

The Freshwater Plan identifies that all fresh water bodies in the region are to be managed for aquatic ecosystem purposes. Narrative and prescriptive water quality guidelines for the aquatic ecosystem management purpose are given in Appendix 8 in the Freshwater Plan. The aquatic ecosystem purpose provides a bottom line for water quality in the Freshwater Plan.

Purposes are also included for managing identified surface water bodies for natural state, trout fishery and fish spawning, contact recreation, and water supply. Narrative and prescriptive water quality guidelines are linked to each purpose in an appendix in the Freshwater Plan. Surface water bodies not meeting water quality guidelines are identified as needing enhancement, and policies are included in the Freshwater Plan to improve water quality in such water bodies. Groundwater is managed so that there is no decline in water quality. Policies are included in the Freshwater Plan for mixing zones, encouraging users to discharge to land rather than water, and non-point source discharges.

The Coastal Plan includes permitted activities for stormwater discharges, discharges from ships and discharges of water. It includes non-complying activities for discharges into Areas of Significant Conservation Value. All other direct discharges to water in the Coastal Plan are considered to be discretionary activities.

The Freshwater Plan includes permitted activity rules for discharges of water and minor contaminants and discharges of stormwater. There are controlled

activity rules for stormwater and discharges to groundwater contaminated only by heat. A non-complying rule is included to manage discharges to water bodies identified as being in their natural state. All remaining discharges directly to water in the Freshwater Plan are treated as discretionary activities.

(b) Discharges to water of wastewater containing human effluent

Policies in both the operative Coastal Plan and the Freshwater Plan allow discharges of sewage directly to fresh and coastal water where it better meets the purpose of the Act than disposal to land.

(c) Stormwater

The operative Discharges to Land Plan, Freshwater Plan and Coastal Plan provide regional direction on the management of the discharge of stormwater to land, and to fresh and coastal waters. The aim for regional management of stormwater is not explicitly stated in any of the plans in that there are no objectives for stormwater in any of the plans. There are, however, policy directions in these plans that provide a specific context for stormwater.

The three operative plans were developed when knowledge about stormwater impacts on fresh and marine environments in the Wellington Region was incomplete and before good management approaches were developed (see Issues 2.5.2 and 2.5.4 of the Freshwater Plan). Each plan takes a permissive approach to stormwater management. The policy approach is typically one of encouraging better practice (e.g. Policy 5.2.14 and Method 8.4.7 of the Freshwater Plan, and Method 15.3.4 of the Coastal Plan) rather than regulatory intervention.

The evaluation report on the effectiveness of the Freshwater Plan found that the 'soft' approach taken by Policy 5.2.14 and Method 8.4.7 had not been effective in managing adverse effects on water quality from stormwater discharges and had not lead to the adoption of alternative stormwater practices (WRC 2006). Other policy directions (e.g. Method 15.3.3 of the Coastal Plan) to review the provisions for stormwater discharges at intervals after the plans were made operative have not resulted in plan changes.

The non-regulatory approach of the Freshwater Plan and Coastal Plan led to the development of the Stormwater Action Plan (SAP) (WRC 2007) in 2007. The SAP was a regional, voluntary initiative seeking better management of the adverse effects of stormwater. The aim of the SAP was to provide "a framework for co-ordinated, sustainable stormwater management in the region" and was a voluntary document to which all local authorities in the Wellington Region became signatories (WRC 2007). The SAP identified strategic and planning actions for all councils to engage in. Some tasks, such as to provide delegations of powers for managing discharges under section 15 of the Act to Hutt City Council and to amend the WRC state of the environment monitoring programme to better account for stormwater pollutants, were completed (Geden 2009). However, the SAP has been largely inactive since 2009 and has not achieved integrated management of stormwater across the region.

Under the operative plans some local authorities have recognised that their stormwater networks do not meet the permitted activity rules, either on a network scale or in relation to specific areas within their networks. This has led to a number of resource consents being issued to local authorities (see Table 1). Note that in Table 1, ICMP stands for 'integrated catchment management plans', explained in section 5.3.2. Local authorities with resource consent include the Carterton District, Hutt City, Kāpiti Coast District and Wellington City councils. No consents to discharge stormwater to either fresh or coastal water from the Porirua City, Upper Hutt City, Masterton District or South Wairarapa District Council stormwater networks have been applied for or issued. The consents for Wellington City and Hutt City Council discharges incorporate only part of each local authority's reticulated stormwater network.

Table 1: Existing stormwater discharge consents held by local authorities in Wellington Region

Local authority	Consent granted	Consent expires	Scale of consent	Key conditions/consent characteristics
Carterton District Council	1996	2016	Whole of network	Limited consent conditions, no active management of quality or quantity
Kāpiti Coast District Council	2006	2016	Whole of network	Focus on monitoring and reporting, with requirement to improve where issues detected. While whole of network, it does not require strategic planning or ICMP-type approach to be developed
Hutt City Council	2007	2022	Gracefield/Seaview industrial area network	Focus on monitoring and some requirement for improvement. Does not require strategic planning or ICMP-type approach to be developed
Wellington City Council	2010	2018	Network discharging to Wellington Harbour and south coast (not to fresh water or Porirua Harbour catchment)	Focus on monitoring and reporting and development of ICMPs during the period of the consent. Incorporates elements of community engagement and objectives setting which may be better placed at a regional or catchment-scale planning process

The operative Freshwater Plan and Coastal Plan provisions for stormwater can be best described as providing a permissive regulatory approach. The report evaluating the effectiveness of the Freshwater Plan concluded "the permitted activity rule for stormwater is not effective" (WRC 2006, p9). Today, a permitted approach is uncommon in other regional plans, particularly in respect to the management of large stormwater networks (e.g. see the Auckland Council and the Bay of Plenty, Hawke's Bay, Canterbury and Otago regional council plans). In general, the impacts of stormwater have become better understood and widely considered, on a network or 'global' basis, to not meet

the requirements of the Act for permitted activities in accordance with section 70(1).

3.3 Local authority strategic documents and programmes

There are additional strategic documents, plans and programmes that provide context to the management of discharges from wastewater and stormwater networks, but which are typically non-statutory. These include the Porirua Harbour and Catchment Strategy and Action Plan (PHS) (PCC 2012), the Hutt City Council Stormwater Plan (HCC 2012) and the Wellington City Council Blue Belt programme. Such documents inform asset, land use and strategic processes and can be significant drivers in the management of stormwater and wastewater discharges.

The PHS is a multi-agency developed strategy that is implemented by a range of agencies, including WRC as a partner to the PHS. The key objectives of the plan relating to discharges to water are to reduce sedimentation rates and reduce pollutant inputs. This provides an important community directive with respect to the management of discharges of stormwater and wastewater.

Other strategic documents with an impact on infrastructure provision and land use planning include the Hutt City Council's Urban Growth Strategy 2012-2022 (HCC 2012) and the Upper Hutt Urban Growth Strategy (UHCC 2007).

More specifically relating to stormwater, the Wellington City Council's Water Sensitive Urban Design Guideline (WCC 2014) and KCDC's Low Impact Urban Design and Development Guidelines (KCDC 2012) provide guidance to developers in the management of stormwater with low impact or water-sensitive design principles.

3.3.1 Wellington Water Limited

As part of the context for the management of discharges from stormwater and local authority infrastructure, it is also valuable to note the role of Wellington Water Limited (Wellington Water) because of the size and nature of the organisation. Wellington Water was created in September 2014 when the Bulk Water team from WRC merged with Capacity Infrastructure Services Limited (also referred to in this report as Capacity).

Wellington Water is a shared service, council-controlled organisation jointly owned by Hutt, Porirua, Upper Hutt and Wellington city councils, and the Wellington Regional Council. Wellington Water manages the three water networks (drinking water, stormwater and wastewater) on behalf of its council owners (client councils) and provides investment advice on the future development of the three waters networks. The client councils retain ownership of their three water network assets and decide on the service levels, policies and investment they will make in consultation with their communities such as through the LTP process.

Wellington Water's purpose is to manage regional water services so that water is safe to drink, the impacts of Wellington Water's activities on the environment are managed appropriately and the three water networks are

resilient for day-to-day use and in times of emergency. Wellington Water's strategy for achieving this is to take a regional approach to shareholding councils' asset management planning so that there is continuous improvement in the linkage between outcomes and investment. Wellington Water identifies issues that can be best progressed on behalf of all of its five client councils, rather than individually. This regional approach work has four work programmes – the development of a regional asset management plan, drinking water seismic resilience, a catchment approach to impacts on fresh water, and community education.

As the asset manager responsible for the network planning and service delivery function for five councils in the region, Wellington Water has a key role in the management of stormwater and wastewater discharges. A key part of Wellington Water's role as manager of the five client councils' three waters networks is to advise councils of the potential impacts of any water quality outcomes expressed in the proposed Plan or future whaitua-specific plan changes. This includes advising on the investment required to meet the requirements of regional plans.

Wellington Water's regional approach to asset management planning across all five shareholder councils provides an opportunity to develop excellence and expertise in stormwater and wastewater network management, share good practice and knowledge, and increase consistency in practices and standards.

3.4 Proposed Plan

3.4.1 Principles in managing discharges to fresh water and coastal water

The proposed Plan generally promotes discharges to land rather than directly to water in Policy P62. Policy P66 is included as required under the NPS-FM for managing effects on ecosystem and human health ahead of water quality limit-setting processes through WRC's progressive implementation programme (GWRC 2015).

In principle, minimising the adverse effects of discharges to land and to water is directed by Policy P67. Policy P68 describes contaminants where discharges to water should be avoided (untreated, animal waste from animal effluent storage facilities, untreated industrial or trade waste and untreated organic waste or leachate from storage of organic material). Policy P69 provides specific guidance in respect to how adverse effects of discharges to land and water on the quality of community and group drinking water supplies shall be avoided. Policies P70 and P71 provide direction with respect to managing water quality for aquatic ecosystem health, while Policy P72 provides direction on establishing the size of the zone of reasonable mixing.

Aside from stormwater and wastewater, the proposed Plan includes permitted rules for the following ten activities for discharges directly to water. There is one controlled activity for salt and dye tracers not meeting the permitted rule (Rule R47). Rule R65 controls the discharge of material from in-water biofoul cleaning. Other discharges to water with outstanding or significant values not provided for by these rules are a non-complying activity (Rule R67). Any other

discharge to water not provided for or meeting another rule is a discretionary activity (Rule R68).

By comparison the operative Freshwater Plan includes permitted and controlled activities for four only activities – minor discharges (Rule 1), stormwater discharges (rules 2 and 3), washdown water on roads (Rule 2) and discharges to groundwater containing heat (Rule 4). Other discharges directly to water require resource consent that may be granted or declined (discretionary) (Rule 5) except for discharges to areas managed for natural state purposes where discharges may be granted but are not anticipated (non-complying) (Rule 6).

3.4.2 Wastewater

The proposed Plan includes one objective specific to wastewater discharges to water. The objective requires wastewater discharges to fresh water to be progressively reduced. Discharges of wastewater to fresh water and coastal water are addressed in the context of other objectives in the proposed Plan in section 4.

There are four policies in the proposed Plan specifically relating to wastewater discharges to water. Policy P80 sets out matters that an applicant for a resource consent to discharge wastewater to water must identify. These include: relevant receiving environment objectives, limits, targets, and discharge standards; values and interests of mana whenua, including adverse effects on Māori customary use and mahinga kai values; short-term (within the lifetime of the proposed Plan) and long-term (beyond the lifetime of the Plan) goals for wastewater discharges; how Plan provisions will be satisfied in the short and long term; and infrastructure changes, including key milestones and dates.

Policy P81 is to minimise and progressively improve existing discharges of wastewater to water. In particular, there must be progressive improvement of the quality of existing discharges to fresh water from treatment plants and reduction of the amount of wastewater going to fresh water. The frequency and volume of existing discharges of untreated wastewater to fresh water and coastal water from network overflows (in high rainfall conditions) must also be progressively reduced.

Policy P82 requires resource consent applications for wastewater discharges to fresh water to take reasonable steps to reflect mana whenua values and interests in the management of discharges and freshwater receiving environments. In line with Policy P80, local authorities applying for such resource consents must provide information about mana whenua values and interests. Policy P82 gives effect to Policy D1 of the NPS-FM. The NPS-FM policy directs local authorities to involve mana whenua in freshwater decision-making.

Policy P83 is to avoid new discharges of wastewater to fresh water. Because such discharges are new, planning for them can proceed on the basis that discharges should be to land rather than water.

3.4.3 Stormwater

The proposed Plan contains provisions for stormwater mainly focused on discharges from large stormwater networks. The provisions take a reasoned but pragmatic approach, provide for a range of activities that have social, environmental and economic benefits, and respond to the current understanding of the adverse effects of stormwater capture and discharge.

The proposed Plan provisions for stormwater discharges are significantly different to the operative plans. There are, however, some similarities between permitted activity discharge rules and in reviewing the provisions WRC has taken the opportunity to consolidate permitted activity conditions. The key change for stormwater in the proposed Plan is that the proposed provisions no longer allow large networks to discharge stormwater to fresh and coastal waters as a permitted activity. Instead a pathway is set out to assist the reorienting of stormwater asset management and land use planning towards integrated catchment management and improved environmental outcomes with respect to stormwater discharge quality and quantity.

4. Evaluation of objectives

Section 32(1)(a) of the Act requires that an evaluation report must "examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act".

The appropriateness test as applied in this report consists of four standard criteria: relevance, usefulness, reasonableness and achievability. These criteria can be summarised as follows:

- *Relevance* – is the objective related to addressing resource management issues? Will it achieve one or more aspects of the purpose and principles of the Act?

- *Usefulness* – will the objective guide decision-making? Does it meet sound principles for writing objectives?

- *Reasonableness* – what is the extent of the regulatory impact imposed on individuals, businesses or the wider community?

- *Achievability* – can the objective be achieved with tools and resources available, or likely to be available, to the local authority?

A brief description of proposed key objectives and other relevant objectives is provided below. Tables A1 and A2 in the Appendix provide an evaluation of the appropriateness of the proposed objective for stormwater (Objective O48) and wastewater discharges to water (Objective O50) against the four criteria above.

In addition, five other proposed objectives directly relevant to discharges to water (Objectives O12, O23, O24, O25 and O49) are briefly discussed below for their relevant, but not assessed for their appropriateness in this report.

4.1 Discharges to water objectives

Due to the significance of the issue of managing stormwater and wastewater discharges to fresh and coastal water in terms of environmental, social, cultural and economic impacts, and the values of Te Upoko Taiao – Natural Resource Management Committee (the decision-making body on the proposed Plan) in driving the plan review process, the proposed plan includes two objectives specific to stormwater and wastewater.

4.1.1 Objective O48 Stormwater networks

Stormwater networks and urban land uses are managed so that the adverse quality and quantity effects of stormwater discharges are improved over time.

As discussed in section 2 of this report, discharges from stormwater networks have recognised impacts on ecosystem health and on the ability of communities to use fresh and coastal water in the Wellington Region. The current regulatory environment has not driven substantial change in the management of discharges from large networks. The past decade has seen only limited active integrated management of stormwater for environmental outcomes in the region.

This objective is relevant to maintaining and improving the state of the region's fresh and coastal waters as impacted by stormwater discharges. Driven by the need to be ready for the whaitua processes and a more rigorous water quality approach required by the NPS-FM, proposed Objective O48 is relevant as it provides direction to local authorities to develop more strategic planning approaches for stormwater management both in terms of land use and infrastructure management. It acknowledges the way existing networks and land uses lock in choices, but seeks a different way forward for new development and for the improvement through time of the effects of stormwater captured, transported and treated by the local authority stormwater networks.

The objective is relevant as it gives effect to important directions from the RMA (s7(f)) to maintain and enhance the quality of the environment and RPS Policies 5 and 12 to maintain and enhance fresh and coastal water quality. It is relevant to RPS policies 14 and 42 to minimise the adverse effects of stormwater from new and existing activities. These are all policy directions that the proposed Plan must give effect to. The objective is consistent with the approach of the NZCPS to take a catchment-based approach to the management of stormwater.

Objective O48 is useful as it provides clear direction on the management of stormwater to seek improvement over time, a direction that is currently absent from the operative regional plans.

WRC has the appropriate functions under section 30 of the Act to ensure proposed Objective O48 can be achieved both over the lifetime of the proposed Plan and into the future. The progressive improvement approach, as reflected further in the provisions implementing this objective, is reasonable as it recognises the financial and physical constraints of change alongside the

aspirations of the regional community for good water quality for ecosystem and human health purposes.

As summarised in Table A1 in the Appendix, proposed Objective O48 is reasonable and appropriate.

4.1.2 Objective O50 Wastewater discharges to fresh water

Discharges of wastewater to fresh water are progressively reduced.

The proposed Objective O50 is that discharges of wastewater are progressively reduced. Progressively reducing wastewater discharges to fresh water is in response to the matters raised in Issue 5.3. It gives priority to addressing the most significant concerns over wastewater discharges to fresh water and coastal water in the region. These significant concerns reflect progress made to date on improving wastewater discharges to the coast compared with slower progress made on improving some discharges to fresh water to acceptable levels. These concerns also reflect that some current discharges of wastewater to fresh water cause high levels of offence to the values and interests of mana whenua in the discharges and adverse effects on the receiving waters.

In relation to discharges of wastewater to coastal water, other matters discussed under Issue 5.3 can be addressed through other objectives identified in this report.

Proposed Objective O50 provides a clear direction to reduce the amount of wastewater being directly discharged to fresh water. The objective is relevant as it responds to mana whenua and community concerns and gives effect to the directions from the RMA. In particular, the objective is relevant to section 7(f) of the RMA to maintain and enhance the quality of the environment, and to recognise the importance of Māori values under section 6(e) and further under sections 7 and 8. Proposed Objective O50 is particularly relevant to the direction in the RPS to promote discharges to land (Policy 16) in order to reduce the adverse effects of wastewater on water.

Proposed Objective O50 is useful as it will guide decision-making by identifying a very clear goal while recognising that improvement must be progressive. The proposed objective provides direction that is absent in the current operative Freshwater Plan and therefore provides greater certainty to both the community and to resource users.

WRC has the appropriate functions under section 30 of the Act to ensure the objective can be achieved both over the lifetime of the proposed Plan and into the future. The approach is reasonable as it will have greater social, cultural and environmental benefits than the costs necessary to achieve it, while recognising that improvement may be constrained by financial considerations.

Proposed Objective O50 is reasonable and appropriate. The relevance, usefulness, reasonableness and achievability of proposed Objective O50 are further described in Table A2 of the Appendix.

4.2 Other relevant objectives

The discharges to water provisions are driven particularly by three overarching objectives in the proposed Plan – Objectives O23, O24 and O25. Other objectives, particularly Objectives O12 and O49 are also relevant to discharges to water. These objectives are not assessed in this report, but a brief discussion of how these are relevant to the discharges to water proposed Plan provisions is provided below. An evaluation of the appropriateness of these objectives can be found in the following section 32 reports:

- Water quality
- Aquatic ecosystems
- Beneficial use and development
- Discharges to land

Objective O12 Benefits of regionally significant infrastructure

The wider social, economic, cultural and environmental benefits of regionally significant infrastructure and renewable energy generation activities are recognised.

This objective derives from the issue that regionally significant infrastructure can have adverse effects on the surrounding environment, including people and communities but at the same time it provides for social, economic and cultural well-being and the health and safety of people. This objective is intended to recognise the benefits of both regionally significant infrastructure and renewable electricity generation activities whilst the adverse effects of these activities are addressed in the other provisions of the plan.

Objective O23 Maintain or improve water quality

The quality of water in the region's rivers, lakes and natural wetlands, and the coastal marine area is maintained or improved.

This is a key objective for the management of discharges to water and echoes the requirements of the NPS-FM. In the absence of water quality limits, as will be developed through the whaitua processes (see GWRC 2015) this plan maintains or improves water quality impacted by discharges to water mainly through a combination of regulatory and non-regulatory means. With respect to stormwater, the proposed objective will be achieved through the development and implementation of stormwater management strategies by each city or district council for the management of discharges from their stormwater networks. These strategies will set out tools and timeframes to reach the fresh and coastal water quality outcomes that each whaitua process will set for their whaitua. With regards to discharges of wastewater this plan will maintain or improve water quality by promoting discharges to land rather than water and requiring the adverse effects of wastewater to water to be minimised and progressively reduced.

Objective O24 Contact recreation and Māori customary use

Rivers, lakes, natural wetlands and coastal water are suitable for contact recreation and Māori customary use, including by:

(a) maintaining water quality, and

(b) improving water quality in:

(i) significant contact recreation fresh water bodies to meet, as a minimum, the primary contact recreation objectives in Table 3.1, and

(ii) coastal water to meet, as a minimum, the primary contact recreation objectives in Table 3.3, and

(iii) all other rivers and lakes and natural wetlands to meet, as a minimum, the secondary contact recreation objectives in Table 3.2.

Table 3.1 Primary contact recreation in significant contact recreation freshwater bodies

Water body type	*E. coli*/100mL 95th percentile[4]	Cyanobacteria		Māori customary use	Toxicants and irritants
		Planktonic[5]	Benthic		
Rivers	≤ 540 at all flows below 3x median flow, September to April inclusive		Low risk of health effects from exposure	Fresh water is safe for primary contact and supports Māori customary use	Concentrations of toxicants or irritants do not pose a threat to water users
Lakes	≤ 540 September to April inclusive	≤ 1.8mm³/L biovolume equivalent of potentially toxic cyanobacteria OR ≤ 10mm³/L total biovolume of all cyanobacteria			

[4] Derived using the Hazen method from a minimum of 30 data points collected over three years
[5] 80th percentile derived using the Hazen method from a minimum of three years data

Table 3.2 Secondary contact with water in freshwater bodies			
Water body type	***E. coli*/100mL** Median[6]	**Cyanobacteria**	
		Planktonic[2]	**Benthic**
Rivers	≤ 1,000		Low risk of health effects from exposure
Lakes		≤ 1.8mm^3/L biovolume equivalent of potentially toxic cyanobacteria OR ≤ 10mm^3/L total biovolume of all cyanobacteria	

Table 3.3 Contact recreation in coastal water			
Coastal water type	**Pathogens** Indicator bacteria/100mL 95th percentile[7]	**Māori customary use**	**Shellfish quality**
Estuaries[8]	≤ 540 *E. coli*	Coastal water is safe for primary contact and supports Māori customary use	Concentrations of contaminants, including pathogens, are sufficiently low for shellfish to be safe to collect and consume where appropriate
Open coast and harbours[9]	≤ 500 enterococci		

Objective O24 provides further detail with respect to achieving the overarching proposed Plan Objective O5. This objective has particular relevance to discharges to water, most particularly for stormwater and wastewater discharges. A discussion and analysis of the appropriateness of Objective O24 can be found in the Section 32 report: Water quality.

Objective O25 Aquatic ecosystem health and mahinga kai

To safeguard aquatic ecosystem health and mahinga kai in fresh water bodies and coastal marine area:

(a) water quality, flows, water levels and aquatic and coastal habitats are managed to maintain aquatic ecosystem health and mahinga kai, and

(b) restoration of aquatic ecosystem health and mahinga kai is encouraged, and

(c) where an objective in Tables 3.4, 3.5, 3.6, 3.7 or 3.8 is not met, a water body or coastal marine area is improved over time to meet that objective.

[6] Based on a minimum of 12 data points collected over three years
[7] Derived using the Hazen method from a minimum of 30 data points collected over three years
[8] Excludes Te Awarua-o-Porirua Harbour and includes Lake Onoke. Estuaries, including river mouth estuaries, should be treated as an estuary when they are dominated by saline water, in which case Table 3.1 applies, and as rivers when they are dominated by fresh water, in which case Table 3.2 or 3.3 applies.
[9] Includes Wellington Harbour and Te Awarua-o-Porirua Harbour. Excludes the Commercial Port Area Lambton Harbour delineated in Map 32.

Note

Where the relevant Whaitua sections of the Plan contain an objective on the same subject matter as Objective O25 (water quality, biological and habitat outcomes), the more specific Whaitua objective will take precedence.

The joint values of aquatic ecosystem health and mahinga kai provide an expression of health at a regional scale that the proposed Plan seeks to achieve in fresh and coastal waters. These are described in Tables 3.4-3.8 of the proposed Plan, copied and shown over the following pages. Objective O25 provides direction to stormwater discharge consent decision-making for the 'second stage' local authority consents applications. Further discussion of Objective O25 can be found in the Section 32 report: Aquatic ecosystems.

Table 3.4 [of the proposed Plan] Rivers and streams								
River class[10]		**Macrophytes**	**Periphyton[11]** mg/m^2 chlorophyll *a*		**Invertebrates[12]** Macroinvertebrate Community Index		**Fish**	**Mahinga kai species**
			All rivers	**Significant rivers[13]**	**All rivers**	**Significant rivers[14]**		
1	**Steep, hard sedimentary**	Indigenous macrophyte communities are resilient and their structure, composition and diversity are balanced	≤ 50	≤ 50	≥ 120	≥ 130	Indigenous fish communities are resilient and their structure composition and diversity are balanced	Mahinga kai species, including taonga species, are present in quantities, size and of a quality that is appropriate for the area
2	**Mid-gradient, coastal and hard sedimentary**		≤ 120	≤ 50	≥ 105	≥ 130		
3	**Mid-gradient, soft sedimentary**		≤ 120*	≤ 50*	≥ 105	≥ 130		
4	**Lowland, large, draining ranges**		≤ 120	≤ 50	≥ 110	≥ 130		
5	**Lowland, large, draining plains and eastern Wairarapa**		≤ 120*	≤ 50*	≥ 100	≥ 120		
6	**Lowland, small**		≤ 120*	≤ 50*	≥ 100	≥ 120		

[10] Shown on Maps 21a to 21e.
[11] The periphyton objectives for River classes 3,5 and 6 marked with an asterisk (*) shall not be exceeded by more than 17% of samples; for all other River classes, to be exceeded by no more than 8% of samples based on a minimum of three years of monthly sampling.
[12] Rolling median based on a minimum of three years of annual samples collected during summer or autumn.
[13, 11] Rivers or streams with high macroinvertebrate community health, identified in column 2 of Schedule F1 (rivers/lakes).

Table 3.5 [of the proposed Plan] Lakes					
Lake type	**Macrophytes**	**Phytoplankton**	**Fish**	**Mahinga kai species**	**Nutrients**
All lakes[15]	Submerged and emergent macrophyte communities are resilient and occupy at least one third of the lake bed that is naturally available for macrophytes, and are dominated by native species	Phytoplankton communities are balanced and there is a low frequency of nuisance blooms	Indigenous fish communities are resilient and their structure, composition and diversity are balanced	Mahinga kai species, including taonga species, are present in quantities, size and of a quality that is appropriate for the area	Total nitrogen and phosphorus concentrations do not cause an imbalance in aquatic plant, invertebrate or fish communities

Table 3.6 [of the proposed Plan] Groundwater			
Groundwater type	**Nitrate**	**Quantity**	**Saltwater intrusion**
Directly connected to surface water	Nitrate concentrations do not cause unacceptable effects on groundwater-dependent ecosystems or on aquatic plants, invertebrate or fish communities in connected surface water bodies	The quantity of water is maintained to safeguard healthy groundwater-dependent ecosystems	The boundary between salt and fresh groundwater does not migrate between fresh water and salt water aquifers
Not directly connected to surface water	Nitrate concentrations do not cause unacceptable effects on stygofauna communities or other groundwater ecosystems		

[15] Except for intermittently closed and open lakes or lagoons (ICOLLs), such as Lake Onoke. These should be treated as a lake when they are in a closed state. When open to the coast, they should be managed an estuary, in which case Table 3.8 applies.

Table 3.7 [of the proposed Plan] Natural wetlands					
Wetland type	**Plants**	**Fish**	**Mahinga kai species**	**Nutrient status**	**Hydrology**
Bog	Indigenous plant communities are resilient and their structure, composition and diversity are balanced	Indigenous fish communities are resilient and their structure composition and diversity are balanced	Mahinga kai species, including taonga species, are present in, or are migrating through, the wetland and are in quantities, size and of a quality that is appropriate to the area	Low or very low	Water table depth and hydrologic regime is appropriate to the wetland type
Fen				Low to moderate	
Swamp				Moderate to high	
Marsh				Moderate to high	

Table 3.8 [of the proposed Plan]Coastal waters							
Coastal water type	**Macroalgae**	**Seagrass and saltmarsh**	**Invertebrates**	**Mahinga kai species**	**Fish**	**Sedimentation rate**	**Mud content**
Open coast	The algae community is balanced with a low frequency of nuisance blooms	NA	Invertebrate communities are resilient and their structure, composition and diversity are balanced	Mahinga kai species, including taonga species, are present in quantities, sizes and of a quality that is appropriate for the area	NA		
Estuaries and harbours[16]		Seagrass, saltmarsh and brackish water submerged macrophytes are resilient and diverse and their cover is sufficient to support invertebrate and fish communities			Indigenous fish communities are resilient and their structure, composition and diversity are balanced	The sedimentation rate is within an acceptable range of that expected under natural conditions	The mud content and areal extent of soft mud habitats is within a range of that found under natural conditions

[16] Intermittently closed and open lakes or lagoons (ICOLLs), such as Lake Onoke, should be treated as an estuary when they are in an open state. When closed to the coast, they should be managed a lake, in which case Table 3.2 applies.

Objective O49 Wastewater discharges to land

Discharges of wastewater to land are promoted over discharges to fresh water and coastal water.

Preferring discharges to land is an efficient way of achieving water quality outcomes, and provided that the discharge is appropriately managed, can result in beneficial reuse of nutrients while significantly reducing adverse effects on water quality and on cultural and social values. This objective recognises the importance of the life-supporting values of water, as well as the cultural values to iwi and to the community in terms of economic, social and cultural outcomes. Objective O49 is useful as it deals with the impacts of domestic wastewater discharges to land, or to water, guiding decision-making and providing a clear direction on a matter that can affect people and communities which have a relationship with these resources. The objective is relevant and appropriate and has been broadly supported by feedback from the community in the development of the proposed Plan.

4.3 Summary of proposed objectives for discharges to water

The proposed objectives seek to address the shortcomings of operative Freshwater Plan and Coastal Plan provisions, and create effective and efficient policy tools with which decision-makers and plan users can assess proposals for discharging to water. They better reflect the concerns of the regional community and provide a more effective response to the Act and higher level statutory and policy documents. In particular, the summary assessment of Objectives O48 and O50 as shown in Tables A1 and A2 the Appendix are appropriate because they:

- Give appropriate effect to the RPS and the NZCPS and aid in giving effect to the NPS-FM, and
- Use language and terminology that is consistent with the Act, RPS, NZCPS and NPS-FM, and
- Reflect current scientific knowledge, and
- Are *useful* in achieving the purpose of the Act as they provide decision-makers with a suite of assessment tools that will enable consistent and comprehensive consideration of the full range of environmental effects associated with discharging contaminants to water or to land where they will enter water

Objectives O48 and O50 are considered to be more relevant and useful in achieving the purpose of the Act, and it is proposed that they replace existing operative objectives.

5. Assessment of the policies, rules and other methods

Policies, rules and other methods in the proposed Plan refer to discharges of water or contaminants to water or to land. The policies, rules and other methods discussed in this report relate to discharges of water or contaminants directly to water (point source discharges). Discharges of stormwater to land as

well as directly to water are also included here. This is to capture the entire stormwater network infrastructure that discharges to both land and water. Other discharges to land are addressed in the Section 32 report: Discharges to land.

The following discussion of the policies, rules and other methods to achieve the objectives has been organised according to three categories:

- General discharges to water
- Wastewater discharges
- Stormwater discharges

The discussion of policies and methods below give an analysis of what is in the proposed Plan. Tables A3, A4, A5 and A6 in the Appendix provide options for achieving the objectives and the purpose of the Act that take into account the costs and benefits, the efficiency and effectiveness of provisions, risks and the appropriateness of provisions.

5.1 General discharges to water

As described in section 1.1 above, the presumption of the Act for discharges to water is to require resource consent for a discharge unless it is permitted by a rule in a plan. Discharges to water associated with the use of river and lake beds are addressed in the report, Section 32 report: Beds of rivers and lakes, and discharges relating to activities in wetlands are addressed in the report, Section 32 report: Wetlands. Discharges from earthwork sites are controlled under a combined land use and discharge rule (Rule R101) and the appropriateness of this approach is assessed as part of the report, Section 32 report: Soil conservation.

5.1.1 General discharges to water

The proposed framework for the rules to provide for as many discharge activities as reasonable as permitted activities. Those activities that cannot meet the permitted activity conditions, because of their scale or level of adverse effect require a resource consent.

There are 11 permitted activity rules and two controlled activity rules for direct discharges to water in the proposed Plan. Permitted or controlled activity status is appropriate for these activities as the adverse effects of these activities, both cumulative and individual, are less than minor and can be appropriately managed through suitable conditions in the rules.

For all other activities involving discharging directly to water the proposed Plan reflects the underlying presumption of the Act by requiring resource consent applications that can be granted or declined (as a discretionary under proposed Rule R68 or non-complying activity under proposed Rule R69). In these cases, to ensure the objectives and policies of the proposed Plan are appropriately achieved and considered, it is necessary to leave discretion open, so that all potential adverse effects can be considered.

When resource consent applications are made they will be considered according to the policies in the proposed Plan. The discussion of policies and methods (below) is grouped and analysed according to the following policy areas:

- Appropriateness of discharges, and
- Managing the adverse effects of discharges.

5.1.2 Appropriateness of discharges to water

Section 70 of the Act directs that discharges are not appropriate as permitted activities if a range of effects are likely to occur. The NPS-FM and the NZCPS place a strong emphasis on managing water to safeguard the life-supporting capacity of fresh water and the associated ecosystem processes and indigenous species. The RPS also seeks to manage the region's rivers, lakes, wetlands and coastal waters for healthy functioning ecosystems. Both of these parent documents to the regional plan recognise that discharging to water must be managed sustainably. Some discharges directly to water are not appropriate because the contaminants they introduce are of a type, or at quantities, that are unacceptable to people and communities.

Proposed Policies P62, P64, P68, P69, P70 and P83 address the appropriateness of discharges to water. Policies P62 and P64 are also assessed as part of the overarching water quality framework of the proposed Plan in the report entitled, Section 32 report: Water quality. Policy P83, relating to wastewater discharges to fresh water, is discussed further below in section 5.2 of this report. These policies give effect to one or more of the proposed Plan Objectives O3, O5, O23, O24 and O25. The policies on the appropriateness of direct discharges to water are implemented through a number of rules that are set out in Table 2 and discussed below.

Table 2: Provisions relevant to the appropriateness of discharges to water

Objectives:	O3: Sustaining mauri O5: Managing natural and physical resources O23: Maintaining or improving water quality O24: Contact recreation and Māori customary use O25: Aquatic ecosystem health and mahinga kai
Policies:	P62: Promoting discharges to land P68: Inappropriate discharges to water P69: Human drinking-water supplies P70: Managing point source discharges for aquatic ecosystem health and mahinga kai P83: Avoiding new wastewater discharges to fresh water

Rules:	**Discretionary activity rules** R53: All other stormwater R56: Discharge from contaminated land R58: Water races R60: Discharge from all other pumped drainage schemes R61: Existing wastewater R66: In-water biofoul cleaning R68: Other discharges outside scheduled areas **Non-complying activity rules** R62: New wastewater to fresh water R64 Wastewater from ships and offshore installations not permitted R67: Other discharges inside scheduled areas R77: Discharge of collected animal effluent to water

(a) Promoting discharges to land

The RPS provides direction to promote the discharge of animal and human effluent to land over discharges to water. Policy P62 of the proposed Plan promotes discharges of all contaminants to land, rather than direct discharges to water, particularly where there are adverse effects on aquatic ecosystem health and mahinga kai or contact recreation and Māori customary use. The term 'promote' is used in Policy P62 to recognise that while sustainable management is achieved by not discharging to water, there may be circumstances where discharging to water may be appropriate. For example, as well as maintaining ecosystem processes in water, discharges must also maintain groundwater quality (Objective O23) and ensure soils are healthy and productive (Objective O42). A decision to discharge to land rather than to water, or vice versa, will be made after considering where the least net adverse social, cultural, economic and environmental adverse effects occur.

This policy direction is given effect to through the provisions which direct how wastewater discharges should be managed (see section 5.2), as well as by a rule structure that provides an easier consenting pathway for applicants for discharging to land over discharging to water. For an evaluation of the provisions of the proposed Plan most relevant to this policy, particularly in regard to the disposal of human and animal effluent, see the Section 32 report: Discharges to land.

(b) Inappropriate discharges to water

Proposed Policy P68 identifies contaminants which are inappropriate to discharge to water. The contaminants identified here are characterised by the significance of the potential effects on mauri and ecosystem or human health if they were to enter water. In all cases, existing and widely available systems can be applied to avoid discharges of these contaminants entering water, including through reducing production of the contaminant, treatment systems and alternative disposal (i.e. to land).

In the case of wastewater discharges, the policy provides for exceptions associated with failures in wastewater or stormwater infrastructure and for discharges from small vessels. It is appropriate to recognise that urban

stormwater and wastewater network infrastructure may at times fail and that these discharges should be allowed. In particular, requiring networks to avoid these discharges altogether have extremely high costs. This potential cost to rate payers is considered likely to substantially outweigh the benefits that would be achieved by avoiding all discharges. At the same time, Policies P76 and P77 recognise the importance to the community of reducing the incidence of network failures through directing the progressive improvement of stormwater and wastewater networks. Altogether, these provisions are considered effective at achieving the plan objectives.

Since 2004, resource consents for discharge of collected animal effluent in the Wellington Region have only been issued for discharges to land, instead of to water. As discussed in the report, Section 32 report: Discharges to land, there has been general agreement among key stakeholders in the plan development process that discharges to water should be avoided. The discharge of collected effluent directly to water is not considered good practice by any New Zealand industry. Collected animal effluent is a valuable resource and if managed well the benefits to the environment and the farming operation can outweigh the costs of system management. It is also recognised as one of the largest causes of loss of nitrogen and phosphorus from dairy farms (Longhurst et al. 2013). Given all these factors, it is appropriate to ensure that there are no new discharges to water of collected animal effluent. The most efficient and effective method of doing so is a policy approach to avoid these discharges (Policy P68) and a corresponding non-complying rule (Rule R84). Further discussion on the management of collected animal effluent discharges to land can be found in the report, Section 32 report: Discharges to land.

All activities that are not anticipated by a specific rule in the proposed Plan and that enter water bodies identified as having outstanding values (Schedule A) or regionally significant indigenous biodiversity values (Schedule F) are controlled as a non-complying activity under proposed Rule R67. This rule is efficient as any discharges that have not been anticipated but which have less than minor effects on the water body will pass the Act's test under section 104D(1)(a); those that have effects greater than this will be tested by the proposed Plan provisions to protect outstanding and significant values.

(c) Discharges affecting human drinking water

Drinking water quality is an important issue for the region with feedback from community consultation as part of the development of the proposed Plan showing that access to safe quality water is highly valued by the public. If the quality of the source water declines, communities will incur direct costs for treatment or the installation of reticulated systems and indirect costs at the perceived loss of water quality. Protecting sources of community drinking water is generally more effective and less costly than trying to counteract the impacts of contamination after the occurrence.

Without a policy setting water quality limits on activities within drinking water supply areas, the cumulative effects of decision-making by different authorities could have serious consequences for water quality and human health. Policy P93 is to avoid adverse effects of discharges on the quality of community and group drinking water supplies to the extent practicable. The term 'where

practicable' allows for assessment of the degree to which avoiding effects will be an effective use of resources.

Policy P69 implements the NES-Drinking Water. Specifically, regional councils are required by the NES-Drinking Water to:

- Decline discharge or water permits that are likely to result in community drinking water becoming unsafe for human consumption following existing treatment

- Be satisfied that permitted activities in regional plans will not result in community drinking water supplies being unsafe for human consumption following existing treatment; and

- Place conditions on relevant resource consents requiring notification of drinking water suppliers if significant unintended events occur (e.g. spills) that may adversely affect sources of human drinking water

Overall, the proposed Plan takes a risk-based approach to identifying activities likely to adversely affect water for human drinking purposes. This has meant a focus on managing activities in drinking water supply catchments likely to contribute contaminants that are especially persistent and/or highly mobile (e.g. viruses and hydrocarbons) rather than on all discharges of contaminants. Microorganisms are particularly important in respect to human health outcomes (Ministry of Health 2008). For the management of discharges that may enter water, this means that activities may need to be controlled if they are likely to contain such high risk contaminants if they impact water used for human drinking purposes. For the purposes of this report, this means giving consideration to stormwater and wastewater discharges for their effects on drinking water in the proposed Plan. The management of discharges from contaminated land and the need to protect water for the purposes of human health are discussed in the report entitled, Section 32 report: Contaminated land and hazardous substances.

The NES-Drinking Water contains specific requirements for regional councils relating to the protection of drinking water for 'community' supply points that routinely deliver water to more than 500 people (see sections 7 to 10 of the NES regulations). The NES-Drinking Water also directs the management of the effects of discharges on 'group' supplies (25-500 people), though the requirements for community supply areas do not apply to the management of effects on group supply areas. It has been established that it is not possible to identify 'group' supply areas in the Wellington Region for the purposes of identifying and mapping these in the proposed Plan.

An analysis undertaken by Thompson (2015) identifies 14 community water supply protection area catchments for takes of water from surface waterbodies or shallow groundwater of greater than 500 people. These are mapped in Maps 30-31c of the proposed Plan. Of these catchments, 11 lie almost entirely within Department of Conservation boundaries. As such, the risk of contamination at these abstraction points due to land uses and activities is considered to be low and will be mainly limited to discharges associated with predator and pest

management activities (Thompson 2015, p2). As such, the proposed rules for discharges of agrichemicals (Rules R36-R37) contain conditions related to community drinking water supply protection areas. The permitted rule for land-based discharges of vertebrate toxic agents (Rule R87) does not allow the discharge to enter water and all aerial discharges require consent (Rule R88).

The discharge of dye and salt tracers to surface water within a community supply protection area is also appropriate to be managed as a consented activity and as such, a condition on Rule R47 requires consideration of effects on drinking water sources. All other permitted activity rules for discharges to water are considered likely to have less than minor effects on drinking water quality and as such, it is not necessary or effective to include additional rules or conditions in respect of these discharges in community supply protection areas.

For consented discharges that may affect group supply protection areas, proposed Policy P69 directs decision-making in terms of the effects of the NES-Drinking Water and is an effective tool for ensuring that the appropriate matters are addressed.

Policy P69 enables people to undertake land use activities involving discharges of contaminants, while providing the necessary level of protection needed for human health. Policy P69 sets out matters to be considered in applications for discharges of contaminants that would enter ground or surface water upstream or within a group or community water supply protection areas, so that adverse effects on water quality can be avoided or managed where avoidance is not practicable. It should also be noted that sections 7 and 8 of the NES-Drinking Water limit the ability of a regional council to grant consent to activities within community supply protection areas. The policy is followed by a note that explains this and also states that establishing the effects of discharges on drinking water supplies should be undertaken with the water supply operator.

For a further discussion on the provisions in the proposed Plan that further implement the requirements of the NES-Drinking Water, see the report, Section 32 report: Discharges to land. The proposed Plan provisions on water quantity for human health needs are examined in the report, Section 32 report: Water quantity, including provisions on providing for reasonable domestic use needs.

As summarised in Table A3 in the Appendix, the proposed provisions relating to the appropriateness of discharges to water in the proposed Plan discussed above are an efficient and effective option to implement the objectives of the proposed Plan.

5.1.3 Managing adverse effects

For those discharges of contaminants to water that may be appropriate, the proposed Plan provides a series of policies (see Table 3 below) to manage the adverse effects of point source discharges to water. These policies are to achieve Objectives O3, O5, O23 and O25. They address such matters as minimising effects of discharges, maintaining water quality, improving water quality where it is degraded, receiving-water quality expectations for point

source discharges, reasonable mixing criteria and cumulative effects of discharges.

The proposed Plan policies, rules and methods to give effect to these plan objectives with respect to managing the effects of discharges are shown in Table 3 and discussed below.

Table 3: Provisions relevant to managing the adverse effects of discharges to water

Objectives:	O3: Sustaining mauri O4: Intrinsic values O5: Managing natural and physical resources O23: Maintaining or improving water quality O24: Providing for contact recreation and Māori customary use O25: Safeguarding aquatic ecosystem health and mahinga kai
Policies:	**Key policies** P67: Minimising effects of discharges P70: Managing effects of discharges on aquatic ecosystem health and mahinga kai P71: Quality of discharges P72: Zone of reasonable mixing **Supporting policies** (see Section 32 report: Water quality) P62: Promoting discharges to land P63: Improving water quality for contact recreation and Māori customary use P65: Minimising effects of nutrient discharges P66: National Policy Statement for Freshwater Management requirements for discharge consents
Rules:	**Permitted activity rules** R42 Minor discharges R43 Water to water R44 Pool and spa pool water R45 Potable water R46 Dye or salt tracer R59 Discharges from existing pumped drainage schemes to water R63 Discharge of wastewater from ships and offshore installations R65 In-water biofoul cleaning **Controlled activity rules** R47 Dye or salt tracer **Discretionary activity rules** R55 Discharges from contaminated land R56 Discharges from contaminated land R58 Water races R60 Discharge from all other pumped drainage schemes R66 In-water biofoul cleaning R68 Discharges outside scheduled areas **Non-complying activity rules** R64 Wastewater from ships and offshore installations not permitted R67 Discharges in scheduled areas

The requirement of the Act to avoid, remedy or mitigate adverse effects provides the avenue through which the policies in Table 3 will be implemented through resource consent applications.

When managing point source discharges for their impact on water quality, the options available to WRC include continuation of the status quo of the Coastal Plan and Freshwater Plan, taking a 'standards' approach (either in the receiving environment or of discharge effluent quality) or applying an approach of managing activities on a catchment basis for their cumulative impacts on water quality. The latter approach is that directed by the NPS-FM and can be an effective and equitable management tool if an objective for receiving water quality in the receiving water body is established and the relative contribution of contaminants from different activities is known.

As described in the report, Section 32 report: Water quality, and set out in WRC's NPS-FM implementation plan (GWRC 2015), water quality limits required by the NPS-FM Policies A1 and A2 will be introduced to the whaitua chapters in the proposed Plan through variations and plan changes. The output from the whaitua processes, known as the Whaitua Implementation Programmes (WIPs), will form the basis for recommendations to WRC for whaitua-specific changes to the proposed Plan. Ahead of the these processes, the proposed Plan has a series of statutory requirements for managing water quality, including sections 7(f) and 69 of the Act, NPS-FM Objective A2 and NZCPS Objective 1.

(a) Minimising effects

Proposed Policy P67 gives effect to Objective O52 by ensuring that discharges are efficient through minimising their adverse effects by reducing, reusing, recovering or recycling contaminants in discharges. Minimising adverse effects relies on water users adopting best practice when discharging to fresh or coastal water. For a further discussion of Objective O52, see the report, Section 32 report: Water quantity.

(b) Affecting aquatic ecosystem health

Proposed Policy P70 addresses discharges to water bodies that do not meet the proposed Plan's objectives for aquatic ecosystem health and mahinga kai as described in Objective O25, Tables 3.4-3.8. This policy directs that existing activities that cause (alone or in combination with other activities) an outcome in Tables 3.4-3.8 to not be met must improve the quality of their discharge so that their adverse effects are reduced. New activities must not worsen water quality.

Policy P70 applies only to point source discharges of which there are few in the region, and does not apply to stormwater discharges authorised on a 'global' basis through Rules R50 and R51 for local authority stormwater networks. This policy provides a means to give effect to proposed Plan Objective O23 to maintain or improve water quality for discharges to water, and to meet the direction to maintain or improve (NPS-FM) or to maintain or enhance (the Act and NZCPS) water quality, and proposed Plan Objectives O5 and O25.

(c) Receiving water quality standards

The Act provides a framework for regional plans to identify water quality standards in receiving water bodies under section 69, including in accordance with established standards in Schedule 3, or in accordance with any other purpose a regional plan identifies in section 69(2). In taking a shared values approach to managing water bodies, the proposed Plan sets out that fresh and coastal water shall be managed for aquatic ecosystem health and mahinga kai outcomes. In safeguarding aquatic ecosystem health, the proposed Plan can, in part, also safeguard mahinga kai. Water quality standards to achieve this in relation to the adverse effects of individual point source discharges are established in proposed Policy P71.

Policy P71 provides direction on managing individual (but not cumulative) point source discharges to water in respect to their impacts on aquatic ecosystem health and mahinga kai. This policy establishes receiving water quality 'standards' for variables important for safeguarding aquatic ecosystem health that should not be exceeded as a result of an individual point source discharge after reasonable mixing. The biological or water quality attributes (Quantitative Macroinvertebrate Community Index (QMCI), pH, clarity and temperature) have been developed by Ausseil (2013) and Greenfield (2013) and relate to the ecosystem health outcomes for macroinvertebrate community health developed by Greenfield (2013). The dissolved oxygen standards are derived from the National Objective Framework in the NPS-FM for the compulsory value of ecosystem health. Policy P70 applies to point source discharge only where an outcome in Table 3.4-3.8 of Objective O25 is not being met in the receiving water. Policy P71 applies to all point source discharges (excluding 'global' stormwater discharges).

Identifying water quality receiving standards to manage point source discharges is common to other regional plans. For example, a maximum change of 20% QMCI (as set out in Policy P71) is the same as the standard set in the Manawatu-Whanganui Regional Council's One Plan (see Schedule D1A 'region-wide water quality targets') (Horizons 2014). The allowable change of clarity in Policy P71 (of either 20% of 30%, dependent on river class) takes a similar approach and standard as the One Plan Schedule D2A (Horizons 2014), endorsed in the Environment Court decision on the One Plan (Environment Court 2012) and used Environment Canterbury's recent Land and Water Plan (see Schedule 5A, ECan 2014).[17]

Although there are few point source discharges to water in the Wellington Region, having water quality standards is a useful, and therefore efficient, tool for the management of consented point source discharges to acheive proposed Objective O25. The receiving water standards in Policy P71 are considered appropriate to policy direction for the management of consented point source discharges.

(d) Reasonable mixing

Proposed Policy P72 identifies the matters that shall be given regard to when determining zones of reasonable mixing for discharges into fresh and coastal

[17] For the One Plan decision see paragraph 5-45 relating to suspended sediment in Part 5 of the decision.

water. Section 70 of the Act states the requirements that must be met for regional rules which allow discharges as a permitted activity. The section 70 requirements include a list of effects that are not to occur "after reasonable mixing". Section 107 is specific to discharges that require resource consent under rules in a regional plan. Section 107 refers to the same list of effects used in section 70 that are not to occur "after reasonable mixing". Therefore, a discharge allowed by a regional rule or resource consent must not cause certain effects after reasonable mixing (section 70 and section 107). This implies that there is a zone in which any stipulated standards need not be met.

There are various ways of defining reasonable mixing, or a zone of reasonable mixing, where the effects listed in section 70, section 107 and any additional effects included in a regional rule are allowed to occur. The inclusion of provisions that address these is therefore relevant to the requirements of the Act and useful for the management of discharges that enter fresh or coastal water.

Complete mixing in rivers and streams occurs some distance below the point of discharge (Rutherford et al. 1994). In lakes and coastal water, mixing continues more or less indefinitely. Rutherford et al. (1994) point out that there is a common misconception that mixing is only 'reasonable' once it is complete, but there is no justification for this notion. Instead, 'reasonable' is a judgement determined by criteria including statutory requirements regarding water quality and the values for which that water body is being used and managed.

For activities requiring a resource consent, guidance on how to define reasonable mixing on a case-by-case basis is provided by a Ministry for the Environment (MfE) publication (Rutherford et al. 1994), the ANZECC (2000) guidelines and a review of numeric water quality standards for Environment Canterbury and the MfE (Norton and Snelder 2003). These three guidance documents are summarised in a report prepared for Marlborough District Council (Clapcott and Hay 2014).

The available guidance refers to technical considerations, such as hydrodynamic factors which determine mixing. Typical hydrodynamic factors are effluent flow rate and concentration, design of the outfall, and the depth, velocity and rate of turbulent mixing of the receiving water. The guidance documents also refer to the management objectives of the receiving water. In addition, determining a zone of reasonable mixing should consider the type of contaminants and whether the contaminants bio-accumulate, bio-stimulate or have objectionable odour or visual characteristics. In the coastal environment, the rate at which discharges mix with the receiving waters is dependent on a number of interacting factors, including rate of flow, tide, wind and currents. Mixing can be further complicated if the discharge contains fresh water, such as treated wastewater, as fresh water is less dense than seawater meaning the discharge may float for some distance prior to full mixing.

Policy P72 in the proposed Plan identifies a list of matters to be given regard to when determining the zone of reasonable mixing for consented discharges. Policy P72 lists three matters to be given regard to which are of specific concern for the region. These matters are aquatic species migration, sites with

significant mana whenua values, and identified values for the water body. These matters are not exclusive, as section 104 of the Act allows the consent authority to have regard to any actual and potential effects on the environment.

For permitted activities where the discharge enters fresh water, the proposed Plan defines the physical limits of a zone of reasonable mixing. The definition of 'zone of reasonable mixing' in the Interpretation section of the proposed Plan clearly states that for consented activities, the zone of reasonable mixing is determined on a case-by-case basis in accordance with Policy P72. For permitted activities it is desirable for a plan to define the boundaries of a zone of reasonable mixing, so as to provide certainty to everyone, including the person undertaking the activity, the public and the compliance officer. This is not the case for permitted activities under the operative Regional Freshwater Plan. As the operative plan does not define a zone of reasonable mixing for permitted discharges, it has resulted in permitted rules that are difficult to interpret and difficult to enforce.

In addition to the use of the matters to be given regard to in Policy P72, a plan could define all of the criteria needed for determining the zone of reasonable mixing, as was recommended for Auckland Regional Council (Cooke et al. 2010). This approach is not considered to be useful given the wide range of criteria that need to be considered as identified in the guidance documents discussed above. The approach of the proposed Plan to provide numeric definition to permitted discharges into fresh water and a series of clear criteria to apply to consented discharges is an efficient and effective approach.

(e) NPS-FM discharges policy

Proposed Policy P66 gives effect to the NPS-FM directly by including Policy A4 from the NPS-FM as required if Policies A1 and A2 of the NPS-FM have not yet been implemented. It addresses the adverse effects of discharges, including cumulative effects, on life-supporting capacity of ecosystems in fresh water and of the impacts of discharges on the health of people and communities when interacting with fresh water. The inclusion of this policy in the proposed Plan is appropriate as it is required by NPS-FM Policy CA1 as the proposed Plan does not contain water quality limits. A further discussion on the water quality framework of the proposed Plan can be found in the Seciton 32 report: Water quality.

(f) Permitted discharges

The proposed Plan permits a series of discharges to water on the basis that these meet the requirements of section 70 of the Act when undertaken in accordance with the conditions of those rules. Most particularly, the conditions of the rules in this section area focused on ensuring that the aquatic ecosystem health in fresh and coastal water is maintained in accordance with proposed Objectives O23 and O25. The effects of the individual discharges should be so minor as to achieve the objective to maintain or improve water quality in accordance with Objective O23 – where they are unlikely to meet either this or section 70 requirements, either on their own or in combination with other activities, they are consented discharges. These discharges include minor discharges (Rule R42), discharges of water back into the water body it

originated from (Rule R43), pool and spa pool water (Rule R44), potable water (R45), dye and salt tracers (R46), existing pumped drainage schemes (R59), wastewater from ships (R63) and in-water biofoul cleaning (R65). For each rule, conditions are included as necessary to ensure the activities meet s70 of the Act and the proposed Plan objectives for water quality.

Proposed Rule R45 provides for the discharge of potable water from water supply infrastructure for the purposes of maintenance activities. Local authority water supply networks are recognised as regionally significant infrastructure under the RPS and the proposed Plan recognises the benefits derived from such infrastructure (Objective O12). This rule allows for operational discharges of water from the water supply network by applying a series of conditions reflecting good management practice in order to minimise adverse effects on fresh or coastal water. Discharges from these pipelines typically occur for the purpose of pipeline maintenance but may also periodically occur because water in the pipeline is fluorinated above levels suitable for drinking water. Discharges into seawater mix rapidly and therefore have negligible effects, therefore this rule requires discharges to the coast only to occur at the high tide.

The discharge of dye and salt tracers into water is permitted under proposed Rule R46. Dye or salt tracers are typically used to detect connections between different water systems, piped and natural, and as such are valuable tools in the management of water quality particularly in the management of urban network infrastructure. Therefore the proposed Plan takes a permissive but practical approach. If discharges are unable to meet the conditions that provide certainty that the effects of the tracer on aquatic environments have a less than minor effect or because discharges are to water bodies that drinking water supplies are taken from, they are controlled activities under proposed Rule R47.

Discharges of wastewater into coastal water from ships and vessels may adversely affect cultural, recreation and amenity values. Human sewage discharges directly impact the mauri of coastal water. While wastewater into coastal waters may be rapidly diluted and temporary in its adverse effects, where there are low energy receiving environments and high levels of use of water by people, sewage impacts on water can significantly affect values.

In accordance with the marine pollution RMMPR, Regulation 11(3), the proposed Plan may include rules relating to some discharges of wastewater from ships and offshore installations. The proposed Plan cannot regulate discharges of sewage that have been treated by a ‘Grade A’ or ‘Grade B’ wastewater treatment system described under Regulations 12 and 12A. The proposed Plan proposes that discharges from vessels of great than 500 tonnes that are not regulated by Regulations 12 or 12A of the RMMPR are permitted to discharge sewage in accordance with the requirements of Regulation 11 and with the further exclusion that these discharges shall not occur within the Wellington Harbour (Port Nicholson) limits.

The proposed Plan allows for the discharge of sewage that is not treated to a Grade A or B standard to be permitted only when the discharge occurs outside the Wellington Harbour (Port Nicholson) mouth and at a distance of greater than 200m from land (proposed Rule R63). This is a change from the status

quo as currently the operative Coastal Plan permits discharges of sewage beyond 200m of land under operative Rule 53, except where discharges are controlled by the RMMPR. These newly proposed conditions are appropriate to respond to the proposed Objectives regarding water quality, particularly of proposed Objectives O3 to sustain mauri, recognising the importance of the harbour to mana whenua.

(g) Consented discharges

There are also a range of activities that WRC considers do not meet the requirements of section 70 of the Act and that the purpose of the Act is more appropriately achieved through a resource consent process. For discharges to water, these include the discharge of dye or salt tracer to significant areas or drinking water supply areas (proposed Rules R47), discharges from contaminated land (proposed Rules R55 and R56) and discharges from water races and discharges from newly established pumped drainage schemes (proposed Rules R58 and R60). For all other activities that are not captured by a specific rule, discharges are either a non-complying activity (proposed Rule R67) where the discharge will enter an identified water body with significant values, or as a discretionary activity everywhere else (proposed Rule R6). For an assessment of the contaminated land discharges (proposed Rules R55 and R56), see the report, Section 32 report: Contaminated land and hazardous substances. For an assessment of the rules for the discharge of material from cleaning biofoul from vessels in the coastal marine area (proposed Rules R65 and R66), see the report, Section 32 report: Activities in the coastal marine area.

As summarised in Table A4 in the Appendix, the proposed provisions relating to managing the effects of discharges to water in the proposed Plan discussed above are an efficient and effective option to implement the objectives of the proposed Plan.

5.1.4 Efficiency and effectiveness of general discharges provisions

The proposed Plan approach to managing discharges to water by determining what are appropriate discharges and providing direction on managing effects is the most efficient and effective, primarily for the following reasons:

- Water is a commonly held resource without ownership, but managed sustainably by the WRC for people and communities of the Wellington Region

- Adverse effects may be more than minor, but can often be avoided, remedied, or mitigated and the proposed Plan provides directions to achieve this in accordance with the proposed Plan objectives

- The quality of water and the discharges made to it differ from place to place in every catchment in the region (according to land area, climate, topography, geology), and

- The NPS-FM requires the WRC to account for fresh water quality such as through collection of information on contaminants in discharges to water

The proposed Plan provisions are appropriate because they better provide for the long-term benefits to the community and better safeguard ecosystem health, mahinga kai, provide for contact recreation, Māori customary use and water quality suitable for the health needs of people, and recognise the intrinsic values of ecosystems.

The provisions relating to the appropriateness of discharges to water and to managing the effects of discharges on water are the most efficient and effective means of giving effect to the proposed Plan objectives, particularly O5, O23, O24 and O25.

Table A3 (appropriateness of discharges) and Table A4 (managing the effects of discharges) in the Appendix provide a summary of the options for achieving the objectives and purpose of the Act in relation to general discharges to water that consider costs and benefits, the efficiency and effectiveness of provisions, risks and the appropriateness of provisions discussed above.

5.2 Discharges of wastewtaer

Discharges of wastewater to water are addressed specifically in Policies P80, P81, P82 and P83 of the proposed Plan. These policies aim to achieve Objectives O3, O5, 23, O24, O25 and O50. With the exception of Objective O50, achieving these objectives is discussed above in section 5.1 for all discharges to water. Objective O50 is to progressively reduce discharges of wastewater to fresh water. Policies P80-P83 and Rules R61 and R62 are specifically for wastewater discharges to water. The objectives, policies and rules directly relevant to wastewater discharges to water are set out in Table 4.

Table 4: Provisions relevant to managing discharges of wastewater to water

Objectives:	**O50: Wastewater discharges to fresh water** O3: Mauri O5: Fresh water and coastal water O11: Māori customary use O23: Maintain or improve water quality O24: Providing for contact recreation and Māori customary use O25: Safeguarding aquatic ecosystems sO49: Promoting wastewater discharges to land
Policies:	P80: Existing discharges of wastewater to water P81: Existing discharges P82: Mana whenua values and interests P83: New discharges of wastewater to water
Rules:	R61: Existing wastewater discharges to fresh water R62: New wastewater discharges to fresh water

Matters raised in the discussion of wastewater issues in section 2.4 of this report are relevant to the development of efficient and effective policies and methods.In particular:

- Wastewater discharges to water in the region have adverse effects that are sometimes unacceptable
- Adverse effects of wastewater containing human effluent have particularly significant cultural and spiritual adverse effects to mana whenua when discharged to water
- Discharges from both networks (including pipes, constructed overflows and pump stations) and treatment plants have an historical legacy – infrastructure constructed in the past continues to be maintained and operated at the present time
- Every community is different and will have different solutions and timeframes for managing wastewater discharges to water
- Reducing wastewater discharges to fresh water in the region is a priority
- Comprehensive solutions to avoiding, remedying, or mitigating adverse effects will be costly and will involve timeframes beyond the life of the proposed Plan (10 years), and
- Wastewater contaminants are collected and transported in networks that can be leaky and overflow in wet weather conditions

Three options are evaluated below for discharges of wastewater to fresh and coastal water. They are the status quo, an 'avoid' approach as was taken in the Draft Natural Resources Plan, and an alternative approach of minimising and progressively reducing adverse effects. The latter approach of minimising and progressively reducing adverse effects is considered the most efficient and effective for the reasons outlined below.

5.2.1 Option 1: Status quo

The RPS includes a policy that promotes discharges of wastewater to land rather than water (Policy 16). Wastewater provisions in the operative Coastal Plan and the operative Freshwater Plan do not give effect to the wastewater policy in the RPS. Relying on the status quo is not an option available to the proposed Plan.

5.2.2 Option 2: 'Avoid' approach

Objectives and policies aimed at avoiding adverse effects of wastewater discharges to water carry with them an understanding that adverse effects other than minor or transitory adverse effects should not be allowed to occur. For the most part avoiding adverse effects would require discharges of wastewater to water to be prevented.

Avoiding adverse effects as an objective could not be achieved in the lifetime of the proposed Plan because all cities and large townships in the region

currently discharge wastewater to water. It is not realistic to expect that such discharges can be eliminated within the lifetime of the proposed Plan (10 years). The number of exceptions when adverse effects would continue under the proposed Plan would likely create inconsistencies with an avoid approach.

An avoid approach also carries with it an expectation that prohibited or non-complying activity status for discharges of wastewater to water would be appropriate. A discretionary activity is considered appropriate for most wastewater discharges because they occur daily across the region, which is likely to continue within the lifetime of the proposed Plan. At the present time local authorities do not have plans in place to avoid the adverse effects of wastewater discharges to water in the short term.

In summary, an avoid approach is not efficient or effective because it would lead to inconsistencies between objectives, policies and rules, and it is unlikely that discharging wastewater to water can be prevented in the 10-year lifetime of the proposed Plan.

5.2.3 Option 3: Minimising adverse effects and progressively improving

Because improving some wastewater discharges to water will involve solutions beyond the lifetime of the proposed Plan (10 years), a comprehensive approach to minimising adverse effects and progressively improving discharges should be considered in the context of short term (within the lifetime of the proposed Plan) and long term (beyond the lifetime of the proposed Plan).

Policy P80 includes such an approach in clauses (c), (d) and (e). When a local authority applies for resource consent, these clauses require information on short- and long-term goals, how these goals will satisfy proposed Plan provisions, and infrastructure changes to meet the goals, including key milestones and dates. The costs of taking such an approach will be local authorities updating or developing their strategic approaches to managing wastewater discharges. Costs are for the provision of information that is expected with resource consent applications for large-scale discharges with potential adverse effects. They are no more than would normally occur. The benefits of Policy P80 are that local authorities will have determined short- and long-term goals that they are working towards. Clause (a) of Policy P80 is for applicants to identify objectives, limits, targets, discharge standards or other requirements set out in the proposed Plan. Providing such information is also necessary and expected as part of consent applications. Clause (b) of Policy P80 is discussed below in relation to Policy P82.

Policy P81 is to minimise and progressively improve existing discharges of wastewater to water. Minimising adverse effects in Policy P4 gives the meaning of minimise as “reducing adverse effects of the activity to the smallest amount practical”. It encompasses both technical and economic considerations. Any changes to current wastewater discharges to water have to be realistic and technically feasible. Changes to current discharges also have to be economically realistic and feasible. Minimising adverse effects of existing wastewater discharges to water will require different approaches and different timeframes according to the ability of each community to pay. The community paying for any changes will determine affordability through decisions made

under Part 6 of the Local Government Act 2002. Taking the approach in Policy P81 is efficient and effective because it relies on individual communities responding to their own circumstances.

Policy P81 also prioritises some elements of wastewater discharges to water by requiring them to progressively improve. There must be progressive improvement of the quality of existing discharges to fresh water from treatment plants and reduction of the amount of wastewater going to fresh water. Masterton, Carterton, Greytown, Featherston, Martinborough and communities on the Kāpiti Coast currently discharge wastewater directly to fresh water. All but the Kāpiti Coast communities, which discharge wastewater to fresh water at the Paraparaumu treatment plant, are committed to reducing their discharges to fresh water and have long-term asset plans in place to continue this process (MDC 2015b, CDC 2015 and SWDC 2015).

The Masterton District Council in its infrastructure strategy for the period 2015-2045 (MDC 2015b) identifies that further reduction in treated wastewater discharged into the Ruamāhanga River will be needed. It states:

> *The most likely scenario and timing of this will be subject to further consultation with iwi, GWRC and the community. Options for increasing treatment capacity to further reduce the need to discharge the treated effluent into the river include:*
>
> 1. *Construction of wetlands.*
> 2. *Further treatment of effluent to Fonterra standards for use on adjacent dairy farms.*
> 3. *Construction of further irrigation areas on Council-owned land.*
> 4. *Construction of a reticulation system for treated effluent for irrigators to use.*
> 5. *Construction of additional pond capacity for the storage of winter flows. A budget provision of $1.5 million is allowed for in the work programme for the implementation of the selected option, with a further $37 million provision allowed for a plant upgrade to stop treated wastewater discharges to the river when the current consent expires in 2034.*

Capital upgrade costs for land-based treatment of wastewater for the communities of Martinborough, Greytown and Featherston are estimated in the short term (2015-2025) at $10.25m and an additional $31.54m for the long term (2025-2045) (SWDC 2015). Carterton District Council's proposals to discharge to land are estimated to be $4m in the short term (2015-2025) and an additional $8m in the long term (2025-2045) Kāpiti Coast District Council has committed to exploring improvements to wastewater discharges to fresh water and investigating the potential for discharges to land (KCDC 2015). However, at this time no commitment has been made by KCDC to such improvements.

Policy P81 also prioritises the progressive improvement of frequency and volume of existing discharges of untreated wastewater to fresh water and coastal water from network overflows (in high rainfall conditions). Policy 23(2)(a) of the NZCPS is to have particular regard to avoiding untreated discharges of sewage. The NPS-FM has no such *avoid* policy for discharges of untreated sewage to fresh water, but Objective O50 of the proposed Plan is for wastewater discharges to fresh water to be reduced. Progressively reducing untreated wastewater overflow discharges to fresh water is an efficient and effective way to reduce the overall adverse effects of wastewater discharges to water.

Proposed Policy P82 requires reasonable steps to be taken to reflect mana whenua values and interests in the management of wastewater discharges and receiving waters, including adverse effects on Māori customary use and mahinga kai. It gives effect directly to Policy D1 of the NPS-FM and is effective for this reason. Policy D3 of the NPS-FM includes:

> *Local authorities shall take reasonable steps to:*
>
> *(a) …;*
>
> *(b) …;*
>
> *(c) reflect tāngata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems in the region.*

To assist with implementing Policy P82 of the proposed Plan, clause (b) of Policy P80 requires resource consent applicants to provide information on mana whenua values and interests in relation to discharges and receiving waters, including adverse effects on Māori customary use and mahinga kai. Such information is necessary for the effective implementation of Policy D1 of the NPS-FM.

Policy P83 of the proposed Plan is that new discharges of wastewater to fresh water are avoided. Submissions from mana whenua (e.g. Te Atiawa Ki Whakarongotai, Ngā Hapū o Ōtaki) on the Draft Natural Resources Plan (GWRC 2014) indicated that such an approach was appropriate. Consultation with the Kaitiaki group during preparation of the proposed Plan also supported such an approach. The role of the kaitiaki group in the regional plan preparation process as stakeholders mandated by mana whenua is described in the section 32 report: Māori values. Policy P83 gives effect to Policy D1 of the NPS-FM, discussed above, directly in the proposed Plan. Because such discharges are new, planning for them can proceed on the basis that discharges should be to land rather than water. Rule R62 of the proposed Plan is for such discharges to water to be a non-complying activity.

5.3 Discharges of stormwater

In the proposed Plan, stormwater is defined as *"runoff that has been intercepted, channelled, diverted, intensified or accelerated by human modification of a land surface, or runoff from the external surface of any*

structure, as a result of precipitation and including any contaminants contained therein." The adverse effects associated with stormwater discharges into fresh and coastal water include water quality impacts on aquatic ecosystem health, mahinga kai and the ability of people to use water and be healthy in doing so. There are also adverse effects on streambed and bank habitat from increased volumes and rates of stormwater discharge as impervious cover increases as catchments are developed. These issues are discussed above in section 2.

The focus of the proposed Plan stormwater provisions is on the management of adverse effects from stormwater networks. Stormwater networks are the systems that capture, transport, treat and discharge stormwater and the contaminants contained therein. The quality of stormwater is affected by the land uses in and around the network, the way the network operates determines how much, of what quality, and at what rate stormwater is discharged into fresh and coastal water bodies. The stormwater networks belonging to local authorities are the key system for transporting contaminants through our urban spaces into aquatic environments.

There are five rules relating to discharges of stormwater: two permitted activities for stormwater discharges from individual sites that will reach water (Rule R48) and that will reach land (Rule R49); one controlled activity (Rule R50) for the first stage consent for local authority networks; two restricted discretionary activities for the second stage consents from local authority networks (Rule R51) and from large sites (R52); and a catch-all discretionary activity for all other discharges not meeting the conditions of Rules R48-R52 (Rule R53).

The discussion of policies and methods (below) is grouped and analysed according to the following policy areas:

- Minimising the adverse effects of stormwater discharges, and
- Stormwater discharges from local authority stormwater networks

5.3.1 Minimising effects of stormwater discharges

The proposed Plan approach to minimising the effects of stormwater discharges to water is summarised in the following section. The appropriateness, efficiency and effectiveness of these approaches are then considered.

Table 5: Provisions relevant to other discharges of stormwater

Objectives:	O1: Ki uta ki tai O3: Mauri O4: Intrinsic value of water O5: Managing natural resources O11: Māori customary use O13: Benefits of regionally significant infrastructure O18: Low energy receiving environments O23: Maintain or improve water quality O25: Aquatic ecosystem health and mahinga kai
Policies:	**Key policies** P73: Minimising adverse effects of stormwater discharges P78: Managing stormwater discharges from large sites P79: Managing land use impacts on stormwater **Supporting policies** P7: Uses of land and water P66: National Policy Statement for Freshwater Management requirements for discharge consents P67: Minimising effects of discharges P68: Inappropriate discharges P70: Managing discharges where outcomes not met P71: Quality of discharges P72: Reasonable mixing P95: Discharges to land
Rules:	R48: Stormwater from an individual property R49: Stormwater to land R52: Stormwater from large sites R53: All other stormwater

(a) Permitted activities

Discharges of stormwater to fresh and coastal water, from individual sites, are addressed through the permitted activity Rule R48. Discharges of stormwater to land that do not enter water are permitted under Rule R49. Activities that do not meet the conditions of Rules R48 or R49 require consent as either a restricted discretionary consent under Rule R52 or as a discretionary activity under Rule R53.

The conditions of Rule R48 provide for the discharge of stormwater to water, or to land where it may enter water (such as via a stormwater pipe), where the effects are less than minor. This permitted activity rule allows for discharges of stormwater with negligible effects to occur without resource consent being required. Compared to the operative Freshwater Plan, the proposed Plan extends a greater level of regulation for some types of discharges and therefore greater oversight of, and protection from, the adverse effects of stormwater discharges. For example, under condition (a) of Rule R48 the discharge of stormwater in locations where lakes or rivers are identified as an outstanding water body in Schedule A1 is not a permitted activity. In other cases, the

conditions are similar to the requirements of the operative plan, reflecting the requirements of the Act under section 70.

Rule R49 controls discharges of stormwater from individual properties where the discharge is to land but does not enter water. The conditions of these rules are aimed at managing the adverse effects of stormwater volumes on nuisance flooding of neighbouring properties and on stormwater quality from contaminated land. These conditions are similar but more specific than the conditions of Rule 3 of the Discharges to Land Plan.

A permitted activity status is appropriate for these activities as the adverse effects of these activities and can be appropriately managed through suitable conditions in the rules or will be managed by the council owner of that network in accordance with the network consent approach, discussed in section 5.3.2 below. These permitted activity rules are effective as they provide greater certainty than the operative plans and are effective at achieving the objectives of the proposed Plan.

(b) Minimising effects

The key policy direction in the proposed Plan for the discharge of stormwater is provided by Policy P73. This policy directs that the adverse effects of stormwater discharges are minimised, including by employing good management practice, controlling contamination and stormwater capture at source, employing water sensitive urban design in new subdivision and development and by progressively improving existing infrastructure affecting stormwater over time. This policy provides a principled approach for stormwater management in the region and into the future. The policy is consistent with the proposed Plan's approach to good management practice for other activities that impact water quality (e.g. Policy.P96).

Good management practice of stormwater for water quality outcomes typically involves avoiding contamination or capture of stormwater at source (source control). Source control is then augmented through progressive treatment devices that slow the discharge rate of stormwater, treat stormwater to remove contaminants and to reduce overall the volumes of discharges reaching streams and the coast. Various terms are used to describe good management of stormwater including water sensitive urban design, low impact design and water sensitive design. Water sensitive urban design has increasing application in New Zealand and has recently been adopted as a principle of management for urban design and stormwater by the Wellington City Council (WCC 2014).

The overarching objectives of water sensitive urban design are to:

1. *Protect or enhance the environmental, social and economic values of downstream environments*

2. *Reduce the frequency, duration and volume of stormwater runoff to mitigate the risks of nuisance flooding and moderate post-development flows to waterways*

3. *Reduce demand on potable water supply*

4. *Improve amenity in the urban environment. (WCC 2014, p3)*

These principles closely align with the issues and objectives of the proposed Plan including Objective O1 (Ki uta ki tai) and O52 (Efficient use of water). It is considered that water sensitive urban design is an appropriate term to apply in the proposed Plan for describing good management of stormwater because of the wide use of the approach and its specific application in the Wellington city area. It should be noted that the use of this term does not exclude the application of other related terms.

Policy P79 provides direction with regards to stormwater management specifically in regard to quantity matters particularly from new subdivision and development. The policy directs that peak discharge rates and volumes are managed for their effects on ecosystem health and on the impacts on communities through managing the effects of flooding on existing infrastructure, private property and risk to human health. Echoing the source control approach, the policy recognises that retaining on site hydrological conditions provides an optimum approach to managing these effects, but also recognises potential site and economic constraints on achieving this. The policy provides guidance to resource consent processes.

(c) Discharges from large sites

For all other activities involving discharging stormwater to water that are not part of local authority stormwater network, the proposed Plan reflects the underlying presumption of the Act by requiring resource consent applications that can be granted or declined. These activities require consent under Rule R52 (restricted discretionary activity) or Rule R53 (discretionary activity), or for discharges off contaminated land, are controlled by Rules R55 and R56.

Activities that do not meet the permitted activity conditions of R48(c) are stormwater networks (controlled under the rule framework described in section 5.3.2 above) and discharges to water from large, impervious sites such as ports, airports and the state highway network. These sites tend to have activities that are at high risk of generating contaminants (e.g. hydrocarbon derivatives and heavy metals) that impact water quality and ecosystem health and as such are not appropriate to manage as permitted activities. Stormwater discharges from ports, airports and the state highway network that enter water are controlled as restricted discretionary activities under Rule R52. This section describes the management of activities under this rule.

Table 6: Provisions relevant to stormwater discharges from large sites

Policies:	P66: National Policy Statement for Freshwater Management requirements for discharge consents P67: Minimising effects of discharges P70: Managing discharges where outcomes are not met P71: Quality of discharges P72: Reasonable mixing P73: Minimising adverse effects of stormwater discharges P78: Managing stormwater discharges from large sites P79: Managing land use impacts on stormwater
Rules:	R52: Stormwater from large sites R53: All other stormwater

The three types of sites controlled under Rule R52 are each defined as regionally significant infrastructure in the proposed Plan and in the RPS. Under Policies P12 and P13 of the proposed Plan, the benefits of regionally significant infrastructure are recognised and the ongoing operation of these activities is recognised as generally appropriate. Policy direction is also provided by the NZCPS with respect to the management of discharges from ports under Policy 25(5)(a). This policy directs that operators of ports are required to take all practicable steps to manage discharges to avoid contamination of coastal water, substrates, ecosystems and habitats that is more than minor.

Under the operative plans, no discharge consents have been issued for discharges off these identified 'large sites'. There are three state highways in the Wellington Region (State Highways 1, 2 and 58). Discharges of stormwater from the networks servicing these state highways are a permitted activity under the operative Freshwater and Coastal Plans. There are no current resource consents for stormwater discharges from state highways in the Wellington Region, although elsewhere in New Zealand stormwater discharges are routinely consented, often on a 'global' or network basis. While some monitoring of discharges of stormwater discharges from CentrePort and the Wellington International Airport exist, these have not led to consent applications. It is, however, reasonable to conclude that discharges off the port and airport cannot meet the requirements of the Act under section 70.

In the plan development workshops, WRC initially proposed that stormwater discharges from state highways should be treated similarly to local authority stormwater networks given the size of the state highway network. This meant that the two-stage approach set out for local authority networks would similarly be applied to the discharge of stormwater from state highways. Feedback from the New Zealand Transport Agency during the development of the proposed Plan indicated that this may not be an appropriate approach. Though large in scale, these the discharges from the state highways are differ from local authority networks in that they usually feature only one land use activity. Further, NZTA has good management practice guidelines, with a stormwater treatment standard for highway infrastructure set out in the publication by NZTA (2010). A report by NZTA concluded that using the stormwater

treatment standard for highway infrastructure would "improve environmental performance while saving on money, design, obtaining consents, operations and maintenance" (NZTA 2009, p9).

The application of the two-stage approach to stormwater discharges from state highways was re-examined from that in the draft Natural Resources Plan. Because the activities occurring on state highways is only that of vehicle movement, the process of prioritising and managing areas of the network for improvement is less complex than for council stormwater networks. It is considered more effective to manage stormwater from state highways under a simpler regulatory framework than that for council stormwater networks.

Rule R52 therefore provides for discharges of stormwater from the state highway network, ports and airports where the discharge enters water as a restricted discretionary activity. Discharges to land, such as from the Masterton Hood Aerodrome, would be controlled as discharges to land under Rule R49.

The policy approach that applies to Rule R52 includes minimising the adverse effects of stormwater through identifying priorities for improvement and the application of good management practice, source control and ongoing improvement of existing infrastructure (P78 and P73). Although a restricted discretionary activity, the discretion of this rule provides for an effective and efficient approach to minimising the adverse effects of stormwater discharges through identifying priority areas and implementing progressive improvement over time.

Any other discharge of stormwater not meeting the conditions of rules R48 or R49, is a discretionary activity under Rule R53. To ensure the objectives and policies of the proposed Plan are appropriately achieved and considered, it is necessary to leave discretion open, so that all potential adverse effects can be considered.

(d) Efficiency and effectiveness

The policy approach to minimise the effects of stormwater discharges to fresh and coastal water is a more effective approach than the operative plans as it provides direction on the management of stormwater where the operative plans provide none. These policies and the rule structure provide an efficient means of managing stormwater because they are specific and directive. In the case of activities where it is recognised that stormwater discharges are beneficial because they allow for the operation of regionally significant infrastructure, discretion is restricted on resource consent applications.

This report does not analyse the costs and benefits of good management practice such as water sensitive urban design devices. The costs and benefits of good management practice of stormwater are highly dependent on local industry experience, design priorities, economies of scale and the role of site topography, soil type and rainfall.

It is noted, however, that studies have shown that low impact design or water sensitive urban design development methods can have lower installation, operational and maintenance costs and can prove more cost-effective in

delivering stormwater quality outcomes than standard stormwater management techniques (MacMullan and Reich 2007). A review of water sensitive design application to stormwater infrastructure in greenfield development indicated that costs were often lower than conventional stormwater design because of reduced earthwork activities and lower costs of cheaper stormwater treatment and transport systems (e.g. swale construction is often cheaper than laying stormwater pipes) (Shaver, 2009). However, a recent review of low impact design costs in Auckland concluded that costs are almost always site dependent and that using case studies to draw conclusions on costs and benefits should be undertaken with caution (Kettle and Priya 2013).

The policy approach to minimise the effects of stormwater discharges to fresh and coastal water is appropriate because it gives effect to the objectives of the proposed Plan, particularly Objectives O13 (maintain or improve water quality) and O25 (aquatic ecosystem health and mahinga kai). The approach appropriately gives effect to direction from higher level policy documents including the NZCPS Policy 23(4)(b) (to promote design options that reduce stormwater capture at source) and 25(5) (managing discharges from port facilities), and RPS policies 14 and 41 to provide minimise contaminants entering water from new subdivision and development and generally to minimise the adverse effects of stormwater discharges. The approach further recognises Policy 6 of the RPS to recognise the benefits of regionally significant infrastructure. This approach is the most efficient and effective and therefore most appropriate option for the proposed Plan.

5.3.2 Discharges from stormwater networks

The proposed Plan defines stormwater networks as *"the network of devices designed to capture, detain, treat, transport and discharge stormwater, including but not limited to kerbs, intake structures, pipes, soak pits, sumps, swales and constructed ponds and wetlands, and that serves more than one property."* Typically, these networks are owned and operated by local authorities.

In the proposed Plan, the discharge of stormwater from local authority stormwater networks is directed by Objective O48 and two key Policies P74 and P75, with complimentary Rules R50 and R51, through Schedule N. These are further supported by Policies P73, P76, P77 and P78 and Method M15. Discharges from networks which do not belong to a local authority are managed as discretionary activities under Rule R53.

The relationship between these policies, rules and methods related to the discharges of stormwater from local authority stormwater networks and the proposed Plan objectives is shown in Table 7 below.

Table 7: Provisions relevant to discharges of stormwater from local authority networks

Objectives:	**Key objective** O48: Stormwater networks **Relevant objectives** O1: Ki uta ki tai O3: Mauri O4: Intrinsic value of water O5: Managing natural resources O11: Māori customary use O13: Benefits of regionally significant infrastructure O18: Low energy receiving environments O23: Maintain or improve water quality O24: Contact recreation and tangata whenua use O25: Aquatic ecosystem health and mahinga kai O50: Wastewater to fresh water
Policies:	**First stage consent** P74: First stage local authority network consent **Second stage consent** P75: Second stage local authority network consent P73: Minimising adverse effects of stormwater discharges P76: Minimising wastewater and stormwater interaction P77: Assessing consents to discharge stormwater containing wastewater P79: Managing land use impacts on stormwater
Rules:	**Controlled activity (first stage consent)** R50: Stormwater from a local authority network at plan notification **Restricted discretionary activity (second stage consent)** R51: Stormwater from a local authority network two years after public notification **Discretionary activity** R53: All other stormwater
Method:	M15: Regional stormwater working group M22: Development of good management practice guidelines
Schedule:	Schedule H: Priorities for improvement for contact recreation and Māori customary use Schedule N: Stormwater management strategy

(a) Stakeholder input

In the development and assessment of the options described in this section, a series of stakeholder discussions were held and feedback incorporated into the development of the proposed Plan provisions. The initial workshop was held in July 2012 with stakeholders including community and interest groups, central government agencies (e.g. the New Zealand Transport Agency, Department of Conservation) and local authorities. This workshop identified that any substantive change away from the permitted activity regime of the operative plans would require a 'transition' process in order to be effective to asset local

authorities towards a different management regime of land use and stormwater networks.[18]

In recognition of the significance of local authorities in stormwater management, two subsequent workshops (October and December 2012) were held with local authorities and Capacity[19] with the aim to bring both land use and asset management planning officers together. The first of these workshops involved participants examining four models for managing stormwater networks for water quality outcomes, and scoring against a set of criteria for their efficiency and effectiveness. The models included a permitted activity regime (i.e. the status quo); a consented regime that required each local authority to undertake objective setting as part of the consent compliance process (e.g. the current WCC coastal discharge consent); a consent regime that took effect from plan notification that was based on water quality objectives set outside the consent but which responded to these via the consent and a stormwater management strategy; and a consent regime that only took effect once water quality objective setting and a stormwater management strategy process had been undertaken.

The output of this workshop indicated that the third and fourth models scored the highest by the participants.[20] Feedback from this workshop further indicated a need to support the transition to managing stormwater networks for water quality outcomes. Participants recognised that the permitted activity model delivered stormwater asset management without the constraint of a consented model, but that a permitted activity status lacks giving local authorities the imperative to address and fund changes to respond with newly articulated issues, particularly in respect to water quality outcomes.

The follow-up workshop examined the roles of different agencies in managing stormwater quality outcomes, including examining the different activities which authorities where should control inputs into stormwater networks. The feedback on the workshop activity indicated that local authorities believed the most efficient and effective model for managing stormwater quality and quantity was through local authority management of inputs.[21] This approach would recognise the ability of local authorities to control land use impacting stormwater quality and quantities, and to control connection of private land uses local authority stormwater networks. This outcome strongly informed the following amendments to the draft provisions. These provisions were presented to a wider stakeholder workshop in March 2013.

Overall, the key concerns of local authorities gathered in these stakeholder workshops, as well as the feedback on the Draft Natural Resources Plan, can be characterised as follows:

- The nature of stormwater problems differs between catchments and communities (e.g. wastewater cross-contamination, extent of new subdivision and development, industrial land uses)

[18] See document number #1091556 for workshop summary
[19] Known as Wellington Water Limited since September 2014
[20] See document number #1139616 for a summary of the matrix scoring, and #1139583 for workshop summary
[21] See document number #1155445 for workshop summary

- The proposed Plan provisions should not be a 'one size fits all' model but one that responds to the different priorities of communities, nature of receiving environments and capacity for change (e.g. skills, resources, other Council priorities)

- Local authorities have varying abilities to fund stormwater asset capital upgrades

- Consent regimes are most efficient when they respond to long-term planning and budgeting processes

- Any greater regulation of stormwater discharges requires a transitional process and support from the WRC

Other concerns expressed during the various stakeholder and community workshops focussed on the use of natural and constructed water ways and their management as either streams or drains, and the management of private land uses around waterways affecting flood flow capacities. These concerns are not incorporated by the stormwater provision but are instead addressed in the provisions relating to activities in the beds of lakes and rivers. These provisions, including on drain and stream vegetation clearance, are assessed in the Section 32 report: Beds of lakes and rivers. Matters relating to vegetation and other nuisance material affecting flood flows are managed by local authorities as part of drainage or stormwater networks are regulated under the Land and Water Drainage Act 1908.[22]

5.3.3 Options for discharges from stormwater networks

Three main options for managing stormwater discharges in the proposed Plan are discussed below in relation to their efficiency and effectiveness, including costs and benefits, the risks of acting or not acting and their overall appropriateness.

(a) Option 1 – Status quo (permitted approach)

As discussed in section 3.2.2, the operative Coastal Plan, Freshwater Plan and Regional Discharges to Land Plan (the Discharges to Land Plan) have no objectives specific to managing stormwater. The only relevant policy in these plans is Policy 5.2.14 of the Freshwater Plan:

> *To encourage the treatment of stormwater discharges to reduce the adverse effects of such discharges on the receiving water body.*

In these three operative plans, stormwater discharges are provided for as permitted activities. In general, the approach of these first generation regional plans can be characterised as permissive and with an emphasis on developing further knowledge around the impacts of stormwater discharges and on encouraging better stormwater management practice. The adverse environmental effects associated with the discharge of stormwater to both fresh and coastal water in the Wellington Region are now better understood than at the time of the notification of the operative plans (see Section 2). However, the

[22] See http://www.legislation.govt.nz/act/public/1908/0096/latest/DLM160977.html

voluntary of the operative plans has not delivered regional improvements in the way that stormwater is managed, nor has an industry- or sector-led approach emerged to minimise the adverse effects of stormwater discharges.

To summarise the situation under the status quo operative plans, there is:

- Increasing evidence of the adverse effects of contamination from stormwater runoff in the region, and particularly affecting low energy receiving environments such as Wellington and Porirua harbours

- Cross-contamination between wastewater and stormwater leading to faecal contamination of fresh and coastal water in the region, affecting both primary and secondary contact recreation, Māori customary use and mauri

- Significant variation in approaches for managing stormwater for water quality outcomes amongst local authorities

- Significant variation in resource consent requirements between those few networks currently consented, reflecting changing practice over 20 years

- Limited application of land use controls to manage contaminant inputs and stormwater volume into local authority networks to date

- A lack of land use controls and planning systems to manage stormwater networks for water quality outcomes

- Missed opportunities for integrated water and sediment quality data collection and reporting

- Little certainty for community in terms of managing stormwater discharges for their impact on water quality

- A lack of policy direction in operative regional plans

- A lack of connection between strategic planning, asset management and operational systems meaning lost opportunities and inefficiencies

- An operative regulatory framework not suitable for achieving the requirements of the NPS-FM

The operative permitted activity regime has not yet driven regional improvement in stormwater management for water quality outcomes. Only some discharges from local authority stormwater networks have been consented during the life of the operative plans. Further, the conditions of these consents vary widely in terms of complexity, effectiveness and cost to implement, reflecting changing management regimes and practices for stormwater through the past two decades. The consents consequently have greatly varied efficiency and effectiveness.

As described above and summarised in Table A6 in the Appendix, it is not considered that the status quo approach is an effective or efficient means for progressively improving the quality of stormwater network discharges. The status quo approach would not effectively meet the requirements of the Act, the NPS-FM, the NZCPS or RPS. Stormwater discharges from local authority stormwater networks have adverse effects that cannot be permitted in the proposed Plan (in accordance with section 70) when considered on a 'global' scale (i.e. all discharge points within a catchment-wide are managed together as an integrated unit, not as individual discharges points). Relying on the status quo is not an option available to the proposed Plan. It is considered appropriate that a regulated approach for managing stormwater is taken in the proposed Plan.

(b) Option 2 – managing stormwater to water quality limits

Another option available for the management of stormwater discharges is a water quality limits regime. Water quality limits are required to be for all fresh water bodies in the region under the NPS-FM Policies A1 and CA1-CA4. This anticipates that activities contributing contaminants to water, such as stormwater discharges, will be required to meet any water quality limits.

There are currently no water quality limits for fresh water in the proposed Plan. The WRC is progressively implementing the NPS-FM through the whaitua process, including to set water quality limits, as set out in the WRC NPS-FM implementation timetable (GWRC 2015), so that the NPS-FM is fully implemented by 2022. Although NPS-FM Policy E1 allows regional councils until 2025 to implement the NPS-FM in full, an interim water quality limits regime is an option for the managing activities that impact on water quality in the proposed Plan.

To examine whether an interim water quality limits approach is an effective and efficient option, the Land and Water Forum's (LAWF) Third Report of the Land and Water Forum (LAWF 2012) provides useful direction.[23] This report states that an interim limit could be considered when "there are resource pressures from exiting or anticipated contaminant loads prior to embarking on the full process to development objectives and limits for the catchment. Interim limits can also be used to manage rapid changes where significant land use change and intensification is occurring or likely to occur before the objectives and limits framework can be developed" (LAWF 2012, p33).

While the issues assessment in Section 2 concludes that there is ongoing contamination of the region's fresh and coastal waters from stormwater discharges, it is not considered that the resource pressure from these discharges is such that is justifies the development of an interim limits regime. As discussed in the Section 32 report: Water quality, the region has experienced slow urban growth in the last decade and it is not anticipated that this will change in the immediate future. Further, and unlike discharges from intensive agricultural land uses, there are no established limits regimes in other regional plans for managing stormwater discharges that are suitable for adoption into

[23] LAWF brings together a range of industry groups, environmental and recreational NGOs, iwi, scientists, and other organisations with a stake in fresh water and land management. See www.landandwater.org.nz

the proposed Plan. The development of an interim limits regime for stormwater discharges between the present time and full implementation of the NPS-FM in accordance with WRC's implementation plan would be complex and costly and is not an efficient option. As such, an interim limit for stormwater discharges is not an appropriate option for this plan and is not analysed further in this report.

(c) Option 3 – progressive improvement and a strategic approach

The final option considered for discharges of stormwater from local authority stormwater networks is that recommended in the proposed Plan. This option provides certainty through a regulated approach but flexibility in the way that local authorities respond via a policy that allows identification of issues, priorities and timeframes for improvement. This approach gives effect to the requirements of the higher level planning documents (NZCPS, NPS-FM and RPS) while allowing for a strategic approach that allows appropriate planning by local authorities over the next few years, including to appropriately respond to the NPS-FM implementation programme through the whaitua process.

Unlike the operative Plans, the proposed Plan does not provide for a permitted activity status for discharges from these networks. Instead the proposed Plan makes all discharges, on a 'global' basis, a controlled, restricted discretionary or discretionary activity (a 'global' approach means discharge points within a catchment-wide are managed together as an integrated unit, not as individual discharges points). Consenting stormwater networks on a global basis has become a common approach around the country over the past decade. Typically this has meant consent processes have driven the development and implementation of 'integrated catchment management plans' (ICMP) or 'stormwater management plans' (SMP) for local authority stormwater networks (see for instance, the Auckland Council and Bay of Plenty, Hawke's Bay, Canterbury and Otago regional councils). This approach usually requires local authorities to develop a strategic plan grounded on understanding the impacts of stormwater networks on water quality, ecosystem health and the ability of people to use fresh and coastal water on a catchment scale. ICMPs/SMPs are drafted to reflect the often long asset management and planning timeframes associated with stormwater infrastructure. ICMPs/SMPs prioritise improvements and identify and set implementation goals for improving stormwater discharges in both the short and long term.

Options 1 and 3 are analysed for their costs, benefits, efficiency and effectiveness, for the risks of acting or not acting and for the overall appropriateness in Table 6A of the Appendix. A further variation on Option 3 is also examined in this table. This option (Option 3X) has been included to respond to stakeholder requests to consider delaying the effect of the first stage resource consent for approximately five years until the whaitua process has been completed for the major urban catchments in the region. This option, as assessed in Table 6A, takes effectively the same approach as the proposed Plan (Option 3) through monitoring and strategic planning prior to implementing options for improvement, except that this is undertaken under a single consent instead of two consents, and the requirement for this single consent is delayed until approximately 2020.

5.3.4 Summary of proposed Plan provisions

The following sections (a) and (b) summarise the proposed Plan provisions relating to discharges from local authority stormwater networks, providing further detail and discussion on the preferred option identified above.

(a) First stage consents

Table 8: Provisions relevant to first stage local authority stormwater discharge consents

Policies:	P74: First stage local authority network consents
Rules:	R50: Stormwater from a local authority network at plan notification
Method:	M15: Regional stormwater working group

The 'first stage consent' for discharges from local authority stormwater networks is a controlled activity under Rule R50. The matters of control are tightly restricted and directly reflected in the corresponding Policy P74. This policy directs a 'global' approach to manage the discharges from stormwater networks on a catchment scale, monitoring of the quality of the discharges within the network, the management of significant or acute effects if they are detected during the course of consent monitoring and for conditions to be included in the consent that required the development of a stormwater management strategy (SMS). Policy P74 indicates that consents granted under Rule R50 should be limited to a maximum of five years.

All local authorities, except the Wellington City Council for discharges to the Wellington Harbour and Hue tē Taka (Wellington south coast) which does not expire until after the two-year period, will be required to gain a consent under Rule R50. The intent of the proposed Plan approach is to bring all local authorities onto a level playing field by requiring consent for the discharges from all local authority stormwater networks. Rule R50 takes legal effect from the date of notification of the proposed Plan and continues to have effect for two years after that date. As Rule R50 is controlled activity, the application will be processed as a non-notified consent. If a consent application is made outside this two-year timeframe, the activity either becomes a restricted discretionary activity under Rule R51 if the application is made with an SMS, or a discretionary activity under Rule R53 if not, and as such may be tested against a greater range of policies and may be a notified consent application. Limiting the timing of the application of Rule R50 to a two-year period from notification of the proposed Plan provides an incentive to local authorities to make an application early. A non-notified status reduces costs for the applicant including by limiting the involvement of the community in the consent application process.

The first stage consent directs monitoring and planning in order to determine where issues are within the network, prioritise improvements and then develop a stormwater management strategy to respond to these. This consent is effectively a transition period that establishes process and systems to respond to managing urban catchments to improve adverse effects of stormwater discharges over time. This responds to requests from local authority stakeholders for a transition period and reflects practice already in place such

as in the two stage approach of the Wellington City Council coastal discharge consents.[24]

A key element of the management of stormwater in the proposed Plan is the role and outcomes of the whaitua processes. The whaitua process will identify water quality outcomes for the fresh and coastal waters into which stormwater is discharged, as well as limits and targets that stormwater discharges will need to be managed to meet. The stormwater provisions in the proposed Plan for local authority networks are therefore designed to provide a pathway for local authorities to prepare a management approach for their reticulated stormwater networks through an SMS that can respond to the outcomes that the whaitua process will deliver. The intention of the SMS approach is to create a strategic basis from which local authorities can then begin the development of tools to maintain or improve water quality, such as through more detailed and catchment-based stormwater management plans.

In order to support the delivery of both the first- and second stage local authority consents the proposed Plan also proposes a regional stormwater working group (Method M15). The intent of this method is to assist the delivery of the new consenting framework, including the development of stormwater management strategies and catchment-specific stormwater management plans or other tools and to assist and advise in the development of monitoring and reporting systems. This group could also seek to coordinate stormwater management within the region and create efficiencies where possible such as through stormwater education programmes. This group will prepare guidelines for the development of SMSs, such as has been undertaken by other regional councils.[25]

(b) Second stage consents

Table 9: Provisions relevant to second stage local authority stormwater discharge consents

Objectives	**Key objective** O48: Stormwater networks **Supporting objectives** O1: Ki uta ki tai O3: Mauri O4: Intrinsic value of water O5: Managing natural resources O11: Māori customary use O13: Benefits of regionally significant infrastructure O18: Low energy receiving environments O23: Maintain or improve water quality O24: Contact recreation and tangata whenua use O25: Water quality outcomes O50: Wastewater to fresh water

[24] See WGN090219
[25] For example, see http://www.boprc.govt.nz/media/29570/Guideline-200502-Developmentstormwaterconsentapplications.pdf

Policies	**Key policy** P74: Second stage local authority stormwater network consents **Supporting policies** P7: Uses of land and water P63: Improving water quality for contact recreation and Māori customary use P73: Minimising adverse effects of stormwater discharges P76: Minimising wastewater and stormwater interaction P77: Assessing consents to discharge stormwater containing wastewater P79: Managing land use impacts on stormwater
Rules	R51: Stormwater from a local authority network two years after public notification R53: All other stormwater
Method	M15: Regional stormwater working group
Schedules	Schedule H: Priorities for improvement for contact recreation and Māori customary use Schedule N: Stormwater management strategy

The second stage discharge consent for local authority stormwater networks is a restricted discretionary consent under Rule R51 and requires that applications are made in conjunction with a stormwater management strategy (SMS) as described in Schedule N of the proposed Plan. If an application is made without an SMS it is processed as a full discretionary consent under Rule R53.

Rule R51 restricts discretion to a number of matters which are reflected in Policies P74, P76 and P77. Policy P74 provides the primary direction for the management of stormwater discharges under the second stage local authority consent. The policy links to the matters to be addressed by the development and implementation of the SMS, as set out in Schedule N. The second stage consent process uses the SMS to identify catchments that require attention first, and developing and implementing interventions within that catchment. This may include identifying priorities for change, developing good management practice for water sensitive design and controlling contamination at source, and progressively improving existing infrastructure in order to minimise the adverse acute, chronic and cumulative effects of stormwater discharges on fresh and coastal water.

Characterising catchments in order to identify priorities and methods for improvement is a well-established approach for managing large stormwater networks for water quality outcomes and is similar to that applied in the Wellington City Council coastal stormwater discharge consents (where the process is known as first- and second stage ICMPs[26]). Schedule N is, however, further refined to ensure that catchment objectives are set appropriately outside the consent process via the whaitua process. Water quality objectives developed through the whaitua processes then become a consistent set of objectives that all activities affecting water quality in that catchment can be managed towards.

The management of stormwater contaminated with sewage under the second stage consent is directed by Policies P76 and P77. The interaction of sewage

[26] See the consent certificates for WGN090219

and stormwater through network infrastructure and illegal cross-connections is a substantial problem for most urban areas with older infrastructure. Infiltration and inflow (I/I) cause problems not only for water quality and human health in the waterways that overflows discharge into, but also for the management of wastewater infrastructure. Improving cross-contamination between stormwater and wastewater networks will be a key task for ensuring that the national bottom line for secondary contact recreation is met in urban streams.

The proposed Plan provides strategic direction to the SMS process by identifying waterbodies that are 'priorities for improvement' for contact recreation and Māori customary use in Schedule H and through Policy P63. These are fresh and coastal water sites impacted by faecal contamination to the point where they do not have suitable water quality for primary or secondary contact with water. Many of the impacted streams are in urban environments, and all coastal water sites identified as priorities are at the bottom of urban catchments. This approach is an effective way of connecting community values with long term planning for improvement of stormwater quality.

The delivery of Policies P74, P76 and P77 will also be further supported by the work of the regional stormwater working group (Method M15. This method is to develop a regional forum with the key stakeholders in stormwater and urban land use management to develop consistent and transferable good practice, support consent application and compliance actions and to seek means to tie the management of stormwater networks more closely with water quality outcomes.

Together, the first- and second stage consent framework provided by the proposed Plan provisions shown in Table 5.5 above give effect to Objective O48 to progressively improve the adverse effects of stormwater discharges from local authority stormwater networks. The efficiency and effectiveness of this approach is discussed in the following sections.

(c) Efficiency and effectiveness

As not all stormwater systems, communities or receiving water bodies are alike, the flexibility and long-term scope offered by managing stormwater discharges on 'global' basis and with an SMP- or ICMP-type approach provides for the flexibility to respond to local drivers, pressures and problems. Recognising that some ICMP-style consents (e.g. the current Wellington City Council coastal discharge consents) have required planning actions as part of the consent conditions that would be better addressed by a regional planning process, the provisions in the proposed Plan have been refined to ensure that community decision-making occurs at the catchment scale, outside of the consent (via the whaitua process), and that the consent application for a long-term consent contains information on how the network will be managed into the future. Together, this approach is efficient and effective at addressing the stormwater issues of each community, network and catchment.

Feedback on the Draft Natural Resources Plan included requests to identify those networks from which stormwater discharges would not require resource consent (i.e. would be a permitted activity). Criteria for identifying sizes of networks to exclude out has proved unwieldy and does not reflect that adverse

effects of stormwater network discharges depend on multiple factors beyond size or area of impermeable surfaces, such as land uses, sensitivity of the catchment, local values and hydrological factors.

It is considered that providing the flexibility for a local authority to respond to the nature of the issues from their stormwater network is most effectively and efficiently applied via a policy approach rather than to than to identify and regulate out certain types of sizes of network. The proposed Plan requires data collection during the first stage consent that, together with the whaitua committee process, provides a framework from which priorities for improvement can be identified in accordance with the scale of the issue and its impacts on human and ecosystem health and other values the community has for fresh and coastal water. This avoids a 'one size fits all' approach that a more prescriptive regulatory process could require, and includes assisting local authorities to identify areas where intervention to improve stormwater quality is not efficient or effective.

The impacts on water quality that could be anticipated from stormwater discharges (e.g. from contamination by heavy metals or polycyclic aromatic hydrocarbons) often tend to have impacts that are cumulative on ecosystem health values. The contamination of stormwater with wastewater tends to have shorter term and sometimes acute impacts on water quality such as restricting swimming because of high pathogen concentrations. The proposed Plan intends to maintain or improve water quality (Objective O23) and to provide for contact recreation and Māori customary use in fresh and coastal water (Objective O25). Therefore the policy approach under Policy P74 requires that significant and acute impacts on water quality identified during the course of the first stage consent are minimised through either remediation or mitigation efforts in the short-term as well as the long-term.

Options for improving stormwater quality are often long-term and costly but that remedial or mitigation actions may be necessary in the short-term in order to protect human health. Remediation actions to resolve cross-contamination may be relatively costly and therefore need to be appropriately planned for. For example, the Wellington City Council's 1993 Sewage Pollution Elimination Project to reduce cross-contamination of stormwater and wastewater system to reduce faecal contamination of fresh and coastal water cost $70 million over 15 years (Capacity 2014). Recognising that immediate remediation may not always be possible or feasible, Policy P74 includes the term 'where practicable' to allow for assessment of the degree to which short-term mitigation would be an effective use of resources. An example of a short-term mitigation option is the $150,000 skirt and pump system to protect swimmers from contaminated water installed recently at the Taranaki Street stormwater outfall on the Wellington waterfront.

Policies P76 and P77 direct that consent applications to improve the discharge sewage-contaminated stormwater include a plan demonstrating how progressive improvement will be achieved. The ability to improve cross contamination between the stormwater and wastewater networks is constrained by both physically and economically. However, Māori values are significantly adversely affected by discharges of sewage, including in stormwater, to water.

Proposed Policies P76 and P77 encourage reasonable steps to be taken to reflect mana whenua values and interests in the management of the discharge of stormwater contaminated with wastewater discharges. This direction recognises restrictions the Act places on the ability of plans to require consultation from affected parties. Policies P76 and P77 give effect directly to Policy D1 of the NPS-FM. Further, the NZCPS (Policy 23) directs avoiding untreated discharges of human sewage to coastal waters and ensuring that discharges of treated sewage are informed by an understanding of tangata whenua values.

The relative costs and benefits of this option and two other options (the status quo and a variation on Option 3 called Option 3X) for managing the discharge of stormwater from local authority networks are discussed in (d) below and summarised in Table A6 in the Appendix. This analysis identifies some elements of the efficiency of the three options.

(d) Costs and benefits of policy options

Section 32(2) of the Act provides specific directions to examine the costs and benefits of any environmental, economic, social or cultural effects, including quantifying these if practicable. In particular, section 32(2)(a) directs attention to the effect of proposed provisions on economic growth and on employment.

Catchment-scale stormwater management can result in benefits for ecosystem health, cultural values and recreation in both fresh and coastal waters. While difficult to monetise, the value of good water quality is recognised and prioritised in the Act, NPS-FM and RPS. The benefits of stormwater management that focus on water quality outcomes are the benefits to aquatic ecosystems and to the people who use fresh and coastal waters in urban and rural environments. The rivers, lakes, wetlands, estuaries and open coast of the Wellington Region have a wide range of intrinsic values, including some very sensitive and special ecosystems. Wetlands, estuaries and harbours as low energy receiving environments would particularly benefit from better stormwater management.

There are also benefits for the ways people interact with fresh and coastal water, as improving stormwater management includes reducing cross-contamination between stormwater and sewage networks. The region's beaches and streams are regularly impacted by faecal contamination from cross-contamination. In particular, because of the impact of discharges from stormwater infrastructure on coastal water quality, an increased focus on managing stormwater discharges, the networks and land uses to contribute stormwater and contaminants to them will increase public access to coastal areas suitable for swimming and other recreational activities.

The Stormwater Strategy for the Bay of Plenty Region (EBoP 2005) identifies the following benefits of a strategic, catchment management approach to stormwater management:

- Consideration, from a holistic perspective, of how natural resource systems are to be protected or enhanced

- Setting priorities for a long-term integrated approach to resource and public protection

- Encouraging public and stakeholder participation so that all parties contribute to catchment-based stormwater management solutions

- Integrating all appropriate tools and resources into a co-ordinated, cost effective, co-operative approach (e.g. low impact designs, risk management, pollution prevention programmes, stormwater treatment, receiving environment protection and enhancement)

- Determining the funding sources for the implementation of stormwater management solutions, monitoring, and maintenance

- Identifying opportunities for preventative non-structural source controls (such as education initiatives, management systems and policy directions) in addition to structural controls (such as primary, secondary and tertiary treatment technologies) to better manage the effects of urban stormwater

- Designing comprehensive systems for the long-term needs of communities (EBoP 2005, p18)

In working to quantify the costs and benefits of the proposed Plan stormwater provisions, three key areas of costs and two key sources of benefits have been recognised:

- Costs:
  - Consent application (application development and processing costs)
  - Consent compliance and implementation
  - Capital expenditure projects driven by consent implementation
- Benefits:
  - Improved water quality reducing adverse effects on ecosystem health and function
  - Improved water quality reducing adverse effects on cultural and recreational use of water

Focussing particularly on first stage consent, Table A6 in the Appendix sets out the basic costs and benefits to WRC, local authorities, other groups including business, tangata whenua and the broader community and to the environment anticipated by the status quo (Option 1), the proposed Plan option (Option 3) and a variation on the preferred option (Option 3X in Table A6) to incorporate the two-stage approach into a single consent.

This additional option has been considered following feedback on the draft NRP. This option would involve a single consent incorporating a clause to

review the terms of the consent under section 128 of the Act in order for it to meet any requirements resulting from recommendations adopted into the PNRP following the completion of a whaitua process. The benefit to the resource user of this single consent approach is that once the consent is gained, the consent holder has more certainty because a further consent is not required.

From a costs perspective, the costs of continuing the status quo (Option 1 in Table 6A) would likely lead to further degradation of water quality for ecosystem and human health outcomes in fresh and coastal water environments. Low energy receiving environments under pressure already will become further degraded. The costs and benefits of both the proposed Option 3 and Option 3X on the management of stormwater network discharges are difficult to evaluate in the long term. The evaluation summarised in Table A6 does not analyse economic costs and benefits of the stormwater network provisions for the second stage consent process as this will be examined by each whaitua process, as appropriate.

The broadly anticipated costs of Option 3 (the preferred option) and Option 3X for a single consent are briefly summarised in Table A6. The proposed Plan option incurs lower immediate costs for local authorities than Option 3X because of the tight matters of control in Rule R50 and as a non-notified application. Option 3X would likely require a more substantial consent application to show how it was appropriate in the longer term and one that is more likely to be notified. Consequently, the single consent approach is likely to present higher immediate costs than the proposed Plan option. Further, it does not avoid costs of a second consent application process as a review of consent conditions is effectively analogous to a non-notified consent application and would present similar costs for the resource user to prepare the review application. Option 3X therefore presents potentially higher costs than Option 3 in both the short term and medium term to the resource user.

An example of monetised costs of a global, catchment-based approach to managing stormwater discharges (e.g. the status quo) is provided by looking at the costs associated with the Wellington City Council resource consent for stormwater discharges to the coastal marine area, granted in 2011. Wellington Water Limited estimates that the application cost for this consent was between $375,000 and $400,000. The application was fully notified and took over two years to be processed. The current costs of implementing the compliance requirements of the consent have been estimated at approximately $1.4 million per year. This incorporates actions including the development of the ICMP, regular sampling, investigations and catchment modelling.

It should be noted, however, that the WCC consent is likely to be substantially more costly than the proposed Plan approach in both the consent application stages and consent compliance. In the short term, costs are limited as the initial consent will be non-notified and the matters of control under Rule R50 are tightly restricted. For the second-stage consent, the whaitua processes will allow for greater community/local authority dialogue that will help the local authority applicants identify trade-offs and costs of chosen actions with less likelihood of opposing parties at consent application. The proposed Plan also provides more detailed and certain policy tests than the operative plans.

Compliance costs under the proposed Plan approach are likely to be lower than the WCC consent compliance as that consent combines actions that would be carried out across both the first and second stage consents as well as through the whaitua process.

Finally, an analysis of the impacts of stormwater provisions in the draft Natural Resources Plan indicated that increased spending on stormwater management, if sourced from rates rises, would result in a minor increase in regional employment and economic activity and a decrease in national employment and economic activity as spending moves away from ordinary household spending towards the provision of stormwater management services (Market Economics 2014).

(e) Risks of acting or not acting

The Act directs that consideration is given to risks of acting or not acting where information is uncertain or incomplete. Information on the adverse effects of stormwater capture and discharge on fresh and coastal water generally is widely and well established and provides sufficient certainty require greater regulation and policy direction than the operative Plans. The knowledge of the impacts on stormwater to fresh and coastal water within the Wellington Region is restricted largely to the most sensitive environments or the largest urban areas.

However, the absence of comprehensive, regional information of the nature and degree of adverse effects from stormwater capture and discharge for each urban area within the region is not sufficient reason to not act. The flexible policy direction to tailor improvement efforts in accordance with the issues, values and economic constraints of each catchment is an approach response to this lack of comprehensive information. The two-stage approach appropriately responds to current knowledge to ensure that action is taken now to develop systems to manage stormwater discharges for the water quality objectives and limits that will be developed through each whaitua process.

(f) Appropriateness

The NPS-FM and the NZCPS place an emphasis on managing fresh and coastal water to safeguard the life-supporting capacities of ecosystems and to provide for human health. The NZCPS and RPS both direct the management of stormwater discharges in order to avoid adverse effects on aquatic ecosystems. Both the NPS-FM and the NZCPS direct catchment-based management of water quality. These policy directions frame the appropriateness of the proposed Plan for stormwater discharges from local authority stormwater networks.

The features of the proposed Option 3 indicate that the approach is effective at achieving the objectives of the proposed Plan and giving effect to these statutory directions. The proposed option is consistent with the proposed Policy P1 and the implementation of the NPS-FM through the whaitua process. The option is efficient because it allows fit for purpose responses to the impacts of each network, but is also effective because it is a regulated and therefore accountable approach. It is more effective than the option to incorporate both

stages into a single consent (Option 3X) and is more efficient through reduced costs to local authorities in both the short and medium term. As summarised in Table A6, the costs of the initial consent application and monitoring are relatively low but the benefits, particularly in the long-term may be high. The proposed package of policies, rules and other methods discussed in section 5.3 is the most efficient and effective option for achieving the proposed Plan Objective O48 to minimise in the impacts of discharges from stormwater networks on water.

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Appendix

Table A1: Appropriateness of proposed Objective O48 (stormwater)

Objective O48 Stormwater networks and urban land uses are managed so that the adverse quality and quantity effects of discharges from the networks are improved over time.	
Relevance	
Directly related to resource management issue?	Yes, particularly issues 1.12, 5.1, 5.2 and 5.3 (see WRC 2014)
Will achieve one or more aspects of the purpose and principles of the Act?	Yes, Part 2, in particular sections 5(2)(b), 5(2)(c), 6(e), 7(a), 7(aa), 7(c), 7(d), 7(f), and 7(g)
Relevant to Māori environmental issues? (sections 6(e),6(g),7(aa),8)	Yes, relevant to all of these
Relevant to statutory functions or to give effect to another plan or policy (e.g. section 30, and any relevant NPS, NES, NZCPS, RPS)?	Yes, Act section 30, particularly sections 30(1)(a), 30(1)(c)(ii), 30(1)(c)(iii)(a) and 30(1)(f) NPS-FM Objective A1 and D1 NZCPS Objective 1 and Policy 23(4) RPS Objective 6, 12 and 13, Policies 5, 12, 14, 15 and 42
Usefulness	
Will effectively guide decision-making?	Yes, this objective is a guide to the processing of resource consents for discharges from local authority stormwater networks.
Meets sound principles for writing objectives? (specific; state what is to be achieved where and when; relate to the issue; able to be assessed)	This objective is a clear and complete statement related to an identified issue. Though it relates to improvement occurring through time, it is specific and relevant to the targeted issue.
Consistent with other objectives?	Yes, all the objectives have been assessed and work together to achieve the sustainable management of natural resources in the Wellington Region.
Achievability	
Will it be clear when the objective has been achieved in the future? Is the objective measurable and how would its achievement be measured?	Achievement could be measured by range of approaches, including the number of consents for local authority networks or operative SMSs, as well as by monitoring for effects on ecosystem and human health.
Is it expected that the objective will be achieved within the life of the proposed Plan or is it an aspirational objective that will be achieved some time in the future?	Because it is process oriented, this objective should be achieved within the life of the plan but also continue to be a goal into the future.

Does the Council have the functions, powers, and policy tools to ensure that they can be achieved? Can you describe them?	Yes, section 9 and section 15 of the Act. The policy tools to achieve the objective are principally set out in the two-stage rule and policy framework for managing local authority stormwater networks.
What other parties can the Council realistically expect to influence to contribute to this outcome?	Local authorities, mana whenua, local communities including local care groups and recreational water users.
What risks have been identified in respect of outcomes?	In order to achieve the objective, a rule structure is set out in the proposed Plan which means that all stormwater discharges from local authority stormwater networks will be treated as controlled activities as a minimum, thus requiring all local authorities to get consent. This is a substantive change from the current permitted activity regime. Further, the policy approach sets up a long-term, strategic approach to local authority consents for managing stormwater. The risks to the outcome include the perceived costs of change, the difficultly in creating institutional change, the complexity of the process, and dissatisfaction from some stakeholders about the lack of immediate action to improve stormwater discharges.
Reasonableness	
Does the objective seek an outcome that would have greater benefits environmentally, economically or socially compared with the costs necessary to achieve it?	Yes, this objective will have greater environmental benefits than the costs necessary to achieve it. Some of the costs that may be necessary to implement systems to achieve the objective will be identified in the SMS process and further developed and implemented via the whaitua committee process. These will be costed appropriately at the time these options are developed.
Who is likely to be most affected by achieving the objective and what are the implications for them?	Local authorities are the most affected by the objective, and therefore ratepayers are indirectly affected. This objective and the subsequent policies and rules mean that local authorities must undertake asset management planning and implementation processes that are tied back to environmental and community values as well as to more standard asset performance criteria.

Existing objectives	
Are the existing objectives still relevant or useful?	No, the existing plans do not contain objectives that are specific to management of stormwater. The operative plans do not adequately address the state of knowledge about the adverse effects of stormwater as they are known today. The existing operative objectives are neither relevant nor useful. Existing objectives In the existing Freshwater Plan and Coastal Plan, there are no specific stormwater objectives. However, both plans contain general objectives about water quality: Objective 5.1.1 in the Freshwater Plan and Objective 10.1.7 in the Coastal Plan. There are no relevant objectives in the operative Regional Discharges to Land Plan.

Table A2: Appropriateness of proposed Objective O50 (wastewater)

Objective O50 Discharges of wastewater to fresh water are progressively reduced.	
Relevance	
Directly related to resource management issue?	Yes, this objective addresses issue 5.3 (see WRC 2014)
Will achieve one or more aspects of the purpose and principles of the Act?	Yes, Part 2, sections 5(2)(b) and 5(2)(c)
Relevant to Māori environmental issues? (sections 6(e),6(g),7(aa),8)	Yes, all of these sections
Relevant to statutory functions or to give effect to another plan or policy (e.g. section 30, and any relevant NPS, NES, NZCPS, RPS)?	Yes, Act section 30, particularly, sections 30(1)(c)(ii), 30(1)(c)(iii)(a) and 30(1)(f) NPS-FM Objective A1 and D1 RPS Objective 6 and 12, Policy 16
Usefulness	
Will effectively guide decision-making?	The objective will guide decision-making by identifying the outcome sought for discharges of wastewater containing human effluent to fresh water.

Meets sound principles for writing objectives? (specifically, state what is to be achieved where and when; relate to the issue; whether able to be assessed)	This objective provides clarity and certainty that discharges of wastewater containing human effluent to fresh water shall will progressively reduced in order to reduce adverse effects on mana whenua and community values.
Consistent with other objectives?	Yes, the objective works with other objectives and provides specificity in relation to discharges of wastewater to fresh water.
Achievability	
Will it be clear when the objective has been achieved in the future? Is the objective measurable and how would its achievement be measured?	The achievement of the objective can be measured through the decisions made on consent applications and the conditions placed on resource consents to demonstrate progressive reduction through time.
Is it expected that the objective will be achieved within the life of the proposed Plan or is it an aspirational objective that will be achieved some time in the future?	This objective will not be achieved in the life of the proposed Plan but may be achieved within the lifetime of resource consents applied for under the proposed Plan.
Does the Council have the powers, and policy tools to ensure that they can be achieved? Can you describe them?	Yes, the council is the decision-maker for resource consent applications for discharges to water. The policies for making such decisions are contained in the proposed Plan.
What other parties can the Council realistically expect to influence to contribute to this outcome?	Locally authorities are responsible for wastewater network infrastructure and wastewater treatment plants.
What risks have been identified in respect of outcomes?	The policy approach sets up a long-term, strategic approach for managing wastewater. The main risks include the high costs of change and reaching agreement on progressive reduction of the impacts of wastewater on fresh water will be achieved.
Reasonableness	
Does the objective seek an outcome that would have greater benefits environmentally, economically or socially compared with the costs necessary to achieve it?	Yes – this objective will have greater environmental benefits than the costs necessary to achieve it, principally because the balance between costs and benefits will be determined with the community and mana whenua. The scale of costs will be proportionate to the receiving water quality limits set by the whaitua process.
Who is likely to be most affected by achieving the objective and what are the implications for them?	Local authorities are responsible for wastewater network infrastructure and wastewater treatment plants. They will be affected most by the objective. The main implication for them is that adequate consultation with communities and mana whenua will be required. The outcome of such consultation will determine what actions are taken and what costs will be involved. Communities will also be affected through both possible increases in rates and increased amenity and recreational opportunities with improved water quality.

Existing objectives	
Are the existing objectives (include a list of objectives or relevant objective to the one being compared) still relevant or useful?	No, there are currently no objectives for discharges of wastewater containing human effluent to fresh water in the operative Freshwater Plan.

Table A3: Assessment of alternative options – appropriateness of discharges to water (section 5.1.3)

		Option 1 **Status Quo** No change from Regional Freshwater Plan	**Option 2 (preferred option)** **Include policies that** : • Avoid some specific types of discharge to water • Promote the discharge of contaminants to land rather than water
Costs	Council	Unsustainable resource management may lead to restoration costs for the Council long term.	Costs to upskill Council staff to have expertise and be competent with the various land and water treatment technologies available.
	Resource user	Continued degradation of water bodies will lead to restoration costs imposed on resource consents in the longer term.	Discharging to land and associated treatment in some circumstances may incur greater costs (sometimes short term) than discharges to water.
	Community costs	Water quality of water bodies may be degraded or continue to be degraded leading to restoration/remediation costs being borne by ratepayers. Community values for water are not provided for.	Cost to ratepayers.
Benefits	Council	No change required to the status quo in the short term.	Reduced degradation of water bodies with less need to be actively involved in restoration/remediation of them in the future.
	Resource user	No change to current practice is required in the short term.	Long-term benefits to users may arise from more efficient use of wastewater such as the use of nutrient contaminants as fertiliser.
	Community	No benefits.	Water quality is enhanced over time.
Efficiency and effectiveness		Maintaining the status quo is not efficient or effective. While there may be few short-term costs, in the longer term water quality will continue to degrade and costs of restoration will accelerate.	The most efficient and effective approach to reducing water quality degradation because it evens out costs over time and will result in the long-term benefit of gradually improving water quality over time.
Risks		The risk of not acting is that of retaining the status quo, there will be further degradation of water quality and increased cost of restoration in the future.	

	Option 1 **Status Quo** No change from Regional Freshwater Plan	**Option 2 (preferred option)** **Include policies that** : • Avoid some specific types of discharge to water • Promote the discharge of contaminants to land rather than water
Appropriateness	The status quo is not appropriate because it will continue to degrade water quality and incur costs of restoration to the wider community into the future.	The new provisions are appropriate at this time because of the long-term benefits to individuals and the wider community.
Conclusions	The benefits of promoting discharges to land outweigh the costs of continued discharges directly to water and will be the most efficient and effective way of improving water quality.	

Table A4: Assessment of alternative options – managing adverse effects of point source discharges to water (section 5.1.4)

	Option 1 **Status quo** No change from the Regional Freshwater Plan	**Option 2 (preferred option)** **Include policies managing point source discharges after reasonable mixing that:** • minimise adverse effects • maintain water quality • improve water quality where aquatic health and mahinga kai outcomes are not met • improve water quality where contact recreation and Māori customary use outcomes are not met • identify receiving water quality standards for individual discharges • provide criteria for reasonable mixing

		Option 1 **Status quo** No change from the Regional Freshwater Plan	**Option 2 (preferred option)** **Include policies managing point source discharges after reasonable mixing that:** • minimise adverse effects • maintain water quality • improve water quality where aquatic health and mahinga kai outcomes are not met • improve water quality where contact recreation and Māori customary use outcomes are not met • identify receiving water quality standards for individual discharges • provide criteria for reasonable mixing
Costs	Council	Degraded water bodies continue to be managed unsustainably with restoration and remediation costs pushed into the future.	Cost of applying tests for minimising adverse effects, outcomes and receiving water quality standards in resource consent applications (test for reasonable mixing is already applied in the Freshwater Plan). Cost of monitoring outcomes.
	Resource user	Degraded water bodies continue to be managed unsustainably with restoration costs pushed into the future.	Costs associated with applying new treatment technologies where it is needed (particularly in water bodies where outcomes are breached). Cost of assessing tests for "outcomes" and receiving water quality standards for resource consent applications (test for maintaining water quality and reasonable mixing are already applied through the Freshwater Plan). Costs of monitoring outcomes.
	Community costs	Water quality of water bodies may be degraded or continue to be degraded leading to restoration/remediation costs being borne by ratepayers.	No costs.

		Option 1 **Status quo** No change from the Regional Freshwater Plan	**Option 2 (preferred option)** **Include policies managing point source discharges after reasonable mixing that:** • minimise adverse effects • maintain water quality • improve water quality where aquatic health and mahinga kai outcomes are not met • improve water quality where contact recreation and Māori customary use outcomes are not met • identify receiving water quality standards for individual discharges • provide criteria for reasonable mixing
Benefits	Council	No new benefits as no change to current practice is required in the short term.	Implementation of the NPS-FM is underway through the proposed Plan (outcomes for fresh water identified). Implementation of the NPS-FM will be completed through the whaitua process. Degraded water bodies are identified and further degradation halted with some restoration underway.
	Resource user	No change needed for resource consent applications.	Long-term benefits likely to arise from the application of sustainable discharge practices and gradual improvements to discharges over time. Greater clarity in policy tests.
	Community benefits	No new benefits.	Degraded water bodies are identified and further degradation halted with some restoration underway.
Efficiency and effectiveness		Maintaining the status quo is not efficient or effective. While there may be few short-term costs, in the longer term water quality will continue to degrade and costs of restoration will accelerate.	This option is the most efficient and effective approach to reducing water quality degradation because it evens out costs over time and will result in the long-term benefit of gradually improving water quality over time.
Risks		The risk of not acting is that of retaining the status quo, there will be further degradation of water quality and increased cost of restoration in the future.	

	Option 1 **Status quo** No change from the Regional Freshwater Plan	**Option 2 (preferred option)** **Include policies managing point source discharges after reasonable mixing that:** • minimise adverse effects • maintain water quality • improve water quality where aquatic health and mahinga kai outcomes are not met • improve water quality where contact recreation and Māori customary use outcomes are not met • identify receiving water quality standards for individual discharges • provide criteria for reasonable mixing
Appropriateness	This option is less appropriate than the alternative option.	The proposed provisions are appropriate because of the long-term benefits to individuals and the wider community
Conclusions	The benefits of reducing discharges to water outweigh the costs of redirecting discharges to land and will efficiently and effectively improve water quality over time.	

Table A5: Assessment of alternative options – discharge of wastewater containing human effluent to water (section 5.2)

		Option 1 **Status quo** No change from the Regional Freshwater Plan	Option 2 **Policy approach to avoid adverse effects on Māori and community values that:** (i) Discharge to land avoids adverse effects while recognising alternatives available in consultation with mana whenua and community (ii) Priorities, key milestones and dates for reducing discharges (iii) Consent conditions to avoid adverse effects will within the lifetime of the consent	Option 3 (preferred option) **Policy approach:** (i) Avoid new discharges of wastewater to water (ii) Long-term goals established in consultation with the community and mana whenua, (iii) Adverse effects minimised, network overflow discharges progressively reduced, and treatment plant discharges to fresh water to be progressively reduced, (iv) Reflect mana whenua values and interests in management of wastewater to fresh water
Costs	Council	Costs associated with administering and responding to resource consent applications.	Costs associated with administering and responding to resource consent applications.	Costs associated with administering and responding to resource consent applications.

		Option 1 **Status quo** No change from the Regional Freshwater Plan	Option 2 **Policy approach to avoid adverse effects on Māori and community values that:** (i) Discharge to land avoids adverse effects while recognising alternatives available in consultation with mana whenua and community (ii) Priorities, key milestones and dates for reducing discharges (iii) Consent conditions to avoid adverse effects will within the lifetime of the consent	Option 3 (preferred option) **Policy approach:** (i) Avoid new discharges of wastewater to water (ii) Long-term goals established in consultation with the community and mana whenua, (iii) Adverse effects minimised, network overflow discharges progressively reduced, and treatment plant discharges to fresh water to be progressively reduced, (iv) Reflect mana whenua values and interests in management of wastewater to fresh water
	Resource user	Resource consent application. Cost of consulting with mana whenua and the community. Cost of infrastructure associated with potential alternatives to current wastewater discharges to water, particularly to fresh water.	Cost of avoiding discharges will be very high in all communities. It would involve new infrastructure for wastewater treatment plants and networks to ensure discharges to water are avoided in high rainfall events. Cost associated with establishing the feasibility of discharging to land. In some situations discharges to land may not be feasible because land is unsuitable or not available in all climatic conditions. Cost of infrastructure associated with potential alternatives to current wastewater discharges to fresh water and coastal water. Cost of consulting with the community and tangata whenua. Cost of establishing whether the policy test for consultation on alternatives is met when it may already meet that test (i.e. duplication of high cost process to assess alternatives is required when it may have previously already been carried out).	New discharges of wastewater to water may incur higher economic costs than discharges to land. Cost of consulting with the mana whenua and the community and establishing their values and interests. Cost of minimising adverse effects of discharges to water, particularly in situations where steps have not yet been undertaken to minimise such adverse effects. Cost of reducing the frequency of adverse effects of wastewater network overflow discharges to water, particularly in situations where such costs have not yet been included in wastewater management asset plans. Cost associated with establishing the feasibility of discharging to land rather than fresh water. Cost of infrastructure associated with discharging to land rather than fresh water.

		Option 1 **Status quo** No change from the Regional Freshwater Plan	Option 2 **Policy approach to avoid adverse effects on Māori and community values that:** (i) Discharge to land avoids adverse effects while recognising alternatives available in consultation with mana whenua and community (ii) Priorities, key milestones and dates for reducing discharges (iii) Consent conditions to avoid adverse effects will within the lifetime of the consent	Option 3 (preferred option) **Policy approach:** (i) Avoid new discharges of wastewater to water (ii) Long-term goals established in consultation with the community and mana whenua, (iii) Adverse effects minimised, network overflow discharges progressively reduced, and treatment plant discharges to fresh water to be progressively reduced, (iv) Reflect mana whenua values and interests in management of wastewater to fresh water
	Community costs	Cultural and environmental costs of continued contamination, particularly for mana whenua and recreational users.	Ratepayer costs are the same as the costs for the resource user. Cultural and environmental costs of continued contamination, particularly for mana whenua and recreational users until adverse effects are avoided.	Ratepayer costs are the same as the costs for the resource user. Cultural and environmental costs of continued contamination, particularly for mana whenua and recreational users until adverse effects are reduced.
Benefits	Council	No new benefits.	Sustainable management is achieved with a greater involvement of mana whenua and the community, Water quality in the region is improved. The mauri of water is enhanced.	Sustainable management is achieved with a greater involvement of mana whenua and the community, including recognition of their values and interests. Long-term goals for wastewater discharges to water and associated asset management is better linked to long-term planning for resource management outcomes. Water quality in the region is improved. The mauri of water is enhanced.

		Option 1 **Status quo** No change from the Regional Freshwater Plan	Option 2 **Policy approach to avoid adverse effects on Māori and community values that:** (i) Discharge to land avoids adverse effects while recognising alternatives available in consultation with mana whenua and community (ii) Priorities, key milestones and dates for reducing discharges (iii) Consent conditions to avoid adverse effects will within the lifetime of the consent	Option 3 (preferred option) **Policy approach:** (i) Avoid new discharges of wastewater to water (ii) Long-term goals established in consultation with the community and mana whenua, (iii) Adverse effects minimised, network overflow discharges progressively reduced, and treatment plant discharges to fresh water to be progressively reduced, (iv) Reflect mana whenua values and interests in management of wastewater to fresh water
	Resource user	No new benefits.	Sustainable management is achieved with a greater involvement of mana whenua and the community. Water quality in the region is improved. The mauri of water is enhanced.	Sustainable management is achieved with a greater involvement of mana whenua and the community, including recognition of their values and interests. Long-term goals for wastewater discharges to water and associated asset management is better linked to long-term planning for resource management outcomes. Water quality in the region is improved. The mauri of fresh water is enhanced. Certainty is provided that the quality of discharges to fresh water must progressively improve and the quantity discharged must progressively reduce.
	Community benefits	No new benefits.	Water quality in the region is improved. The mauri of water is enhanced.	Water quality in the region is improved. The mauri of fresh water is enhanced. Certainty is provided that the quality of discharges to fresh water must progressively improve and the quantity discharged must progressively reduce.

	Option 1 **Status quo** No change from the Regional Freshwater Plan	Option 2 **Policy approach to avoid adverse effects on Māori and community values that:** (i) Discharge to land avoids adverse effects while recognising alternatives available in consultation with mana whenua and community (ii) Priorities, key milestones and dates for reducing discharges (iii) Consent conditions to avoid adverse effects will within the lifetime of the consent	Option 3 (preferred option) **Policy approach:** (i) Avoid new discharges of wastewater to water (ii) Long-term goals established in consultation with the community and mana whenua, (iii) Adverse effects minimised, network overflow discharges progressively reduced, and treatment plant discharges to fresh water to be progressively reduced, (iv) Reflect mana whenua values and interests in management of wastewater to fresh water
Efficiency and effectiveness	The requirement for consultation in Freshwater Plan policy alone has not lead to resource consent decisions on wastewater discharges that have satisfied mana whenua or the community, and has not lead to the most efficient and effective economic, social, cultural and environmental outcomes.	To the extent that the community and mana whenua are more involved in decisions about wastewater discharges, more efficient and effective economic, social, cultural and environmental outcomes will be achieved. Outcomes and priorities for improving discharges and receiving water quality best suited to the local community of interest can be achieved. The treatment of fresh water and coastal water; new and existing discharges; and wastewater treatment plant and networks under the same umbrella policy is not an efficient or effective approach because these key elements of wastewater discharges differ considerably in terms of the adverse effects that are/have occurred and the way they should be treated in the future.	Separating new discharges of wastewater to water from existing discharges is an efficient and effective approach. This is because planning for the adverse effects of new discharges can be done now whereas addressing the adverse effects of existing discharges of wastewater to water is an historical issue that is complex and costly to remedy and mitigate and will take a long time to remedy and mitigate. Requiring short- and long-term asset management goals for wastewater systems with resource consent information is an efficient and effective approach to linking infrastructure planning with resource management outcomes. Recognising that addressing discharges from wastewater treatment plants to fresh water is a priority in this region (compared with discharges to the coast) by requiring progressive reduction of the quality and quantity of discharge is an efficient and effective way of remedying/prioritising existing discharges. Recognising progressive reduction of discharges of wastewater to water during rainfall events. Finally, recognising To be efficient and effective consultation with mana whenua and the community must reflect the values and interests of these entities gives effect to Policy D1 of the NPS-FM (in part).

	Option 1 **Status quo** No change from the Regional Freshwater Plan	Option 2 **Policy approach to avoid adverse effects on Māori and community values that:** (i) Discharge to land avoids adverse effects while recognising alternatives available in consultation with mana whenua and community (ii) Priorities, key milestones and dates for reducing discharges (iii) Consent conditions to avoid adverse effects will within the lifetime of the consent	Option 3 (preferred option) **Policy approach:** (i) Avoid new discharges of wastewater to water (ii) Long-term goals established in consultation with the community and mana whenua, (iii) Adverse effects minimised, network overflow discharges progressively reduced, and treatment plant discharges to fresh water to be progressively reduced, (iv) Reflect mana whenua values and interests in management of wastewater to fresh water
Risks	The risk of not acting is that current wastewater discharges could continue in places across the region where the community and mana whenua are seeking progressive change.		
Appropriateness	This option is not appropriate because it does not promote opportunities for better economic, social, cultural and environmental outcomes.	The policy is an improvement on the status quo because it provides greater policy direction and better responds to values that are impacted by wastewater. However it is not appropriate because the act of avoiding wastewater discharges may be unfeasible or the costs of avoiding wastewater discharges may be more costly than a community is prepared to bear. This option does not provide for solutions to be tailored to the values and willingness to pay of a community.	The policy mix is appropriate because it addresses new and existing discharges separately, provides for short- and long-term wastewater asset planning to be linked with resource management outcomes, prioritises remedying and mitigating existing wastewater discharges to fresh water compared with equivalent discharges coastal water and provides for mana whenua and community values and interests to be reflected. Most importantly it enables the wastewater discharge to water outcomes to be tailor-made according to each community of interest in the region.
Conclusions	The benefits of adopting Option 3 for appropriate wastewater outcomes in all locations in the region outweigh the costs of continuing with the current approach or taking a stronger approach of avoiding adverse effects.		

Table A6: Assessment of alternative options – stormwater network discharges (section 5.3)

Costs				
Affected group	**Option 1** Status quo	**Option 3 (preferred option)** Two stages, two consents		**Option 3X** Two stages, one consent One consent with review clause to incorporate whaitua outcomes
		Stage 1 (short-term)	Stage 2 (long-term)	
Wellington Regional Council				
Permitted activity compliance costs	Limited costs as limited permitted activity compliance work undertaken. No change expected under the status quo.	Possible small reductions in the costs relative to the status quo (i.e. small benefit) as permitted activities reduce, but from a very small base.	Possible small reduction in the costs relative to the status quo (i.e. small benefit) as permitted activities reduce, but from a very small base.	Possible small reduction in the costs relative to the status quo (i.e. small benefit) as permitted activities reduce, but from a very small base.
Consent processing and consent compliance work. Cost passed onto applicant = c.70% for consent processing, c.80% for consent compliance	Large resource consent processing can be resource intensive but typically c.70% cost recoverable. Consents have a 10-15 year duration, and costs are therefore not expected to be repeated over that period. However, all existing consents expire by 2019 so renewals necessary for all networks. Typical consent compliance officer work = 0.1 FTE per consent.	Consent processing costs are expected to increase under this option per consent, with 8 local authority networks requiring consents. Modest increased costs associated with management of increased monitoring data from consent compliance.	Both consent processing and monitoring costs are expected to increase under this option. All local authorities require consent under this regime. Consents would be notified and therefore higher cost to Council and involve greater staff time, with around 70% cost recovery possible. Relationship and knowledge build-up over Stage 1 may mean consents may be issued for 20-35 years. Therefore repeat of application cost through renewing consents unlikely to occur under life of this proposed Plan. Modest increased costs associated with management of increased monitoring data from consent compliance.	Both consent processing and monitoring costs are expected to increase under this option but not immediately Applications would be notified and therefore higher cost to Council and involve greater staff time than Option 3, with around 70% cost recovery possible. Consent length not likely to be long as Option 3 as consent process less certain. Analogous consent is WCC or KCDC consents, granted for 10 years each. Modest increased costs associated with management of increased monitoring data from consent compliance in the mid to long term.
Pollution response	Not assessed here, forms the baseline for all options.	Cost to WRC will decrease as it is anticipated that a greater proportion of the pollution response effort will be attributable to consent applicants – i.e. cost transferred to the consent holder. However on regional perspective, likely to be cost neutral.	Cost to WRC will decrease as it is anticipated that a greater proportion of the pollution response effort will be attributable to consent applicants – i.e. cost transferred to the consent holder. However on regional perspective, likely to be cost neutral.	Cost to WRC will decrease as it is anticipated that a greater proportion of the pollution response effort will be attributable to consent applicants – i.e. cost transferred to the consent holder. However on regional perspective, likely to be cost neutral.
Non-regulatory programme (Take Charge) for pollution prevention	0.5 FTE, not expected to change under the status quo.	No change	No change	No change
Administration of discharges monitoring data (NPS-FM freshwater accounting)	Increase as no means of cost recovery through permitted activity monitoring.	Reduced costs as partly cost recoverable from consent holder	Reduced costs as partly cost recoverable from consent holder	Similar costs to status quo in the short term. In the longer term, reduced costs in the longer term once consents granted as partly cost recoverable from consent holder
Staff training (consent conditions and processing learning)	Staff training relating to stormwater currently equates to <0.1 of an FTE.	Expect an initial cost increase in year 1-2 under this option as staff are trained on how the new rules are to be implemented.	Expect an initial increase as the second stage of Option 3 is rolled out. Following that expect annual training costs similar to the status quo.	Expect an initial cost increase in year 1-2 under this option as staff are trained on how to implement new. Following that annual training costs similar to the status quo.
Local authorities				
Consent application costs	Previous consent application costs charged by WRC: HCC (non-notified, 2006) = $1,890 KCDC (non-notified, 2007) = $770 WCC (notified, 2010) = $78,128 Consent period is typically 10 to 15 years. All current consents expire within expected life of proposed Plan (e.g. within 10 years). No costs in other territorial authorities as stormwater discharges treated as permitted activities. Costs of application for WCC notified, ICMP style consent, granted 2011: $375,000-$400,000.	Non-notified consent (controlled activity) Consents required across the region in all local authorities (except WCC coastal discharges), therefore expected to be 8 consents prepared over 6 months-2 years Estimated consent application processing cost: $5,000 Estimated consent application preparation costs (e.g. information gathering): $5,000-50,000 (depending on size and complexity of network) Total cost of application per Stage 1 consent: $10,000-55,000 over two years. Total cost for 8x Stage 1 for all TAs across the Region (except WCC coastal discharges) = $80,000-$440,000.	Consent may be notified, therefore consent application costs likely higher. From years 5+ expect consents lodged by all local authorities so up to 9 consents if one per TA per catchment. Duration of consents expected to be 20-35 years. Therefore costs associated with renewal not expected again until 2040-2055. However, whaitua processes should allow for community/local authority dialogue that helps applicants identify trade-offs and costs of chosen actions with less likelihood of opposing parties at consent application. Cost of application at 31 July 2014 for a notified consent	Consent will be notified, therefore consent application costs will be higher. Consents required for all networks over life of NRP. Cost of application at 31 July 2014 for a notified consent is $10,580, plus additional costs of $2,300 per half day of hearing. For years 1-5 expect zero consents lodged; expect 9 consents lodged after 5 years. Preparation cost per consent expected to be $50,000+ (depending on size and complexity of network), likely much higher for larger networks Duration of consents expected to be 10 years. Therefore costs associated with renewal not expected until 2030.

Costs				
Affected group	**Option 1** Status quo	**Option 3 (preferred option)** Two stages, two consents		**Option 3X** Two stages, one consent One consent with review clause to incorporate whaitua outcomes
		Stage 1 (short-term)	Stage 2 (long-term)	
			was $10,580, plus additional costs of $2,300 per half day of hearing.	Consent length not likely to be long as Option 3 as consent process less certain. Analogous consent is WCC or KCDC consents, granted for 10 years each.
Network – maintenance and replacement	Not assessed here, forms the baseline for all options	Cost of short-term improvements or mitigation actions addressing 'acute effects' directed by Policy P74(c). Difficult to quantify ahead of identifying effects. Possible example: Taranaki Street outfall affecting swimming leading to short-term mitigation option of baffles = $150,000 one-off cost.	Implementation of identified management options for improvement in accordance with consent conditions set in accordance with whaitua outcomes. Costs likely to increase but will be examined as part of the whaitua process so balance of environmental, social, cultural and economic costs will be examined in plan changes leading from each Whaitua Implementation Programme.	Implementation of identified options for improvement over longer term, in accordance with whaitua outcomes. Costs likely to increase but will be examined as part of the whaitua process so balance of environmental, social, cultural and economic costs will be examined in plan change leading from each Whaitua Implementation Programme.
Consent compliance: - monitoring - reporting - investigations - develop and implement options for improvement of stormwater quality	Costs limited to WCC, KCDC and HCC compliance costs under existing consents. Existing compliance costs (costs are those WRC charged to consent holder, does not include other implementation costs): HCC (one catchment) (2011-2013) = av. $370/yr KCDC (global) (2013) = $2,370 WCC (global, coastal) (2011-2013) = av. $8,090/yr Low or no costs of monitoring and reporting in other territorial authorities as stormwater discharges treated as permitted activities.	Increased costs of monitoring networks. Preparing and providing information required under the new consents required across the region. Includes the development of SMS (~$10,000 per consent) and monitoring and reporting requirements.	Development of more detailed management plans, continuation of monitoring and reporting. High costs associated with this phase, particularly in modelling or detailed planning investigations.	No costs above status quo for first 5 years Development of detailed management plans, continuation of monitoring and reporting. High costs associated with this phase, particularly in modelling or detailed planning investigations.
Iwi				
Use of water for cultural purposes, including mahinga kai and Māori customary use values	Use restricted due to poor water quality caused by stormwater discharges. For example, coastal waters unsuitable for contact recreation identified in plan are all affected by stormwater and/or wastewater discharges from networks servicing Wellington and Porirua cities.	Short-term mitigation of 'acute' effects on contact recreation if identified in course of consent. Little change expected in stage 1, as little physical change expected to the network during Stage 1 and also due to lag time in the ecosystems recovery.	Little change in the short to medium term in stage 2 (first 2-5 years). Reduced sewage cross-contamination in the mid to long term. Improving water quality in the long term will enhance Māori customary use values and ultimately mauri.	Little change in the short to medium term (first 5 years). Reduced sewage cross-contamination in the mid to long term. Improving water quality in the long term will enhance Māori customary use values and ultimately mauri.
Relationship of tangata whenua with land and water and their taonga	Little involvement in decision making under the Act. However, input in non-Act forums. E.g. Long Term Plan and annual plans and non-statutory environmental strategies. Note non-statutory process offer limited certainty for Iwi.	Applications in Stage 1 non-notified, so no opportunity for involvement of tangata whenua.	Involvement in strategic planning through the whaitua process and also in the stage 2 consent application process (note specific matters of discretion expected to ensure this). Increased certainty about outcomes.	Involvement in strategic planning through the whaitua process and also in the stage 2 consent application process (note specific matters of discretion expected to ensure this). Increased certainty about outcomes.
Community				
Involvement in decision making	Little involvement in decision making under the Act. However input in non-Act forums e.g. Long Term Plan and annual plans and non-statutory environmental strategies. Note non-statutory processes offer limited certainty for community. Exception is WCC consent requires community Stormwater Consultative Committee with the	Applications in Stage 1 non-notified, so no opportunity for involvement.	Involvement in consent application and implementation, increased certainty about outcomes and transparency in processes.	In mid to longer term, involvement in consent application and implementation and increased certainty about outcomes.

Costs				
Affected group	**Option 1** Status quo	**Option 3 (preferred option)** Two stages, two consents		**Option 3X** Two stages, one consent One consent with review clause to incorporate whaitua outcomes
		Stage 1 (short-term)	Stage 2 (long-term)	
Values	community. Non-use, existence and environment values not being sufficiently recognised and provided for. Restrictions on use of and access to water for recreation and cultural purposes.	Non-use, existence and environment values may not be sufficiently recognised and provided for as improvements happen in stage 2. Restrictions on use of water for recreation and cultural purposes.	Restrictions on use of water for recreation purposes, particularly in short term Increased certainty that values being appropriately provided.	Non-use, existence and environment values may not be sufficiently recognised and provided for in short term. Less certainty these values will be provided for in the long term. Restrictions on use of water for recreation purposes, particularly in short term. Some values not being sufficiently recognised and provided for, particularly in short term.
Non local authority resource users (e.g. industry, business)	Costs imposed by district plans or bylaws, including: - Kāpiti Coast District Council Low Impact Design requirements for new subdivision - Draft Porirua City Council stormwater bylaw - Development requirements - Area-specific stormwater requirements e.g. Porirua City Council Aotea Comprehensive Development Plan These costs are increasing over time as environmental considerations are given greater weight and due to changes to the RPS and users' own environmental standards	No additional costs anticipated as stage 1 will be largely procedural.	Additional costs imposed by District Plan or bylaws, which are likely to be used by local authorities to achieve targets set in consents for discharge quality. However it is not expected that significant additional costs will result. This is because under the status quo the RPS process and community expectations are expected to drive changes through District Plan and bylaws.	Additional costs imposed by District Plan or bylaws, which are likely to be used by local authorities to achieve targets set in consents for discharge quality. However it is not expected that significant additional costs will result. This is because under the status quo the RPS process and community expectations are expected to drive changes through District Plan and bylaws.
Ecosystem (intrinsic values)	Impacted water quality in urban streams. Impacted ecological health and mahinga kai quality in urban streams due to contaminant loads and change in hydrology. Poor macroinvertebrate health in urban streams. Toxicant build up in depositional environments. Increased streambed and bank scour. Impacted biological communities in estuarine environments. Impacted shellfish health.	No change expected in Stage 1 as largely procedural.	Improvement in water quality and health of freshwater ecosystems expected in the long term, allowing for delay in on-ground changes to take effect. Reduced impact heavy metal and other toxicant contaminants on streams and depositional environments. Reduced sediment loads improving stream and harbour clarity and sediment deposition rates. Reduced adverse effects from discharge rates and volumes from new subdivision and development.	Improvement in water quality and health of freshwater ecosystems expected in the long term, allowing for delay in on-ground changes to take effect. Reduced impact heavy metal and other toxicant contaminants on streams and depositional environments. Reduced sediment loads improving stream and harbour clarity and sediment deposition rates. Reduced adverse effects from discharge rates and volumes from new subdivision and developmen.t

Efficiency, effectiveness, appropriateness and risks of acting or not acting			
Efficiency and effectiveness	Effectiveness of operative plans is very limited, including because no objectives on stormwater management and little policy direction beyond encouragement. Operative plans have imposed few costs on resource users meaning externalisation of costs to the environment or imposed onto communities through poor water quality, impacted ecological health and restrictions on use of water. While significant degradation in water quality has not been seen over past 15 years, many fresh and coastal waters in urban environments are highly impacted. Status quo has not been effective at improving water quality. There has been little improvement in the management of stormwater systems and land use for water quality outcomes. This option does not provide a robust means to respond to the NPS-FM and the whaitua process. This option does not give effect to the NPS-FM, NZCPS or RPS. Together, the status quo is not an effective or efficient means of achieve the objectives of this proposed Plan.	Controlled activity status provides efficient means to bring all network discharges into a regulated environment and to apply consistency across network management. Two-stage approach is efficient because it lowers initial consent application costs and provides for flexibility in the management of issue of each network via specific but not prescriptive SMS approach. Strategic planning approach allows more effective reflection of community values and priorities. Two-stage approach is efficient with future planning context of NPS-FM, designed to work with the whaitua process. Does not require change in management immediately but allows for planning and budgeting in a strategic manner. Creates a strategic, catchment-based approach to allow for incorporation of whaitua objectives as appropriate. Creates certainty for community and WRC in the short term by regulating immediately. Not effective in the short term at driving improvements in water quality but likely more effective in the long term because of up-front planning. This option presents risks because community perceptions may be that the Council has not responded quickly enough to requiring improvement from local authorities. Often community expectations are high while the institutional ability to respond is low. The two-stage approach provides an appropriate, workable and achievable framework for all TA stakeholders. The proposed approach is more efficient than Option 1 as it creates consistent process for all local authorities to respond to the values of their communities, as expressed through the whaitua process. This option would give effect to the NPS-FM, NZCPS and RPS. Option 3 is the most efficient and effective option for minimising the adverse effects of stormwater discharges in accordance with objective O48, and to meet objectives O5, O23, O24 and O25 in relation to management of stormwater discharges to water.	More efficient that Option 3 because one consent process rather than two, but overall costs are likely to be similar or higher than Option 3. Likely higher consent application costs as less certainty. Not as effective as Option 3 in the short-term at achieving improvement in water quality but more effective than the status quo in the long-term. Strategic planning via whaitua process approach allows more effective reflection of community values and priorities. Option 3X presents a higher risk than Option 3, but a lower risk than Option 1. Having no regulatory requirements in the short term (and effectively continuing the status quo in this sense) may mean that water quality is not appropriately maintained or improved. This option would effect to the NPS-FM, NZCPS and RPS but would be less effective in doing so than Option 3. Option 3X would be less effective at minimising the adverse effects of stormwater discharges in accordance with objective O48.
Risks of acting or not acting	The risks associated with Option 1 are effectively the risks of not acting. The status quo is ineffective at improving water quality or minimising the adverse effects of stormwater discharges, or responding to the values of the community. Knowledge about the adverse effects of stormwater capture and discharge on stream and coastal environments has increased substantively since the notification of the operative plans. Monitoring in the region confirms impacts of stormwater discharge on rivers, streams and estuaries. Information is sufficient to conclude that there is a risk of not acting to change from the status quo. Any uncertainty that there may be about future water quality limit setting processes do not justify a continued permitted activity approach in the short term such as is set out in Option 3X.		
Appropriateness	Option 1 is not the most effective or efficient means to achieve the objectives or the purpose of the Act and is therefore not considered appropriate.	The proposed provisions are appropriate given the high level of efficiency and effectiveness for meeting the Act and protecting human and ecosystem health. The benefits of adopting Option 3 outweigh the costs of continuing with the status quo approach or taking a stronger approach. There are no other credible alternatives.	While this option provides a more appropriate approach than the status quo, Option 3X presents risks over the short term and is likely to be less effective than Option 1.
Conclusion	Option 3 is the most appropriate option.		

The Greater Wellington Regional Council's purpose is to enrich life in the Wellington Region by building resilient, connected and prosperous communities, protecting and enhancing our natural assets, and inspiring pride in what makes us unique

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