

Memorandum



To: Marina Van Steenberg

From: Joel Stott, Engineering Team Leader

Date: Tuesday, 20 June 2023

File reference: M3436343

Attachments: M3416784, M3374740 and M3268818

Subject: **Proposed Plan Change 2 - Waihi Residential and Industrial Rezoning (PPC2)**
Development Engineering Recommendations

I have been asked by the District Planning Team to provide advice on:

- The capacity of the Waihi Wastewater Treatment Plant (Waihi WWTP) and the ability of the Waihi WWTP to feasibly service land proposed to be re-zoned under PPC2.
- The capacity of the Waihi Water Treatment Plant (Waihi WTP) and the ability of the Waihi WTP to feasibly service land proposed to be rezoned under PPC2.
- The ability of existing stormwater infrastructure to feasibly service land to be rezoned under PPC2.
- Identification of any upgrades or new additional infrastructure that may be required to feasibly service land to be rezoned under PPC2 for 3 Waters infrastructure.

This memo consolidates previous information supplied in M3416784, M3374740 and M3268818 as well as adding new information;

- Includes new area W7, Bradford St extension
- Reduced area for W2, Ford Road from 31.1ha to 16.9ha
- Removal of area W3, Wharry rd 11.2ha
- Increased area for W6, Bradford Street from 8.4ha 10.3371ha

General costing was provided in M3374740, and while it is not included here the overall scope of renewals has decreased so the costs are not expected to be exceeded.

The areas for rezoning are identified as:

TABLE 1 PROPOSED AREAS FOR REZONING IN WAIHI

<i>Location</i>	<i>Area (ha)</i>	<i>Rezone</i>	<i>extra lots</i>	<i>population equiv.</i>
<i>Ford Rd (W2)</i>	16.9	Rural to Industrial	N/A	N/A
<i>Thorn Rd (W4)</i>	0.6	Rural to Residential	6	16
<i>Bradford St (W6)</i>	10.3	Low Density to Residential	90	245
<i>Bradford St Extension (W7)</i>	7.5	Adjust min. lot size to 1000m ²	42	113

W2 Ford Road (16.8999 ha)



W4 Thorn Road (6,079m²)



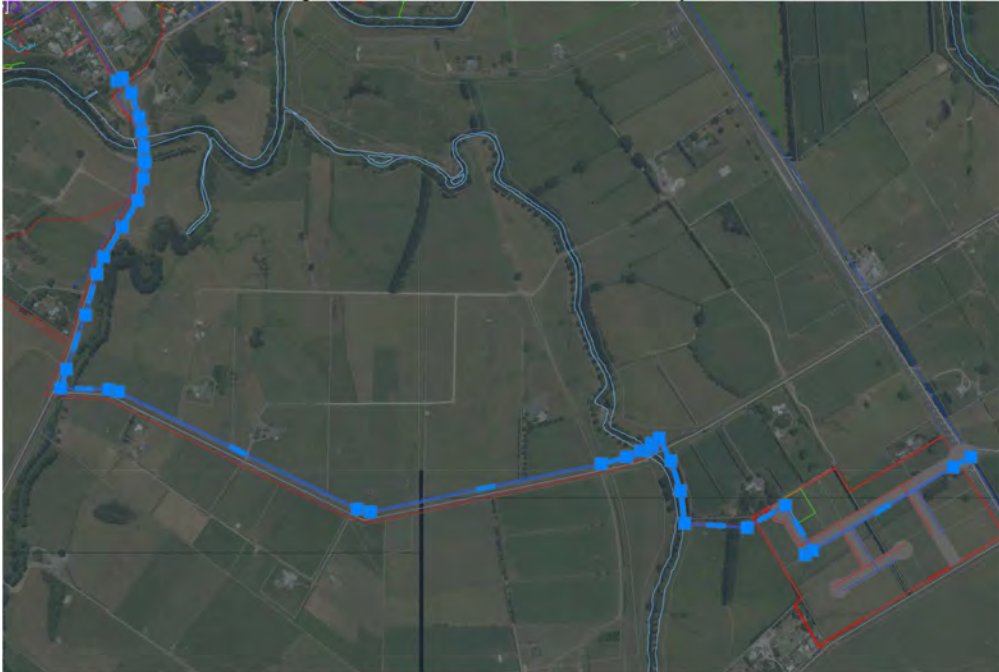
W6 Bradford Street (10.3371 ha)



W7 Bradford Street Extension (7.5242 ha)



W2 Ford Road	Comment
Transport & general	General layout of waters infrastructure will be determined by the transport corridor layout, which is in turn influenced by site topography. A suggested layout has been provided as a start point. Assumed that desirable industrial lot sizes are in the order of 2000-4000m². The key transport elements for the structure plan are that the road must service the stormwater and wastewater infrastructure in the northwestern (or alternatively the southwestern) corner, as well as maintaining spaces for the connections to SH2 and Ford Rd. Everything else is flexible. 
Wastewater	Current Situation: W2 is beyond town limits of wastewater reticulation Capacity: Waihi WWTP is currently capable of receiving/treating expected additional flow of a "typical" industrial site. No heavy water industry has been allowed for in this assessment. Any proposed waste that falls outside of typical residential waste will require specific design and consent to discharge to the wastewater network. Upgrades or Alternatives: A new wastewater pump station, onsite storage and 2.9km rising main will be required from the site to the Waihi WWTP following Crean Rd and Franklin Rd, as well as approximately 800m of internal gravity sewer network following the internal road corridor. See following image for proposed rising main corridor. Requires two aerial bridge crossings (or drill shots).

	 The pump station should be located along the north western site boundary near the low point. Approximately 200m² balance lot should be set aside for the pump station. Feasibility to Service PPC2: It is feasible to service W2 with wastewater infrastructure.
Water	Current Situation: W2 is beyond town limits of water reticulation Capacity: Given current planned works, the Waihi WTP will have capacity to supply this development by the time it is rezoned. Upgrades or Alternatives: A DN180 2.6km rising main extension will be required to service the industrial lots with water. This size is determined by firefighting requirements and must be a loop, connecting existing main on SH2 back with town following Crean rd and Franklin rd as per below.  No allowance has been made for additional intensification of land use between W2 and the current town limits i.e. for additional properties other than W2 to be serviced from the proposed watermain. Given the area of W2 has reduced, there will be some spare capacity in this watermain. Any connections offered

	to residents should be conditional on being low volume trickle feed connections i.e. only for topping up existing onsite water storage. Feasibility to Service PPC2: It is feasible to service W2 with water infrastructure.
Stormwater	Current Situation: Gently sloped rural grazing land with natural overland flow paths, streams and some constructed open drains. Site drains from east to west. See contours below (purple is high, red is low)  Capacity: Stormwater effects on receiving environment (quality and quantity) must be limited to predevelopment levels. This is to be demonstrated by the developer when applying for a stormwater discharge consent. Upgrades or Alternatives: Stormwater management will drive the fundamental design and layout of the site. E.g. whether there are road corridor swales, individual site soakage devices, rain gardens, detention ponds, wetlands (or a combination of all of the above). This does not address that some industrial activities will have specific contaminants onsite that require further consideration. The structure plan should provide adequate space for stormwater treatment so the design can be flexible. E.g. a wide road corridor and plenty of space for detention & treatment ponds. A minimum 2500m² area should be set aside for a stormwater retention and detention pond suggested in the northwest corner of site. A suggested road layout has been provided, incorporating future access from both Ford rd and a roundabout on SH2. This assumes a 20m road corridor to allow for a large swale in the center of the road. An alternative location for the stormwater pond would be in the southwest corner of site – which may reduce the amount of earthworks onsite but also require additional pipe work. To be determined via specific design.

	Approximately 250m of new stormwater pipe will be required from the detention pond to the nearby stream, including a new outfall.  Feasibility to Service PPC2: It is feasible to service W2 with stormwater infrastructure.
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W4 Thorn Road	Comment
General Transport	& Indicative site layout as per below. 6 lots between 800m² and 1200m². 
Wastewater	Current Situation: Site is beyond the town reticulated wastewater network, but within 60m.

	Capacity: Waihi WWTP and existing network is currently capable of receiving/treating expected additional flow. Upgrades or Alternatives: Approximately 60 m of network extension and 50m of internal network upgrades required. Feasibility to Service PPC2: It is feasible to service W4 with wastewater infrastructure.
Water	Current Situation: Site currently has reticulated water to the boundary property boundary. Capacity: Following planned network upgrades, the WTP will have capacity to service this development. The existing reticulated network is capable of supplying the proposed development. Upgrades or Alternatives: Nearby fire hydrant limits need to extend main down access road. No upgrades to infrastructure required. Cheapest solution will probably be extending a DN63 connection from watermain down the access leg and having individual connections from that. Feasibility to Service PPC2: It is feasible to service W4 with water infrastructure.
Stormwater	Current Situation: Site is a gently sloping field, leading to a significant drop off to the west of site.  Capacity: Site is likely to be well draining and therefore suitable for disposal to soakage. This can only be confirmed via specific soakage test. If site soakage is not viable, then detention tanks may be incorporated to return peak flows to pre-development levels. Upgrades or Alternatives: Propose that stormwater is managed within each lot. A specific soakage device may be required for the internal access leg runoff, or may be combined with a soakage pit from one of the lots.

	Feasibility to Service PPC2: It is feasible to service W4 with stormwater infrastructure.
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W6 Bradford Street	Comment
Wastewater	Current Situation: Site has reticulated sewer running along its northern and eastern boundary. Capacity: The Waihi WWTP currently has capacity to treat the additional flow generated by this development. The existing pump station on Bradford Street does not have sufficient capacity to service W6. The preferred connection point for the sewer is into the gravity sewer network after the Bradford St Sewer Pump Station e.g. east of 71 Bradford Street at the ridge. The gravity network has sufficient capacity to accept the additional flows. Upgrades or Alternatives: Given the steep nature of the terrain on this site, it may be most practical to install a low pressure sewer system following internal road layouts and connecting to the gravity network east of 71 Bradford St. Alternatively, 2 – 3 centralised small pump stations with a gravity network would be required. Feasibility to Service PPC2: It is feasible to service W6 with wastewater infrastructure.
Water	Current Situation: There is a reticulated DN100 watermain running the length of Bradford Street. Capacity: There are two issues with the existing watermain; 1. The main is currently under capacity for the number of properties connected. 2. The main is currently operating at very high pressure, 70-90m. The high pressure is currently offsetting the undersize nature of the pipe. Eventually council plans to reduce the pressure of this part of town (thereby reducing water losses) which may affect the supply of water. Following planned network upgrades, the WTP will have capacity to service this development. Upgrades or Alternatives: An 875m long upgrade is required from DN100 to DN180 PE pipe along Bradford Street to the corner of Roberts Street.

	 Feasibility to Service PPC2: It is feasible to service W6 with water infrastructure.
Stormwater	Current Situation: The site is divided into two separate catchments, with a ridgeline extending to the steep Ohinemuri River bank. Each catchment has a contributing upstream catchment.  Capacity: The site has previously flooded up to the lowest yellow contour line. Consider reducing the area to be rezoned by the orange line in southwest corner as this area would not be suitable for residential housing.

	Upgrades or Alternatives: Two 1000m² lots should be set aside for the treatment and detention of stormwater, near the two locations proposed. These areas may be significantly reduced in size or eliminated if alternative means of stormwater disposal are proposed, such as soakage pits for each lot, or detention tanks etc. Efficient primary treatment of stormwater could be via swales in the road corridor. Feasibility to Service PPC2: It is feasible to provide sufficient infrastructure onsite to maintain stormwater runoff at predevelopment levels.
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W7 Bradford Street Extension	Comment
Wastewater	Current Situation: Area is zoned low density residential. Proposal is to reduce the minimum lot size to 1000m², which would allow for an additional 51 to 62 lots (depending on whether existing dwellings are removed or not). For the minimum lot size of 1000m² to be acceptable, all lots must connect on to reticulated sewerage. Capacity: The pumping capacity of the wastewater pump station at Bradford Street has been estimated as 4.5l/s during peak flows. The network once fully developed would have a peak discharge of 2.9l/s, therefore the pump station is capable of delivering the additional flow without any upgrades. The storage capacity of the wet well or its operating levels have not been assessed. The Waihi WWTP currently has capacity to treat the additional flow generated by this development. Upgrades or Alternatives: none required to existing public infrastructure. Note however that due to the site topography all lots south of Bradford Street will require a low pressure pump and maserator kit to pump to the gravity main. Therefore council could consider forward funding a 185m of DN63 low pressure rising main along Grenadier Lane for the lots to connect on to.

	 Feasibility to Service PPC2: It is feasible to service the change in zoning at W7 with reticulated wastewater.
Water	Current Situation: DN100 Reticulated water mains are currently available for all lots to connect on to. Capacity: While the DN100 main that lots would connect on to are sufficiently sized, the watermain running along Bradford Street supplying these lots is currently operating beyond its capacity. Upgrades or Alternatives: Similar to upgrades required for W6, Approximately 875m of water pipe needs to be upgraded to feasibly service this zone change. Feasibility to Service PPC2: It is feasible to service W7 with water infrastructure
Stormwater	Current Situation: There is a public stormwater main that takes runoff flowing west. Existing lots likely have soakage systems installed to capture and dispose of roof runoff.

	Capacity: There is insufficient capacity in the existing stormwater network to accept additional flow from further intensification. Upgrades or Alternatives: Each subdivided lot would have to demonstrate site neutrality either via soakage or onsite detention. Given the 1000m² lot size, this is expected to be feasible. Feasibility to Service PPC2: It is feasible to service W7 with stormwater infrastructure.
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CONCLUSION:

Apart from identified network upgrades and extensions, it can be confirmed that the Waihi WWTP has sufficient capacity to feasibly service the land proposed to be rezoned as part of PPC2.

Apart from identified network upgrades and extensions, it can be confirmed that the Waihi WTP will have sufficient capacity, once planned upgrades are completed, to feasibly service the land proposed to be rezoned as part of PPC2.

It can be confirmed that sufficient capacity can be achieved through the use of existing, and installation of additional infrastructure to feasibly service the land proposed to be rezoned as part of PPC2 for stormwater related infrastructure.

Joel Stott
Engineering Team Leader

Memorandum



To: Marina Van Steenberg
From: Joel Stott, Engineering Team Leader
Date: Wednesday, 17 May 2023
File reference: 3416784
Attachments: Workshop Notes 13 March 2023 (3374740)
Report to Council December 2022 (3268818)
Subject: **Waihi Land Rezoning 3 Waters Infrastructure Recommendations**

With reference to various investigations undertaken by engineering staff of Hauraki District Council in recent years, and the meeting held on 13 March 2023 to refine that work (notes attached, 3374740), I provide the following summary with regard to servicing the identified areas (W2, W3, W4, W6 and W7) with 3 Waters Infrastructure (i.e. water, wastewater and stormwater services), to be provided by the Council:

W2, W4, W6, W7

Adequate water/sewer infrastructure can be supplied to these sites with some upgrades to existing infrastructure, and some new infrastructure. The expected demand is within planned network capacity. Options are available for stormwater disposal onsite. Indicative infrastructure to be upgraded and associated costs have been provided in a report to the 14 December meeting of the Council (refer attached, 3268818).

W3

Adequate water can be supplied to this site. Onsite stormwater disposal is available. The site is not currently serviceable by sewer reticulation due to limited existing network capacity. This is demonstrated by a catchment assessment, anecdotal evidence from the asset manager and the customer service requests related to sewerage overflows in this area. Major upgrades to the existing network would be required. These upgrade costs would require further investigation and planning to quantify.

Further details of each area are available in the attached report to the Council.

From the work done to date it is clear that, if Council implements the recommended upgrades (e.g. planned upgrade to water membrane filter, pipe renewals and new pipes required for each area, etc.), each of the identified areas could be serviced by Council 3 Waters infrastructure.

There are still site constraints and cost implications, that will need to be further explored through development of structure plans for W2, W3 and W6.

Joel Stott
Engineering Team Leader

Plan Change 2 – Waihi

Workshop Notes: Monday 13 March 2023

Present: Marina van Steenberg, Leigh Robcke, Johan de Vos, Joel Stott, Lisa Madgwick, Louise Cowan – 4Sight Consulting, Joel Hogan and Lukas de Haast.

Noted that earlier in the day Leigh and Louise had been on a visit to view the five sites (from public roads) identified as W2, W3, W4, W6 and W7 [Bradford Street Extension].

Introduction

It was noted that a report had been taken to Council in September 2022 outlining indicative infrastructure requirements and costs to service areas W2, W3, W4 and W6 (M 3268818). Since this time an additional area has been added, W7 the Bradford Street Extension area (existing Low Density Residential Zone).

Johan and Joel noted that cost estimates are high level/indicative as there are many variables that have not been examined in the required level of detail - as this level of detail is not yet needed. Also noted that the Structure Plans that are being developed are intended to be 'indicative', giving a broad level of direction/certainty for developers and the community, with provision to be made in Council's Asset Management Plans, and subsequently, Long Term and Annual Plan/s to fund delivery of the required infrastructure.

Joel noted that the internal road network is yet to be confirmed and that infrastructure for utilities generally follows the road corridor. The cost estimates that have been provided are based upon the indicative road layout. Additional infrastructure/connections may be needed depending upon the final number of lots, layout, etc. but those costs will only be able to be determined at the time of subdivision/landuse consent.

Noted that final solutions, storage and treatment requirements would be confirmed through detailed design and the consenting process – when more detailed information would become available that would be used to further refine overall layout and design.

It was confirmed that in the meantime, it is acceptable and appropriate that 3 Waters estimates are based upon the indicative road network as proposed by T+T, which were reviewed by Council's Roading Manager.

A summary of the discussion around servicing each of the areas follows.

W2 – Ford/Crean Road

Roads

Question whether a roundabout at the intersection of Waihi Beach Road/State Highway 2 (SH) is needed given the recent upgrades to Ford and Crean Roads.

Lukas commented that the main entrance could be the Ford Road entrance with a roundabout. Alternatively, could take Waihi Beach Road and re-route it past the cemetery, which would allow for a roundabout with an exit to Ford Road (noted this option would likely be culturally sensitive).

Looking at it from the perspective of Waka Kotahi (WK) they would not want to see a lot of busy intersections fronting SH. Noted that effects on intersections are very important to WK. If WK think a roundabout is needed then they will likely want Ford/Crean Rds stopped.

Decided not to show indicative roundabout at this stage (wait to see what WK have to say) but should show an indicative network of feeder roads off the initial road into the site from Ford Road as proposed Stage 1a is large (approx. 5ha).

Marina noted that there probably wouldn't be individual entrances onto Ford Road, but onto the cul-de-sac.

It was mentioned that there may be a cattle underpass on Crean Road to take into consideration. However, it was noted that if the use of the site became industrial then the underpass would be unlikely to be utilised for cattle as the site would no longer be farmed for dairy cattle.

Water

Water supply capacity – already built one of the mains out to the site and that can be used. Need to loop back to main town so it is not a dead end (stagnant water).

Not a lot of spare capacity for water intensive/wet industry – limitations on water access and use.

Might need an upgrade and bulk main into the site – depending on timing and demand.

Firefighting requirements necessitate a loop main with internal diameter of min 150mm be installed.

HDC may have to provide for existing activities to connect in the future – need to think about this.

Wastewater

Johan noted that any development would need a sewer line put in - pump station and trunk main required. Budget included in the Ten Year Plan (2024/25).

Stormwater

Johan advised that the team had just submitted an application to WRC for comprehensive stormwater discharge consent for Waihi, will need another to discharge the stormwater for this development.

Would be good to have a dedicated buffer area (to direct all treated stormwater to the river), natural ground level slopes to the river. Doesn't need to be a big area – develop as a reserve.

Joel commented that the swales could be used for stormwater collection/treatment from the roads.

Existing waterways need to be upgraded. Treatment could be provided on each property rather than via one big device. At source treatment is being pushed by Waikato Regional Council. Noted that for HDC site specific stormwater treatment not really favoured, better to have Council managed system.

Johan noted, with reference to the Parry Palms development, that a stormwater reserve would need a similar size in terms of area. Roding and stormwater runoff should be incorporated together.

Marina would like the indicative stormwater areas noted on each of the Structure Plans.

General

Marina queried if we can include the old cheese factory area for water, wastewater and stormwater collection and treatment. Johan noted that if we don't we will need to look at onsite detention for stormwater. With regard to the old cheese factory, it was noted later in the meeting that there appear to be existing easements for water and drainage from the cheese factory site. May need to investigate these further.

Possibility of 'staging' areas for development: 1a, 1b, 2 – 4 (deferred) (see map).

Action	Who	When
Informal pre-consultation meeting with Waka Kotahi (in part to provide 'evidence').	Louise	
What indicative areas/locations are needed for stormwater treatment/detention, including for road runoff and surface – indicative costs required.	Johan	
Map the indicative location of the trunk main.	Johan	
Clarification needs to be sought for the wastewater servicing from pump station through to 1A. Regardless of which stage proceeds first, Council servicing to 1A should be provided.	Johan	
Keep in mind need to update Development Contributions policy.	Johan/Adrian	
Advise cost per metre for roads – at minimum to provide road in 1A and link to 1B.	Lukas	
Is the flow of stormwater from the proposed buffer to the river feasible without excessive earthworks? [Noted: site reasonably flat +1m, would require some earthworks to make levels work, but not excessive]	Joel	
Comment on water volume limitations and whether there should be restrictions regarding "wet industry" so that other users and firefighting requirements are met. Also, how would this be achieved in practice via the District Plan?	Johan/Joel Louise	

In relation to the above actions, it was noted that the area identified as W2 is very large (around 25ha) and that it is unlikely that all of the area would be needed initially.

There was discussion around possible 'staging' of W2 and the best location for Stage 1 was discussed specifically in terms of provision of infrastructure. It was noted that there are implications for the provision/operation of infrastructure if a smaller area of W2 is selected (e.g. lack of wastewater flow, location of initial stormwater retention ponds/treatment devices, etc.).

It was agreed that before going further with developing a staging plan, including for infrastructure, that higher level direction was required from the Council's Planning Committee.



Roads

Water

Wastewater

Joel noted that the whole wastewater network is designed around peak infiltration. During an average day would be fine, but would struggle at peak rainfall. Could do a detailed flow monitoring study (approx. 12 weeks), to determine where sources of infiltration and flow are. From there could re-line cracked pipes, or replacement of leaking pipes, which would build capacity for the network.

Johan noted that if we are looking at the south of Wharry Road (Waihi East Structure Plan) as well, then a dedicated system/line would need to be installed. Could run all the way to the plant or could hook up at Victoria Street. Significant cost.

Marina queried if the figures that were provided in the infrastructure report included Wharry Road and the Waihi East Structure Plan area? Maybe we shouldn't look at rezoning the Wharry Road area if there is no further capacity. Maybe go for Low Density Residential. Some discussion ensued regarding rezoning to Low Density Residential now, as once developed as low density standards, it makes it difficult, depending on the location of buildings on lots, to then rezone to Residential and to allow for higher density of development.

Further information required and need to go back to Council particularly for downstream – 5.1km of new wastewater pipe needed (as opposed to 1.9km).

If we rely upon existing infrastructure, pumping will need to be staggered. Need an upgrade of the central line. Johan thinks ignore the existing capacity and run a new line through to Wellington St. When it carries on, then you can do the cost benefit of upgrading the existing system. An extra 3.2 kilometre of pipe needed. Johan doesn't think that an additional pump station would be needed.

High level costs to think about what would be devised. Joel to do some concepts (see below).

Stormwater

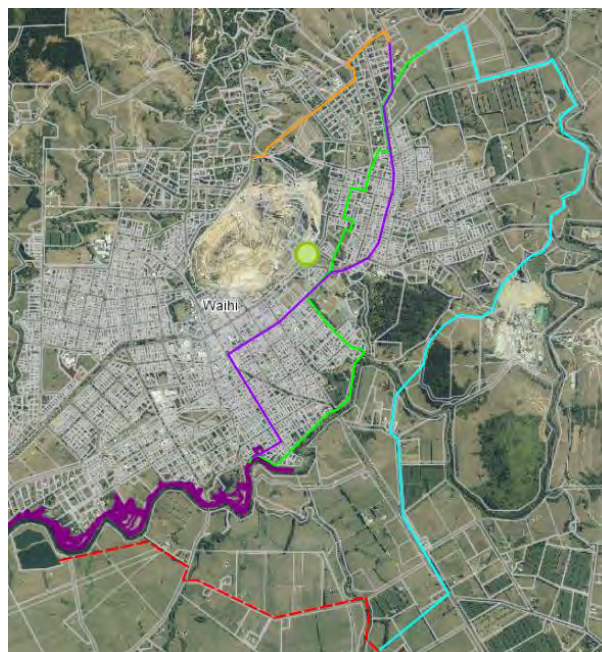
Natural drainage to the river. Stormwater onsite wetland/swale treatment, separate discharge consent needed as well (from WRC).

Allow for stormwater treatment within a separate lot (600m²). Due to natural flow, would require a large culvert under any new road.

Action	Who	When
Costing calculations need to include the 190 lots that are already within the existing structure plan and available for development PLUS the additional capacity introduced by the Wharry Road north and potentially Wharry Road south rezoning. <u>Response:</u> the undersized network in the north east of Waihi is a much bigger problem than the small contribution of the new Wharry Rd development and deserves to be addressed in a project of its own.	Johan /Joel	
Provide options for solutions with regard to wastewater capacity for the length of Council's assets back to the plant and costs. <u>Response:</u> see below. Option 1 preferred.	Johan / Joel	
Provide indicative locations for pump station, detention, storage and off peak pumping – what costs, capacity and land area may be required. <u>Response:</u> Land area required for this is not huge. A 600m ² lot for a pump station and storage would be minimum acceptable. Could combine with a reserve/playground area. Location is near northern end of site by SW valley. Size tbc by detailed design.	Johan / Joel	
What area is needed for stormwater treatment/ detention areas and locations, including treatment for road runoff and surface – indicative costs required. <u>Response:</u> Need to detain in the order of 350 m ³ in design event. Depends on depth available, assuming about 0,5m depth, so 700m ² of pond, then some area around it to build the bunds etc. Looking at 4m wide swale, length of roads for pre-treatment. Should also include a setback from the existing stream, a 15-20m corridor for planting and amenity value. Recommend a dry basin for this site for SW flood detention. Could also double as a recreation/ amenity area. Rough sizing, provide 1500m ² flat lot.	Johan/Joel	

Options for Wastewater:

- 1 (green): Upgrade portion of the existing 3.3km of sewer network, along with some proportion of 50 manholes crossing road reserve, private property and river reserve.
- 2 (purple): Put in a new 3km rising/gravity main through town. Maybe follow Kenny Street/Montrose St/Wellington St. Another pump station probably required.
- 3 (light blue): Put a new 7.4km 'ring main' around Waihi, largely through private land and the mine. Maybe connect up with W2 FSPS so it can pump to treatment plant.
- 4 (green circle): Build a new pump station and pre-treatment plant near the intersection of Kenny St and the mine and then send trade waste to the mine for further treatment and disposal. If it is partially clean water, we could support some other wet industry with a grey water supply.
- 5 (orange): Pump 1.5km over the hill to the western WW catchment by Bulltown Rd, assuming this has more spare capacity than east Waihi.



Summary: after discussion it was agreed that further information and work is required (e.g. Inflow and Infiltration study) to confirm the scope and cost of works required to service W3 (and other areas of Waihi East still to be developed) with wastewater reticulation. Depending upon the option selected, there could be costs considerably higher than those originally reported to Council.

On this basis it was agreed, before going any further with investigations, scoping and costing, that higher level direction was required from the Council's Planning Committee.



W4 – Waitete Road

Roads

Existing road is straight, sealed with good visibility.

Water

Is near to the southern boundary – minor extension required to water main.

Wastewater

Is near to the southern boundary – minor extension required to wastewater main.

Stormwater

As with other nearby development, stormwater would need to be dealt with on site.



W6 - Bradford Street

Roads

Lukas noted the T+T report shows indicative road access off Bradford St is from the crest of the rise. Need to check line of sight along Bradford St.

Detailed site plan needed showing earthworks required to make the road and reticulation infrastructure flow in the right direction.

Water

Water pressure is high in this area – needs to be lowered, potentially via a ring main connection to complete the loop. Also requires a couple of reticulated water main renewals in the area (main and rider main).

Noted that a second water membrane is soon to be installed in Waihi (water supply not an issue).

Wastewater

Reticulation along new road corridor – downhill sites will have to pump up hill to trunk main (could have small pump stations on each lot).

Existing wastewater pump station on Bradford St. Will need another pump station along the new road (to the east) to pump up to the nearest gravity network.

Stormwater

Detention/treatment required before discharge. Likely need two devices – one in west and other in east, near existing stormwater reticulation which follows contours.

Will need some type of stormwater treatment facility – planted swales etc. on the roads. Could be a swale in the middle of the carriage way, properly planted as a fix. Can happen within a standard road width as the road lanes are still the same size as the boundary swales are now in the middle. Council would maintain the swales.

Noted that houses below the new road will not be able to access road swales.

Could we use the existing flood ponding area for stormwater? No, need to keep stormwater detention/retention clear of flooding, as this defeats the purpose of the detention/retention area.

Action	Who	When
Advise cost per metre for roads	Lukas	
Can swales be contained within the middle of the road.	Lukas	
What area is needed for stormwater treatment/detention areas and locations, including treatment for road runoff and surface – indicative costs required. <u>Response:</u> 4m wide corridor in roads for swale. Two areas are needed for detention basins due to site topography. Recommend two 1000m ² lots are reserved at each end of site near stream discharge points.	Johan/Joel	
Look into a possible walkway / pedestrian link	Louise	
Provide indicative locations for pump station, detention, storage if required – what costs, capacity and land area needed for pump station. <u>Response:</u> leave ~500m ² for PS lot and detention storage. For location and cost see infrastructure report. Northeast of site, maybe a second required in far	Johan / Joel	

southwest of site. Whole subdivision could be low pressure sewer as well, might be cheaper overall if two pump stations are required. Tbc by detailed design. Depends on site contours, final road layout and SW design. All interlinked.		
Provide cost for water main renewals. Location of mains within site. <u>Response:</u> see infrastructure report already created. Watermains follow road berms, DN100 principle main on one side, DN63 rider main on the other side.	Johan/Joel	



W7 - Bradford Street Extension

Roads

Access to the W7 would be via Bradford Street and potentially Grenadier Lane (to the south).

Upgrading Bradford Street to an urban standard would be required.

Water

Reticulation serves most of the site, including Grenadier Lane. There is spare capacity to serve W7.

Wastewater

Reticulation serves land to the north of Bradford Street. There is no HDC wastewater services for titles to the south of Bradford Street. This area may need to have pressurised sewer to enable pumping up hill (could have small pump stations on each lot).

Stormwater

Currently discharges to catch pits located within Bradford Street. There is an open stormwater drain located to the north adjoining the rear boundaries of 132B and 134C Bradford Street. On site retention would be required (hydraulic neutrality).



FOR DECISION MŌ TE WHAKATAUNGA



TO	Mayor and Councillors
AUTHOR	Leigh Robcke Senior Project Planner
FILE REFERENCE	Document: 3309708 Appendix A: Waihi Land Rezoning and Implications for 3 Waters Infrastructure [3268818]
MEETING DATE	30 November 2022
SUBJECT	Possible Rezoning in Waihi; budget implications for Council

SUMMARY | TE WHAKARĀPOPOTANGA

This report provides information to the Council on work that has been completed with regard to the possible rezoning of land in Waihi (residential and industrial) and the cost implications for Council in terms of providing water and wastewater infrastructure to service those areas.

The decision is not considered to be a significant decision.

RECOMMENDATION | TE WHAIKUPU

THAT the report be received.

THAT the Council approves additional and currently unbudgeted costs (estimated at \$3,221,910, excluding stormwater costs) to provide water and wastewater infrastructure to the areas identified for rezoning in Waihi.

THAT the Council instructs staff to make appropriate provision in the relevant Activity Management and Asset Management Plans, and budget provision through the Long Term and Annual Plans, to provide three waters infrastructure necessary to support the proposed rezoning of land in Waihi within an appropriate timeframe (once/if the areas are confirmed for rezoning through the Resource Management Act 1991 plan change process).

THAT the Council considers these decisions to be insignificant under its Significance and Engagement Policy 2020.

THAT no engagement with the community be undertaken at this point in time, this will subsequently occur as part of the Resource Management Act 1991 (District Plan) and Local Government Act 2002 (Long Term Plan) processes.

1 PURPOSE | TE ARONGA

This report provides information to the Council on work that has been completed with regard to the possible rezoning of land in Waihi (residential and industrial) and the cost implications for Council in terms of providing water and wastewater infrastructure to service those areas.

2 BACKGROUND | TE KŌRERO Ā MUA

In April 2022 the report 'Possible Rezoning in Waihi and Paeroa; budget implications for Council' was received by Council.

The report provided information to Council on work that the District Plan Committee had been overseeing with regard to the possible rezoning of land in Waihi (residential and industrial) and Paeroa (residential and, potentially, a new 'gateway' zone) and to flag potential infrastructure implications and costs. The Council subsequently resolved:

THAT the Council instructs staff to continue to undertake the investigatory work necessary to support the rezoning of land at Waihi and Paeroa, including work to quantify the cost of infrastructure and services.

Following the meeting in April staff engaged the services of Joel Stott, Engineering Team Leader, Hauraki District Council and the attached report has subsequently been received on cost implications for Council to provide three waters infrastructure for the areas of land in Waihi being investigated for rezoning. The areas identified for possible rezoning in Waihi are:

- W2: 31ha of land at Crean/Ford Roads (Rural to Industrial)
- W3: 11.2ha of land at Reservoir/Wharry Roads (Rural to Residential) [potential for 115 additional lots]
- W4: 0.6ha of land at Waitete Road (Rural to Residential) [potential for 7 additional lots]
- W6: 8.4ha of land to south of Bradford Street (Low Density Residential to Residential) [potential for 95 additional lots].

To help assess the need to rezone the areas of land for industrial and residential uses, and to help determine overall suitability, the following work has been undertaken:

- Industrial and Residential Land Demand Analysis
- Transportation Assessment
- Natural Hazards Assessment (preliminary)
- Heritage and Archaeological Assessment
- Servicing Assessment – Implications for Three Waters Infrastructure (water, wastewater and stormwater) [2020 report updated, refer to the attached report]

A similar Servicing Assessment will be produced for areas identified for possible rezoning in Paeroa, and be reported to Council, once flood modelling work has been completed.

3 THE ISSUES | NGĀ TAKE

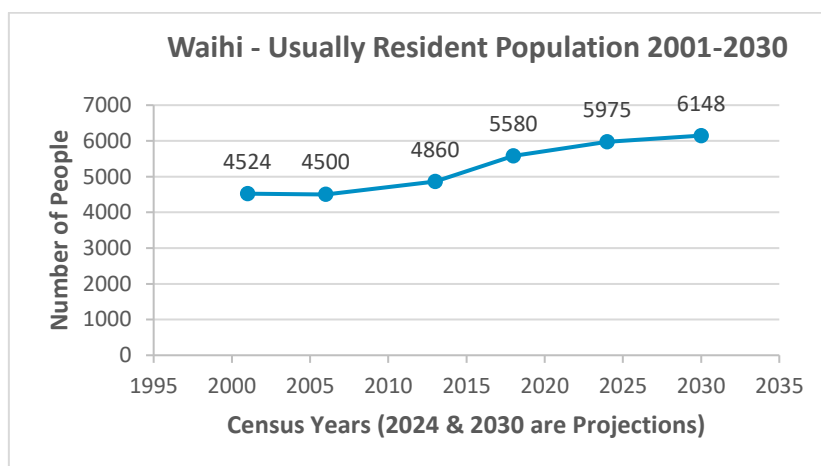
Staff are aware that the Waikato Regional Council and Waka Kotahi – New Zealand Transport Agency are likely to ask for 'evidence' that areas being proposed for rezoning are needed and that they are able to be serviced in a timely and appropriate manner. The following sections of this report delve into these matters.

3.1 Current Population and Dwelling Growth

The following population and dwelling information has been compiled in order to assess the need for Proposed Plan Change 2: Waihi Rezoning.

Population

The 'usually resident' population of Waihi has been growing steadily – from 4,524 people at the time of the 2001 Census to 5,580 people at the time of the 2018 Census (an increase of around 23% [or 1,056 people] over the 17 years). This equates to, on average, an additional 62 people living in Waihi per year from 2001 to 2018.

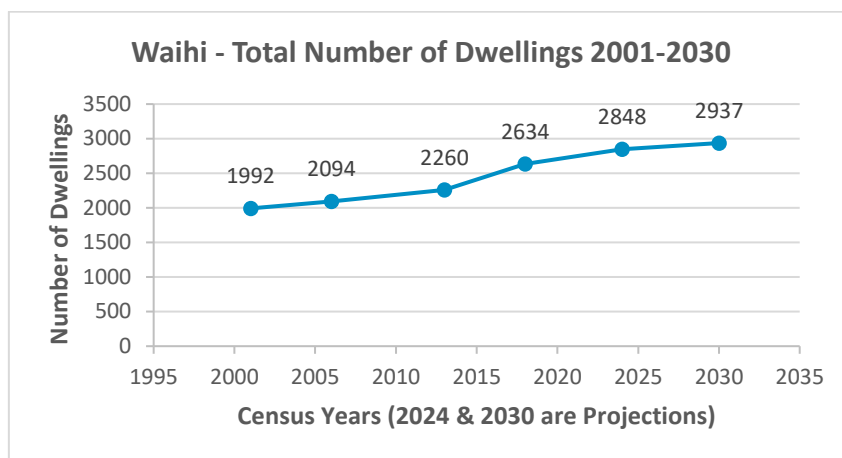


Census	2001	2006	2011	2018	2024	2030
Usually Resident Population	4,524	4,500	4,860	5,580	5,975	6,148

Based upon population projection 'estimates' there are expected to be 5,975 people living in Waihi in 2024 and 6,148 people by 2030 (this is based upon the 'high' projection prepared by Infometrics - which has been the projection closest to reality over the last few years).

Dwellings

The number of dwellings in Waihi increased from 1,992 in 2001 to 2,634 in 2018 (an increase of around 32% [or 642 dwellings] over the 17 years). This equates to, on average, an additional 38 dwellings per year from 2001 to 2018.



Census	2001	2006	2011	2018	2024	2030
Total Number of Dwellings	1,992	2,094	2,260	2,634	2,848	2,937

Based upon dwelling projections, there are expected to be 2,848 dwellings in Waihi in 2024 and 2,937 dwellings by 2030 (this is based upon the 'high' projection prepared by Infometrics - which has been the projection closest to reality over the last few years).¹

3.2 Land Zoned but yet to be Developed

The current Hauraki District Plan (Operative in 2014) is the result of an ongoing review of the 1997 District Plan. In 2006 additional [smaller] areas of land were rezoned from Rural to Residential in Waihi (to the north-west of Waitete Rd for example) and the Waihi East (Residential) Structure Plan was added to the District Plan.

No additional areas of land were rezoned for residential uses in Waihi through the District Plan review process (following 2006) on the basis that adequate provision had already been made via the Waihi East Structure Plan, the rezoning of several smaller areas, and potential for infill.

The Waihi East Structure Plan covers around 17.3ha of land and was expected to be able to accommodate around 150 dwellings. A further 8.5ha of land in other parts of Waihi is also currently zoned Residential (including 6.3ha of land held by LINZ as part of the 'Treaty Settlement Landbank'). In total there is estimated to be enough land to cater for around 200 additional greenfield residential lots in Waihi (i.e. there is around 25ha of vacant land currently zoned Residential).

With regard to infill development in Waihi, over the last three years (2020-2022) there have been (on average) around 20 infill lots approved by Council per year, with potential for this to continue for a number of years yet – due to relatively large section sizes in Waihi and reduced residential subdivision requirements [i.e. lot size] via Plan Change 1 (operative Sept 2019).²

¹ It is noted that from 2001 to 2018 there were around 38 additional dwellings per year in Waihi (from NZ Census results) whilst from 2018 to 2030 it is projected there will be only 25 additional dwellings per year (Infometrics 'high' projection).

² There have also been 13 'Minor Units' approved in Waihi since PC1 became operative (which were approved via landuse, not subdivision consent).

This means that of the 40 additional lots (approximately) being created in Waihi per year (at least in recent times), around half are infill lots with the other half being on land zoned either Residential or Low Density Residential.

As mentioned, based upon recent subdivision and building trends, it is estimated there is currently enough 'greenfield' land zoned Residential to cater for around 200 additional lots (not including the Treaty Settlement land). Taking into account infill development, there is currently enough land to provide for present rates of growth for around 10 years.

3.3 Is Additional Land Needed?

In 2019, following release of the District Growth Strategy, the District Plan Committee asked staff to look at additional land in Waihi for potential rezoning for residential and industrial development. The view of the Committee was that the Council needed to 'get ahead' of current demand and provide additional options for future development - so that land was not easily able to be 'land banked' or held back from development.

The areas of land preliminarily identified in the District Growth Strategy were subsequently looked at in more detail (as outlined earlier in this report). As a result an additional 20ha of land (equivalent to approx. 200 additional dwellings) has been identified in Waihi for rezoning to Residential along with 31ha for possible Industrial.

In total, if the Waihi Plan Change was confirmed as it is, there would be enough greenfield land in Waihi to provide for around 400 additional dwellings. Taking into account the current rate of infill development (which may/may not slow down), this would provide enough land for around 20 years of greenfield residential growth (at current rates).

Whilst provision of land to provide for 20 years of residential growth may seem excessive given that district plans are generally reviewed every 10 years, it is noted that the National Policy Statement on Urban Development 2020 (which does not apply to Hauraki District Council) 'strongly encourages' Tier 3 local authorities³ to, at all times, provide at least sufficient development capacity to meet expected demand for housing and for business land over the short term, medium term and long term (i.e. 3, 3-10 and 10-30 year timeframes respectively).

Within the context of recent growth and development in Waihi, the impending RMA reforms (with uncertainty around future rezoning opportunities) and the potential for 'land banking', planning provision for 20 years of residential growth is not considered excessive.

3.4 Can Additional Land be Serviced?

The Waikato Regional Policy Statement (RPS) is directly relevant to the rezoning of additional land that is currently being investigated as the Council is required to 'give effect to' the RPS. In this respect the Hauraki District Council needs to ensure that infrastructure is able to be provided to service both current and future population and dwellings. Of particular relevance are the following provisions of the RPS:

UFD-P2 [Urban Form and Development: Policy 2]; *Co-ordinating growth and infrastructure*

Management of the built environment ensures:

³ The NPS-UD lists Tier 1 and Tier 2 urban environments and local authorities (e.g. Tier 1 = Auckland, Hamilton, Tauranga, etc., Tier 2 = Dunedin, Rotorua, New Plymouth, etc.). 'Tier 3' is defined as an urban environment that: "(a) is, or is intended to be, predominantly urban in character; and (b) is, or is intended to be, part of a housing and labour market that of at least 10,000 people". Waihi, with a population of 5,580 in 2018, does not fall within the definition of Tier 3.

1. *The nature, timing and sequencing of new development is coordinated with the development, funding, implementation and operation of transport and other infrastructure, in order to:*
 - a. *optimise the efficient and affordable provision of both the development and the infrastructure;*
 - b. *maintain or enhance the operational effectiveness, viability and safety of existing and planned infrastructure;*
 - c. *protect investment in existing infrastructure; and*
 - d. *ensure new development does not occur until provision for appropriate infrastructure necessary to service the development is in place; [emphasis added]*

UFD-M8 [Urban Form and Development: Method 8]; *Information to support new urban development and subdivision*

District plan zoning for new urban development (and redevelopment where applicable), and subdivision and consent decisions for urban development, shall be supported by information which identifies, as appropriate to the scale of potential effects of development, the following:

- 2) *the location, type, scale, funding and staging of infrastructure required to service the area;*

Provision of infrastructure to support development of currently zoned land (and infill development) should already be in place and be provided for through the Activity and Asset Management Plans of Council (looking out 10 years) and subsequently be funded via the Long Term Plan/s (which includes Council's Development Contributions Policy). Beyond 10 years, the Council's Infrastructure Strategy (looking out 30 years) should note anticipated infrastructure requirements – for inclusion in subsequent Long Term and Annual Plans as the need arises.

In terms of the servicing the additional areas of land being investigated for rezoning in Waihi, staff have now completed the work as directed by Council at its April 2022 meeting (i.e. to undertake work to quantify the cost of infrastructure and services).

The report attached as Appendix A indicates that the additional areas of land can be serviced with water and wastewater, but that there is considerable cost associated with servicing - as set out in the following table:

Area	Water	Wastewater	Note
W2: Ford/Crean	\$1,033,550	\$909,300	
W3: Wharry Rd	\$153,000	\$477,400	<u>No additional capacity in wastewater reticulation.</u> Cost estimate based upon storage to offset peak flows.
W4: Thorn Rd	\$12,850	\$35,450	
W6: Bradford St	\$339,800	\$260,560	
Total Costs	\$1,539,200	\$1,682,710	\$3,221,910

The report notes that no cost estimate has been provided for stormwater services as these would need to be determined with reference to likely consent conditions to be imposed by Waikato Regional Council for stormwater discharges (i.e. stormwater costs as yet undefined).

Also, a number of investigations are planned, or being recommended, to further inform and confirm water and wastewater cost estimates.

3.5 Budget Implications and Timing

As can be seen from above, there are considerable costs associated with providing water and wastewater services to areas that have been confirmed for rezoning. There are also stormwater and roading costs that have not yet been quantified.

In terms of timing, whilst staff are not yet able to confirm the areas that will be rezoned, as the formal RMA rezoning process has not yet been initiated/completed, it needs to be emphasised that if areas are rezoned then there is an expectation that the Council will be in a position to 'forward fund' the servicing of those areas from the day that the rezoning is confirmed.

Staff expect to be in a position to notify Proposed Plan Change 2 in the first half of 2023 and, depending upon submissions and further submissions, have a hearing in the second half of 2023. If there are no appeals of Council decisions then the rezoning (areas, structure plans, staging, etc.) could be confirmed and in place late in 2023. If appeals are received it is unlikely the rezoning would be able to be confirmed until 2024.

A further point worth noting, at this stage it is not clear if the Department of Internal Affairs or the new Three Waters Entity for the Hauraki District area (i.e. Entity B) will have a role in endorsing or approving expenditure for new capital works currently not included in the Council's Ten Year Plan. This will become clearer as the reform package is finalised and transitional arrangements evolve, prior to takeover of services in July 2024.

4 ENGAGING WITH OUR COMMUNITIES | KIA UIA TE HAPORI WHĀNUI

Staff consider that the Council does have enough of an understanding of **community views and preferences** on this matter. The level of engagement considered appropriate for this matter, at this point in time, is not to engage at this time.

The level of engagement considered appropriate for this matter is: not to engage with the community, at this point in time. This is because both the plan change process and the process for considering additional budgets are subject to specific consultation processes - under the Resource Management Act 1991 and the Local Government Act 2002, respectively.

5 OUR OPTIONS | NGĀ KŌWHIRINGA A MĀTOU

Staff have identified the following options for the Council to consider:

- Indicate Council support for infrastructure funding for land rezoning in Waihi
- Indicate Council support for infrastructure funding only for one or more areas of land to be rezoned in Waihi
- Do not indicate Council support for infrastructure funding for any land rezoning in Waihi

These options and their advantages and disadvantages are outlined below.

5.1 OPTION 1: Indicate Council support for infrastructure funding for land rezoning in Waihi

ABOUT THIS OPTION This option would see the Council indicating support for infrastructure funding for land rezoning in Waihi, the nature and scale of which would need to be confirmed near conclusion of the RMA Schedule 1 process. Provision of the required infrastructure would be made via Asset and Activity Management Plans and Council's Long Term and Annual Plans.	
ADVANTAGES Funding infrastructure for rezoned land is required to meet Waikato Regional Policy Statement directions (without funding there would be legitimate questions about the viability of rezoning and development subsequently taking place). There will likely be opportunities through the RMA Schedule 1 process (including development of structure/staging plans) to refine infrastructure costs and likely timing. There are strong strategic directions from the Council to provide additional residential and industrial land in Waihi (e.g. via the District Growth Strategy) with robust legislative processes to be followed to ensure land is suitable for rezoning.	DISADVANTAGES Provision of infrastructure will result in additional costs to the Council and ratepayers. Possibility that submitters in opposition may feel the Council is biased towards rezoning (i.e. that the process is tilted towards rezoning and unfair). Council has to be in a position to forward fund infrastructure at the time demanded by developers.
FINANCIAL COSTS	
Whole of life costs	Capital costs: estimated at around \$3,221,910 for water and wastewater infrastructure but exact figures will not be able to be confirmed until the extent of rezoning has been confirmed via the RMA Schedule 1 process (i.e. structure plans, staging plan, etc.), the timing of works, the amount able to be recovered via development contributions, etc. Ongoing annual operating: to be determined (in large part determined by extent of land to be rezoned). One off operating cost: to be determined.
Budget source	To be determined (development contributions likely to be a way to recover some Council costs).
Changes to budgets	In order to accommodate these costs there will need to be changes to budgets so that forward funding is available for infrastructure when demanded by developers. The extent of these changes is not yet able to be determined – this will in large part be determined by the extent of land to be rezoned, potential staging, the timing of works, the amount able to be recovered via development contributions, etc.
Impact on the Council's debt	The impact on the Council's debt is not yet able to be determined – this will in large part be determined by the

	extent of land to be rezoned, potential staging, the timing of works, the amount able to be recovered via development contributions, etc.
Potential impact on rates	The impact on rates is not yet able to be determined – this will in large part be determined by the extent of land to be rezoned, potential staging, the timing of works, the amount able to be recovered via development contributions, etc.

5.2 Indicate Council support for infrastructure funding only for one or more areas of land to be rezoned in Waihi

ABOUT THIS OPTION This option would see the Council indicating support for infrastructure funding only for one or more areas of land to be rezoned in Waihi. Provision of the required infrastructure would be made via Asset and Activity Management Plans and, subsequently, Council's Long Term and Annual Plans.	
ADVANTAGES Selection of just one or more areas of land for rezoning would reduce the financial burden on Council associated with servicing the area/s. Funding infrastructure for rezoned land is required to meet Waikato Regional Policy Statement directions (without funding there would be legitimate questions about the viability of rezoning and development subsequently taking place). There will likely be opportunities through the RMA Schedule 1 process (including development of structure/staging plans) to refine infrastructure costs and likely timing.	DISADVANTAGES The Council would be seen to be 'picking winners' based upon cost implications, not on the long term/strategic needs of Waihi as signalled in the District Growth Strategy. There are strong strategic directions from the Council to provide for additional residential and industrial land in Waihi (e.g. via the District Growth Strategy) with robust legislative processes to be followed to ensure land suitability for rezoning. Possibility that submitters in opposition may feel the Council is biased towards rezoning (i.e. that the process is tilted towards the rezoning and unfair).
FINANCIAL COSTS	
Whole of life costs	Capital costs: dependent upon areas chosen/not chosen for rezoning (water and wastewater costs would be less than the \$3,221,910 for the combined areas). Ongoing annual operating: to be determined (in large part determined by extent of land to be rezoned). One off operating cost: to be determined.
Budget source	To be determined (development contributions likely to be a way to recover some Council costs).
Changes to budgets	In order to accommodate these costs there will need to be changes to budgets.

	The extent of these changes is not yet able to be determined – this will in large part be determined by the extent of land to be rezoned, the timing of works, the amount able to be recovered via development contributions, etc.
Impact on the Council's debt	The impact on the Council's debt is not yet able to be determined – this will in large part be determined by the extent of land to be rezoned, the timing of works, the amount able to be recovered via development contributions, etc.
Potential impact on rates	The impact on rates is not yet able to be determined – this will in large part be determined by the extent of land to be rezoned, the timing of works, the amount able to be recovered via development contributions, etc.

5.3 OPTION 3: Do not indicate Council support for infrastructure funding for any land rezoning in Waihi

ABOUT THIS OPTION This option would see the Council declining to indicate support for any additional infrastructure funding for land rezoning in Waihi.	
ADVANTAGES No additional costs to the Council and ratepayers through the provision of additional infrastructure.	DISADVANTAGES Without an indication of support for funding the required infrastructure, there would be legitimate questions about the viability of rezoning and development subsequently taking place. The Council would have a reduced opportunity to achieve strategic directions around the provision of additional residential and industrial land in Waihi.
FINANCIAL COSTS	
Whole of life costs	Capital costs: Not relevant (no additional costs). Ongoing annual operating: Not relevant (no additional costs). One off operating cost: Not relevant (no additional costs).
Budget source	Not relevant (no additional costs).
Changes to budgets	In order to accommodate these costs there will not need to be changes to budgets (no additional costs).
Impact on the Council's debt	There is no impact on the Council's debt.
Potential impact on rates	There will be no impact on rates because this option does not involve any additional cost to Council.

6 PREFERRED OPTION| TE KŌWHIRINGA MATUA

Staff recommend proceeding with Option 1 – Indicate Council support for infrastructure funding for land rezoning in Waihi.

6.1 LINKAGES

STRATEGIC DIRECTION	The preferred option IS consistent with the Council's strategic direction , including community outcomes.	All of the areas currently being investigated for rezoning and servicing are identified in the Council's District Growth Strategy 2050.
LONG TERM PLAN / ANNUAL PLAN ALIGNMENT	The preferred option IS consistent with the long term plan and/or annual plan programmes and budgets .	The provision of budget to provide infrastructure will be considered via the Long Term Plan and Annual Plan processes as the areas to be rezoned are confirmed.
POLICIES, BYLAWS AND PLANS ALIGNMENT	The preferred option IS consistent with the Council's other strategies, policies, bylaws and plans .	The preferred option is consistent with policy direction in Section 3.4.2 (Urban Design, Waihi) and Section 8.5 (Infrastructure and Services) of the Hauraki District Plan.
SIGNIFICANCE ASSESSMENT	The decision IS NOT considered significant under the Council's Significance and Engagement Policy 2020.	An assessment has been undertaken against Council's policy and the decision is not considered significant.
IMPLICATIONS FOR MĀORI	The decision DOES NOT involve a significant decision in relation to land or a body of water.	Initial consultation with tangata whenua has not raised any issues in relation to land or water. There will be further consultation with iwi to check implications for Maori.

6.2 ASSESSING THE RISKS

Staff have identified the following risk associated with the recommended option.

Description of risk	Level of risk	How we could soften the risk	Risk remaining
That more budget is required for servicing than anticipated	Moderate	Increased cost to provide infrastructure is a possibility although a portion of the costs could be recovered via development contributions.	Low
That Council is seen to have a pre-determined view on rezoning areas in Waihi	Moderate	The RMA process (regardless of who is promoting a plan change) is subject to the Schedule 1 process which is required to be undertaken in a prescribed [fair and impartial] way.	Low

Description of risk	Level of risk	How we could soften the risk	Risk remaining
Timing of budget and expenditure to meet developer demands	Moderate	Proactively budget for the necessary works (once they are confirmed) and carry forward the budget if it is not needed.	Low

7 NEXT STEPS | TE ARA KI MUA

Timeframe	Action	Comments
April 2023	Finalise Proposed Plan Change 2: Waihi Rezoning	Assumes consultant availability/support
June 2023	Publicly notify Proposed Plan Change 2: Waihi Rezoning	Begin RMA Schedule 1 process
Future	Formalise required infrastructure works and allocate budget via Long Term Plan and Annual Plan	Infrastructure works and budget to be determined as rezoning of land confirmed (following any appeals).

8 Approval

Prepared by	Leigh Robcke Senior Policy Planner
Reviewed by	Marina van Steenberg District Planner
Approved by	Peter Thom Group Manager – Community Development

APPENDIX A

Memorandum



To: Marina Van Steenberg
From: Joel Stott, Engineering Team Leader
Date: Thursday, 22 September 2022
File reference: 3268818
Attachments:
Subject: **Waihi Land Rezoning and Implications for 3 Waters Infrastructure**

Summary

The purpose of this memo is to update the information presented in *Rezoning in Waihi: Impact on Three Waters Services*¹. The memo expands on some of the likely infrastructure upgrades required to existing networks which were previously not covered. The key findings are that;

- The Waihi water treatment plant will either require upgrades to meet the additional demand, or there will need to be a reduction in demand through fixing leaks or by other means. Funding has recently been approved to install an additional membrane unit which will double the plants treatment capacity. A zoning and water leak reduction programme is underway. Successful implementation will mitigate concerns around water supply for the additional rezoning.
- While the Waihi wastewater treatment plant can likely meet the expected future treatment demand, it needs to see a reduction in inflow and infiltration to prevent further overflows during peak weather events. A targeted inflow and infiltration study could be undertaken to identify likely sources and work towards a decrease in peak flows.
- There are limitations on the current gravity wastewater network that would supply zone W3. Recommend that further detailed investigation is carried out to determine the extent of this network constraint and the likely extent of upgrades required. Further rezoning in this area should include additional engineering controls to mitigate peak waste water flows.
- Various extensions to the water and waste water networks (including additional pump stations) will be required, as well as upgrades to some of the existing piped infrastructure. These upgrades are currently not budgeted for and should be assessed against active project priorities in the LTP.

Indicative costs of fresh water and waste water infrastructure upgrades are summarised in Table 1 below. There are still gaps in regards to stormwater due to the complexity of assessing each individual site and trying to estimate the potential consent conditions that may be imposed.

¹ 3150947 Rezoning in Waihi: Impact on Three Waters Services

TABLE 1 SUMMARY OF THREE WATERS INFRASTRUCTURE UPGRADE COSTS ASSESSED

Description / Area	Cost Estimates			Funding Source	
	Water*	Waste water*	Stormwater	Current LTP	Additional funding
New Projects					
W2	\$1,745,000	\$1,535,000	TBC	-	\$3,280,000
W3	\$259,000	\$806,000	TBC	-	\$1,065,000
W4	\$22,000	\$60,000	N/A	-	\$82,000
W6	\$574,000	\$440,000	TBC	-	\$1,014,000
SubTotals	\$2,600,000	\$2,841,000			\$5,441,000
Existing LTP Projects					
WTP capacity upgrade		\$3,362,000		\$3,362,000	
WW baseline study		\$65,000		\$65,000	
Long term I/I study		\$120,000		\$120,000	
SubTotals		\$3,547,000		\$3,547,000	
Summary of Cost Estimates					
Subtotal				\$3,547,000	\$5,441,000.00
Total				\$8,988,000.00	

*Estimates include 25% Professional Fees and a 35% contingency

Background:

Hauraki District Council has been contemplating the rezoning of land in Waihi (and Paeroa) for residential and industrial uses since adoption of the District Growth Strategy (adopted by Council on 31 July 2019).

There have been five District Plan Committee workshops since July 2019 to identify and prioritise areas for potential rezoning. The potential priority areas for rezoning in Waihi are as follow:

TABLE 2 PROPOSED AREAS FOR REZONING IN WAIHI

Location	Area (ha)	Rezone	# of add lots	# of add people
Ford Rd (W2)	31.1	Rural to Industrial	N/A	N/A
Wharry Rd (W3)	11.2	Rural to Residential	115	300
Thorn Rd (W4) ²	0.6	Rural to Residential	7	18
Bradford St (W6)	8.4	Low Density to Residential	90	245

At its meeting on 13 April 2022 the report *Possible Rezoning in Waihi and Paeroa; budget implications for Council*³ was received and the Council subsequently resolved:

THAT the Council instructs staff to continue to undertake the investigatory work necessary to support the rezoning of land at Waihi and Paeroa, including work to quantify the cost of infrastructure and services.

The task at hand is to identify likely engineering infrastructure (water, wastewater and stormwater) to support rezoning of the land areas identified in Waihi (above) and to provide an estimate of likely costs for the completion of the required engineering works.

² The upper section of Waitete Road, North of Rata Street, was renamed as Thorn Road. The proposed area of development (W4) is along Thorn Road though older documentation refers to Waitete Road.

³ 3150898 Possible Rezoning in Waihi and Paeroa; budget implications for Council

There is also likely to be a subsequent need to work with Council planners (including consultant planners) to provide input into Structure Plans for W2, W3 and W6.

A previous planning report was compiled to address the above in January 2020. This memo's intent is to update the previous report based on newly available information, and update the expected infrastructure costs. An assessment of additional infrastructure for potential rezoning in Paeroa will be undertaken in a separate memo.

Approach

Each zone's infrastructure needs have been assessed to develop a high level rezoning cost. The cost has been split into three categories;

1. *Development cost*; New infrastructure required within the proposed development site
2. *Network extension cost*; New infrastructure required between the development site and the current network
3. *Network upgrade cost*; Upgrades required to the current network to meet additional demand

Before each zone was assessed, a review of available literature was undertaken to determine the state of the treatment plants and their capacity to provide for further development.

Water Supply Capacity in Waihi

In a report presented to Council in March 2018⁴ the capacity within the water and wastewater treatment plants in the district were investigated. For the Waihi water treatment plant (WTP), based on a theoretical Average Daily Demand (ADD) of 2500m³/day there was estimated to be 1100m³/day of treatment capacity remaining. The expected development demand from rezoning W2, W3, W4 and W6 blocks is an additional 1178m³/day, bringing the total ADD to 3678m³/day, slightly in excess of the WTP capacity.

The current reservoir for treated water has previously been assessed⁵ and is designed for an ADD of 3000m³/day. Once the additional rezoned land is fully developed, the ADD exceeds the recommended design limit of the reservoir. This impacts the WTP ability to meet peak demands as well as providing for firefighting capacity.

In three of the last five years severe water restrictions were imposed in Waihi due to high water demand, see Figure 1 Daily demand Figure 1 and Figure 2, showing that during very dry conditions severe strain is put on the water supply. While the WTP capacity is 3600m³/day, the resource consent allows extraction of up to 4300m³/day (from both raw water sources combined). This is further restricted by the available flow in the river. If the river flow drops below a set amount, the total take is further restricted by up to 15%. Upgrades to the treatment plant may be a feasible way to increase available supply up to the consent limits. This can be augmented with a water loss reduction programme aimed at reducing network leakage.

⁴ 235771 Information Report from March 2018

⁵ 3150947 Rezoning in Waihi: Impact on Three Waters Services

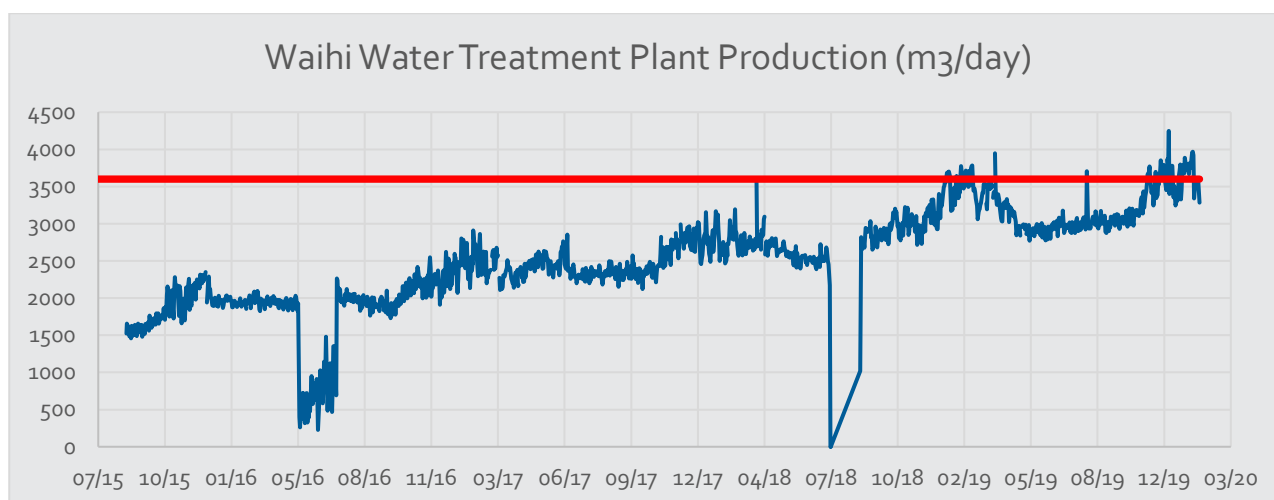


FIGURE 1 DAILY DEMAND AT THE WAIHI WATER TREATMENT PLANT (2015 – 2019)

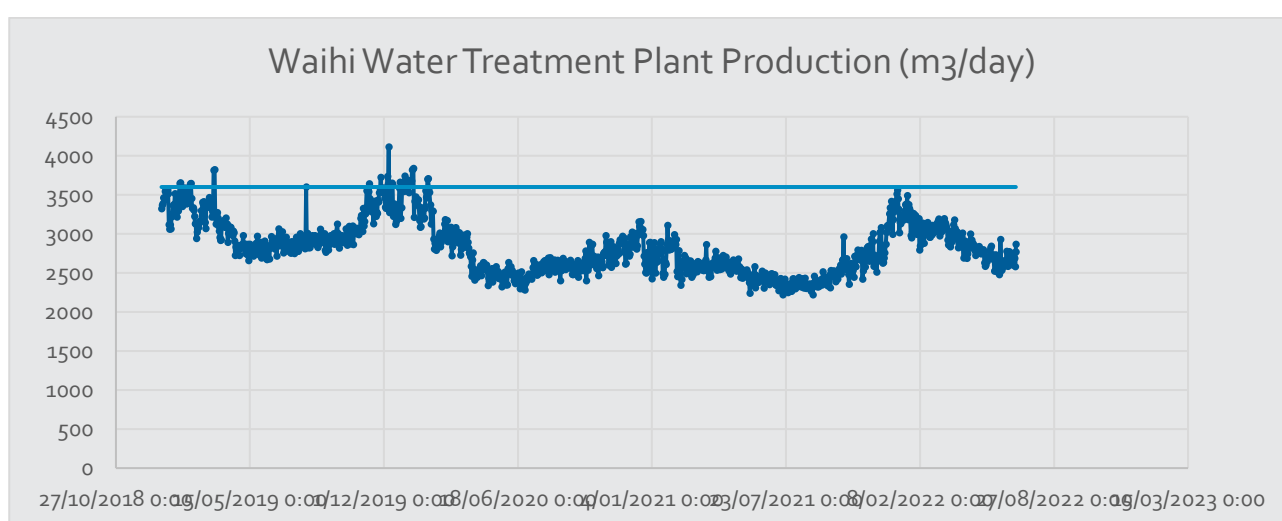


FIGURE 2 DAILY DEMAND AT THE WAIHI WATER TREATMENT PLANT (2018 – 2022)

This is not a new issue. A report in July 2020⁶ looked at options for water loss reduction. Some of its recommendations are currently being implemented, such as water zoning to reduce zones of high water pressure, which contribute to high leakage rates. This is currently funded through the water Opex budget. There are ongoing programmes to replace the most critical pipes within Waihi, which over time will reduce water leakage rates.

In a recent Decision report, Council has approved additional funding to install an additional membrane unit at the Waihi WTP. This is budgeted for \$3.362M. This will effectively double the capacity of the water treatment plant and would meet the additional demand required for rezoning. Once the additional membrane unit is installed this can effectively compensate for the reduction in available storage. There are also two water sources available to the treatment plant which further reduces the dependence on storage. Therefore it is seen as reasonable to not require an upgrade to the existing reservoir.

Targeted leak detection and rezoning should still be prioritised as the additional treatment plant capacity will not help if there are restrictions on the water take. This can only be addressed by reducing demand or finding additional water sources.

⁶ 3268815 Preliminary Design Report for pressure management within Waihi

Waihi Wastewater Plant capacity

Waste water is treated through an oxidation-pond system with mechanical and chemical polishing before final release to nature. Final effluent from the ponds are directed through a Dissolved Air Flotation (DAF) filter before being exposed to UV to complete pathogen treatment. The treatment plant has a design capacity of 4,000m³/day with spare capacity of approximately 630m³/day. Rezoning areas W2, W3, W4 and W6 is expected to add in the order of 520m³/day which is within the plants expected capacity. These are average daily figures, with peaks expected to be managed using pond storage. The oxidation ponds are currently being de-sludged, which will benefit the storage capacity by an unknown amount.

The treatment plant currently has issues managing stormwater inflow and infiltration, with a recent overflow recorded. Adding any additional flows will make the plant more susceptible to further overflows. It is recommended a long term inflow and infiltration study is undertaken in Waihi to identify the likely sources and funding set aside so they can be addressed. Funding for these investigations may be allocated from existing budgets for drainage inspection (CCTV), though this is still to be confirmed.

W2

Water

Table 3 outlines the expected cost, lengths and size of watermains required to supply the industrial area. Figure 3 shows an overview of the expected upgrades and extensions to existing infrastructure for zone W2. Because it is an industrial area, firefighting requirements necessitate a loop main with internal diameter of min. 150mm be installed to and within the new development. An existing watermain upgrade will be required on Gilmour Street from Kenny St to Heath Road.

By installing a new water main to supply W2, Council should consider offering a water connection to all properties frontage that is adjacent to the new watermain. Currently, this is an additional 13 properties consisting mostly large blocks of farming land. Council could offer a metered low pressure trickle connection (installed at the residents cost) to top up existing water tanks without affecting the sizing of the new main. This would further increase water demand depending on uptake.

Since this is already an extension to the existing network, the proposed ring main size does not allow for any further development of existing sections or other new connections or extensions to the ring main in future.



FIGURE 3 31HA OF LAND AT CREAN/FORD ROADS (RURAL TO INDUSTRIAL)

TABLE 3 WATER INFRASTRUCTURE UPGRADES REQUIRED TO SUPPLY W2 ZONE

Cost Type	Value	Unit	Estimated installation cost	Note
Network Extension	2660	m	\$ 452,200.00	DN180 PE100 PN12.5
Network Upgrade	1267	m	\$ 316,750.00	DN180 PE100 PN12.5
Development	1764	m	\$ 264,600.00	DN180 PE100 PN12.5
Totals	5691	m	\$ 1,033,550.00	

Wastewater

Due to W2s location and site topography, a pump station and rising main is required to deliver flow to the Waihi waste water treatment plant (WWTP). A second smaller pumped solution will likely be required on the northern part of the site, subject to detailed design.

TABLE 4 WASTEWATER INFRASTRUCTURE UPGRADES TO SUPPLY W2 ZONE

Cost Type	Value	Unit	Estimated installation cost	Note
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<i>Network Extension</i>	2890	m	\$ 491,300	Rising main
<i>Development</i>	1	Ea	\$ 150,000	Pump station, medium
<i>Development</i>	1	Ea	\$ 80,000	Pump station, small
<i>Development</i>	608	m	\$ 152,000	gravity DN150 main
<i>Development</i>	180	m	\$ 36,000	pumped DN100 main
<i>Totals</i>			\$ 909,300	

Stormwater

An industrial zone can expect to see full development i.e. no green spaces remaining. This is challenging for maintaining stormwater neutrality. The site could be investigated for disposal to ground, with detention structures built underground. Any runoff on top of amount that soaks away could then be directed to two centralised treatment systems to the north and to the southwest of site as indicated in Figure 4. If disposal to ground is not possible, these could be used as detention tanks only which trickle feed to the treatment systems thereby reducing their size. It is recommended that at a minimum, two 1000m² lots near the existing outfalls be set aside for the detention and treatment of stormwater.



FIGURE 4 STORMWATER CATCHMENTS, OUTFALLS AND CENTRALISED TREATMENT AREAS FOR W2

There is an upstream 6.7ha catchment that flows through the southwest corner of the site. Development will need to manage this existing flow. Engaging a consultant to determine the likely conditions of consent for stormwater disposal from the Regional Council would greatly assist in developing an estimate for stormwater costs to Council (if any).

Specific funding has not been allocated in the LTP for the above infrastructure upgrade works.

W3



FIGURE 5 11.2HA OF RURAL TO RESIDENTIAL LAND AT WHARRY ROAD

Water

There is a large diameter DN250 cast iron watermain running past the frontage of this zone. This is part of previously installed mining infrastructure. There is sufficient capacity and available pressure, therefore no immediate network upgrades are required to supply water to the site. However, this main is over 100 years old and may require renewal soon, depending on its condition. The size of the main can likely be reduced to a DN100-150 main when renewed, meaning a smaller pipe could be installed inside the existing main, significantly reducing installation costs. The cost to renew this main has not been included in the below estimate.

TABLE 5 ESTIMATED WATER INFRASTRUCTURE COSTS TO SUPPLY ZONE W3

Cost Type	Value	Unit	Estimated installation cost	Note
Development	510	m	\$ 86,700	DN160 PE
Development	510	m	\$ 66,300	DN63 PE
Total			\$ 153,000	

Wastewater

A 712m gravity main will be required to deliver wastewater to the nearest existing network point. A check of the downstream network showed there is no additional capacity within this waste water network. Looking further downstream at the next mains capacity, a catchment analysis of this main showed it is also at full capacity. Adding further flows here would likely cause the network to back up and potentially lead to overflows during peak wet weather flows. A 12 week flow monitoring study to confirm base flows would assist in determining the mains actual remaining capacity. A rising main could be installed to connect to the gravity network on the western side of Waihi, but this would require ~1500m of pressure main.

The development could still connect to the at-capacity network on the provision that it has sufficient storage to offset peak flows, for example by utilising a distributed pressure system or a gravity network with a large amount of storage at the pump station. The costs in Table 6 are provided on this basis.

TABLE 6 ESTIMATED WASTEWATER COSTS FOR INFRASTRUCTURE IN W3

<i>Cost Type</i>	<i>Value</i>	<i>Unit</i>	<i>Estimated installation cost</i>	<i>Note</i>
<i>Network extension</i>	712	m	\$ 142,400	DN150 Gravity main
<i>Development</i>	1	Ea	\$ 150,000	small PS onsite, large storage
<i>Development</i>	492	m	\$ 123,000	gravity 150
<i>Development</i>	310	m	\$ 62,000	DN100 Rising main
			\$ 477,400	

Stormwater

There is a larger upstream catchment running through this site which will have to be allowed for. A large culvert is likely required to cross the existing stream/drain. The available fall onsite and larger proposed sections lend themselves to using swales for treatment of road runoff.

A lot could be set aside at the likely outfall location for further treatment depending on stormwater conditions imposed on the site to maintain stormwater neutrality. Soakage to ground water may be a suitable alternative to piped or overland flow, but requires specific soil testing to confirm.

A portion of the south eastern site currently drains to Wharry Road. The existing drain still requires investigation to confirm it is suitably sized to take the post development flows. Alternatively, these lots could install onsite storage to reduce peak discharge flows. Engaging a consultant to determine the likely conditions of consent for stormwater disposal from the Regional Council would greatly assist in developing an estimate for stormwater costs to Council (if any).



FIGURE 6 STORMWATER RUNOFF ANALYSIS FOR W3

Specific funding has not been allocated in the LTP for the above infrastructure upgrade works.

W4



FIGURE 7 W4 0.6HA ON THORN ROAD

Water

The 7 lot zone is near the end of a DN120 watermain. This main currently services 16 other lots. As per Table 6.2 of NZS4404, another 24 lots could be connected with no specific design. Extending a DN120 main to the zone would allow limited future development (12 lots) along Thorn Road.

TABLE 7 ESTIMATED COST OF WATER INFRASTRUCTURE FOR W4

Cost Type	Value	Unit	Estimated installation cost	Note
Network Extension	45	m	\$ 17,650	DN120 PE
Development	40	m	\$ 5,200	DN63 PE
Total			\$ 22,850	

Wastewater

The western half of the section drops off steeply and may necessitate a pumped wastewater solution for any lots located here. For the eastern half a gravity solution will be suitable.

TABLE 8 ESTIMATED COST OF WASTEWATER INFRASTRUCTURE FOR ZONE W4

Cost Type	Value	Unit	Estimated installation cost	Note
Network Extension	45	m	\$ 7,650	DN150 PVC gravity
Development	40	m	\$ 5,200	DN100 PVC gravity
Development	1	Ea	\$ 20,000	small pump station
Development	20	m	\$ 2,600	DN63 PE rising main
Total			\$ 35,450	

Stormwater

Currently discharges west over land to a nearby stream. Road runoff will need to be treated accordingly and an outfall structure may be required to limit scouring downstream. To maintain stormwater neutrality there may be a need to provide onsite storage to limit the peak discharge.

Specific funding has not been allocated in the LTP for the above infrastructure upgrade works.

W6



FIGURE 8 W6, 8.4HA TO RESIDENTIAL LAND ON BRADFORD STREET

Water

The DN100 watermain running along Bradford Street currently services 43 properties, slightly more than the 40 recommended for a main of its size. Adding additional demand to this main is not recommended. The water main along Bradford Street back to Roberts Street (640m) will require upgrading to a DN150 main. This would provide for an additional 117 lots. To meet further demand and improve the water network resilience in the area in general, a DN100 watermain could be installed between Colesburg Lane and Cornwall Street through two private properties. The cost of this additional upgrade has not been included in Table 9.

TABLE 9 ESTIMATED WATER INF. COSTS FOR DEVELOPING W6 (MAX 117 LOTS)

<i>Cost Type</i>	<i>Value</i>	<i>Unit</i>	<i>Estimated installation cost</i>	<i>Note</i>
<i>Development</i>	390	m	\$ 66,300	DN180 PE
<i>Development</i>	390	m	\$ 50,700	DN63 PE
<i>Network upgrade</i>	557	m	\$ 222,800	DN180 PE
<i>Total</i>			\$ 339,800	

Wastewater

A wastewater pump station will be required onsite. A reasonable location is to the east of site, where only a short rising main is required to connect to the nearest gravity network. A second pumped solution may be required for properties to the far west of site. The downstream pipe capacity has been checked and is not an issue for this zone to connect on to. Detailed design may find that a distributed low pressure system is a more economical solution if a second pump station is required. This will depend on the detailed design.

<i>Cost Type</i>	<i>Value</i>	<i>Unit</i>	<i>Estimated installation cost</i>	<i>Note</i>
<i>Network extension</i>	48	m	\$ 10,560	DN100 rising main
<i>Development</i>	1	Ea	\$ 150,000	medium PS 70m ³ /day
<i>Development</i>	400	m	\$ 100,000	gravity 150
<i>Development</i>	1	Ea	\$ 80,000	Small PS
<i>Development</i>	90	m	\$ 11,700	DN63 rising main
			\$ 260,560	

Stormwater

Currently discharges to two outlets, each with a large upstream residential catchment passing through the proposed site. The road will require two large culverts to maintain upstream flows. A lot could be kept aside at each outlet for additional stormwater detention and treatment required to maintain stormwater neutrality onsite. Engaging a consultant to determine the likely conditions of consent for stormwater disposal from the Regional Council would greatly assist in developing an estimate for stormwater costs to Council (if any).

Specific funding has not been allocated in the LTP for the above infrastructure upgrade works.

Recommendations

To ensure the basic infrastructure within Waihi is able to meet the demands of rezoning the proposed additional land, it is recommended that;

- Confirm that water infrastructure upgrades identified in this report have been added to the LTP.
- That a short term waste water flow monitoring study is undertaken in Waihi to confirm baseline wastewater flows in the northeast for W3, as well as inform on inflow and infiltration sources within the broader network to reduce the demand on the WWTP.
- Investigate the gravity network supplying W3 further to determine the extent of the network constraint identified.
- Investigate the condition of the watermain supplying W3 to determine when an upgrade is likely required.
- Allocate capital works funding for water pressure zoning work and targeted leak detection to improve the water networks resilience in Waihi.

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