
Water Quality Improvements Programme

Purpose

1. Provide options to accelerate investment in water quality improvements for Auckland's beaches, harbours, streams and aquifers.

Summary

2. Auckland has a significant issue of pollution of its waterways across the region. The Water Quality Improvements Programme has been developed to address some of the major causes of this issue by:
 - reducing waste water overflows into the Waitemata harbour from hundreds of events to six or less each year
 - reducing stormwater volumes into the Manukau Harbour
 - reducing contaminants (for example litter, sediments, metals and oils) in stormwater across the region, and in the South Kaipara Harbour
 - improving water quality and creating healthy habitats for plants and animals in streams across the region
 - establishing a system for proactive monitoring onsite waste water treatment systems such as septic tanks.
3. This paper presents an option to deliver this programme within the next decade. (A comparison of options can be found in Attachment A).
4. Option A: Under current budgets these outcomes will take over 30 years to achieve.
5. Option B: With additional investment of \$852 million the outcomes could be delivered by 2028.
6. The Western Isthmus component of the programme will involve significant collaboration between the Healthy Waters team and Watercare Services Limited as it will involve improvements to both the stormwater and wastewater networks and, in some places, separation of existing combined networks,
7. This paper also includes options for consideration on how to fund the Healthy Waters component of the investment programme. A targeted rate is preferred as it has a high degree of transparency, improves accountability and there are a number of different approaches to setting the targeted rate. These are set out in full in Attachments C.
8. Under a targeted rate set on a capital value the median value (\$890,000) residential property would pay \$55 per annum, while the same value business would pay \$95. (This is on the basis that business properties pay 25.8 per cent of the total share of rates, the target for the council's long-term differential strategy¹.)

Background

9. There are areas of Auckland's beaches, harbours, streams and aquifers that are significantly affected by poor water quality. Many waterways and beaches are unsafe for swimming after storm events, and some beaches are permanently closed to swimming. This is a result of pollution from a number of sources including:
 - wastewater overflows from the combined sewer network when stormwater overwhelms the system capacity.
 - pollution from road run-off
 - sedimentation from urban and rural land use

¹ The Long-term differential strategy gradually lowers the share of rates paid by businesses from 32.7 per cent in 2017/2018 to 25.8 per cent in equal steps by 2037/2038.

- old or poorly maintained onsite wastewater systems (septic tanks etc).
 - impacts from farming such as livestock in streams and fertiliser runoff.
10. The Water Quality Improvements Programme of work has been developed to address these issues. The key projects and outcomes are as follows:

- stormwater upgrades and waste water/stormwater separation in the Western Isthmus
 - reduces overflows into the Waitemata and Manukau harbours.
 - beaches from Meola Reef to the Viaduct will be swimmable
 - reduction in intermittent beach closures
 - rehabilitation of Western Isthmus streams
 - reduces demand on the waste water network from stormwater, allowing greater housing intensification in the Western Isthmus catchments
- infrastructure for stormwater contaminant removal across the region
 - reduction of sediment into the Kaipara Harbour
 - reduction in stormwater contaminants across the region
- rehabilitation of urban and rural streams
 - improves the ecological health of the streams and reduces flow of contaminants into harbours
 - enables urban development in areas such as Oamaru creek in East Tamaki
 - stabilises areas of high stream erosion, reducing sedimentation in the harbours and protecting property and infrastructure
- introduction of a proactive regional septic tank monitoring programme
 - develop a regional database of onsite systems, their design parameters and maintenance records
 - first step in identifying the individual properties contributing to the degradation of beaches and waterways, such as at Piha, Bethells Beach, and Little Oneroa on Waiheke
 - develop a warrant of fitness style scheme to ensure the systems perform.

Options

Investment options

11. Options for investment have been developed and are set out in Attachment A. The key difference between the options is essentially in the timing of the programme.

Funding options

12. Also considered as part of this proposal, are options for funding the Healthy Waters component of the additional investment in the water quality programme. Attachment B and D set out a full discussion of the possible approaches to funding the programme through rates. In summary the key issues for consideration of funding options are:
- a. General rate or targeted rate – After consideration of the cost drivers and beneficiaries of the additional investment it is concluded that the community at large benefits from improvements of water quality in the harbour and streams. However, a targeted rate levied across all properties offers a higher degree of transparency and accountability.
 - b. Distribution of the targeted rate between business and non-business sectors – two differential options are identified for consideration, one based on business paying 25.8 per cent of the rate requirement (as intended under the existing long term differential strategy for general rates) and the other based on business paying 14.6 per cent of the rate requirement (reflecting the tax advantages that business ratepayers receive).
 - c. Distribution of the targeted rate within each sector – three options are set out for consideration i.e. setting the rate on a fixed basis (so each ratepayer pays the same), a capital value basis (ratepayers pay in proportion to their property value), or a combination of both.

Attachments

No.	Title
A	Options table
B	Funding option discussion
C	Statutory decision making criteria

Signatories

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Attachment A: Options Table

	Rationale	Description	Outcomes	Costs and funding
Option One: Existing Asset Management Plans	<i>Deliverable within current budgets</i>	<ul style="list-style-type: none"> Continue with existing works included in the Asset Management Plans of Watercare and Healthy Waters Includes Central Interceptor project and some stormwater upgrades 	<ul style="list-style-type: none"> Reduces the number of locations in the Western Isthmus that experience wastewater overflows every time it rains from 43 points to 31 points by 2028. The number of overflow points in the Western Isthmus that spill more than twice a year reduces from 218 to 214 by 2028. 	<ul style="list-style-type: none"> Costs in line with current budgets and deliverable with current funding sources
Option Two: Full additional Water Quality measures including Western Isthmus acceleration	<i>Delivers best water quality outcomes</i>	<ul style="list-style-type: none"> Leverage the investment in Central Interceptor by bringing forward investment in the Western Isthmus from outer years of Asset Management Plans to achieve improved water quality outcomes within ten years Infrastructure for stormwater contaminant removal across the region Rehabilitation of urban and rural streams Introduction of regional septic tank monitoring 	<ul style="list-style-type: none"> By 2028 reduce overflow points on the Western Isthmus to ten locations that are anticipated to overflow 2-6 times per year on average. Reduced Faecal Contamination of waterways from onsite wastewater systems in high risk areas Reduced Sediment runoff in to the Kaipara Harbour 	<ul style="list-style-type: none"> Total additional cost across the LTP period of \$856 million Healthy Waters component, \$452 million, to be funded by a Water Quality Targeted Rate (discussion in appendix C) Watercare component, \$404 million, to be funded from water charges.

Attachment B: Funding option discussion

Introduction

In considering options for funding the Water Quality Investment Programme, the key questions to be answered are:

1. Should the programme be funded from general rates or targeted rates?
2. Do some ratepayers benefit more from the activity to be funded?
3. Do some ratepayers drive a greater share of the costs of the activity?
4. Are some ratepayers better able to afford the rate?
 - a. Should the rate be set on fixed or capital value basis?

General rates or Targeted rate

Upgrades to stormwater infrastructure are currently funded from the general rate. This reflects the shared public good of this activity. For 2018/2019 the \$40 million required for the Water Quality Improvements Programme (WQIP) would represent a 2.25 per cent increase in general rates.

General rates are charged partly as a fixed uniform charge for all properties or separately used part of a property; and as differentiated rate set on each property's capital value. The council's capital value based general rate is differentiated in part to reflect the differences in costs for stormwater attributable to different sectors of ratepayers. Businesses pay more, as their larger areas of impermeable surface area require greater investment in stormwater infrastructure. Rural areas pay less as most rural properties are not served by the stormwater network.

The distribution of costs between the full stormwater activity and proposed activities for the WQIP differ. The majority of spending is to bring the stormwater network for the predominately residential areas of the Western Isthmus up to the standard of other areas. Six per cent of stormwater assets are located in rural areas, whereas just over ten per cent of the Water Quality Improvement programme will be spent in rural areas.

Compared to general rate funding, a targeted rate provides for more transparency in decision making and implementation. It can only be used to fund the projects it was raised for, enabling greater visibility of expenditure and accountability for outcomes. A targeted rate can also be set on a different basis from the general rate to reflect differences in the level of benefit received or cost imposed by different groups of ratepayers.

A WQIP targeted rate is proposed for funding so ratepayers can clearly identify the costs and benefits of the programme. Consulting on a separate targeted rate is likely to generate more feedback from the public that informs the question of whether ratepayers are willing to take on additional costs to improve water quality.

Ratepayer benefits of the Water Quality Improvements Programme

All Aucklanders will benefit from improved water quality across the Auckland Region's harbours and streams. The direct benefits to individual ratepayers will vary depending on the use they make of Auckland's waterways.

The cost of activities undertaken by the WQIP varies across the region. Just over eighty per cent of the investment (\$325 million uninflated) will be spent upgrading the stormwater network in the Western Isthmus. The majority of this spending will be on separating stormwater and waste water for those properties served by the combined network. This work will bring the stormwater infrastructure in the Western Isthmus up to the standard of the rest of the network.

Properties on the combined network will not receive any additional benefit from this activity compared to other properties however. Their stormwater will continue to be conveyed away as it had been before the work was undertaken. Property owners will usually be required to pay the costs of connecting to the new networks if they develop their properties however.

The primary benefit of the Western Isthmus upgrades is the reduction of waste water overflows into the Waitemata Harbours from hundreds of events per annum to two to six events, and a reduction in Stormwater volumes into the Manukau harbour. For ratepayers, the visible benefits of this programme are:

- significant reduction of offensive beach litter (such as prophylactics, toilet paper and feminine hygiene products) across the extents of the Waitemata harbour (The nature of litter produced from waste water tends to be more offensive than that from other sources. It is also persistent in the environment and able to travel long distances on currents and tides.)
- removal of permanent closure notice for Meola Reef and Coxes Beach
- reduction of intermittent beach closures.

It might be expected that properties adjacent to beaches currently closed to swimming will benefit from higher land values as a result of the beaches being reopened. However, establishing the extent to which particular properties will benefit is difficult, as improvements to water quality will be incremental and over a long time frame. Additionally, the beaches where a permanent swimming ban is to be lifted, Meola Reef (an estuary) and Coxes Bay (a muddy bay enclosed by a sea wall and road) have not been and are unlikely to become popular swimming spots. The effect of water quality improvements on property values at these locations will be difficult to establish. The effect on properties adjacent to swimming beaches currently subject to intermittent closures is likely to be negligible.

Just over ten per cent of the Water Quality Improvements investment will occur in rural areas, for activities including:

- rehabilitation of rural streams
- sediment containment for the Southern Kaipara Harbour
- development of fish passages
- development of a proactive compliance and monitoring programme for onsite wastewater systems.

Again, the benefits of these activities accrue to the wider users of waterways, rather than individual property owners.

The remainder of the rate will be spent on contaminant containment and rehabilitation of streams in urban areas outside of the Western Isthmus.

Analysis of benefits does not provide strong support for differentiating the rate between ratepayer groups.

Cost drivers for the Water Quality Improvements Programme

The table below identifies the major causes of water pollution across the Auckland Region:

Source	Comments
Waste water overflows	Parts of the Western Isthmus are still served by a combined stormwater/waste water network that overflows during heavy rain events. Overflows occur in both the Waitemata and Manukau Harbours, and affect streams across the Western Isthmus.
Impermeable Surface Area (ISA)	Buildings and hard landscaping such as driveways and parking areas prevent the absorption of water into the ground. In urban areas and towns such water flows must be captured by the stormwater network to prevent flooding. Stormwater will contain contaminants washed off the hard surface areas including metals, paint, dust and oils. Business properties are permitted a higher amounts of ISA than residential – typically 90-100 per cent coverage compared to 60 per cent for suburban properties. Rural properties are permitted 10 per cent coverage but rarely utilise this limit, and run-off is able to be filtered by surrounding open land.
Roads	25 per cent of the region's Impermeable Surface Area is roading. Roads are significant source of pollutants such as oils and metals. Dust from unsealed rural roads is washed as sediment into waterways.
Septic Tanks	Onsite wastewater systems built under old standards (pre 2004) and those that are poorly maintained can pollute waterways. Beaches and streams close to areas where there are dense clusters of poor

Source	Comments
	performing systems, hilly terrain and clay soils have the highest risk. Water quality monitoring confirms that settlements on West Coast and Waiheke are affecting water quality.
Sediments	Rural land uses that disturb soil and stock churning up rural streams leads to sediment flows into waterways. Urban land uses can also accelerate stream erosion, introducing large volumes of sediment into the estuaries and harbours. Sediment reduces water visibility and smothers aquatic habitats. (Earthworks for property development can also result in sediment run-off – the council requires sediment to be contained onsite as part of consent conditions.)
Livestock and fertiliser run-off	Livestock and fertiliser use can lead to run-off of excess nutrients into waterways.

The major investment in the WQIP is to address overflows of waste water from the combined stormwater/waste water network in the Western Isthmus. Water pollution in this case can be directly attributed to those properties and roads connected to the combined network. However, these properties do not differ from properties located in other urban stormwater catchments. Overflows are a result of historic design practices when untreated overflows diluted with Stormwater were once acceptable, rather than any particular activities or land uses occurring within the catchment.

Beyond the Western Isthmus network upgrades, it is possible to identify the following differences between ratepayer sectors and proposed investments:

Urban Stream rehabilitation and urban stormwater contaminant removal (4 per cent of investment)

While some land uses (e.g. heavy vehicle yards and petrol station forecourts), generate higher volumes of contaminants, such properties are normally required to install onsite treatment systems as a condition of consent. It is not possible to attribute a greater share of costs to specific business uses.

Urban properties with larger areas of impermeable surfaces will contribute a greater share of stormwater, and contaminants. It is not feasible to set a rate on actual impermeable surface area, as the council does not currently hold this information. The costs of obtaining and maintaining data on ISA would outweigh any benefit of setting a rate on this basis.

A larger proportion of costs can be attributed to urban businesses relative to urban residential properties as they are permitted larger amounts of ISA. Businesses are typically allowed 90-100 per cent land coverage compared to 60 per cent for suburban residential properties.

Sediment removal from Southern Kaipara, and rural stream rehabilitation (8 per cent of investment)

Costs are driven by rural land uses that expose soil in the catchments, stock intrusion into waterways and how erosive the underlying ground is. The Kaipara harbour is particularly sensitive to the effects of sedimentation as it is a nationally significant snapper spawning ground and the size and shape of the harbour promote the settlement of sediments in the harbour rather than washing them out to sea.

Compliance and monitoring programme for on-site waste water systems (2 per cent of investment)

This investment funds the establishment of a database of properties to be monitored. It is proposed that the on-going costs are funded through a fee charged to owners of monitored system.

An examination of the cost drivers suggests a small basis for charging business more than non-business properties.

Affordability and capital value or fixed charges

In general, businesses are better able to manage additional costs than residential properties. Businesses can also claim back GST and expense rates against tax. A business differential of at least 1.6 over non-business properties will reflect the value of these tax advantages.

The owners of higher value properties will in general be better able to afford an increase in rates than the owners of lower value properties. However, higher value properties already pay higher rates. The relation between property (capital) value and ability to pay is stronger for businesses than non-businesses. This is because a business's investment in property will reflect their potential to generate income. There is stronger support for setting the rate on a capital value basis for businesses than for non-business.

Targeted Rate Models

An undifferentiated rate would see business properties pay 9.6 per cent of rates set on a fixed basis, or 15.9 per cent on a capital value basis. A rate that was differentiated to reflect only businesses tax advantages over non-business would see businesses pay 14.6 per cent of rates set on a fixed basis, or 25.8 per cent on a capital value basis. Businesses currently pay 32.7 per cent of general rates. Under the council's Long-term differential strategy, it is planned that the business share of general rates will be 25.8 per cent by 2037/2038.

Currently the water quality improvement activities are funded from general rates. If the council does not proceed with the programme now, then upgrades to the Western Isthmus stormwater network are planned to be funded from general rates in the outer years of the Healthy Waters Departments 30 year Asset Management Plan. Setting the targeted rate on a similar basis to the general rates would maintain existing policy settings.

Fixed rate models:

The table below shows the fixed rate each property (or separately used part of a property) will pay under two model options, In the first, business pay 14.6 per cent of the total rates, and the second, business pay 25.8 per cent of the rates.

Business Share:	Non-Business pay: (per SUIP)	Business pay: (per SUIP)
Model 1: 14.6%	\$73.95	\$119.20
Model 2: 25.8%	\$64.25	\$210.43

Model 3: Capital value model:

The table below shows the rate in the dollar and how much business and non-business properties of different value would pay, for a capital value based rate. The business share of the rate is set at 25.8per cent.

Property Value:	Rate (per \$ of CV):	Non-business pays:	Business pays:
		\$0.00006145	\$0.00010690
\$300,000		\$18.43	\$32.07
\$500,000		\$30.72	\$53.45
\$890,000		\$54.69	\$95.14
\$1,080,000		\$66.36	\$115.46
\$5,000,000		\$307.23	\$534.52
\$10,000,000		\$614.46	\$1,069.04

Model 4: Fixed and Capital value model

The Water Quality targeted rate could also be set on a similar basis to general rates with a part fixed and part capital value based rate. In the table below 13.4 per cent of the revenue is collected on a fixed basis (the same proportion as for general rates) and the business share is 25.8 per cent.

Property Value:	Non-business pays:		Business pays:
	Rate (per SUIP)	\$10.49	\$10.49
Rate (per \$ of CV):	\$0.00005141	\$0.00010157	
\$300,000	\$25.91	\$40.96	
\$500,000	\$36.20	\$61.28	
\$890,000	\$56.25	\$100.89	
\$1,080,000	\$66.02	\$120.19	
\$5,000,000	\$267.56	\$518.36	
\$10,000,000	\$524.63	\$1,026.24	

The four models shown do not include a differential for rural properties as is currently applied to general rates. This is because the distribution of investment and benefits from the WQIP are shared between urban and rural areas. This differs from general rates funding where rural properties are charged a lower rates differential to reflect the lower investment in stormwater and transport services in rural areas compared to urban areas.

The table below shows the impact of each of the models on the urban and rural business, urban and rural residential, and farm/lifestyle properties.

General rates category:	Model:			
	Fixed (Business share 14.6%)	Fixed (Business share 25.8%)	Capital Value	Fixed and Capital Value
Urban Business	1.2%	2.2%	2.1%	2.1%
Urban Residential	3.4%	2.9%	2.8%	2.8%
Rural Business	0.6%	1.0%	2.0%	2.0%
Rural Residential	4.1%	3.5%	3.0%	3.1%
Farm and Lifestyle	2.7%	2.4%	4.0%	3.8%

Attachment C: Statutory decision making criteria

To set a targeted rate the council must consider the criteria in the Local Government Act 2002 below.

1. When deciding from what sources to meet its funding needs, council must consider the matters set out in section 101(3) of the Local Government Act 2002.
2. For the proposed targeted rate to fund expenditure on WQIP, council must consider, in relation to this activity:
 - the community outcomes to which the activity primarily contributes
 - the distribution of benefits between the community as a whole; any identifiable part of the community; and individuals
 - the period over which the benefits are expected to occur
 - the extent to which individuals or a group contribute to the need to undertake the activity
 - the costs and benefits (including consequences for transparency and accountability) of funding the activity distinctly from other activities.
3. Having considered these matters, the council must stand back and consider the overall impact of any allocation of liability for revenue needs on the community. This involves elected members exercising their political judgement and considering the proposal in the context of council's funding decisions as a whole.

Assessment of options

The following section considers the proposed funding options against the statutory criteria.

The community outcomes to which the activity primarily contributes

The community outcomes to which the activity (water quality improvements) primarily contributes are set out in the LTP 2015-2015 as:

1. A green Auckland:
 - through working with local boards and communities on a range of initiatives that protect and restore important environments and waterways through participating in environmental programmes and partnering with trusts and volunteers to deliver these programmes
 - by ensuring the effects of runoff to the environment are managed and our stormwater network is robust to cater for urban growth and changing environmental conditions
2. A beautiful Auckland loved by its people:
 - through ensuring that our natural environment and heritage is valued, understood and celebrated
3. Maori identity:
 - by empowering mana whenua and mataawaka to participate in natural resource management decision-making processes to realise shared aspirations and mutual outcomes and protect our Māori cultural heritage

All of these outcomes relate to the overall well-being of the city, and suggest a funding mechanism to which all ratepayers contribute. All of the options for additional funding provide for all ratepayers to make a contribution.

The distribution of benefits between the community as a whole; any identifiable part of the community; and individuals

See "Ratepayer benefits of the Water Quality Improvements Programme" in Attachment B to this report.

The period in or over which the benefits are expected to occur

The assets to be built with additional funding will deliver benefits over their lifetime. It would therefore be more desirable to meet the capital costs from borrowing thus spreading them over the life of the assets. However, given constraints on council borrowing it is appropriate to fund the upfront investment from general or targeted rates in order to realise the benefits. The ongoing operating and replacement costs will be funded from general rates.

The extent to which the actions or inactions of particular individuals or as a group contribute to the need to undertake the activity

See “Cost drivers for the Water Quality Improvements Programme” in Attachment B.

The costs and benefits, including consequences for transparency and accountability, of funding the activity distinctly from other activities

Funding these projects from a targeted rate will improve the transparency of decision making on additional funding. Ratepayers will be able to clearly see exactly how any additional funding they provide will be used. This will make it easier for them to express a preference on increased funding.

The use of a targeted rate will also improve accountability for expenditure. If a decision is made to raise additional funding by use of a targeted rate then ratepayers can be confident it will be used for that purpose. Targeted rates can only be spent on the activity for which they are raised.

It is administratively straight forward to implement a targeted rate in the manner proposed.

Consideration of overall impact

Having considered the above criteria, the council needs to consider the proposal in terms of the overall impact on the community. This involves elected members exercising their judgement and considering the proposal in the context of council’s funding decisions as a whole, not just in relation to this activity.

The overall affordability of any increase in funding demands on the community needs to be assessed against the pressing need for more investment to improve the health and safety of Auckland’s waterways. Investment in improved water quality:

- provides benefits to the environment
- improves the everyday lives of residents
- facilitates the intensification of development in the Western Isthmus and enables urban development in East Tamaki thus easing the pressure on housing.

The total cost of a targeted rate applied over the region on a per SUIP basis is around \$78 (GST inc) per property per annum or less than a \$1.50 per week. Higher capital value properties and business properties will in general be better able to manage increases in rates and accordingly consideration may be given to applying the rate on capital value or differentiating the rate between business and non-business properties. There is a correlation between capital value and income for residential properties with the average household income being higher in areas with higher capital value. Business properties can expense rates and claim back GST.

For those residential ratepayers for whom it may be an issue the council offers rates postponement and administers the rates rebate scheme on behalf of the Department of Internal Affairs.