

# Three Waters

Value for Money (S17A) Review 2017

24 October 2017

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# Three Waters

Value for Money (S17a) Review 2017

FINDINGS

# Value for money

This review delivers on the requirement on local government, in S17A of the Local Government Act 2002, to:

“... review the cost-effectiveness of current arrangements for meeting the needs of communities within its district or region for good-quality local infrastructure, local public services, and performance of regulatory functions ...

... consider options for the governance, funding, and delivery of infrastructure, services, and regulatory functions...”

These reviews must be undertaken at least every six years.

**The purpose of this internal strategic review is to identify strategic opportunities to improve value for money. The value propositions developed in this report provide an indication of the value that could be developed by undertaking certain actions. This report provides orders-of-magnitude estimations of value. The propositions do not include costs, benefits, implementation plans or timings of benefits . They have been designed to inform council decisions whether to invest in more detailed investigation including business case development and consultation on options.**

Reviewing cost-effectiveness highlights the need to look at both effectiveness, or the value, of local government services and their cost. Hence the term ‘value for money’.

The Office of the Auditor-General, in its 2008 Procurement guidance for public entities publication, defines value for money as:

“... using resources effectively, economically, and without waste, with due regard for the total costs and benefits of an arrangement, and its contribution to the outcomes the entity is trying to achieve. In addition, the principle of value for money when procuring goods or services does not necessarily mean selecting the lowest price but rather the best possible outcome for the total cost of ownership (or whole-of-life cost).”

We define value from the viewpoint of the customers of the services. Depending on the service, customers might be specific groups of individuals, households or businesses, or they might be the Auckland public in general.

When we consider value for money, we also look at the public policy reason for the council’s current role and whether that role will continue to be appropriate in the future, given changes in factors like technology, customer expectations, the environment, legal framework, etc.

# Key findings

A summary of the review group's findings and recommendations to Auckland Council's Finance and Performance Committee are set out below for their consideration. Further detail is provided in the report.

- Significant value has been delivered from integrating water and waste services with Watercare and consolidating stormwater operations with the council. There is an opportunity to build on this with further integration of the Three Waters services. More joined-up planning, procurement and operations can give Aucklanders better value services and better economic, social and environmental outcomes.
- The 'two waters' and stormwater services have some common objectives and outcomes (notably public health and safety, environmental and cultural). But, managing the three water services through two separate organisations, and without a Three Waters strategy, has meant a focus is on delivering what is important to each entity. Shared outcomes are required to develop service solutions designed for the best environmental, social, cultural and economic outcomes. The lack of shared outcomes is reflected in the slow pace of joint action, and different views on the long-term sustainability of interception and storage to manage stormwater in the combined city sewer system. If the two organisations shared, for example, a 'safe swim' outcome, this would help align solutions.\*
- The starting point for integrated water management is the completion of a Three Waters strategy that provides a definitive performance framework and agreed set of outcomes. The value of a fully integrated water management system and environment will increase as regional challenges – including the need for water source resilience, high population growth, more stringent environmental requirements, and the risks from climate change – affect the city.
- The production of the strategy and supporting design principles will result in further improvement opportunities. Following this strategy, there will need to be a further s17A assessment of the best governance (including regulatory management), funding and service delivery forms to enable and support a fully integrated Three Waters planning and operating environment.

\* Subsequent to our review the safe swim partnership was been agreed between Auckland Council and Watercare for launch on 1 November 2017

# Key findings (cont.)

- The 'lessons learnt' from the amalgamation of councils provide strong evidence that further economies of scale and other benefits can be realised by integrating all or part of the Three Waters value chain. Such benefits were enabled by consolidating the legacy council stormwater operations, standardising design principles and standards across the Auckland Council Group, and integrating wholesale and retail operations for water and wastewater into Watercare. As such, a 'joined-up' plan for the Three Waters should unlock further value from integrating asset management planning. This will generate the greatest value, as it drives large capital and operating costs.
- In the short-term, tactical improvements can be made without waiting for completion of a strategy. Joint procurement can be required in the short-term. The past highlights a need for a clear and strong mandate, as reliance on collaboration alone has not worked.
- There is also potential value in Watercare managing stormwater operations and maintenance for the council. The latter would enable a shared approach for network control management, incident management, geospatial information management systems, customer care, and maintenance service delivery. Environmental regulatory functions could similarly be consolidated within Auckland Council. All this could represent a first step toward a more joined-up approach in building a Three Waters management and service delivery capability ahead (or at the same time as the completion) of a strategic Three Waters strategy.
- The organisations are large monopoly providers of public services. There is value in an independent economic regulatory assessment to give Aucklanders confidence that the Three Waters services plans and costs/charges are for their long-term benefit, given the significant amount of planned investment over the next 10 years, and potential further integration of aspects of the Three Waters.

# Recommendations

It is recommended that council's chief executive undertake the following actions as soon as practicable working with the relevant council controlled organisations to :

## Immediate Actions

### Three waters policy and strategy

1. **Initiate** and produce a Three Waters Policy and Strategy, in conjunction with Watercare and all other relevant authorities, that sets out the vision and outcomes for the Three Waters, and has an associated fully costed asset management and funding plan.

*Auckland Council have commenced the development of an Auckland Water strategy encompassing the Three Waters covered in this review along with marine water, ground water and natural water bodies.*

### Consolidated capital planning & delivery

2. **In conjunction with Watercare, identify** Three Waters-related projects that will benefit from a joint approach and prepare a business case to establish the value of a single center of excellence organisation for joint capital project planning. Noting that the governance and funding option of a special purpose vehicle be evaluated to oversee the construction of the Western Isthmus Water Quality Improvement Programme, and associated detailed planning and delivery of stormwater and wastewater projects.

### Joint procurement

3. **In conjunction with Watercare (and Auckland Transport), immediately** form a single procurement center of excellence which may be operated by Watercare or Auckland Council dependent on what organisation has the appropriate capacity and capability, to manage procurement for mandatory categories of spend and on the top 10 shared suppliers and report back on progress by June 2018 .

### Three Waters Operating Model

4. **In conjunction with Watercare, prepare** a business case evaluating the case for council performance-based contracting with Watercare to deliver the operation and maintenance of stormwater services and report back in progress by June 2018.

# Recommendations (cont.)

## Immediate Actions (Continued)

### Economic regulation

5. **To assist in achieving the necessary reporting transparency and consistency for pricing reviews:**
  - a. **Require** both Watercare (as part of the Statement of Intent process) and Healthy Waters to submit and publish in each organisations' next funding plan an explanation of the funding required to deliver on the asset plan, projects and associated service levels, and how the proposed prices, rates components, and charges are calculated, including the impact on pricing of cost-efficiencies.
  - b. **Require** both Watercare (as part of the Statement of Intent process) and Healthy Waters to apply a harmonised reporting approach to asset condition assessments, planning and related data in their next asset management plans.
  - c. **Encourage** both Healthy Waters and Watercare Services to participate in the next and subsequent Water Services Association of Australia Annual Asset Management Benchmarking exercises.

### Consolidated environmental regulation

6. **Working with Watercare and the relevant council departments evaluate** the benefits of creating a one-stop-shop for Three Waters regulatory and compliance functions where all the Three Waters regulatory functions co-habit in a single customer service center environment by June 2018.

# Recommendations (cont.)

## Post Strategy Actions

### Consolidated capital planning & delivery

1. **Assess** the best operating model to plan and deliver Three Waters capital projects under recommendation 3 below.

### Joint procurement

2. **Have** the procurement center of excellence prepare an expanded category planning and shared supplier scope with three-year forecasts that consolidate go-to market approaches, joint contracting and co-sourcing to support the synergies from having a Three Waters asset management plan.

### Three Waters Operating Model

3. **Review** the options in business operating models to best enable the delivery of the integrated strategy and the objectives and outcomes being sought and to revisit design principles, levels of service and key accountabilities.

### Economic Regulation

4. **a) Pilot for the next** asset management planning ((AMP) cycle, an economic regulation process by contracting an independent economic assessment of whether the asset management plans, costs and funding plans of the water organisations are appropriate, reasonable, and efficient. Noting whether the outcome justifies a regular cycle of pricing reviews and report the result.

*Watercare are proposing engaging a UK consultancy specialising in utility operations to review their next Asset Management Plan and we encourage Auckland Council and Watercare to include Healthy Waters and to jointly agree the scope of any review.*

- b) Review** the current regulatory framework and operating model for Three Waters regulatory services, evaluating the benefits of consolidating the Three Waters regulatory functions including trade waste, environmental water quality, overflow standards, consent conditions and building standards

# Value enablers

The project has identified a number of opportunities to improve productivity and reduce costs. Further value can be enabled by reinforcing a culture of transparency, performance and accountability across the organisations.

These value enablers represent typical 'business as usual' activity and should form part of the day to day operations for the owners. Accordingly no further cost/benefit analysis to implement these enablers has been conducted.

Enabler	Description
<b>Cultural fit</b>	The two current water organisations, Watercare and Healthy Waters, operate very differently with distinct and different cultures and operating styles. The beliefs and values that lead to each organisation's operating norms have created tensions between them and represent a risk, particularly when they are using softer collaborative governance methods. There is merit in addressing cultural integration as a distinct governance issue and operating risk.
<b>Clear accountability</b>	In respect to governance, the review team identified strategic decision-making areas where accountability, as distinct from responsibilities, for certain decisions needed clarity and reinforcement. Examples are: accountability for land use planning and sequencing, Three Waters policy and planning, regulatory rule making, bylaw development, and setting service level requirements.
<b>Consistent asset condition assessments, planning reports and industry benchmarking</b>	<p>It would be beneficial for Healthy Waters and Watercare Services to have a consistent reporting approach to asset condition assessments, planning and related data. This strengthens transparency in how asset planning priorities are determined, and allows comparative evaluation. It will make the transition to more 'joined up' planning for the Three Waters easier.</p> <p>Participation by both organisations in the Water Services Association of Australia Annual Asset Management Benchmarking exercise would provide useful information on comparative performance data and assist future value for money (S17a) evaluation.</p> <p>A standard approach to asset management planning and reporting across the Auckland Council Group would also have merit and further improve comparative evaluation of requirements and priorities.</p>
<b>Annual reporting</b>	Reporting on efficiency achievements by the water organisations is helpful in creating an understanding of how such efficiency gains are contributing toward minimising prices to the water user.
<b>Performance Monitoring</b>	We noted the statement of intent and letters of expectation between council and the council controlled organisations offer an opportunity for hard monitoring of performance measurement and are a source of value extraction. These instruments could be used to align shared and group outcomes as integrated water policy develops.

# Summary of potential value

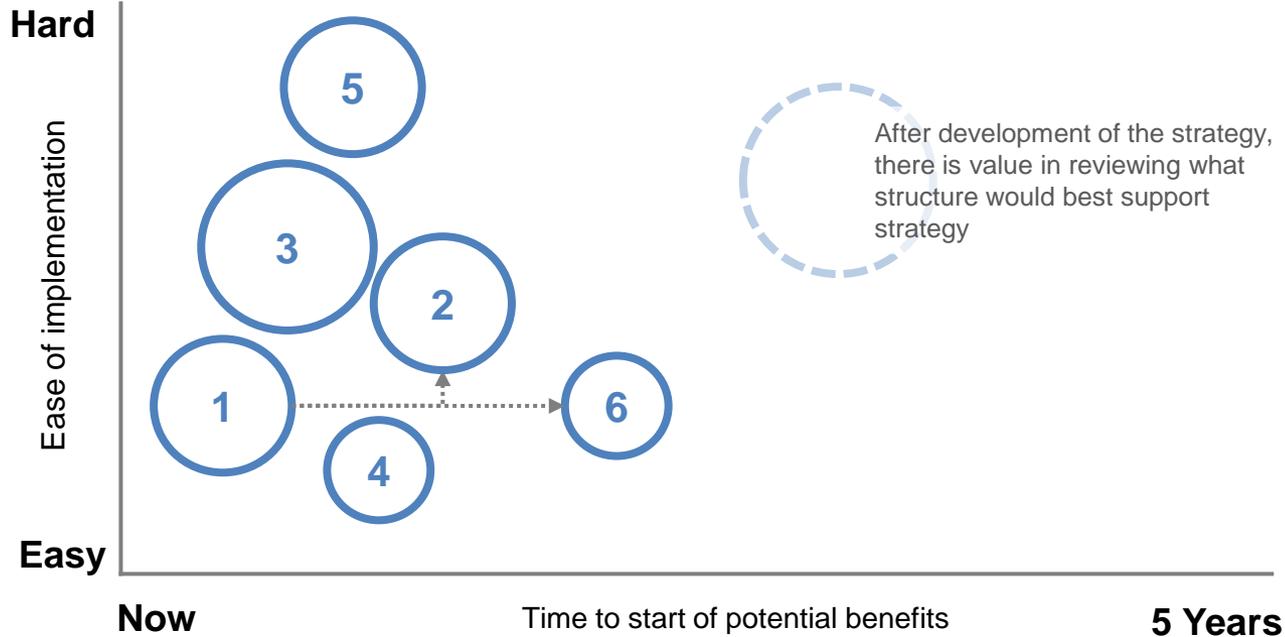
	Opportunity Description	Ref #	Value or (cost) \$M Mid-point estimates over 10 years	= Direct \$M Benefit delivered to Auckland via the council	+ Indirect \$M Benefit delivered to Auckland via others	Comment
GOVERNANCE	Three Waters policy and strategy	1	60	60	-	
	Joint procurement	3	166	166	-	
	Economic regulation	5	[+ve not estimated]	[+ve not estimated]		
	Consolidated environmental regulation	6	[+ve not estimated]	[+ve not estimated]	-	
FUNDING	Review of funding to follow Three Waters strategy	-	-	-	-	
SERVICE DELIVERY	Consolidated capital planning for a Three Waters asset management plan	2	61	61	-	
	Combined Three Waters operations and maintenance	4	13	13	-	
			<b>300</b>	<b>300</b>	-	

The table indicates whether the impacts are

- Direct – actual costs or benefits (cost savings) to Auckland via the actions of the council and CCOs as a result of the initiative (e.g. reductions in committed budgets that could thus be physically re-allocated or ‘banked’ if benefits are realised)
- Indirect – actual costs or benefits to Auckland that will occur through the actions of third parties.

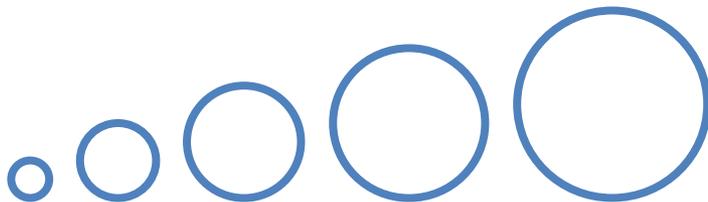
Estimates are indicative of the order-of-magnitude of the opportunity, drawing on assumptions from the literature and experiences in other places. Their purpose is to establish the case for progressing options and associated business cases. In some cases the evidence is strong, in others the basis for assumptions is more speculative. The individual value propositions provide indicative ranges to illustrate the impact of uncertainty (e.g. +/- 50% of the central assumption).

# Opportunity impacts and dependencies



Key	
1	Three Waters policy and strategy
2	Combined capital planning
3	Joint procurement
4	Combined operations and maintenance
5	Economic regulation
6	Consolidated environmental regulation

Size reflects average score against our criteria, and quantified impacts, if any, as indicated



# Three Waters

Value for Money (S17A) Review 2017

CURRENT STATE

# Approach to this review

We undertook the review of the **current state** following a clear methodology, seeking to understand the current operating approach and framework. This report provides an overview of the current state findings. We have assessed the current drivers of value, the issues and challenges of delivering services, and identified and documented value delivered and improvement opportunities.

We did this review in three parts:



As part of our evidence-based approach, we draw on a range of sources:



What we did:

Engaged with Watercare, Auckland Council's Healthy Waters Department, and other council officers and interested parties through interviews and workshops

Reviewed the long-term plan, annual reports, asset management plans, and policy documents

Reviewed the current statutory and legal environment

Researched approaches and best practices in other New Zealand cities and internationally

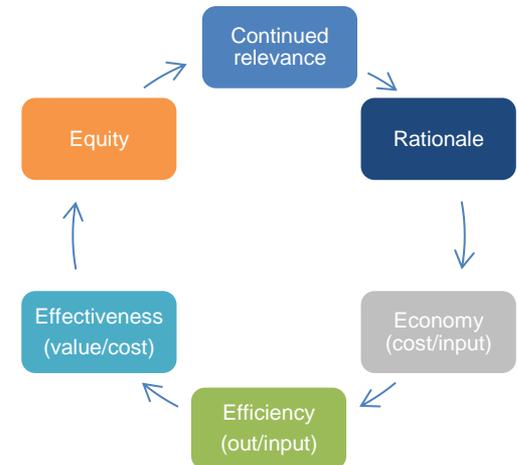
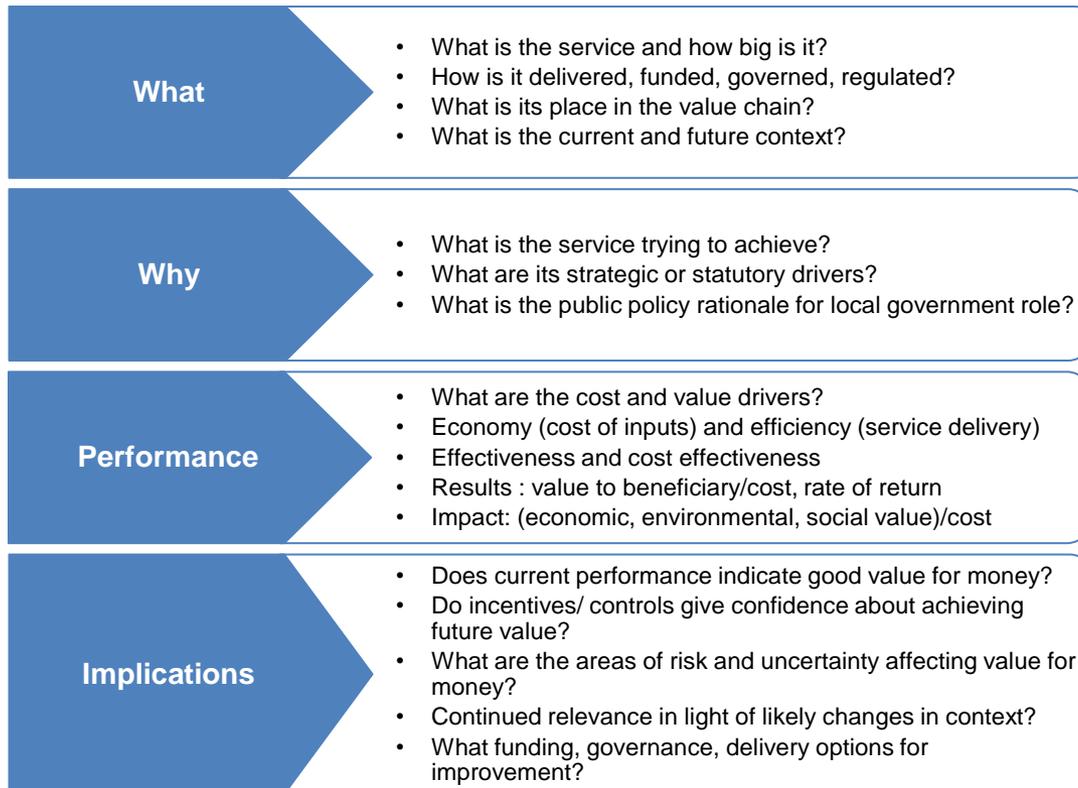
Tested our emerging thinking with subject matter experts and advisors

A four-week current state assessment effort has led us to identify a list of challenges, issues and opportunities for further testing during the next part of the review.

# Our methodology uses a fact-based approach

We have applied our standard framework of questions to this review. The method involves testing current service arrangements, as well as asking if their rationale is still sound and fit for the future. We then focused in on specific challenges, issues and opportunities that we found most relevant for service delivery in the future.

## Questions



# Services covered by this review

- This assessment should be read in conjunction with the Three Water terms of reference<sup>1</sup>.
- In this value for money review of the Three Waters, we ask if there is value for Aucklanders from further integration of water supply, wastewater and stormwater services currently operated by Watercare Services and Auckland Council's Healthy Waters Department.
- This is not a review of the performance of the three individual services.

## What is meant by Three Waters, or integrated water management as it is also known?<sup>2</sup>

Integrated water management brings together all facets of the water cycle to maximise social, environmental and economic outcomes. By considering the whole water cycle when planning and delivering services, we can take advantage of links between different elements and develop solutions that have broader benefits over a long period of time. This wouldn't be possible if we managed each system in isolation.

The benefits of Three Waters in an urban environment often extend beyond the solution to the initial problem. Benefits can include:

- environment – leaving more water for healthy river flows and reducing stormwater pollution
- liveability – creating green open spaces, reducing the heat island effect (where urban temperatures are higher than rural) and minimising flooding
- economic – supporting industry and agriculture
- affordability – reducing costs over the long run
- long-term resilience – diversifying our sources of water so we can withstand future shocks like climate change.

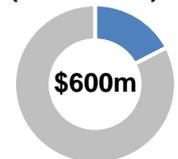
In the New Zealand context, partnerships, including iwi in terms of kaitiakitanga and investment, provide further benefit.

*Comparison to total council spend 15/16:*

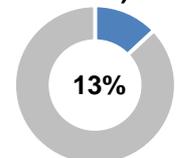
**Capital spend  
15/16  
(total \$1.3b)**



**Operating spend 15/16  
(total \$3.5b)**



**Rates-funded  
(\$5 per \$100  
rates)**



# Some key facts<sup>3</sup>

**\$12.8b**

water assets, which are 31% of Council Group assets

**\$6b**

capital spend next 10 years

**\$250m**

annual operating costs, which are 11% of Council Group operating costs

**\$350m**

Annual depreciation and interest

**66%**

of costs are funded from user charges and fees

**11%**

of costs are funded from rates, which are 5% of total rates

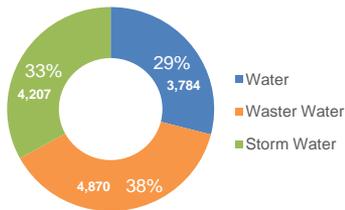
**12%**

of costs are debt-funded (and 12% 'other')

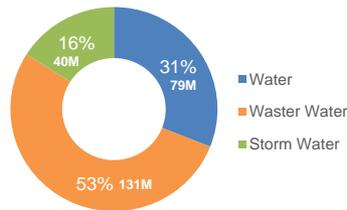
**1,078**

Full time equivalent staff

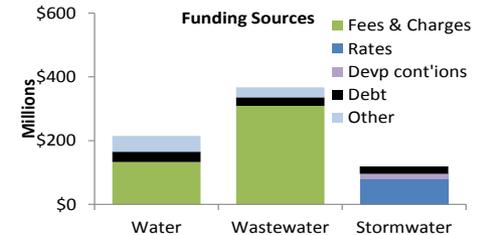
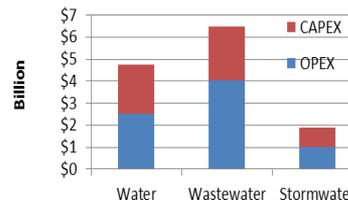
**Assets \$m**



**Operating Cost \$m**



**Expenditure over 10 years**



## Water

Assets owned & operated by **Watercare**, a CCO 100% owned by Auckland Council

**8.9k** km of pipes

**435k** connections

12 dams

15 water treatment plants

90 water reservoirs

## Wastewater

**7.9k** km of pipes

**165k** Number of manholes

18 wastewater treatment plants

500 pump stations

## Stormwater

Assets owned & operated by Auckland Council, through the **Healthy Waters** dept.

**6k** km of pipes

**145k** Number of manholes

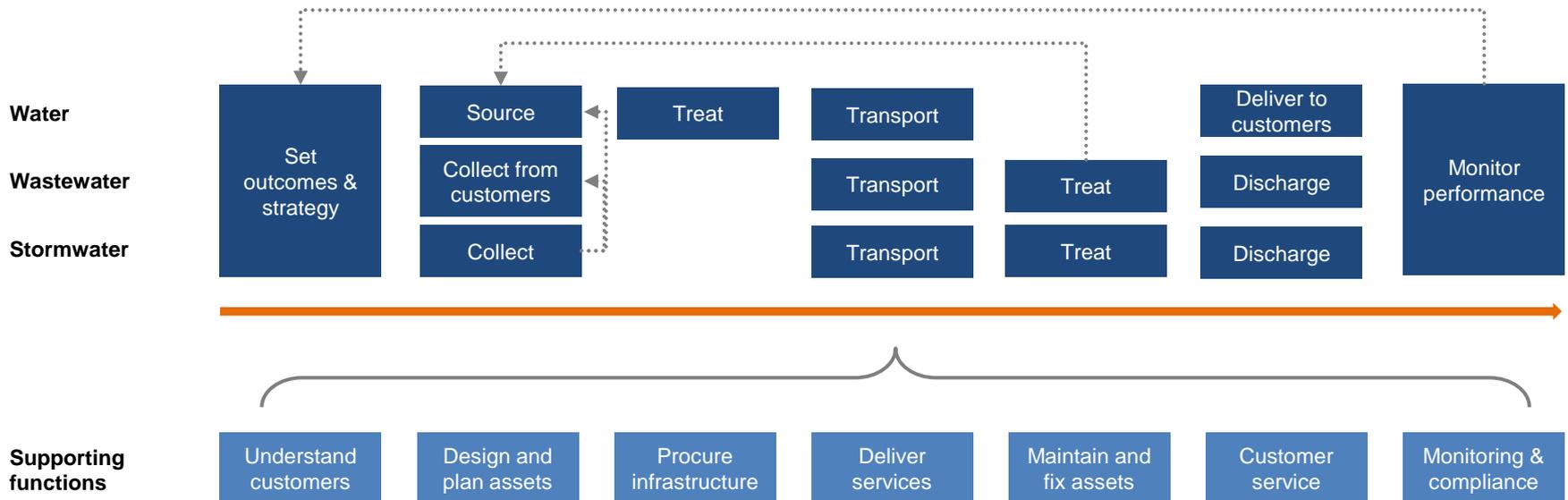
20,000km streams covered

Significant part of effective stormwater infrastructure is private property

# Value chain

We examined the Three Waters value chain to understand the interconnected processes to deliver outcomes for Aucklanders. We observed that:

- there is no agreed Three Waters vision, strategy, or integrated planning as per the Auckland Plan directive. An agreed framework would clarify roles and allow public policy to be set which, in turn, would allow different entities to align their strategies and initiatives to a shared vision.
- there is a lack of policies on how integrated water management will be delivered and how performance is monitored, measured and reported. Given the size of assets, even small additional improvements will assist with managing cost and finance requirements
- monitoring within the current operating environment does not explicitly cover whether costs and prices are reasonable nor contain a direct measure of environmental outcomes.



# Legislative framework

The council has an overall responsibility for ensuring the provision of quality Three Waters service and infrastructure. It has choices on how service responsibility is delivered. As circumstances change, there is value in reviewing whether the current balance between regulation, ownership, funding, and delivery is still fit-for-purpose.

High level operating requirements	Reference
Provision of Three Water services and infrastructure is a purpose of local government, and Three Waters are core services	LGA 2002 s10, s11
Long-term plan must provide for Three Waters services infrastructure	ACA s4 pt5
Water supply and wastewater are the responsibility of an 'Auckland water organisation' (council or CCO). This does not cover stormwater services, but they can be transferred to an 'Auckland water organisation' if appropriate	(ACA s4, LGA s130).
A CCO's principal objective is to achieve the objectives of its shareholders as specified in the statement of intent, be a good employer, exhibit a good sense of social and environmental responsibility...and uphold sound business practices	LGA 2002 s59
An Auckland water organisation must manage its operations efficiently, keep costs to customers collectively to a minimum, consistent with the effective conduct of its undertakings and the long-term integrity of the assets, and not pay a dividend	ACA s57
Contracting out and joint arrangements	
Local government organisations may enter into contracts for the delivery of water service operations, but remain legally responsible and retain control over pricing and policy	LGA s136
Local government organisations may enter into a joint arrangements, but remain responsible and with restrictions on the transfer of water assets	LGA s137

**Local Government Act 2002 (LGA)**  
**Local Government (Auckland Council) Act (ACA)**

# Examples of practice from other places

The practice of integrating the management of the Three Waters is being adopted in cities around the world in various ways.

There is no single ideal Three Waters operating model. Every city has a different approach, driven by their own circumstances. However, the various models do have common drivers:

- Water sources are constrained, resulting in a struggle to meet water demand. Stormwater and wastewater are used as alternative water sources for non-potable uses, which make drinking water sources go further.
- Stormwater and wastewater overflows are affecting the environmental water quality, including the health of streams, harbours and beaches. Contaminated flows are being intercepted at catchment, stored and treated for better environmental, social and cultural outcomes.
- There is a single accountability for the management of Three Waters services, improving cost-efficiency and delivery of essential city infrastructure.

Water management is complex without a single solution, but adopting a Three Waters approach can help Auckland become a more resilient city.

The other insight is that a Three Waters approach is a journey. The picture outlines the water sensitive cities framework, which describes a continuum of delivery approaches.<sup>4</sup> While Auckland may aspire to be a waterways city, much of the on-ground action reflects a **drained city**.

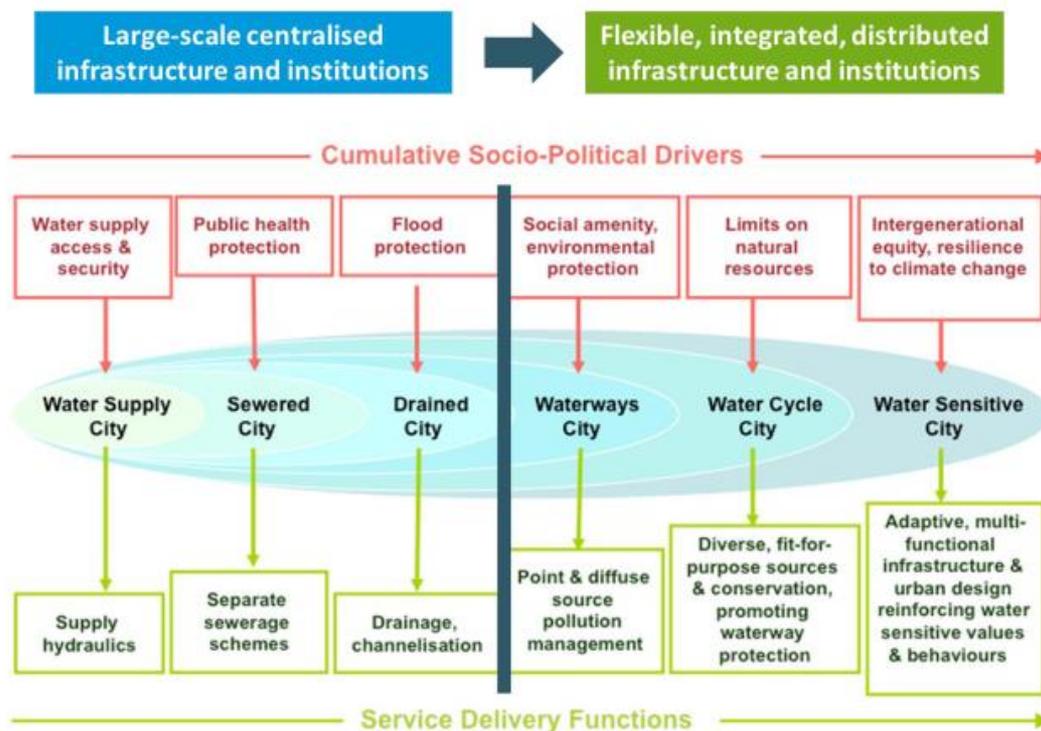


Figure from Co-operative Research Centre for Water Sensitive Cities, 2014

# Examples of practice (cont.)

## Three waters in New Zealand

Collective management of Three Waters is becoming a feature in NZ with inclusion of the concept into the NZ Infrastructure Plan 2015 and with the LGNZ position paper 2015.

### Different operating models are used:

- Auckland – Watercare + Healthy Waters use a partnering agreement to govern co-operation
- Wellington Water – a contracted shared service for four councils and regional council.
- Christchurch – currently running a procurement process for Three Waters capital development
- Hamilton City Council, Waikato Regional Council, Waipa and Waikato District Councils and tangata whenua have adopted a partnering approach with a Three Waters strategy.
- Manukau Water was contracted to Manukau City Council to maintain stormwater assets.

## Three waters in other cities around the world<sup>5</sup>

We reviewed a number of case study cities around the world which shared some similar characteristics to Auckland – harbour city, wet city, ageing infrastructure, water utility company. The governance of water is moving towards more integration in response to population pressure, climate change, drought, improving environmental quality, ageing infrastructure and a recognition that water is an asset.

### Economic Regulation of Utilities

We reviewed the economic regulation of publicly and privately owned monopoly providers of a utility services in New Zealand and Internationally

- In Australia and in the United Kingdom water utilities are routinely regulated. In Australia where water utilities are largely government – owned, economic regulation is undertaken by the Independent Pricing and Regulatory Tribunal (IPART), The pricing model is based on full-cost recovery with regulatory oversight that seeks to objectively align costs and prices.
- In New Zealand all electricity, telecommunications and gas utilities are subject to price regulation undertaken by the Commerce Commission or the Electricity Authority. There is a complaints mechanism through the Utilities Disputes Group. Water complaints are not included.

## Summary of leading practice

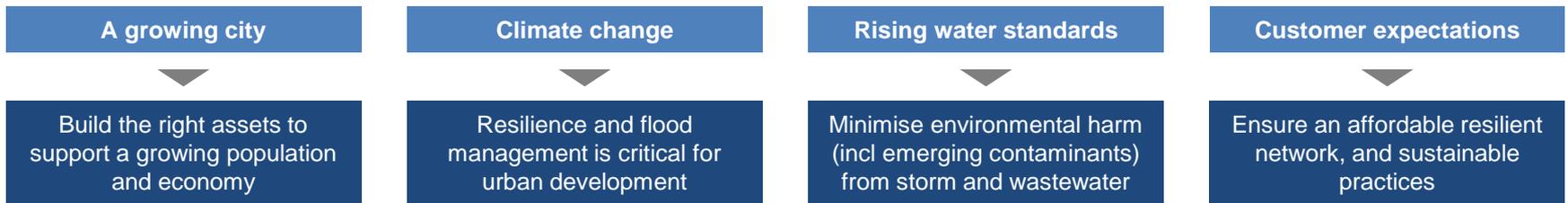
- Developing Three Waters, or **integrated water-cycle management**, policy and plans, and managing the complete water cycle as the guiding principle to improve environmental and economic outcomes and mitigate risks, including catchment management and restoration, surface water management, wastewater reuse and network management technologies
- Expanding **green infrastructure**, increasing use of urban space for stormwater detention, green parks and gardens, swales and rooftop design, and expansion of permeable surfaces.
- Introduction of **grey water supply networks** supplied from treated stormwater and wastewater sources for non-potable uses such as industrial cleaning and irrigation.
- Interception and/or storage solutions continue to be a cost-effective way to manage quantity and quality issues associated with the performance of both combined and separate sewer systems. Emerging best practice is leading to more holistic solutions which combine traditional infrastructure with 'greener' approaches and integrated management practices to improve resilience, public amenity and ecological outcomes.

In 2008, Auckland water organisations produced a strategic Three Waters plan<sup>6</sup> which, while having a greater focus on water and wastewater rather than stormwater, was well considered with the findings and proposed actions still relevant. There has been piecemeal implementation of the plan.

# Key value drivers

Three Waters is a paradigm shift in value, where all waters are considered an asset, as distinct from wastewater and stormwater being seen as liabilities. Taking a Three Waters approach can help Auckland become a more resilient city. This connected concept is reinforced through kaitiakitanga – a way of managing the environment with Māori as tangata whenua and kaitiaki.

We identified four key value drivers and outcomes for the Three Waters. To focus our enquiry, we then looked at 10 key questions as part of our current state assessment of value.



## Questions

1. Are there clear roles and accountabilities in the Three Waters value chain (e.g. are objectives aligned or in conflict)?

2. What are the Three Waters objectives and why has there been no active, updated Three Waters strategy for Auckland since 2008?

3. How do the two water organisations currently plan together to deliver value for money?

4. How do the two water organisations currently deliver services together to deliver value for money?

5. How do the two water organisations measure success in delivering on Three Water objectives?

6. What have been the benefits from integrating bulk and retail water and wastewater providers, and stormwater organisations, following council amalgamation in 2010?

7. What are the future opportunities and risks from further integration in asset management, capital planning, service delivery and procurement of supplies?

8. How is Watercare taking a Three Waters view in its long-term water supply planning, including demand management?

9. Are the approaches to funding water efficient and sufficient to achieve Three Waters objectives and services?

10. What lessons can be drawn from the partnering projects for the governance, funding and delivery of Three Waters?

# We found significant value was delivered as a result of integration

- The 2010 amalgamation consolidated multiple legacy council stormwater operations into a single council Healthy Waters Department.
- Watercare was vertically integrated, taking over management of both the retail and wholesale management of water and wastewater services in Auckland.
- Both organisations aligned service levels across the region so Aucklanders now benefit from common service commitments, but they do not share a common outcome-based performance measure.

## Integration of water and wastewater

Watercare is an efficient operator by most benchmarks, and is sought out for its capability outside the region.

Service levels have been increased and standardised, particularly with non-metropolitan area services now meeting metropolitan standards.

Operating cost savings of \$570m (20%) and avoided capital cost of \$221m (13%) from 2012 to 2016, when comparing actual to what was planned prior to amalgamation.

Residents in the former Papakura District receive their retail water services under contract from United Water at the same price as Watercare.

High levels of customer satisfaction (>80% customers satisfied).

Water and wastewater is funded by user charges and the average cost per household have increased by 11.4% over the past five years, while overall the cost fell as a share of average household income.

In respect of water the current price is lower than the pre-amalgamation price for all legacy Council areas except for Manukau. In respect of Wastewater, equalisation of prices resulted in increases and decreases in price with the average increasing by inflation (11.4% over 6 years).

Watercare is required to be an efficient and effective operator. Watercare can set prices to cover costs. But without an independent regulator testing its costs and asset base, it is difficult to confirm whether services are truly efficient and effectively priced.

## Integration of stormwater into Healthy Waters

Stormwater performs well in industry benchmarking, particularly with asset management planning.

Service levels have been standardised and clarified across the region, and have generally been increased.

Operating cost savings of \$230m (30%) and avoided capital cost of \$177m (36%) from 2012 to 2016, when comparing actual to what was planned prior to amalgamation.

Savings have been made by bringing in house aspects of design and operate functions and building planning capability. Operating spending has been broadly flat.

Moderate levels of customer satisfaction (>60% customers satisfied).

Stormwater is predominately rates-funded (with development contributions the other main source). As a proportion of total rates, its funding has reduced from 5.7% in 2012 to 5% in 2016 while rates increased by 12% during the same period.

There is no transparent indicator of the stormwater cost per household, to compare against service levels and the adequacy of the asset base.

# Challenges and issues in realising further value

We identified the key challenges and issues to achieving value for money in delivering the Three Waters outcomes.

These have formed the basis for our identification of the improvement opportunities by managing Three Waters in a more integrated way.

## Challenges

## Issues

There are no urgent drivers for a Three Waters approach. Other cities are driven to integrate management of the Three Waters by a combination of regulatory, supply, environmental, cost management and capital constraint challenges. These are challenges for Auckland too.

Given the current operating mandates, the two organisations have no incentives to jointly address the value of beneficial reuse of wastewater and stormwater.

There is a lack of clarity about who is accountable for Three Waters policy development and strategic planning.

There is no formal current Three Waters strategy or policy. The organisations work to separate strategic outcomes for water and wastewater and stormwater, which are not always aligned. Watercare's demand management plan has not considered how beneficial reuse of stormwater (as in the 2008 Three Waters Strategic Plan) could achieve demand management targets.

Environmental water quality performance (including safe swimming) is of concern.

There has been little work done to evaluate and debate the benefits, costs and affordability of applying different public policy settings related to improving environmental water quality in Auckland.

Auckland (along with many other cities with ageing sewers which combine stormwater and wastewater) is faced with finding an optimal technical solutions to limit overflows into harbours. Organisation sign-off required on the optimal solution.

Comprehensive stormwater separation (if required) is unfunded and if needed will be funded from rates. Interception solutions will be funded from a mix of sources.

The council funding infrastructure to meet population growth including ensuring stormwater funding is fair and equitable.

# Challenges and issues (cont.)

## Challenges

## Issues

Ensuring that iwi and hapu are involved in Three Waters planning and policy development processes and Māori as tangata whenua values, aspirations are identified and reflected

That the Mana whenua Sustainable Framework and the Māori Responsiveness Framework set out in the council's long-term plan have yet to be used to influence a Three Waters-type planning approach and need to be considered.

The two water organisations are tightly focused on improving their service. The challenge is to find the right balance between being effective and efficient as an organisation vs. being effective and efficient as an integrated water cycle.

There is a degree of duplication and, arguably, waste, arising from Watercare and Healthy Waters competing for the same professional resource pool, from operating separate but similar customer contact centres, network monitoring and GIS systems, and from negotiating separate contract arrangements from the same suppliers.

Multiple and complex relationships, where parties have different objectives and distinct funding arrangements, are a barrier to collaborating on integrated planning and shared action plans.

There is a cost of rework or new capacity being added too quickly or out of sequence deployment of water, wastewater and stormwater infrastructure e.g. Huapai.

The two water organisations are already big and not exposed to competition. Further integration would concentrate the performance risks these factors create.

Watercare on its own represents a very large utility by Australasian standards. Unlike equivalent sized utilities it is not economically regulated and has no independent dispute resolution process.

The implications of service levels promised in the asset management plans are based on asset performance and are not readily related to public policy outcomes.

Given the growth in the size and market position of the organisations, strengthening transparency and reporting on organisational performance and true costs may need to be considered to provide affordable solutions to Aucklanders.

Through growth and urban development, the regulatory functions for Three Waters are being stretched to ensure the networks and the environment are not being compromised by illegal activity.

Environmental regulatory functions are fragmented across two organisations. Enforcement and corrective action is an under-used lever.

# Current state: governance

- We found some weaknesses in the governance of the Three Waters.
- In practice, the Three Waters are governed as a two + one.
- This is reflected most obviously in the execution of strategy-setting and asset planning, where the absence of an overarching strategy has led the delivery organisations to fill that gap, with the result that their objectives and drivers not being aligned around common Three Waters outcomes.

## • Auckland Council

- is accountable for the region's vision – The Auckland Plan and the long-term-plan – and for growth planning and sequencing with the Unitary Plan, Urban Land Supply Strategies and Structure Plans.
- plans and delivers stormwater services largely through its Healthy Waters Department, including catchment management, land-use planning, coastal management, stormwater and integrated catchment management.
- sets the policy and regulations for environmental performance, which its departments and CCOs administer.
- monitors performance of stormwater, water and wastewater services.

## • Watercare

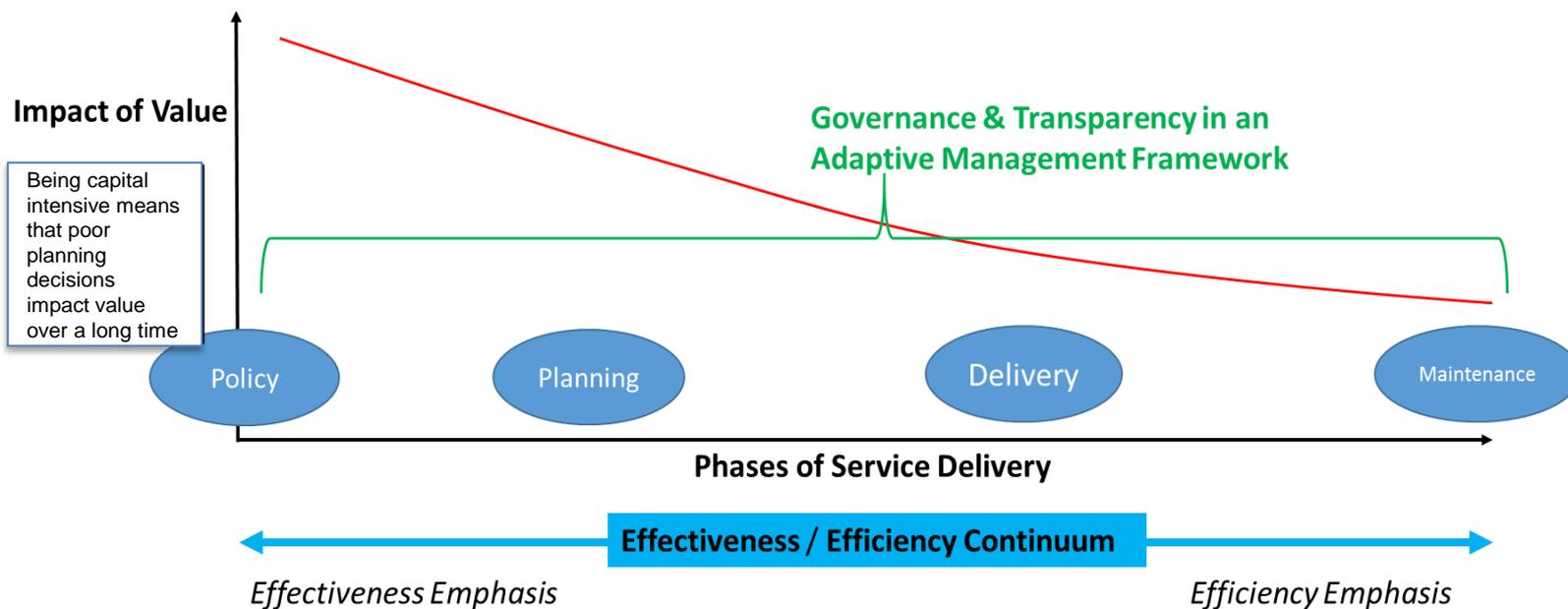
- is Auckland Council's CCO focused on delivering water and wastewater services.
- is responsible to give effect to the council's vision, plans and strategies, particularly in meeting growth and providing a resilient and liveable city.
- delivers its 20-year Asset Management Plan capital programmes, funded through user charges and infrastructure charges, to produce a stable price path.

# Clarifying accountabilities and sharing risks & outcomes will allow sharper performance transparency & reduce wasteful duplication

	Auckland Council	Watercare	Healthy Waters	What is weak or lacking, and what would be in place under a better arrangement
<b>Growth plans</b>	Auckland Plan, Unitary Plan, Urban Land Supply Strategy, Infrastructure Plan	Two Waters Strategy aligned to the council's growth strategies	Regional stormwater policy development	<ul style="list-style-type: none"> <li>A single accountability for Three Waters policy development and strategy</li> <li>Group monitoring of performance to plans</li> <li>Complete clarity on flood management accountability.</li> </ul>
<b>Asset Management Plan</b>		Two Waters Strategy & AMP	Stormwater Strategy & AMP	<ul style="list-style-type: none"> <li>A Three Waters asset management plan</li> <li>Universal application of service levels in plans</li> </ul>
<b>Environmental regulator</b>	Resource Consent Authority Building Control & Compliance Trade waste regulator	Trade Waste monitoring (resource consent compliance)	Private stormwater discharge consents monitoring	<ul style="list-style-type: none"> <li>Single point of management of regulatory and compliance functions for the Three Waters</li> <li>Proactive compliance and enforcement monitoring</li> </ul>
<b>Maintain networks</b>		Two Waters	Stormwater (incl for Auckland Transport)	<ul style="list-style-type: none"> <li>Shared planning, procurement or delivery</li> </ul>
<b>Maintain assets</b>		Two Waters	Stormwater (incl for Auckland Transport)	<ul style="list-style-type: none"> <li>Shared planning, procurement or delivery</li> </ul>
<b>Manage customer and fix faults</b>		Water and wastewater networks	Stormwater Networks	<ul style="list-style-type: none"> <li>Single point of contact for customer when there is a water network fault.</li> </ul>
<b>Manage demand</b>		Two Waters Demand Management Plan	No Demand Management Plan	<ul style="list-style-type: none"> <li>Combined demand management plan for the beneficial reuse of waste and stormwater.</li> </ul>
<b>Monitor quality</b>	Environmental regulator	Treatment plant discharges and overflows (resource consent compliance)	Stream, beach and harbour water quality	<ul style="list-style-type: none"> <li>Measurement and management of the impact of overflows, rather than the number</li> </ul>

# As a matter of urgency, we need a Three Waters vision, policy and strategy to provide the essential building block to fully evaluate the value from the integrated management of the water system. This will provide the greatest long-term value.

- The Three Waters strategy is an important enabler to achieve the Auckland Plan directive for the **integration of planning of the water network**.
- Improved integration of Three Waters planning is needed to advance the green Auckland outcome in The Auckland Plan.
- We believe that greater impact on value (and therefore cost-effectiveness) is created earlier in the service delivery lifecycle.
- The continuum between effectiveness (are we building the right project) and efficiency (are we building the project right) varies along the service delivery lifecycle.
- Mana whenua should be an active participant in the development of a Three Waters strategy to give recognition to their kaitiaki role and to uphold their mana-tangata .



# Opportunities to improve value for money

The current state assessment has identified some value improvement opportunities that will form the basis of the next phase of the review where we will evaluate and value these opportunities.

The next part of the report assesses the potential value, risks, implementation and the timing and sequencing of the opportunities.

#		Opportunity
1	<b>Governance</b>	Developing a Three Waters vision, policy, strategy and implementation plan. This requires clarity of accountabilities across the Three Waters value chain including public policy, strategy, asset management and combined demand management planning.
2	<b>Governance</b>	Review the alignment of Watercare's SOI and Healthy Waters performance targets, particularly around strengthening shared three-water value drivers and environmental water quality objectives.
3	<b>Governance</b>	Examine the value of having an independent authority monitor and review whether planned prices or revenues are reasonable, with reference to planned capital and operating spending, given the growing size of what are two local government monopolies.
4	<b>Governance</b>	Explore the value of consolidating all Three Waters regulatory functions into a single and unified accountability.
5	<b>Governance</b>	Explore the opportunities for involvement of both mana whenua and mataawaka in developing the Three Waters vision, policy and implementation plan guided by the Mana whenua Sustainable Framework and the council's Maori Responsiveness Framework.
6	<b>Governance</b>	Evaluate the potential value in taking a Three Waters approach to strategic growth planning and providing development approvals for new developments (and redevelopments) requiring developers to fully exploit integrated Three Waters planning to: <ul style="list-style-type: none"> <li>• reduce potable demand (rainwater tanks – recycling – water efficient appliances etc.)</li> <li>• reduce wastewater discharge from the site</li> <li>• reduce stormwater runoff from the site (total and peak flow) and improve water quality</li> <li>• enhance amenity and ecological outcomes through water-sensitive urban design.</li> </ul>

# Opportunities to improve value for money (cont.)

#		Opportunity
7	<b>Funding</b>	Assess the value of using special purpose vehicles for collaborative projects between the entities, such as the work being done by the Western Isthmus Water Quality Improvement Programme. Given the combined size of the proposed asset spend (\$1.7b), the opportunity is to build delivery capability, enable solutions that minimise the need to provide better project funding certainty with improved financial management and risk sharing.
8	<b>Funding</b>	Assess the potential value in creating greater funding certainty for stormwater's asset management plan and greater transparency of service levels and future funding requirements including whether inter-generational equity is optimised.
9	<b>Service delivery</b>	Evaluate the potential value of achieving further efficiencies from shared procurement enabled by a joint Three Waters asset management plan, go-to-market approach and consolidating contracts for suppliers that are shared by Watercare and Healthy Waters.
10	<b>Service delivery</b>	Explore the value of stormwater operations and maintenance being managed by Watercare, using a performance-based contracting approach to achieve further economies of scale from integrating service delivery.
11	<b>Service delivery</b>	Assess the value of consolidating and increasing the enforcement and compliance activities, including the rates of inspections across the three networks, the value of increasing enforcement action, and penalties for non-compliance.
12	<b>Service delivery</b>	Evaluate the provision of shared capital project management and delivery services between Watercare and Healthy Waters.

Note: An improvement opportunity can affect more than one of the S17A review categories of governance, funding and service delivery.

# Three Waters

Value for Money (S17A) Review 2017

OPTIONS ANALYSIS

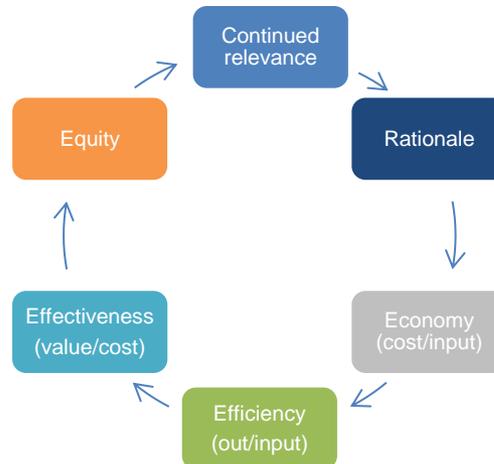
# Approach to options analysis



In this second part of the report we evaluate the ongoing relevance of governance, funding and service delivery arrangements and alternative options.

In the **current state** report we identified a number of improvement opportunities for the Three Waters.

In this second part, we have analysed these opportunities and refined them to identify the action required to deliver the value on the most significant of the improvement opportunities, and to provide orders-of-magnitude estimates.



## Our critical success factors draw on the Better Business Case framework

<b>Strategic fit (strategic case)</b>	Does the option progress the outcomes the council is pursuing, and fit with the council's role?
<b>Value for money (economic case)</b>	Do benefits to Aucklanders exceed costs? Does the option provide: <ul style="list-style-type: none"> <li>• clear accountability</li> <li>• transparency</li> <li>• compatible incentives</li> <li>• risk allocation to where best managed</li> <li>• proportional admin and compliance costs</li> </ul>
<b>Equity (social case)</b>	Does the option promote a strong inclusive and equitable society, and share costs appropriately?
<b>Feasibility (commercial case)</b>	Can the option be commercially viable?
<b>Affordability (financial case)</b>	Do options fit Auckland Council's financial objectives and constraints?
<b>Competency (management case)</b>	Has the council the competencies to execute?

As we assessed the 12 improvement opportunities identified in the current state report, we combined some to arrive at six focused value propositions. We did this where the opportunities were clearly closely related and combined assessment was the most appropriate approach.

For example, the potential benefits of using a special purpose vehicle (SPV) (for the Western Isthmus Water Quality Improvement Programme) are a (large) subset of the estimated potential gains from joint capital project planning and, subsequently, joint procurement opportunities. We acknowledge that an SPV would bring other potential, but unquantified, benefits (such as expert governance and a vehicle for potential third-party co-funding).

### Opportunities

- Three Waters policy and strategy
- Align KPIs
- Independent testing of revenues/assets
- Consolidated environmental regulator
- Engagement with mana whenua
- Three Waters approach in development approvals
- Use a SPV
- Funding certainty and transparency for stormwater assets
- Shared, consolidated procurement
- Combine operations and maintenance
- Consolidate and increase enforcement and compliance activities
- Shared capital project management



### Value propositions

- Three Waters policy and strategy
- Three Waters asset management and capital project planning
- Shared procurement
- Combined Three Waters operations
- Economic regulation
- Consolidated environmental regulation

# Value proposition #1: a Three Waters policy and strategy

IF

... we refresh the 2008 Three Waters strategy, policy and an implementation plan within the next 12 months, to enable a public policy-driven, single set of outcomes (including 'safe swim' and other environmental water quality settings) shared by Auckland Council and Watercare, that have been publicly-debated, politically-endorsed, and fully-costed through the action planning process ...

BY

- Assigning accountability to Auckland Council's Chief Planning Office to facilitate and develop the Three Waters policy, strategy and associated implementation and funding plan with Auckland Council (Healthy Waters, Parks), Watercare and Auckland Transport (noting accountability for funding and group infrastructure planning sits with the Group CFO).
- Production and public consultation, including and specifically with mana whenua, of a Three Waters strategy as an adjunct to:
  - the 30-year infrastructure plan
  - The Unitary Plan (including land use, housing and transport plans)
  - an integrated Three Waters asset management plan
  - the long-term-plan (including the Māori Responsiveness Framework)
  - a three-year procurement category management plan.
- Updating the performance targets for the water organisations, based on consistent and agreed Three Waters outcomes (including clarity on accountabilities and responsibilities across the value chain).

THEN we will achieve:

- A joined-up planning framework that requires Watercare and Healthy Waters to be jointly responsible where needed for Three Waters outcomes, strategies and tactics.
- Improved public involvement and debate on the Three Waters outcomes and policy decisions of economic, social, environmental and cultural significance, including the costs and funding implications.
- Improved Māori outcomes including participation in democracy-through relationship, education, investment participation and shared decision making focus and stronger Māori communities.
- Capital efficiencies, enabled by a holistic view of requirements that leads to avoided capital spend and savings through integrated planning and procurement.
- An integrated view of the funding requirements and mechanisms, a regulatory reset together with the logical framework for any governance changes required to achieve more efficient Three Waters service delivery .

**Net estimate**      **\$60m over 10 years**  
**(PV \$41m)**

**Ease of implementation**      Easy

**Timing**      6-12 months

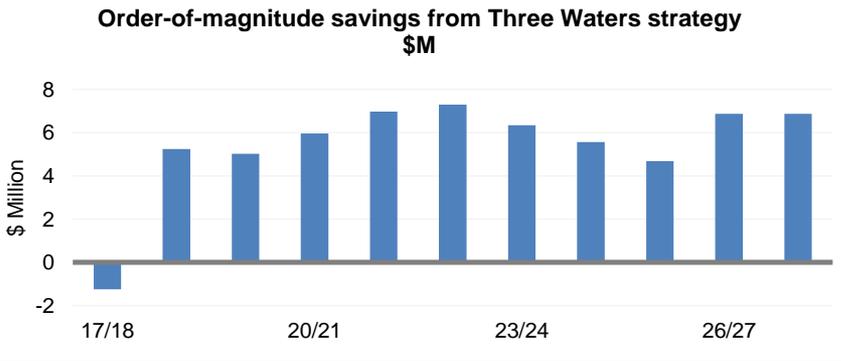
**Overall rating**      Must do

The most value will be delivered from having a Three Waters policy and strategy. Once this is in place, asset planning and decision-making in respect of Three Waters will have a policy setting to respond to.

Assessment	
Criteria	Comment
Strategic fit	Aligns with Auckland Plan directive of an integrated Three Waters plan.
Value for money	Improved value for money will be achieved from: <ul style="list-style-type: none"> <li>shared outcomes and direct saving in capital programme</li> <li>better customer outcomes through clear roles and responsibilities</li> <li>improved environmental outcomes through agreed appropriate standards.</li> </ul>
Equity	Benefits will be shared by all residents.
Feasibility	Option delivers significant positive financial benefit.
Affordability	Development of a strategy is not currently funded. New funding or a reallocation will be required.
Competency	External expertise should support Auckland Council and Watercare staff. Many other cities in New Zealand and overseas have adopted Three Waters strategies.

**Summary of financial costs and benefits**

- Cost of developing a Three Waters strategy: estimated \$1.0 - \$1.5m.
- Benefits from strategy set indicatively at 1% (\$61m) of forecast \$6b combined capital spend to 2027/28, as indicated in published asset management plans.
- Direct cost reductions from greater coherence, and rationalisation.
- Indicative as uncertain, but conservative.
- Unquantified environmental benefits which could be material.



Note: Timing refers to time to start of implementation and potential benefits

## Key risks and constraints

- Consultation for long-term-plan unlikely to include Three Waters strategy due to timeframes.
- No funding is currently allocated for the development of the strategy.
- Forecast benefit is highly uncertain, but conservative.
- Continued reliance on collaborative model of strategy delivery may not deliver the desired outcome.
- Need to ensure Watercare meets its efficient and effective operations obligation by clearly defining cost and funding allocations between water/wastewater and stormwater.
- Misaligned views from interested parties could delay preparation and implementation, raise expectations on outcomes and thus costs.

## Key assumptions

- Council direction and mandate in place for development of strategy and timeline and accountabilities clearly defined.
- Watercare's support is reinforced through s58 and s91 of the Auckland Council Act. The plan would aid Watercare's efficient and effective operations obligation.
- Māori as tangata whenua are an integral part of the strategy development
- The process considers opportunities for Māori investment
- Consultation occurs with the community over outcomes that the strategy is seeking to achieve
- Strategy development re-uses previous work and existing materials and modelling as much as possible to manage time and resource requirements.
- Assume direct gains from strategy of 1% of combined planned capital expenditure. Amalgamation to Auckland Council led to planned capital cost of 20% (Watercare) and 30% (Healthy Waters) not being spent, through more coherent planning and rationalisation. So the assumption of a further 1% is judged conservative. Excludes flow-on benefits of change and initiatives enabled by the strategy.
- Discount rate of 6% used.

# Value proposition #2: consolidated capital planning for the Three Waters asset management plan

**IF**

... we create a combined asset management plan for Three Waters (another \$6bn is planned to be spent by 2027/28 on new assets and maintaining existing ones across the Auckland region) and consolidated the capital procurement planning and management, as a key enabler of the Three Waters strategy,...

**BY**

- Agreeing common service performance levels to measure Three Waters performance.
- Assigning the responsibility for capital project planning to a single centre of excellence.
- Utilising a special purpose vehicle (SPV) for the Western Isthmus Water Quality Improvement Programme, given the \$1.7b funding requirement, as a means to providing focus and managing the significant project risks to the organisations.
- Ensuring certainty of funding for asset management plans to allow effective multi year planning.
- Continuing to test the performance of this centre of excellence with the market.

**THEN** we will achieve:

- Deferred or avoided capital spend of \$61m over 10 years, from taking a joined-up approach to capital development (particularly planning), which will also support procurement opportunity.
- Better integration of the Three Waters organisations which will support joint work on planning and asset development and maintenance.
- Alignment of objectives across the two service delivery organisations and the appropriate focus and approach to risk through the capital development programme.
- Quicker access by the public to better service levels, by accelerating delivery time for the completed works.

**Net estimate**     **\$61m over 10 years (PV \$44m)  
on top of VP1**

**Ease of implementation**     Easy

**Timing**     6-12 months

**Overall rating**     Must do

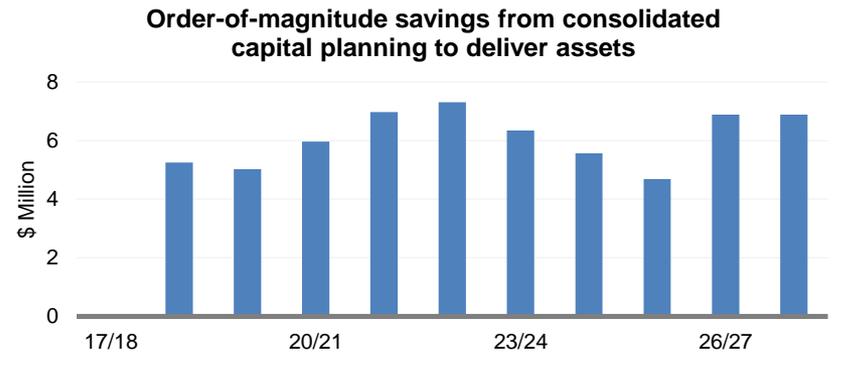
Once a policy and strategy is in place the next logical step is to have a common asset management plan with shared and common service levels and asset performance.

Assessment	
Criteria	Comment
Strategic fit	Key enabler of successful Three Waters strategy implementation.
Value for money	Greatest value is delivered from joined up planning given infrastructure decisions are large and long-term commitments increase transparency.
Equity	Benefits would be shared by all customers/ratepayers.
Feasibility	Relies on clear agreement on financing, contributions and sharing of benefits and risks.
Affordability	Assumed to deliver savings in capital costs over next 10 years with no increase in operating costs.
Competency	<ul style="list-style-type: none"> <li>Competencies generally exist or can be obtained.</li> <li>Will require changes to current ways of working in Auckland Council and Watercare</li> <li>Any SPV would likely be a CCO.</li> </ul>

### Results

#### Summary of financial costs and benefits

- Further benefit (1% indicative) of forecast \$6b combined capital spend to 2027/28, as indicated in published asset management plans, in addition to benefit from developing.
- Excludes value of expected improvements in environmental and wider community outcomes (e.g. safe swim).
- Excludes costs of change.



## Key risks and constraints

- Based on past experience, reliance on a collaborative model is unlikely to deliver outcomes. Clear mandate required with appropriate accountabilities assigned (for example, under s58 and s91 of the Auckland Council Act).
- Watercare's efficient and effective operations obligation means that when assessing proposals for co-ordination and integration of Three Waters services the proposal must assist (or at least be neutral) in keeping the costs of water supply and wastewater services to efficient and effective levels.
- Risk of loss of existing functional excellence in separate planning functions.
- Risk of talent loss through change process.
- Current capital programmes are large and complex, and risk that bundling makes them too complex to deliver.

## Key assumptions

- Council direction and mandate is in place for creation of Three Waters AMP and combined capital delivery plan.
- Strong partnering relationship between the parties.
- Shared procurement between Watercare and Auckland Council supports Watercare's s57 obligation to the extent that it lowers the cost of water supply and wastewater services to consumers.
- Centre of excellence established with appropriate operating model to attract and retain appropriate talent, a customer centric focus and stretch benefit targets.
- Consistent approach to asset lifecycle.
- Research and experience shows most value can be created or lost in the planning phase so Three Waters strategy and asset management plan and capital delivery plans crucial to procurement success.
- Discount rate of 6% used.



# Value proposition #3: joint procurement

IF

... we have shared procurement, based on a joint Three Waters asset management plan (\$6b will be spent in by 2027/28 on new assets and maintaining existing ones), supported by an approach which consolidates contracts for suppliers that are shared by Watercare and Healthy Waters ...

BY

- Agreeing on mandated common procurement categories, suppliers and performance standards.

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- Having a formal agreement between Watercare and Healthy Waters (and potentially Auckland Transport) for:
  - governance with focused, specialist expertise
  - setting expectations for the centre of excellence
  - setting budget allocations and sources of funding
  - procurement processes and decision-rights
  - sharing benefits, costs, and risks
  - the approach to contract management and monitoring
  - clear accountabilities for each party, including after completion of the works.

THEN we will achieve:

- Financial savings in the region of \$166m from taking a single approach to tendering and contract management to get economies of scale and avoid congestion in contracting for scarce professional resources.

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- Integration of the Three Waters organisations which will support joint work on planning and asset development and maintenance.

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- Quicker access by the public to better service levels, by accelerating delivery time for the completed works.

**Net estimate**      **\$166m over 10 years (PV \$119m)**

**Ease of implementation**      Easy

**Timing**      6-12 months

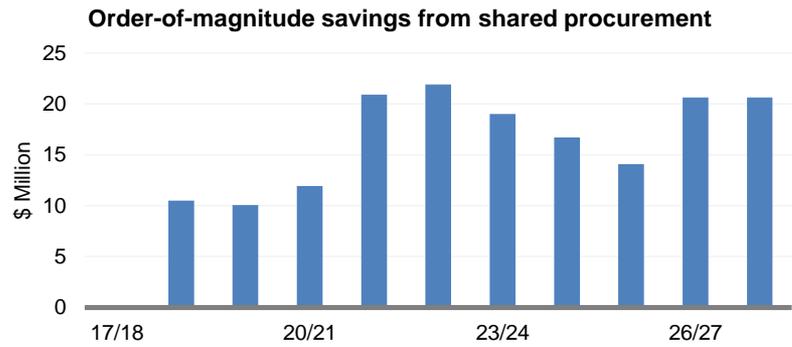
**Overall rating**      Must do

Three delivery options were considered, and the creation of a procurement centre of expertise generates the largest value opportunity. 25% of the current spend is with the same suppliers, giving opportunities to leverage greater benefit from these suppliers.

Assessment	
Criteria	Comment
<b>Strategic fit</b>	Aligns with Auckland Council parent operating model, and Auckland Council strategy of making size matter.
<b>Value for money</b>	Clear accountabilities, incentives and focus increases potential to realise value.
<b>Equity</b>	Should deliver best value to all customers.
<b>Feasibility</b>	Structure will force prior agreement on funding and sharing of benefits, costs and risks.
<b>Affordability</b>	Funded from current budgets. Potential for 15-20% operating cost saving in procurement function after 3 years.
<b>Competency</b>	Competencies for operating a shared services procurement function are different from operating a procurement function but can be obtained.

**Results**  
**Summary of financial costs and benefits**

- Three options were considered – collaborative procurement, group policy or centre of excellence. Most benefit will be realised from creating a centre of excellence.
- Conservative estimate of an additional 2%-3% savings on capital programme once strategy and AMP is in place (based on planned capital spend from published asset management plans).



## Key risks and constraints

- Collaborative models unlikely to deliver outcomes.
- Creation of procurement centre of excellence needs to be supported by a requirement to use.
- Risk of talent loss through change process.
- Risk of resistance to change or later rogue behaviour can erode benefits.
- Watercare's efficient and effective operations obligation means that when assessing proposals for co-ordination and integration of Three Waters services, the proposal must assist (or at least be neutral) in keeping the costs of water supply and wastewater services to customers at efficient and effective levels.
- The role of the procurement centre of excellence in achieving good procurement outcomes must be balanced with the governance responsibilities of Auckland Council and Watercare.

## Key assumptions

- Council direction and mandate in place for creation of a single procurement centre of excellence managing joint contracting for shared suppliers between Watercare and Auckland Council.
- Alignment with the new Auckland Council Group procurement policy.
- To the extent that it lowers the cost of water supply and wastewater services to consumers, there would need to be a good reason to opt out.
- Centre of excellence established with appropriate operating model to attract and retain appropriate talent, a customer centric focus and stretch benefit targets. Right procurement approach required for each opportunity – one size does not necessarily fit all.
- Can proceed in advance of completion of a Three Waters strategy, but will benefit from having this strategy, asset management plan and capital delivery plan in place
- 25% of spend is from same 10 suppliers. Significant procurement benefit has been delivered by Watercare and Auckland Council since amalgamation, but further opportunities exist.
- Discount rate of 6% used.



# Assessment of shared procurement options

Criteria	Collaborative Procurement	Group procurement policies	Procurement Centre of Excellence
<b>Description</b>	Continues the current collaborative approach	The Group Procurement Policy will be successfully implemented	The current procurement teams for the water organisations become a procurement centre of excellence. The structure could be a co-located or virtual team.
<b>Strategic fit</b>	Collaborative procurement activity has not been followed through consistently.	Group policy currently being implemented. Consequence of non-compliance is unclear.	Aligns with Auckland Council parent operating model, and strategy of making size matter & with Watercare's s 57 (1) (a) obligation.
<b>Value for money</b>	In practice, ability to not participate has reduced impact.	Clear expectations to comply raise chances of additional value over status quo, but inconsistent participation remains a risk.	Clear accountabilities, incentives and focus increases potential to realise value.
<b>Equity</b>	Not delivering the best value to customers.	Should deliver improved value to all customers than current position.	Should deliver best value to all customers.
<b>Feasibility</b>	Limited progress since amalgamation suggests inertia or other barriers too great.	Can deliver, if clear agreement on sharing of benefits, costs and risks.	Structure will force prior agreement on funding and sharing of benefits, costs and risks.
<b>Affordability</b>	Model funded in current budgets.	Model funded in current budgets.	Model funded in current budgets. Potential for 15% - 20% operating cost saving in procurement function after 3 years.
<b>Competency</b>	Current competence exists to operate collaborative model.	Current competence exists to operate group policy model.	Competencies for operating a shared services procurement function are different from operating a procurement function but can be obtained.
<b>Net benefit (% of addressable spend)</b>	0% - 2%	0% - 3%	3% - 5%
<b>Ease of implementation</b>	Easy. Model exists currently.	Moderate. Group policies represent new way of working.	Hard. Potential resistance to group shared services concept. Allow \$1m implementation costs.
<b>Timeframe</b>	Model exists currently.	0 - 12 months.	6 - 12 months to implement.

# Value proposition #4: combined operations and maintenance

IF

... Auckland Council contracted the delivery of stormwater operations and maintenance to Watercare, to combine the two operations in order to utilise the economy of scale of aspects of network management, service delivery and asset maintenance operations and to improve the customer experience ...

BY

- The council contracting with Watercare for the operation and maintenance of its stormwater services using a performance based contracting approach, linked to Three Waters strategic outcomes
- Aligning operational performance standards through a contractual mechanism
- Aligning and consolidating network monitoring, service operations and customer care functions

THEN we will achieve:

- Mutually beneficial cost efficiencies and improved service effectiveness from reducing duplication in control room monitoring of the three networks, combining the maintenance work forces and combining procurement with operations and maintenance providers
  - Improved customer service, though a single point of contact, work orders and despatch for all Three Waters-related services and faults
- Potential reductions in connection charges and better co-ordination in the delivery of grey water and irrigation systems. and schemes

**Case study example :** Wellington Water utilises a shared services approach and performance based contracting with participating councils for delivery. Manukau City Council contracted operations and maintenance of stormwater to Manukau Water. Manukau Water operated stormwater and wastewater as a combined business unit and achieved savings in operations and maintenance. Asset ownership and asset management planning remained with the council and Manukau Water received a management fee and performance was measure via a service level agreement.

<b>Net estimate</b>	<b>Mid-point estimate of \$13.5m over 10 years (NPV \$10m)</b>
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<b>Ease of implementation</b>	Moderate
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<b>Timing</b>	From 2019
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<b>Overall rating</b>	Should do
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Opportunity exists to align operations and maintenance of wastewater and stormwater when contracts are renewed in 2019. Watercare have adopted an insource / outsource model to maintain tension in the market and to improve their specification of external services.

Assessment	
Criteria	Comment
<b>Strategic fit</b>	<ul style="list-style-type: none"> <li>Aligns with Three Waters strategy.</li> <li>Sufficient funding would need to be provided by the council together with clear expectations.</li> </ul>
<b>Value for money</b>	Best potential value for money option.
<b>Equity</b>	Equitable to ratepayers.
<b>Feasibility</b>	Feasible to implement.
<b>Affordability</b>	Improves affordability.
<b>Competency</b>	Resource and expertise exist and this option leverages Watercare capability in certain areas.

## Results

### Summary of financial costs and benefits

- Combined maintenance costs of approx. \$600m over next 10 years.
- Potential savings of 5% to 10% per annum of stormwater operations and maintenance cost when contracts renewed in 2019.
- Range \$9-18m, PV of \$6-13m.
- May be short-term opportunity with Downer servicing same geographic area for both Watercare & AC.

	Watercare	Healthy waters
North	Downer	Downer
West	(included in North)	City Parks
Central	In house	Downer
South	City Care	Intergroup

- Customer satisfaction benefits, as single point of contact for all water enquiries gives customer clarity.
- Options could evolve over time. For example, opportunities with Auckland Transport and the demarcation of network maintenance points.

## Key risks and constraints

- Three Waters have many similar components but also many dissimilar aspects, too. Benefits will only be delivered where there is appropriate alignment.
- Cultural fit – the two organisations have distinctly different values and operating styles
- Risk of talent loss through change process
- Watercare’s efficient and effective operations obligation means that when assessing proposals for co-ordination and integration of Three Waters services the proposal must assist (or at least be neutral) in keeping the costs of water supply and wastewater services to customers at efficient and effective levels.
- Clear operating model required as maintenance contractors also perform minor capital works.
- Change process needs to avoid creation of new accountability gaps.

## Key assumptions

- Healthy Waters would retain Healthy Waters (stormwater) policy, planning and design functions .
  - Watercare would achieve cost efficiencies in its current two water operations from the contracting arrangements to aid s57(1)(a) obligations.
  - Clear operating model is in place that outlines accountabilities, roles and responsibilities.
  - Value opportunity is indicative only.
-

# Assessment of key options for combined operations

Criteria	Separate maintenance and operations - Status quo	Management fee to Watercare for managing maintenance and operations	Watercare assume full profit and loss responsibility
<b>Description</b>	Continue separate maintenance and operations.	Certain operations and maintenance would be managed by Watercare on behalf of the council on a management fee basis. These will be key outsourced maintenance contracts	Certain operations maintenance would be managed by Watercare on behalf of the council with Watercare having full P&L responsibility. These will be key outsourced maintenance contracts
<b>Strategic fit</b>	<span style="background-color: red; color: white;">■</span> Poor strategic fit assuming strategy and asset management plans aligned. This is next opportunity in continuum.	<span style="background-color: #90EE90;">■</span> Aligns with Three Waters strategy. Approach has been used in legacy councils (Manukau).	<span style="background-color: #90EE90;">■</span> Aligns with Three Waters strategy. Sufficient funding would need to be provided by the council together with clear expectations.
<b>Value for money</b>	<span style="background-color: #FFD700;">■</span> Value is being delivered but not optimised.	<span style="background-color: #FFD700;">■</span> Improves value for money position.	<span style="background-color: #90EE90;">■</span> Best potential value for money option.
<b>Equity</b>	<span style="background-color: #FFD700;">■</span> Not best value solution.	<span style="background-color: #90EE90;">■</span> Equitable to ratepayers.	<span style="background-color: #90EE90;">■</span> Equitable to ratepayers.
<b>Feasibility</b>	<span style="background-color: #90EE90;">■</span> Currently in operation.	<span style="background-color: #90EE90;">■</span> Feasible to implement.	<span style="background-color: #90EE90;">■</span> Feasible to implement.
<b>Affordability</b>	<span style="background-color: #90EE90;">■</span> Included in existing budgets.	<span style="background-color: #90EE90;">■</span> Improves affordability.	<span style="background-color: #90EE90;">■</span> Improves affordability.
<b>Competency</b>	<span style="background-color: #90EE90;">■</span> Resource and expertise exists and can be contracted.	<span style="background-color: #90EE90;">■</span> Resource and expertise exist and this option leverages Watercare capability in certain areas.	<span style="background-color: #90EE90;">■</span> Resource and expertise exist and this option leverages Watercare capability in certain areas.
<b>Net Benefit \$</b>	\$0 incremental from Three Waters approach.	5% to 10% stormwater maintenance - \$9m to \$18m over two years.	5% to 10% stormwater maintenance - \$9m to \$18m over two years.
<b>Ease of implementation</b>	Currently in operation.	Easy. The council must be clear on outcomes it's expecting.	Moderate. The council must be clear on outcomes it's expecting and provide sufficient funding.
<b>Timeframe</b>	Currently in operation.	6 -12 months	12 months +

# Value proposition #5: economic regulation

IF

... Auckland Council pilots a process to assess the merits of independently monitoring and assessing Three Waters prices and services every few years to ensure these, and the associated asset management plan(s) and funding, are reasonable and adequate, prior to developing a long-term solution ...

BY

- Auckland Council introduces a pilot approach by contracting an independent economic assessment of whether the integrated Three Waters asset management plan, costs and funding plans for Auckland are appropriate, reasonable, and efficient.
- Positioning the Auckland regional 3 waters environment to accommodate central government's review of Three Waters and evaluating the merits or otherwise of a national or regional independent economic water regulator from a piloted approach.
- Requiring Watercare and Healthy Waters to submit and publish, in advance of each financial year, a funding plan that:
  - explains the funding required to deliver on the approved asset plan and service levels
  - shows how the proposed prices, rates components, and charges are calculated, including the impact on pricing of cost-efficiencies (including joint efficiencies)

THEN we will achieve:

- Confidence that the investment in assets the monopoly providers are recommending is at the right level to deliver three water services to Aucklanders, as even small over- or under-investments add up to large welfare losses.
- Increased public transparency and justification of what drives costs of Three Waters services, avoiding the risk of cost+ pricing, and sharpening incentives to be efficient operators.
- Increased transparency and assurance among the water organisations about the appropriateness of the asset base and costs, which will support the sustainability of shared procurement and combined operations.

<b>Net estimate</b>	<b>To be determined</b>
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<b>Ease of implementation</b>	Moderate
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<b>Timing</b>	12 months
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<b>Overall rating</b>	Should do
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The economic regulation of three water services is an important part of oversight of large monopoly providers of public services. Given the size of the two water organisations and the benefits that came from additional scrutiny in other jurisdictions, additional independent assessment of economic efficiency is likely to benefit Aucklanders (to supplement the standard accountability arrangements).

The challenge is not unique to Auckland, and it is one of the issues that ought to be addressed by the government’s review of Three Waters governance and financial management announced in July 2017. Decisions on the long-term approach and form of economic regulation for Auckland should follow that review. But meanwhile, Aucklanders could benefit from an interim assessment of the economic efficiency of Three Waters asset plans, costs, and funding plans, given the significant planned investment over the next 10 years. Prior to amalgamation, Watercare prices were set based on “CPI – x” to reflect anticipated efficiency gains.

Assessment	
Criteria	Comment
Strategic fit	Efficient performance of Three Waters services is core to council purpose.
Value for money	Extensive international evidence that well-designed monitoring of CCO and departmental performance and more transparency will improve performance.
Equity	Benefit should be shared by all customers and ratepayers.
Feasibility	No commercial or legal barriers.
Affordability	A boost of internal resources, and budget to fund support from experts - likely small.
Competency	Aligns with ownership/ performance management role but new skills and methods needed.

Results
Summary of financial costs and benefits
<ul style="list-style-type: none"> <li>• Small efficiency gain on \$250m combined annual operating spend adds up to large benefits to consumers.</li> <li>• For example, a 0.5% gain (efficiencies, reduced operating cost, improved service quality) year-on-year adds to \$46m over 10 years in present value terms.</li> <li>• Allow \$400k-\$500k per annum for three years for this interim function (e.g. regulatory economist on staff plus consulting budget, or contract out).</li> <li>• Assuming year one is set up, and impacts occur in year 2 and 3, then breakeven requires less than 0.5% annual efficiency/consumer value gain.</li> <li>• Use knowledge gained to inform effective input into government review, and decide longer term arrangements.</li> </ul>

## Key risks and constraints

- Requires completion of the Three Waters strategy and policy.
- May not be consistent with the current 'relational model' in place for monitoring and managing CCO performance.
- Risks of unintended consequences to be managed, including that analytical approaches used are overly onerous.
- Need to balance benefit of acting now with cost of introducing a model that may be significantly different than a national model.

## Key assumptions

- That the government review addresses the question of economic regulation. This is not certain, and engagement with policy agencies is recommended. If the review will not address it, proceed with interim solution and seek a long-term solution.
- That there are no significant additional costs for water organisations to participate under the interim solution. This is on the basis that the new requirements involve providing information on, and explaining, existing analysis.
- That Watercare and the council agree extent of regulator's powers and standards under which any regulation is undertaken to assess the efficient and effective obligation.
- That there are potential efficiency and service quality gains, based on
  - an examination of incentives (e.g. NZ Productivity Commission 2017)
  - international evidence on different economic regulatory models of water sector entities (e.g. Australian Productivity Commission, Frontier Economics)
  - local experiences from different models of economic regulation (e.g. SOEs like N.Z. Post, sectors like telecommunications, airports, energy).
- There may be scope to support the objectives with an arms-length complaints mechanism (e.g. ombudsman), which will be considered as part of a future value for money review of customer services functions.

# Value proposition # 6: consolidated environmental regulation

IF

... we combined all the environmental regulatory functions for water into a single operating model by having the council exercise all environmental regulatory powers in relation to all of the Three Waters...

BY

- Consolidating the environmental regulatory functions into the council's Regulatory Services to design and deliver regulation and associated protocols and standards.
- Providing an integrated set of regulations to achieve Three Waters objectives, rather than the current fragmented approach to regulating trade waste, environmental water quality, overflow standards, consent conditions, and building standards.
- Setting coherent public policy for environmental standards (including water quality).
- Providing independence from service delivery functions in regulating for standards and developing protocols such as on use of stormwater, managing run off, wastewater discharge, and achieving amenity and ecological outcomes.
- Introducing a one-stop-shop for enforcement of all the Auckland Council Group's environmental standards and bylaws.

THEN we will achieve:

- An improved focus on ensuring regulation levers are used to influence better environmental, social and cultural outcomes.
- Separation of regulatory and service delivery and monitoring functions improving public confidence that service operations are held accountable for delivery of outcomes, without being subsumed by revenue drivers or standards being compromised.
- Potential resource use and capability improvement benefits from concentrating regulatory expertise in one place and multiskilling the regulatory workforce.

**Net estimate**      **Minor positive financial impacts (ex cost of change)**

**Ease of implementation**      Moderate

**Timing**      12-24 months

**Overall rating**      Should do

On 1 August 2017, Regulatory Services announced a new structure to align regulatory teams, working across the council and CCOs for a smooth end-to-end customer experience. A new Service Level Agreement and codes of practice seek to address some of the problems that have resulted from fragmented regulatory functions.

Further work will be needed to assess whether this will be sufficient to overcome differences in objectives, risk tolerances, and enforcement triggers that have affected service effectiveness and customer experience. A new Three Waters strategy will provide clarity on outcomes and would be a natural starting point to align regulatory settings.

Assessment	
Criteria	Comment
Strategic fit	Consistent with Auckland Plan outcomes.
Value for money	<ul style="list-style-type: none"> <li>Clarifies accountability.</li> <li>Increases effectiveness by linking all regulations to service, environmental and health outcomes.</li> <li>Reduces duplication.</li> </ul>
Equity	Benefits all citizens.
Feasibility	Alignment of existing functions.
Affordability	<ul style="list-style-type: none"> <li>Alignment of existing functions.</li> </ul>
Competency	Core Auckland Council function. Input of Three Waters organisations required.

Results
Summary of financial costs and benefits
<p>We need to do more work to understand the arrangements and how the announced changes may impact.</p> <p>Our next step is to receive and validate data on:</p> <ul style="list-style-type: none"> <li>an estimate of FTEs regulatory (inc enforcement) staff, management and budgets across different departments/organisations in Three Waters</li> <li>a brief description of main activities/functions.</li> </ul> <p>Further consolidation being planned may provide some gains from reduced duplication, but we assume these are relatively small. Increased enforcement focus, to be explored, may add some costs, if found to be beneficial.</p> <p>Qualitatively, the main gains will come from coherent regulatory settings and enforcement, as well as clarity on outcomes, and better customer service.</p>

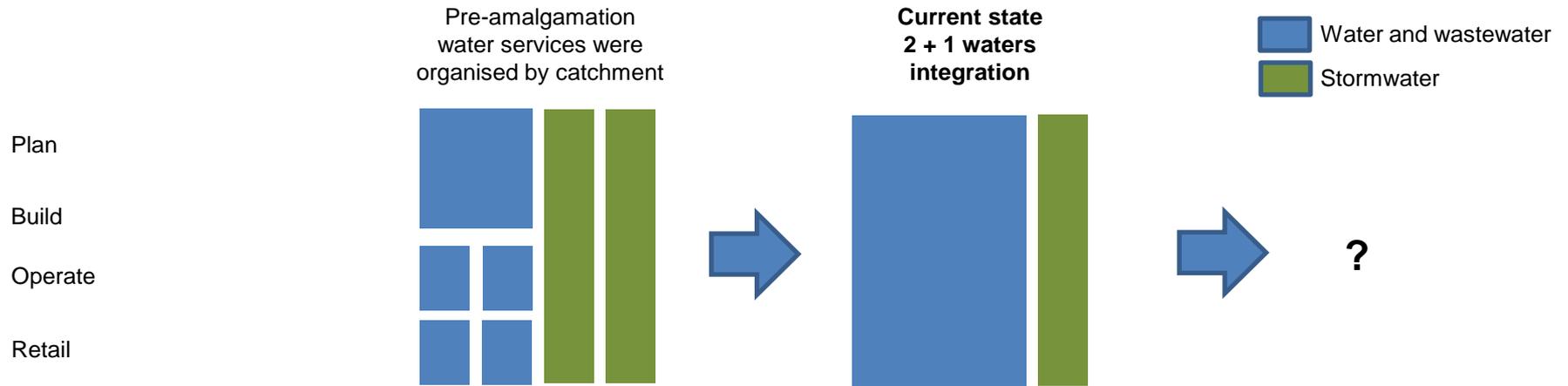
## Key risks and constraints

- Need to maintain high drinking water standards.
- Requires alignment of risk tolerances between Auckland Council and CCOs to inform regulatory standards, design protocols, and triggers for enforcement. This will impact regulatory approval cycle times.
- May require review of bylaws and Unitary Plan. Legislative constraints need assessment.
- The council does not control all relevant environmental regulation; some is the remit of central government.

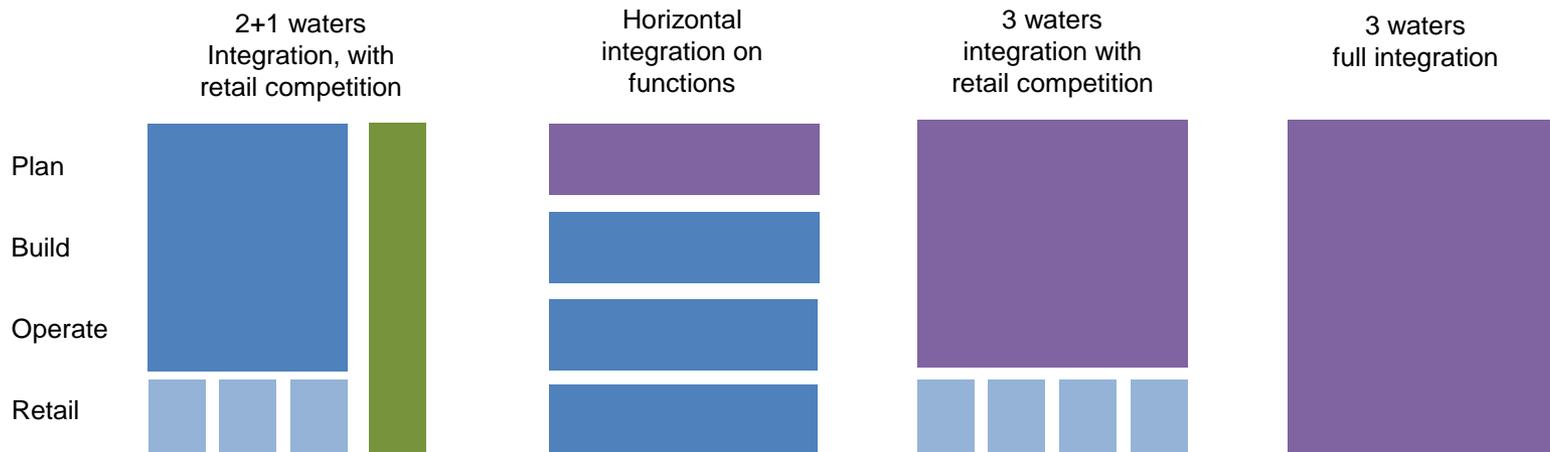
## Further work is to be undertaken on this opportunity

- Receive and analyse data on the scale and scope of the regulatory functions.
- Investigate to understand how SLA and practice protocols are working .
- Improve understanding the nature and size of the problem.
- Confirm progress on plans to improve working across the council three water organisations.

# There are different ways delivery of Three Waters services could be governed, which can be assessed for their value once the strategy is clear



## Some other potential models



# Appendix

# Glossary

Term	Definition
Activity	The goods or services the council provides
Annual Plan (Also known as annual Budget)	The plan that sets out what the council will be working to achieve in a financial year, how it will spend its money, the level of service to be provided, and the level of rates and other revenue required to fund that spending
Asset	An item of value, usually of a physical nature, that has a useful life of more than 12 months and has future economic benefits over a period of time. Infrastructural assets provide the basic facilities, services and installations needed for a community or society to function, such as stormwater drainage pipes. Non-infrastructural assets are the organisation's other assets that provide either administrative or operational functions, such as computer software
AT	Auckland Transport
ATEED	Auckland Tourism, Events and Economic Development
Auckland Council or the council The local government of Auckland established on 1 November 2010	The council is made up of the governing body, 21 local boards, and the council organisation (operational staff) BID Business improvement district Centres Localities identified as urban centres which include the city centre and fringe, metropolitan centres, town centres and local centres. Centres are typically higher density, compact mixed-use environments with high quality public transport links and provide a wide range of community, recreational, social and other activities
COMET COMET Auckland (Community and Education Trust)	Commercial activities Retail, information and communication, finance and insurance, and other service sectors. These sectors typically can afford relatively higher land prices/rents, and locate well in town centres
Council-controlled organisation (CCO)	A company or other entity under the control of local authorities through their shareholding of 50 per cent or more, voting rights of 50 per cent or more, or right to appoint 50 per cent or more of the directors. Some organisations may meet this definition but are exempted as council-controlled organisations
Depreciation	The charge representing consumption or use of an asset, assessed by spreading the asset's value over its estimated economic life. Depreciation includes amortisation of intangible assets unless otherwise stated
Panuku Development Auckland (PDA)	A new CCO combining Waterfront Auckland and ACPL to work as a single outward facing entity in the development of the region
Development contributions	Contributions from developers, collected to help fund new infrastructure required by growth, as set out in the Local Government Act 2002. This can be a financial contribution or provision of services or an asset of the same value
Governing Body	The governing body is made up of the mayor and 20 councillors. It shares its responsibility for decision-making with the local boards. The governing body focuses on the big picture and on Auckland-wide strategic decisions. Because each ward may vary in population, some wards have more than one councillor
Grants and subsidies	Revenue received from an external agency to help fund an activity or service that the council provides

Term	Definition
Household	One or more people usually resident in the same dwelling, who share living facilities. A household can contain one or more families or no families at all. A household that does not contain a family nucleus could contain unrelated people, related people, or could simply be a person living alone
Gross operating expenditure	Total without deductions of depreciation and finance costs
Infrastructure	The fixed, long-lived structures that facilitate the production of goods and services and underpin many aspects of quality of life. Infrastructure refers to physical networks, principally transport, water, energy, and communications
Long-term Plan or the LTP (Also known as the 10-year budget)	This document sets out the council's vision, activities, projects, policies, and budgets for a 10-year period. Also commonly referred to as the LTP, the 10-year budget
Local boards	There are 21 local boards which share responsibility for decision-making with the governing body. They represent their local communities and make decisions on local issues, activities and facilities
Local Government Act 2002 (LGA 2002)	Legislation that defines the powers and responsibilities of territorial local authorities such as Auckland Council
Local Government (Rating) Act 2002 (LGRA)	Defines how territorial local authorities such as Auckland Council can assess and apply their rating policy
Rates	A charge against the property to help fund services and assets that the council provides
Targeted rates	A targeted rate is a rate set to fund activities where greater transparency in funding is desired or where the council considers the cost should be met by particular groups of ratepayers, as they will be the prime beneficiaries of the activity
Value for Money (VFM)	Using resources effectively, economically, and without waste, with due regard for the total costs and benefits of an arrangement, and its contribution to the outcomes the entity is trying to achieve
Waste	Any matter, whether liquid, gas or solid, which is discharged, unwanted or discarded by the current generator or owner as having little or no economic value, and which may include materials that can be reused, recycled or recovered
Watercare	Watercare Services Limited
WMMP	Waste Management and Minimisation Plan, the first Auckland-wide plan, aiming at an aspirational goal of Zero Waste, helping people to minimise their waste and create economic opportunities in doing so
WMF Waste Minimisation Fund	The purpose of the Waste Minimisation Fund is to boost New Zealand's performance in waste minimisation.

# Footnotes

1. Auckland Council, [http://infocouncil.aucklandcouncil.govt.nz/Open/2017/03/FIN\\_20170321\\_AGN\\_6792\\_AT.PDF](http://infocouncil.aucklandcouncil.govt.nz/Open/2017/03/FIN_20170321_AGN_6792_AT.PDF), page 173
2. Melbourne Water, <https://www.melbournewater.com.au/whatwedo/liveability-and-environment/integrated-water-management/pages/integrated-water-management.aspx>
3. Auckland Council Annual Report 2016, Watercare Annual Report 2016, Auckland Council Stormwater Asset Management Plan 2015, Watercare Asset Management Plan 2016, Auckland Council Long Term Plan 2015 – 2025
4. Co-operative Research Centre for Water Sensitive Cities, Benchmarking Auckland Councils Stormwater management practices against the water sensitive cities framework, 2014, figure adopted from Brown 2009
5. Three Waters International Case studies, Auckland Council research department, 2017
6. Three Waters 2008 Strategic Plan, Auckland local government organisations, 2008

# References

The following sources of information informed our reviews:

- 25 Year journey of UK water industry economic regulation – lessons for New Zealand, Tonkin and Taylor, 2015
- Alternative Sources of Financing, EY, 2015
- Asset management benchmarking report, Water services association of Australia, 2015, 2016
- Australia's urban water sector, Productivity Commission, 2011
- Auckland Council Annual Report 2011, 2012, 2013, 2014, 2015, 2016
- Auckland Council Long Term Plan 2010-2019, 2015-2025
- Auckland water demand management plan, Watercare, 2013
- Benchmarking Auckland's stormwater management practices against the water sensitive cities framework, Co-operative Research Centre for Water Sensitive Cities, 2014
- Better urban planning, NZ Productivity Commission, 2017
- Case study reports prepared by Auckland Council research unit on the following cities – Brisbane, Sydney, Dublin, Copenhagen, San Francisco, Cape Town.
- Defining economic regulation for the water sector, Castalia, 2005
- Healthy waters business plan, Auckland Council 2017
- Improving economic regulation of urban water, Frontier Economics 2014
- Improving New Zealand's water, wastewater and stormwater sector, Local Government New Zealand, 2015
- Independent review of competition and innovation in water markets, Prof Martin Cave, [www.defra.gov.uk](http://www.defra.gov.uk) 2009
- Innovation and collaboration: future proofing the water industry for customers. Methodology for the Strategic Review of Charges 2021-2027, Water Industry Commission for Scotland
- Melbourne water system strategy (and associated strategies), Melbourne Water, 2017
- National Water Reform – Issues paper, Australian Productivity Commission, 2017
- New business models in the water sector, KPMG, 2016
- New Zealand Infrastructure Plan, NZ Government, 2015
- Resource consent compliance report, Watercare, 2017
- Stormwater asset management plan, Auckland Council, 2015
- Sub-regional Three Waters Strategy, Hamilton, Waipa and Waikato District Councils, 2012
- The Auckland Plan
- The Economic Regulation of the Water Sector, National Audit Office, 2015
- Three Waters final strategic plan, Watercare, 2008
- Water & wastewater asset management plan, Watercare 2013, 2016
- Water: challenges, drivers and solutions, PWC, 2012
- Watercare Services Annual report 2011, 2012, 2013, 2014, 2015, 2016
- Watercare Services Statement of Intent, 2011, 2012, 2013, 2014, 2015, 2016
- Wellington Water Annual Report, 2016

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