Environment NETWORK manawatu

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Draft NATURE CALLS (PNCC Wastewater Project) submission

Name:

Address:

Email Address:

Do you live in Palmerston North?

Are you a business owner in Palmerston North?

What age range are you in? <18 18-30 31-40 41-50 51-60 >60

Do you identify as tangata whenua in Palmerston North, Horowhenua or Manawatu?

If yes, please identify your iwi / hapu / tribal affiliation.

What kind of area do you live in? Urban Rural Coastal

Values

Please rank the following items from 1(most important) to 8 (least important)
(see 'How did we get here' page on Nature Calls website for explanations of these values).

2 Natural environment (Potential adverse environmental effects on the receiving environment (including Manawatū River), particularly in relation to water quality, soils, aquatic ecology and terrestrial ecology.)

1 Public health (Degree of public exposure to health risks in treated wastewater (including through land application or re-use options.)

3= Innovation and future proofing technology (Degree to which the option uses reliable and proven technology, can be staged, is able to be constructed, can be constructed within the appropriate timeframe, allows resource recovery/ beneficial re-use.)

8 Growth and economic development (Will the option support the population and economic growth the Council forecasts for Palmerston North?)

7 Financial (cost of option) (Comparative capital, operational, whole of life costs of the option, assessment of this criterion includes consideration of land acquisition costs, capital gains and product net revenue.)

5= Maori cultural values (Potential adverse effects on the mauri of natural resources, on kai moana, and on the relationship of Māori, their cultures and traditions, with ancestral lands, water, sites, waahi tapu and other taonga.)

5= Social and community impacts (Significance of potential social effects based on the gravity, distributive equity, the need for land acquisition and degree of permanence of land use change, and public support for the option.)

3= Resilience and future climate change impacts (Degree to which the option is resilient to natural hazards and climate change and offers operational resilience.)

Rank Options

Based on your rankings above, which option do you believe will meet your set of priorities values?

No Option 1 - 100% discharge to the river with enhanced treatment

2 Option 2 - 55% discharge to land and 45% discharge to the river

No Option 3 - 100% discharge to the ocean with improved treatment

1 **Other option** - discharge to land of a greater proportion of the treated wastewater as well as 'front of pipe' measures to decrease creation of wastewater. At the very least the proportion should be that which can be achieved at a cost equal to that of the discharge to water options (i.e. an extra $430/year/rateable unit). We recognise that this is not likely to enable a total discharge to land but it should be more than 55%. **Before the BPO is selected, councilors (and the public)**

should be provided with the cost of discharging 65%, 75%, 85% and 95% to land.

We support measures being taken to decrease the creation of wastewater in the first place. This should occur no matter which option is chosen. These measures include:

a) installation of water meters and charging all users by volume above a base volume, the base volume being paid for as part of the general rates. Water metering is a proven way to decrease water use and wastewater generation.

b) a reinvigorated Inflow and Infiltration prevention programme that:
   - involves regular inspection of properties and pipes in areas where flow in the city's wastewater pipes is higher than expected
   - continues the programme to replace old pipes.

c) encouragement and incentives for installing and using grey water tanks, dry toilet systems and other water saving devices in existing homes.

d) requiring the installation and use of grey water tanks and water saving devices in new free-standing homes and other appropriate buildings.

PNCC's treatment system should be designed to decrease contaminants sufficiently to meet any limits of the land and of the ability of plants grown on it to absorb nutrients and any aquatic limits that would pertain during periods when treated wastewater would have to be released into the river (at high flow only).

The land discharge area(s) should be used for biomass for energy production either by conversion to liquid or gaseous fuel or by direct burning to generate electricity and heat (the latter usable in associated greenhouses for food production or for other activities with high heat needs). This aspect introduces the prospect of co-funding the project with a commercial partner.

Finally, any excess wastewater as well as any water leaching into the shallow ground water would be intercepted by cut off drains and directed through wetlands designed for further treating the water and

for biodiversity restoration with ultimate discharge of water from the wetlands to the river.

This system has multiple benefits including:

i. Economic : Not only does it mitigate any harm to the tourism potential of having a direct discharge to the river but it could in itself be a tourist attraction as a progressive, future-focused solution that deals with wastewater in the most beneficial, environmentally-positive way.

   It would also negate the possible negative effect of a discharge to river or ocean on future inshore fisheries/shellfish production operations.

   And the bioenergy production side of the proposal would be a new economic activity for the region creating extra employment on top of that needed to manage the discharge area.

ii. Affecting a relatively small number of land owners and some of these would be able to be employed managing the land for its new purpose or in the biomass to energy operation.

iii. Making a significant contribution to restoring the biodiversity of the Lower Manawatu basin with the inclusion of large-scale wetlands (managed in a variety of ways). The area was previously largely covered in wetlands and associated vegetation so recreating some large wetlands appears very practical.

iv. Providing additional resilience if the system were located in more than one place and/or involved operating parallel systems that enable maintenance and different management to be carried out on parts of the system while the rest of the system functions as usual.

v. Decreasing the leaching of nutrients that is normally associated with the land if it is currently used for stock production since stock would no longer graze the land and nutrients would be removed from it with any biomass harvested.

vi. Possibly making a positive contribution to decreasing greenhouse gas emissions from the bioenergy produced, especially if liquid fuels were produced. However, this may be offset by emissions from any wetland area included.

vii. Decreasing the risk of the system failing to meet river water quality standards (either current ones or future ones). The ocean discharge also has this benefit but the discharge to river option does not.

Treatment failure or the possibility that our understanding of river nutrient dynamics is incomplete are both ways in which the river discharge option may fail to meet expectations (as occurred for the current system). This is all the more likely with the longer dry periods and hence longer periods of low river flow that we are likely to experience in coming years, as climate change progresses, making the river more sensitive to nutrient enrichment.

viii. Better meeting broader society's expectations about water quality and the cultural preferences of local iwi and hapū who have always expressed a strong opposition to discharging human wastewater into the river.

Tell us more about your preferred option

Which value is most important to you and why?

Public health: The reason we collect human wastewater is to protect human health by taking it away from where people might come into contact with it. It is treated so as to decrease the health risk to people who come into contact with it in the receiving environment (the environment into which it is discharged) either directly, such as by swimming, or indirectly, such as by consuming food contaminated by growing in that environment. Clearly any option which fails on this criterion is an unacceptable option and would not be able to get a resource consent. Equally clearly, all options put forward will achieve the required level of protection of human health. So this can be taken as a given - it cannot be compromised.

After that, environmental protection is the most important value to us. We see ourselves as part of and dependent on the environment and also value other species for their own sake. Thus, we believe that we should protect them from any harm that our wastewater may cause. Less direct environmental protection comes from utilising both the nutrient content of wastewater as well as the water itself as a resource instead of viewing it only as a waste. By using it we can decrease reliance on material extraction (e.g. phosphate) and the associated energy use (e.g. synthetic nitrogen production and pumping of water from aquifers) helping to protect the global environment, not just our little bit of it.

What do you think is the most sustainable solution for Palmerston North and our region?

Minimising wastewater: In our view, the most sustainable solution must involve producing as little wastewater as possible and applying as much as possible of it to land.

We need to address the cause of the issue by changing the way we do things or the things we use so as to decrease the amounts of water we use and wastewater we create. This will help decrease the cost of treatment for whatever option is chosen. It is particularly important for any option involving discharge to land as the amount of wastewater is a major determinant of the amount of land needed. Although discharge to the river or ocean option would benefit from decreased wastewater flows, primarily from decreased treatment costs, those discharge options provide little or no other incentive to decrease wastewater, (The pumping cost is likely to be negligible in the case of the river discharge and a relatively minor cost for the ocean discharge.)

Public values: These are constantly changing and there is a progressive increase in the desire of the public for having less impact on the environment. These changes in public viewpoints will result in new standards being promulgated concerning the level of impact we should not exceed. This is likely to continue as younger generations, who have grown up with negative environmental impacts reaching lifestyle- and life-threatening levels, are more concerned about those impacts than previous generations. As they become the decision-makers of society they will demand and enforce higher standards. We should be selecting an option that recognises this and doesn't just meet the standards of today. We should exceed today's standards so that the readily anticipated higher standards of tomorrow don't require yet another revamp of our wastewater system.

Persistent pollutants: There is considerable uncertainty about the impacts of some of the chemicals we use. These include persistent organic pollutants but metals, including heavy metals, as well. Discharge to the river and the ocean both disperse contaminants in a way which makes them virtually impossible to recover or manage. In contrast, appropriate (in terms of quantity of water applied to avoid leaching) discharge to land will result in any persistent contaminants at least being contained within a known area. If any become problematic there is some chance of

recovering them or at least of keeping them isolated by managing the land accordingly.

Beneficial use: Obtaining greater benefit from the use of resources is desirable especially when doing so can simultaneously decrease negative effects of the disposal of those resources. It is completely out of step with the City's EcoCity Strategy to be just throwing resources away such as by pouring wastewater into the river or ocean.

Economic potential: A solution which creates economic opportunity and decreases the risks to current or potential economic activity is more desirable than one which doesn't do these things. Discharging to water has potential to harm tourism and possible inshore fisheries/shellfish operations and has no potential for creating a tourist attraction. It also has no potential to create new economic activity in the way a land discharge scheme does.

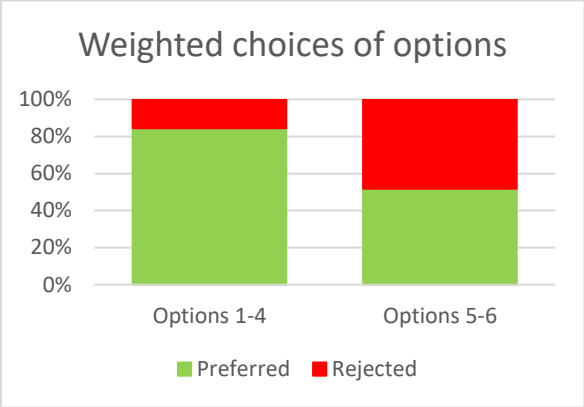
A system which can contribute positively to biodiversity restoration is considered more sustainable than one which doesn't, especially given the almost complete destruction of wetland habitat, both swamp and swamp forest, in the lower Manawatu. Only the discharge to land option that we have proposed does so on any significant scale.

Which option has the right balance between environmental protection / impacts and community affordability?

Only options with substantial discharge to land have the right balance since full discharge to either river or sea is unacceptable to us. Discharge to the river or sea both enable continuation of the thinking that we can just throw it away without further effect on us and would provide little or no incentive for people to take measures to minimise the amount of wastewater they create.

Discharge to the ocean not only received little public support during the last consultation but it was also ranked least preferred option of nearly half of respondents. The discharge to river also had a considerable proportion of respondents saying it was their least preferred option. In contrast, those options involving substantive discharge to land was not only more favoured but also were the least preferred option of the fewest number of respondents. The following graph visualizes preferences expressed by

submitters against the six options available in the previous round of consultations:



How to read the graph:

For the original public consultation, the following options were offered:

Option 1 = discharge to river at Totara Rd except when river flow is below 1/2 median when 75% of discharge will be diverted to 670ha of land.

Option 2 = discharge to river at 2 places, Totara Road and Opiki, and when river flow is below 1/2 median, at which time 75% of discharge will be diverted to 670ha of land.

Option 3 = 97 % discharge to land, at coast or inland

Option 4 = 45-55% discharge to land, at coast or inland

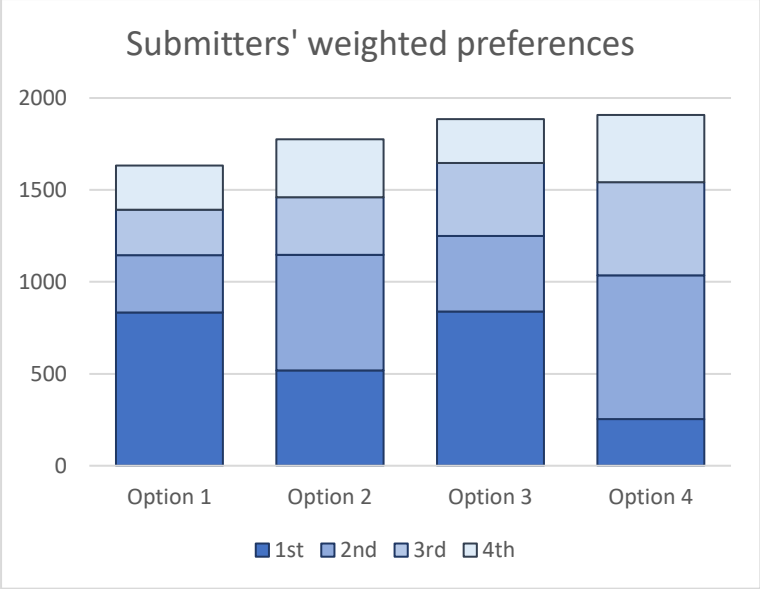
Option 5 = discharge to groundwater but to land during drier months

Option 6 = discharge to ocean but to land during drier months

Note: The original 6 options have been reduced to three preferred options in this consultation round. Those are highlighted in yellow.

Overall, submitters greatly (73%) prefer options 1-4 to Options 5-6 (27%). This strongly suggests that Options 5 and 6 should be discarded at this stage.

The next graph shows weighted preferences amongst the 4 options (= options 1 – 4 in the full list of six options above), preferred by submitters during the last consultation.



A submitter's first preference can be given more weight than their second preference, etc. When weighted for level of preference (see figure below), the most acceptable option is Option 3 (discharge to land), but overall there is little variation between Options 1-4 amongst submitters. There is more variation between the preferences for Options 5-6. Groundwater discharge has subsequently been rejected by PNCC, on what appear to be reasonable grounds.

Sustainability in your home

Please tick which measures you would use to reduce your wastewater at home.

___ Remove insinkerator
___ Greywater tank
___ Water reducing showerheads and taps
___ Composting toilet
___ Lower energy appliances
___ Urine separating toilets
___ Water metering
___ None of the above