Mangawhai Wastewater Scheme
Strategy and Options Report

Kaipara te Oranganui
KAIPARA DISTRICT
Two Oceans Two Harbours

Appendices

A August 2017 – Council's update of Advisory Panel's Recommendations

B Map of current and proposed drainage district including current connection status

C Kaipara District Wastewater Drainage Policy and Bylaw 2016 – here.

Executive Summary

Mangawhai is growing.

The objectives of the Mangawhai Wastewater Scheme (MWS) and Extension are to:

1 Protect Mangawhai Harbour;

2 Support growth; and

3 Provide good quality wastewater infrastructure to meet the current and future needs of the community.

This paper has been prepared to outline issues, risks and options as a precursor to developing a strategy for consultation with the community and adoption as part of the process for the Long Term Plan 2018/2028. It builds on the work that the Mangawhai Wastewater Scheme Advisory Panel did over a period of 18 months to July 2015, which included community consultation and participation.

The recommended option is to prepare a proposal, incorporating full financial and sensitivity analysis, that covers an upgrade to treatment and disposal and an extension of reticulation in the near term and to plan for the longer term by planning for extended disposal and augmented treatment in the medium to longer term.

1 Introduction

Mangawhai is a popular coastal community comprising full time residents and bach owners who, together with tourists, flock to the beaches and estuary during summer and weekends. The permanent population between the 2001 and 2013 Census grew 57% from 1,391 to 2,429. It is estimated that the current population is now around 3,000. This expands considerably every weekend and even more so over summer.

In the years 2001 – 2016 there was an increase of 1,304 houses or an average of 87 new houses each year (1,391 to 2,695, almost double). Improvements to State Highway 1 will bring Mangawhai closer to Auckland, and the growth of Auckland may create migration north in search of a better and simpler life.

Currently just under a half of the properties are lived in full-time. The rest are holiday/weekend homes. By 2030, it is expected that the number of homes in Mangawhai will have increased by about 1,400 (medium growth scenario) with a usually resident population of more than 4,000, assuming continued half-half between permanently occupied or holiday/weekend dwellings.

A Local Government Act (2002) purpose of local government is to meet the current and future needs of communities by providing good quality infrastructure. Good quality means efficient, effective and appropriate to present and anticipated future circumstances.

The Mangawhai Wastewater Scheme (MWS) is an important part of the infrastructure required to protect the harbour from human pollution. To accommodate growth and honour granted subdivision consents, the capacity of the MWS needs to be increased.

The challenges for the MWS are two-fold:

- How to deal with the high peak loading over the Christmas/New Year period when inflows are nearing plant capacity; and
- How to deal with long term system capacity as the population increases (either by a greater number of properties being connected, or more existing properties becoming permanently inhabited).

These challenges impact on all three components of the scheme: reticulation network, treatment plant and effluent disposal. The impact on the community by extending the MWS is likely to trigger the Significance and Engagement Policy. A decision on the preferred option will need to be made as part of the Long Term Plan 2018/2028.

2 Background

The intent of the MWS was to improve the quality of the water in the Mangawhai Harbour. This intent remains current and is equally valid in guiding future decisions. Regardless of the history, the MWS is in place and working well. There is also some capacity for more connections. The original MWS was designed to service many more properties than it currently does however in order to do this, extensions and augmentation are needed.

Given the grievances of the past, Council determined there was a need to better engage with the local community over what the future expansion (if any) and funding arrangements should be, along with resolving a number of related issues, such as ownership and maintenance responsibilities.

To assist Council, a group of ratepayers were sought from the Mangawhai community who had the appropriate skills and experience to work as volunteers to undertake a review and to provide independent, objective input to Council's decision-making processes. They were called the Advisory Panel. Their key role was to provide a vehicle through which Council could receive a considered, preferred option from community input and advice on a range of technical, policy and funding issues related to the future development of the MWS, especially in regard to extension of the reticulation network, and treatment and disposal capacity.

2.1 Advisory Panel

The Advisory Panel spent over six months understanding the current situation, the challenges and issues going forward and sought to understand how the system could best meet the needs and desires of the community. This work involved a public Open Day, meetings with various community groups and with Iwi.

The end result was a report that they believed represented the best possible and fair view of the facts as they knew them, along with a sound and logical basis for moving forward. The Advisory Panel's Recommendations Report was presented to Council in July 2015.

The Panel's full report and summary of recommendations can be found on Council's website, click here.

In June 2016 a summary of the original recommendations and Council actions in response, was published as an open letter to the community. This document was further updated in July 2017 and is set out in Appendix A.

The recommendations in this report generally align with the outstanding recommendations of the Advisory Panel, except where there were legal or financial overrides which Council is unable to progress further.

2.3 The Current System

System Components

The system itself comprises of a series of components, summarised as:

i. Private connections - These are the pipes and associated assets that exist within a private property and effectively connect a house/business to the public system. In approximately 20% of the current installations there are 'grinder pumps' to pump the wastewater into the reticulation system.

ii. Reticulation network - This comprises the pipes laid primarily within the road reserve, but also across some private properties and into which the private connections join. Also forming part of the reticulation network are the pump stations located around the catchment area to deliver the collected wastewater to the treatment plant.

iii. Treatment plant - This is the plant located on Thelma Road South at the western edge of the Mangawhai Community Park. The plant takes the incoming wastewater and treats this to deliver hygienic but nutrient-rich effluent, along with dry solid waste matter.

iv. Disposal of the effluent - The treated water is pumped some 10km inland to what is known as the 'Lincoln Downs Farm' on Brown Road in Hakaru. Here it is stored in a large man-made dam and then irrigated onto part of the farm. The solid waste is currently disposed to landfill.

As of May 2017 a total of 1,956 properties were connected to the MWS, and 486 properties are rated as capable of connecting i.e. a total of 2,442 properties.

Wastewater Bylaw

Another of the Advisory Panel's Recommendations was that Council passes a bylaw requiring a six-monthly independent Inspection and Maintenance Certificate for all onsite systems, at the property owners' cost. In September 2016 Council adopted a district-wide Wastewater Drainage Policy and Wastewater Drainage Bylaw.

The Bylaw places obligations on persons using public and private wastewater systems. Disposal systems must be installed, operated, repaired or extended to Council standards and they are assessed and maintained at regular intervals as required under a warrant of fitness programme. Council modified the Warrant of Fitness cycle period to three years believing that to be industry best practice. A copy of the Wastewater Drainage Policy and Wastewater Drainage Bylaw can be found on Council's website, click here.

2.4 Proposed extension

The plan to accommodate growth is an integrated strategy that: optimises disposal at the Lincoln Downs Farm, accommodates the Christmas/New Year usage peak; funds the extension of the reticulation network and upgrades the treatment plant when required. Doing nothing is no longer an option.

Reticulation

Hydraulic modelling has defined capacity and identified bottlenecks in the reticulation network. Nine of the existing 13 pump stations have sufficient capacity to accommodate full development of the drainage district (assuming current land use zones in the District Pan) while four will require upgrades. The phasing of these upgrades will be dictated by the pattern of development and the growth rates within the respective sub-catchments. A fully developed drainage district would also require six additional pump stations.

Minor extensions of the reticulation network are being undertaken on an 'as needed' basis in line with residential development. The trunk reticulation is restricted in places to an estimated capacity of 2,500 connections.

Treatment

For most of the year the treatment plant operates on only one of its two CASS reactors. The second reactor is brought online in early summer in anticipation of the peak summer inflows.

The average volume of water treated is about 300m^3 per day, with a peak daily volume of approximately 1,000m^3 per day over the peak Christmas/New Year period (by comparison an Olympic-sized swimming pool holds 2,500m^3). It has the capacity to service approximately 2,500 connections.

The treatment plant's limiting factor is its ability to meet the current resource consent's Total Nitrogen (TN) limit of 30 mg/l. The current resource consent conditions state that the TN concentration is to be calculated by means of a rolling average using the six most recent monitoring results collected once every 15 days i.e. essentially a 30 mg/l average over 90 days. The critical period is over the summer holiday period when maximum occupancy is seen and due to the water use in the catchment the strongest influent is recorded. The treatment plant is nearing its capacity to meet this consent condition.

To maximise use of the treatment plant, disposal capacity needs to be increased. Doing nothing means the treatment plant will continue to be under-utilised; this is a key issue to be addressed.

Disposal

The treatment plant separates the untreated waste into dry solids (which are currently disposed of to landfill) and clean (but relatively nutrient-rich) water. The water is pumped inland to the Council-owned, leased, drystock grazed, Lincoln Downs Farm at Hakaru and used as irrigation. A further expansion of the farm disposal network was undertaken in 2016/2017 to increase the total irrigated disposal area from 30ha to 46ha (of a total 65ha consented at the farm).

Further extending the irrigation area and varying the Discharge Consent to match the actual land use (i.e. drystock grazing not dairy) would give adequate capacity for some time. The irrigation system currently has the capacity to service approximately 2,600 connections.

3 Current Mangawhai Wastewater Debt

The attribution of debt to different communities was first introduced in June 2012 with the Long Term Plan 2012/2022 after consultation in accordance with the special consultative procedure.

The debt servicing (interest and principle attributed to the loan) is paid by the general rates, targeted rates and development contributions depending on the debt attributed.

Policy changes over that period from 2012 to 2017 included:

- Transfer of the debt attributed to the Mangawhai Harbour restoration to the existing community in 2013.
- Introduction of capital target rates in 2013 payable over a number of years, together with an early repayment policy for those who wish to pay in one sum; and
- Proceeds of asset sales or other applicable surpluses are applied to the district-wide debt.

During the period from July 2013 to June 2017 in excess of $8 million has been repaid, as indicated in the table below.

Attribution of MWW debt to communities		2012	2012		2017	2017	
		$m	**$m**		**$m**	**$m**	
Existing community (connected and connectable)			9.4			12.1	
Mangawhai Harbour Restoration community			4			0	
			13.4			**12.1**	
District wide- tranche 1 (balance capital cost)		11.3			9.8		
District wide- tranche 2 (prior operating deficits)		7.1			0.6		
			18.4			**10.4**	Note 1
Sub-total current communities			**31.8**			**22.5**	
Development years 1 – 10		6					
Development years 11 and over		20.2			26.5		
Sub-total future communities			**26.2**			**26.5**	
Total			**58.0**			**49.0**	

Note 1: to be finalised for year end

In order to accommodate growth, at this point there is a need to upgrade the treatment plant and an imminent requirement to expand disposal and reticulation. Further out in the 10 year planning horizon there will be a need to augment the treatment plant.

Any proposal to materially extend the wastewater network will require additional debt funding, at least in the interim. Most of the expenditure will be growth related and under current policy will be funded by development contributions over time.

4 Risks

Current risks are set out below.

1 Managing capacity:

- High peak loading over the Christmas/New Year period; and
- Long term increases in the average flows into the system due to ratio of permanent to holiday homes increasing.

2 Estimating pace of growth.

This risk is that growth may happen:

- Faster which will mean that the extensions to the network will be required earlier; or
- Slower which will mean that extensions to the network can be delayed; and
- Demographics of the Mangawhai community are changing with the percentage of permanent resident compared with holiday homes increasing which in turn changes the demand and capacity profile.

3 Debt:

- Potential for stranded debt, if we cannot collect development contributions; and
- Managing any additional debt for extension to ensure that it remains within acceptable and prudent financial parameters.

5 Options

The plan to accommodate growth is an integrated strategy that: optimises disposal at the Lincoln Downs Farm by varying the Discharge Consent to match the actual land use (i.e. drystock grazing, not dairy) and extending the disposal irrigation area; accommodates the Christmas/New Year usage peak; funds the extension of the reticulation network; and upgrades the treatment plant when required.

Six options were originally considered; two were subsequently discarded. The “do nothing” option was discarded as it is not feasible; further expansion is needed to meet existing commitments. The “ocean outfall” option was discarded as it is beyond the LTP 10 year time horizon, financially prohibitive at this point and social and cultural assessments have not been done. However, additional disposal will be required in the future if the growth is to be serviced.

The four options for consideration are:

1 Do minimum - extend disposal system, upgrade existing reticulation, upgrade treatment plant, capacity 3,300 connections, cost over 10 years $4.35 million;

2 Reticulate pockets - extend disposal system, upgrade existing reticulation, extend reticulation (8 years), upgrade treatment plant, capacity 3,300 connections, cost over 10 years $7.65 million;

3 Ecological plus pockets - extend disposal system, upgrade existing reticulation, extend reticulation (8 years), upgrade treatment plant, capacity 3,300 connections, cost over 10 years $16.35 million; and

4 Additional disposal, reticulation and treatment - extend (existing) disposal system, plus new disposal system (e.g. Mangawhai golf course) upgrade existing reticulation, extend reticulation (13 years), augment treatment plant, capacity 4,700 connections, cost over 22 years $34.78 million.

It should be noted that each successive option is an expansion of the preceding option i.e. electing to implement an option now does not prevent Council from electing to expand the scheme further at a later stage. The rate at which infrastructure is upgraded and/or provided can be varied to match growth should it occur at a greater or lesser rate than envisaged. If required, this would be addressed via the Annual Plan process.

These options are discussed further in the sections below.

5.3 Option 1 - Do minimum

From Schedule A of the original Amended and Restated Project Deed [Dec 2007] the extent of the reticulation that was required was to initially provide connections to 1,216 properties.

The reticulation and pumping stations however, were designed to service more than the 1,216 properties that were initially required to be reticulated. Based on their respective catchments, the reticulation pumping stations have varying degrees of spare capacity available. The terminal pump station that pumps all the effluent to the WWTP has a design capacity to service approximately 2,500 connections i.e. similar to the design capacity of the WWTP.

Option 1 would entail the upgrade of the main pump station, upgrade of the treatment plant, and completion of the extension of the irrigation system at the farm. Other than a relatively minor allowance for some minor extensions, no extension of the reticulated network is included.

Which, based on medium growth (77 new houses per year), means capacity will be reached in about 13 years, around 2030.

Cost Estimates:

Option 1 - Service 3,300 connections	Estimate $000's	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Extend irrigation system	950			950							
Upgrade existing reticulation	1,200	200	1,000								
Upgrade WWTP	1,800	1,000	800								
Additional Capacity for Growth - Council Contribution	400	40	40	40	40	40	40	40	40	40	40
Total	**$4,350**	**1,240**	**1,840**	**990**	**40**	**40**	**40**	**40**	**40**	**40**	**40**

5.4 Option 2 - Reticulate pockets

Option 2 is similar to Option 1 but includes extending the reticulation to provide connections to the properties that are within the area currently reticulated but were not provided a connection when the scheme was initially constructed i.e. they were not included in the 1,216 properties that were originally provided with a connection.

These properties (approximately 250) would take up a portion of the capacity provided to service 3,300 connections.

Which, based on medium growth (77 new houses per year), means capacity will be reached in about 13 years, around 2030.

Cost Estimates:

Option 2 - Service 3,300 connections and reticulate pockets	Estimate $000's	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Extend irrigation system	950			950							
Upgrade existing reticulation	1,200	200	1,000								
Extend Reticulation	3,300			413	413	413	413	413	413	413	413
Upgrade WWTP	1,800	1,000	800								
Additional Capacity for Growth - Council Contribution	400	40	40	40	40	40	40	40	40	40	40
Total	**$7,650**	**1,240**	**1,840**	**1,403**	**453**	**453**	**453**	**453**	**453**	**453**	**453**

5.5 Option 3 – Ecological plus pockets

Option 3 is similar to Option 2 but includes extending the reticulation to provide connections to the properties that are within 300m of the harbour. The Advisory Panel recommended that "prioritisation of extensions to the reticulation lines that permit connection of properties within 300m of the marine environment should occur".

The un-reticulated properties around the village area would be relatively expensive to reticulate due to their distance from the WWTP, and the requirement to provide parallel reticulation to service these properties (the existing reticulation does not have sufficient capacity to service all the properties within these catchments). The cost estimates have been based on sizing the reticulation to service these catchments fully developed.

Many of these lots are relatively large and likely to be suitable for well managed on-site wastewater systems. Servicing these lots may not be the most economical option at this stage until such time as there is sufficient demand within the catchment for further intensification.

Which, based on medium growth (77 new houses per year), means capacity will be reached in about 14 years, around 2031.

Cost Estimates:

Option 3 - Service 3,300 connections and Ecological + pockets	Estimate $000's	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
Extend irrigation system	950			950							
Upgrade existing reticulation	1,200	200	1,000								
Extend Reticulation	12,000			1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Upgrade WWTP	1,800	1,000	800								
Additional Capacity for Growth - Council Contribution	400	40	40	40	40	40	40	40	40	40	40
Total	**$16,350**	**1,240**	**1,840**	**2,490**	**1,540**	**1,540**	**1,540**	**1,540**	**1,540**	**1,540**	**1,540**

5.6 *Option 4 – Additional reticulation, disposal and treatment*

This option includes extending the reticulation to provide connections to service approximately 4,700 properties within the Drainage District and includes an expansion of the treatment plant to include a third CASS reactor.

An additional disposal site would be required to augment the Lincoln Downs Farm. Unless a rapid infiltration system is adopted at the golf course, or an alternative disposal system developed, then ultimately the combined disposal capacity of both the Lincoln Downs Farm and the golf course would be approximately 4,700 connections. It should, however, be noted that the ultimate disposal capacity will decrease if the ratio of holiday homes to permanently occupied homes reduces.

Cost Estimates:

Option 4 - Service 4,700 connections	Estimate $000's	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29+
Extend irrigation system	950			950								
New disposal system	2,228											2,228
Upgrade existing reticulation	1,200	200	1,000									
Extend Reticulation	17,200			1,400	1,400	1,400	1,300	1,300	1,300	1,300	1,300	6,500
Upgrade & augment WWTP	12,800	1,000	800								500	10,500
Additional Capacity for Growth - Council Contribution	400	40	40	40	40	40	40	40	40	40	40	
Total	**$34,778**	**1,240**	**1,840**	**2,390**	**1,440**	**1,440**	**1,340**	**1,340**	**1,340**	**1,340**	**1,840**	**19,228**

6 Comparison of Options

	Uninflated $m	2018-19 $ m	2019-20 $ m	2020-21 $ m	2021-22 $ m	2022-23 $ m	2023-24 $ m	2024-25 $ m	2025-26 $ m	2026-27 $ m	2027-28 $ m	2028-29+ $ m
Option 1 - Service 3,300 connections												
Extend irrigation system	0.95	-	-	0.95	-	-	-	-	-	-	-	
Upgrade existing reticulation	1.20	0.20	1.00	-	-	-	-	-	-	-	-	
Upgrade WWTP	1.80	1.00	0.80	-	-	-	-	-	-	-	-	
Additional Capacity for Growth - Council	0.40	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
	4.35	1.24	1.84	0.99	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
Option 2 - Reticulate pockets, 3,300												
Extend irrigation system	0.95			0.95								
Upgrade existing reticulation	1.20	-	1.00									
Extend reticulation (8 years)	3.30			0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	
Upgrade WWTP	1.80	1.00	0.80									
Additional Capacity for Growth - Council	0.40	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
	7.65	1.24	1.84	1.40	0.45	0.45	0.45	0.45	0.45	0.45	0.45	
Option 3 - Ecological + pockets, 3,300												
Extend irrigation system	0.95			0.95								
Upgrade existing reticulation	1.20	0.20	1.00									
Extend reticulation (8 years)	12.00			1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	
Upgrade WWTP	1.80	1.00	0.80									
Additional Capacity for Growth - Council	0.40	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
	16.35	1.24	1.84	2.49	1.54	1.54	1.54	1.54	1.54	1.54	1.54	
Option 4 - Additional R, T & D, 4,700												
Extend irrigation system	0.95			0.95								
New disposal system	2.23											2.23
Upgrade existing reticulation	1.20	0.20	1.00									
Extend reticulation (13 years)	17.20			1.40	1.40	1.40	1.30	1.30	1.30	1.30	1.30	6.50
Augment WWTP	12.80	1.00	0.80								0.50	10.50
Additional Capacity for Growth - Council	0.40	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	
	34.78	1.24	1.84	2.39	1.44	1.44	1.34	1.34	1.34	1.34	1.84	19.23

7 Key assumptions

7.1 Growth

In the years 2001 to 2013 there was an average of 87 new houses each year (1,391 to 2,695). This represents the base growth scenario. Others are:

- High - average annual dwelling between Census 2001 and Census 2013 plus 25% (an average 108 new dwellings each year);
- Medium - average annual dwelling between Census 2006 and Census 2013 (lower than the 2001 – 2013 average annual growth with an average 77 new dwellings each year); and
- Low - average annual dwelling between Census 2001 and Census 2013 *less 25%* (an average 58 new dwellings each year).

For the purposes of this review, the medium growth scenario has been used i.e. 77 new dwellings each year. This is the same assumption used for the Mangawhai Community Plan.

7.2 Timing of investment

Timing of the investment is driven by the capacity of the component parts of the wastewater network infrastructure i.e. the reticulation, treatment and disposal networks.

Under the medium growth scenario, capacity will be reached as follows:

Reticulation	2,500 dwellings	2020
Treatment	2,500 dwellings	2020
Disposal	2,600 dwellings	2021

The investment is timed to expand the network before it reaches capacity to provide for seamless expansion where possible.

Sensitivity analysis of +/- 25% has been done for the recommended option. Changes in growth estimates will change the timing of the requirement for investment.

7.3 Rating Policies

Council's current policy in regards to capital and operating expenditure for wastewater infrastructure is to approximate user charges to the existing and future communities[1]. This means that the existing community pay targeted rates as a network charge. In Mangawhai, most have already paid (or are paying) an additional

[1] The exception is the Mangawhai wastewater scheme debt attributed to ratepayers district-wide.

targeted rate as a contribution to the capital component of the MWS or else have paid a development contribution. Future communities will pay a development contribution to subdivide or connect and once connected or connectable, will pay the network targeted rate.

For the purposes of this exercise, it is assumed that this policy will continue.

7.4 Development contributions assumptions

For financial modelling of options, it is assumed that Council's current policies in regard to development contributions (DCs) will continue.

7.5 General financial modelling assumptions

Financial modelling assumptions use an "indicative base" to compare the other options with. The indicative base is a set of financial data covering 10 years to 2027/2028 and has been derived from the Long Term Plan 2015/2025, updated for the position at 30 June 2017 and overall rates increases set to the Local Government Cost Index[2] (LGCI). It is a proxy only, pending the development of the financial data for the Long Term 2018/2028 financial data.

The assumptions behind the options are set out in section 5 above.

For the options illustrated in section 8 below, the modelling assumes that the overall rates increase is limited to the LGCI for all options. This means that the differences between the options is seen in the capital revenue, activity operating costs, new capital expenditure, debt and the financial ratios.

The modelling in section 8 is a guide only and shows relativity between the options; further work is required to develop a proposal for formal public consultation as part of the Long Term Plan 2018/2028 next year. However, the public are welcome to contribute preliminary views in the pre-engagement process which is open now.

[2] The Local Government equivalent to the consumer price index (CPI)

8 Summary of financial modelling

Summary	Base	Option 1	Option 2	Option 3	Option 4
average for 10 years					
Rates $m	33.9	33.9	33.9	33.9	33.9
Rates increase %	2.6%	2.6%	2.6%	2.6%	2.6%
Operating revenue	50.4	50.4	50.4	50.4	50.4
Capital revenue	9.8	10.0	10.1	10.2	10.2
Total revenue $m	60.2	60.4	60.5	60.6	60.4
Activity operating costs $m	37.5	38.2	38.1	38.5	38.5
Capital expenditure $m					
Growth (base)	0.3	0.3	0.3	0.3	0.3
Level of service	4.3	4.3	4.3	4.3	4.3
Renewal	16.6	16.6	16.6	16.6	16.6
New		0.3	0.7	1.7	1.7
Total	21.2	21.5	21.9	22.9	22.9
position at year 10					
Debt $m	36.5	45.7	47.6	60.9	61.7
Net debt as % of revenue (LGFA 175%, policy $170%)	103.7%	70.6%	73.6%	94.5%	95.7%
Net interest as a % rates (Limit 25%)	9.7%	6.1%	6.3%	7.6%	7.7%

9 Summary of Funding Implications – Development Contributions (DCs)

The modelling assumes the following DCs for each option. Option 4 also has a calculation of DCs assuming that growth happens slower (-25%) or faster (+25%) than the base assumption of an average 77 dwellings per annum[3].

	$ (excl GST)
Current DC	**21,237**
Base	**13,784**
Option 1 (do minimum)	**17,111**
Option 2 (pockets)	**17,959**
Option 3 (ecological)	**20,193**
Option 4 (additional R, T & D)	**20,027**
Option 4 - 25%	**23,880**
Option 4 + 25%	**19,966**

[3] Full sensitivity analysis will be done for the proposal that is developed for the Long Term Plan 2018/2028.

10 Connection policies

While the MWS is now established and operating, a considerable number of properties in the Mangawhai Drainage District remain unconnected to the scheme. Longstanding environmental and public health issues at Mangawhai from the discharge of wastewater to ground make the connection of all remaining properties to the MWS desirable. When considering a Connections Policy it needs to be taken into account that:

- Despite failures in process, the decision to establish the MWS was well founded;
- There was, with some exceptions, a reasonable expectation that over time all properties in the Mangawhai drainage district would connect to the MWS;
- The long term use of onsite treatment systems is not an acceptable option and in some cases was seen as a temporary measure to enable growth to continue in advance of the MWS being built; and
- Mangawhai has seen strong growth in the past, is still growing steadily and all further growth needs to be connected to the MWS.

Five groups of properties have been identified. They have classified and defined as follows:

A. ***Existing connectable*** properties with an existing dwelling (83[4])

B. ***Existing connectable*** properties without a dwelling (384)

C. ***Future connectable*** properties with an existing dwelling (297)

D. ***Future connectable*** properties without a dwelling (149)

E. ***New properties*** created by subdivision or development (est. at 2,765).

The Policy needs to consider three aspects, requirement to connect, connection costs and funding, and funding of maintenance costs.

10.1 Requirement to Connect

The Advisory Panel recommended that the connection of properties should be mandatory and should be completed:

- Within five years for properties where connection is already available; and
- Within five years for properties to which reticulation is extended.

However, where a property has an onsite system that is operating effectively, there are legal and other issues around mandatory connection.

[4] All rating unit data is at 7 April 2017

Also a requirement to connect will still not diminish from the limitations in section 459 of the Local Government Act 1974 by which Council cannot require connection to a public drain if properties and buildings on them are not within the defined distances of a public drain.

Based on the issues identified, Council considered two connection proposals:

Property Group	A	B	C	D	E
Option 1 - Connection optional	At owners discretion	At owners discretion	At owners discretion	At owners discretion	At owners discretion
Option 2 - Connecting promoted	As soon as practicable e.g. on development or building consent or failure of onsite system.	At time of development or building consent.	As soon as practicable e.g. on reticulation network extension or on development or building consent or failure of onsite system.	At time of development or building consent.	At time of development or building consent.

Option 2 is the preferred option.

10.2 Private connection costs and funding

There was a community expectation prior to 2009 that the network would be extended to existing properties with dwellings and that the costs of private connection would be met by Council as part of the costs of the MWS. Therefore on the basis of fairness, the Advisory Panel recommended that Group C properties where those with a dwelling existing in 2009, should have the cost of the grinder pump (where required) funded by Council, while all other Group C properties with dwellings after 2009 should meet the full costs on connection including the grinder pump where required.

Property Group	A	B	C	D	E
Option 1 - Full private cost	All full private cost including grinder pump. Grinder pump if required to vest in Council.	All full private cost including grinder pump. Grinder pump if required to vest in Council.	All full private cost including grinder pump. Grinder pump if required to vest in Council.	All full private cost including grinder pump. Grinder pump if required to vest in Council.	All full private cost including grinder pump. Grinder pump if required to vest in Council.
Option 2 - Partial assistance			Before calendar 2009 - Grinder pump funded by Council		

Option 1 is the preferred option.

10.3 Private connection – Operation and maintenance of private connections

The Advisory Panel considered the matter of payment for operation and maintenance of private connections and summarised its recommendation *"that gravity systems (other than those crossing other properties) will be entirely the operational and maintenance responsibility of property owners in all property groups (A-E). Council would be responsible for the operation[5], maintenance and replacement of onsite components in all pressure wastewater systems to deal with the risks of system failures in multiple owner situations, absentee owner situations and where pressure systems cross third party properties*."

[5] This excludes electricity costs for grinder pumps in single dwelling situations for all property groups A, B, C, D and E.

This part considers three different private connection situations faced when connectable, future connectable or new development properties come to connect to the MWS as follows:

- **Situation X - Single dwelling private drain** directly between the dwelling and the public drain; or
- **Situation Y - Multiple dwelling common private drain** serving a number of dwellings/premises and connecting the public drain; or
- **Situation Z - Cross-property private or common private drain**, with the drain crossing other properties to reach the public drain.

The options for ownership, operation and maintenance in these different situations are:

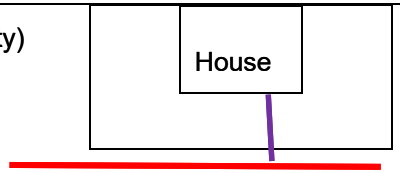
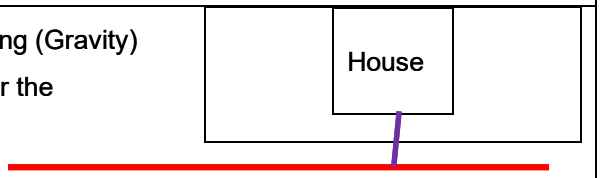
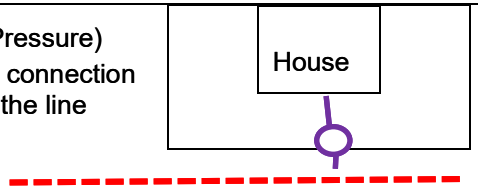
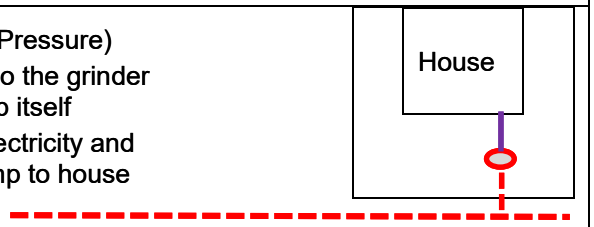
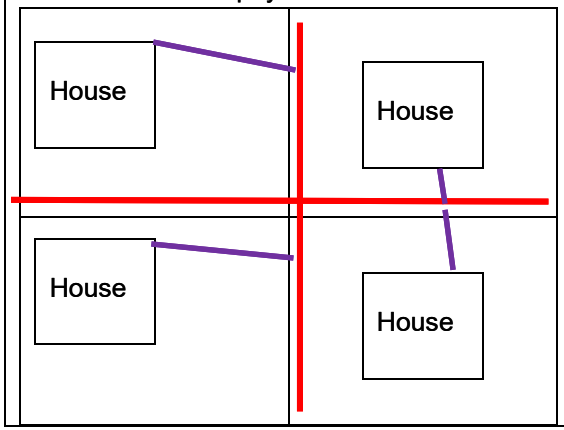
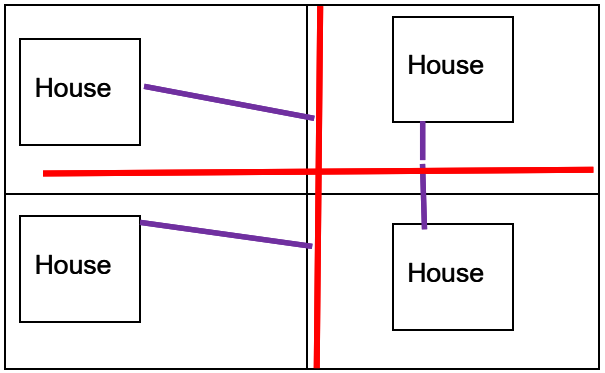
- **Option 1 - Full private responsibility** - Property owner/s to provide (includes grinder pumps), own, operate and maintain private drains. Council to own, operate and maintain grinder pumps (to be vested to Council). Note: communal systems on private property will be considered private drains.
- **Option 2 - Council provision and private responsibility –** Council provides private drains – property owner/s operate and maintain private drains.
- **Option 3 - Private provision and Council responsibility -** Property owner/s provide private drains – Council takes over and declares these as public drains under Section 462 of the Act, and operates and maintains them.
- **Option 4 - Full Council responsibility** - Council to provide, own, operate and maintain private drains and declares these as public drains under Section 462 of the Act.

Option 1 is the preferred option.

10.4 Connection and Maintenance Examples – (Illustrative examples only)

Listed are scenarios relating to possible private and public cost arrangements.

Legend

Connection	Maintenance
• Situation X – Single dwelling (Gravity) ○ Property owner pays for the connection 	• Situation X – Single dwelling (Gravity) ○ Property owner pays for the maintenance 
• Situation X – Single dwelling (Pressure) ○ Property owner pays for the connection ○ including grinder pump and the line 	• Situation X – Single dwelling (Pressure) ○ Council maintains the line to the grinder pump and the grinder pump itself ○ Property owner pays for electricity and maintains from grinder pump to house 
• Situation Z – Cross Property (Gravity) ○ Council pays for the lines that crosses through properties ○ Owners pays from Council line to house 	• Situation Z – Cross Property (Gravity) ○ Council maintains the lines that crosses through properties ○ Property owners maintain from Council line to house 

11 Addressing anomalies

There are several properties within the original area of works that were not provided with the same level of service as others. Some were not provided with a connection point but have a wastewater line within 30 metres and some were provided with grinder pumps but were not connected. Council has labelled these properties the '*anomalies'.* All of the anomaly properties are paying capable to connect targeted rates and have or are paying a capital contribution. This means once connected, apart from the extra 25% annual targeted rate that would be received once connected, no further increase in revenue will be gained by connection.

Council has a strategy to address each of the anomalies which has been assessed on a property by property basis. Council must also be mindful of the need to treat all of the anomalies in a fair and equitable manner where possible.

With most of the anomalies those readily able to connect are required to pay to connect themselves. For others that require extensions along accessways, a small amount of annual funding was allocated as part of the LTP 2015/2025 and is able to be used for this work.

Property groups "C" are those that have dwellings and were in the original area of works but were unable to connect at the time because the reticulation was not available. This meant that they were not able to take advantage of the lower capital charge at the time. The Advisory Panel had some sympathy for these property owners however Council believes that going forward, those that were not connected during original construction should have to pay themselves.

Jack Boyd Drive is also an exception area, where there is a historical exemption from connecting and paying capable to connect charges. In 2010 a Council resolution was passed that meant all those properties in Jack Boyd Drive were not required to connect unless further development (requiring resource consent) occurred. While several properties along this road are now connected, many, although capable, are not paying. At some stage this 2010 Council decision needs to be addressed in order to resolve this historical and arguably inequitable issue.

12 Cost of policy decisions

12.1 Connections

If Council adopts the connection policies, there will be a financial implication. There will be some new grinder pumps to be funded plus all depreciation (which will fund replacement costs going forward). The cost of this will be added to the network charge. An assessment of the gravity/pressure ratio and number of additional grinder pumps needs to be made in order to assess. It will be available for the final proposal.

12.2 Anomalies

The extent of subsidised connection costs, both past and future, needs to be assessed and factored into the final proposal. Also of note, is the potential for private development agreements which may have some implications.

13 MWS drainage area extension

Consideration is being given to the boundaries of the current Mangawhai Drainage District (Mangawhai Wastewater Network Targeted Rate Area). The proposed Mangawhai Drainage District matches more closely the District Plan residential area. If the area is extended it may however be interpreted as a commitment to extend reticulation to those areas over time.

A map of the current and proposed Drainage District including current connection status is included in Appendix B.

14 Alternative funding options

While financial modelling to date has been based on the current policies, consideration should be given to alternatives which would help Council and the community to manage:

1 Financial risk (debt levels and timing); and/or
2 Reduce per unit DCs; and/or
3 Reduce per SUIP network charges; and/or
4 Manage fairness and equity issues.

Alternative funding policy options that could be considered are additional targeted rates for undeveloped land (offset against future DCs) and/or including additional areas of benefit to share the targeted rates.

15 Preferred Options

As part of the Long Term Plan 2018/2028, Council will be considering the further requirements of the scheme in three main time horizons:

1 Now (0 – 3 years). Option 2 best fits this horizon. An upgrade of the treatment plant is needed in this timeframe and there is a planned extension to reticulation.

2 Medium (4 -10 years). Option 2 goes part way to manage this, but based on current projections capacity will be reached just outside this timeframe. Option 4, which includes additional reticulation, disposal and augmented treatment, best fits this horizon as planning and depending on the speed of growth implementation, needs to be underway before capacity is reached.

3 Longer term (11 – 30 years). The Long Term Plan 2018/2028 will incorporate an Infrastructure Strategy for wastewater schemes that covers a period of 30 years. Option 4 best fits this time horizon as well.

Note: Once the proposal is consulted on and adopted as part of the Long Term Plan 2018/2028 process, there will be reviews with each subsequent Annual Plan and Long Term Plan. This means that action can be taken as required.

Policy on connections, and financial and funding (including rating) policies will need to be formulated, consulted on and adopted as part of the Long Term Plan 2018/2028 process.

16 Recommendations

It is recommended that Council supports in principle Option 4 which will be developed further in conjunction with the impending Long Term Plan 2018/2028, Option 4 being additional disposal - extend (existing) disposal system, plus new disposal system (e.g. Mangawhai Community Park or golf course) upgrade existing reticulation, extend reticulation (13 years), augment treatment plant, capacity 4,700 connections.

17 Appendices

Appendix A — Council's update of Advisory Panel's Recommendations - August 2017

Appendix B – Map of current and proposed drainage district including current connection status