

Implementing the National Infrastructure Plan in the Water Industry – A Pilot Study

July 2012



This project, undertaken by PwC and GHD, was facilitated by Water New Zealand and the New Zealand Council for Infrastructure Development.

We would like to acknowledge the Treasury and the BNZ for being study partners. We thank Watercare, Capacity and the Water Services Managers Group for financial support.



Special thanks go to the participating water and wastewater operators: Capacity, Dunedin City Council, Hamilton City Council, New Plymouth District Council, Taupo District Council, Waikato District Council, Waipa District Council and Watercare. South Waikato District Council and the Waikato Regional Council also provided information to develop the assessment framework.

We would also like to thank Local Government New Zealand and INGENIUM for providing commentary on the methodology.



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Dear Murray and Stephen,

We are pleased to provide this report on a new framework to assess the performance of individual water and wastewater operators against the six guiding principles set out in the 2011 National Infrastructure Plan, and the results of a pilot study using this framework. The pilot study, based on Waikato river catchment councils and other benchmark operators, identifies opportunities for improvement.

Our approach to this study was consultative to ensure the engagement of key stakeholders and to provide Water New Zealand, NZCID and the water sector with a platform to progress the ongoing development and improvement of the water industry.

This report is provided in accordance with the terms of our letters of engagement dated 23 November 2011 and 27 February 2012, and is subject to the restrictions set out in Appendix F of this report.

Yours sincerely



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Executive summary

In summary, the study has enhanced the 2011 National Infrastructure Plan industry picture of the urban water and wastewater sector through implementation of individual operator assessments, based on a detailed performance framework endorsed by stakeholders.

This has facilitated the identification of improvement opportunities at both the industry and individual operator level. These include:

- facilitating increased scale and improved strategic focus on the provision of water and wastewater services through measures such as amalgamation, integration, shared service arrangements, and/or single-purpose entities*
- building community understanding of the potential benefits of adoption of volumetric pricing of water as an alternative funding mechanism, a demand management tool, and a tool to improve equity across water users*
- developing aligned national, regional and local standards in the provision of water and wastewater services*
- benchmarking and reporting of performance across the industry*
- reforming the regulatory environment to remove complexity and provide the means to monitor and enforce service standards and delivery*
- developing and adopting best practice in investment appraisal and procurement decision making frameworks*
- implementing risk mitigation strategies to ensure long-term resilience of the water sector.*

Background

The water sector received an unfavourable assessment by Treasury's National Infrastructure Unit (NIU) in their 2011 National Infrastructure Plan (NIP)¹. As a result of this, and in anticipation of a future review of the infrastructure services provided by local government, PwC and GHD were engaged to review the performance and potential opportunities for improvement in local authority water and wastewater operations.

The study required:

- development of an assessment methodology based on the six guiding principles set out in the NIP (the principles)
- an assessment of local authority water and waste operational performance using this methodology, centred on a pilot group of water and wastewater operators.

The pilot grouping of nine operators serves approximately half the country's population and includes a range of types of water and wastewater operators, including relatively small district councils, larger district or city councils, and Watercare.

This study was undertaken in a consultative manner which enabled significant industry participation in both the development of the framework and in the data used in the assessments.

Some of the study elements were subject to data limitations because the council water/wastewater operations are integrated within existing council organisations. In particular, this restricts the ability to assess performance of the Funding Mechanism principle.

The inclusion of Watercare Services Limited (Watercare) and Capacity Infrastructure Services Limited (Capacity), which are council owned and

controlled organisations, provided a useful contrast to the traditional direct council operations.

Scope of pilot study

The assessment methodology, and the pilot study, was limited to assessing urban water and wastewater provision. The NIP assessment also covered stormwater and productive water.

The aim was to develop a detailed assessment methodology which used information available at the operator level to assess the performance of individual operators against the NIP principles.

This approach is based on the notion that 'good performance against the principles' is equivalent to 'good performance'. The principles focus on processes and decision-making, rather than outcomes, and this assessment methodology uses the NIP's implicit assumption that good processes and decision-making lead to good outcomes.

The detailed methodology was developed through workshops and face-to-face consultation meetings with the participating organisations.

This approach facilitated the successful completion of the second stage, which incorporated the actual assessment, analysis and reporting. This report provides:

- the detailed assessment methodology within the context of the NIP principles framework
- an assessment of each participating operator
- an analysis of current performance using the detailed methodology
- identification of areas of improvement, including opportunities to achieve green light status
- recommendations and next steps.

¹ New Zealand Government (2011), *National Infrastructure Plan 2011*.

General findings

A complex picture

The individual scores were better overall than the preceding industry-level assessment in the NIP.

There was considerable variation across individual results, with each operator receiving scores which reflecting a combination of effective performance and further development required.

Table 1. Scores against each principle for pilot study operators, and 2011 NIP scores.

Principles	2011 NIP	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Investment Analysis	Red	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Resilience	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	Yellow	Yellow	Yellow
Funding Mechanisms	Red	Red	Red	Red	Red	Yellow	Red	Red	Red	Red
Accountability and Performance	Yellow	Red	Yellow	Yellow	Red	Green	Yellow	Green	Green	Green
Regulation	Red	Red	Yellow	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Coordination	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green

However, it was evident that there were a number of trends arising, with some operators having better results.

Scale, strategic focus and governance models

There is a clear correlation between an operator's scale and its results. Larger operators scored better than smaller operators. Increased size enables improved strategic focus, specialisation of technical staff, purchasing power and economies of scale.

However, operators involved in shared services arrangements with others were able to achieve some portion of the improved outcomes that could be achieved through larger scale.

Strategic focus on the needs and provision of the water and wastewater services was also found to be an important improvement factor. This enabled specialised operators embedded in council organisations to score improved results.

This focus was more likely to occur in larger operators and single-purpose entities – although some portion of the improved outcomes that can be gained from increased focus can be achieved independently of either of these factors.

Several different governance models are used, ranging from council department, business unit, shared service, CCO asset manager/operator and fully dedicated water utility.

The study found that single-purpose entities have a greater degree of strategic focus. Governance models that enabled inter-council sharing or integration provided leverage for both scale and strategic focus. These models also provided greater opportunities for funding network infrastructure in smaller townships, which are subject to affordability challenges.

However while shared service arrangements can achieve many benefits, they cannot fully replicate the benefits of an amalgamated water operators.

Inhibitors of good performance

The study identified a number of factors that inhibited good performance. Resolution would require a combination of both local and national responses.

Operators are 'takers' rather than imposers of regulation. As a result, scores for this principle across the operators were more a reflection of the national regulatory framework than their individual performance.

All the operators currently suffer from a disparate regulatory environment, with regulations spread across a range of central and regional agencies, often with conflicting priorities. The largely unfavourable scores for the regulation principle reflect the complex, inconsistent and poorly executed national regulatory framework.

The study suggests that larger organisations were better able to respond to regulatory directives, but that regulatory problems were present for operators of all scales and governance models.

RMA consenting processes are observed by operators as very expensive and time consuming, particularly given that each consent stands on its own merits despite a high degree of commonality across many consents.

The ongoing requirement for operators to upgrade water and wastewater systems continues to create affordability challenges in small districts which

cannot spread costs across wider networks. This is partly the result of quality standards being set nationally without consideration of the cost of achieving them. The lack of flexibility of the national quality standards inhibits local solutions.

Community resistance to change is inhibiting many operators from implementing changes to governance arrangements and funding mechanisms. Slow progress is being made in considering alternative funding tools to alleviate affordability issues.

A number of the operators have difficulty understanding the risks, vulnerabilities and condition of their networks. This is generally due to a lack of strategic focus.

Improvement opportunities

The additional level of granularity provided by the pilot study, compared to the NIP assessment, enabled the identification of detailed improvement opportunities at both operator and industry level.

General opportunities

The NIU, in its 2011 NIP, identified three key areas of opportunity to improve urban water infrastructure:

- improved management of urban water assets
- more efficient water use
- an improved and coordinated regulatory environment.

In addition, it outlined that Government was to:

- work with local government to educate water users about the real costs of water
- educate users on the importance of volumetric charging from a resource rationalisation perspective

- facilitate the sharing of best practice and procurement asset management and infrastructure funding
- identify cross-sector alternate methods for long term procurement
- work with local government to improve asset management capability
- in the regulatory and policy environment:
 - seek to reduce compliance and transaction costs
 - collaborate to establish a consistent and clear decision-making framework between the levels of government
 - establish a common platform for reporting nationally against ‘three waters’ infrastructure
 - continue to work on the best means of regulating and seeking compliance with drinking water quality standards.

The results of the pilot study reinforce the need for central and local government to progress these opportunities. However the study also highlights that more fundamental change will be required to improve the performance of this sector in the short to medium term. In particular, there is a need to:

- consider and address the issue of scale and resources, which is a problem that cannot be addressed by the smaller operators unless they commit to cross border integration via joint CCOs or similar
- provide a mandate for operators to move toward modern utility governance structures
- actively promote the implementation of wider funding mechanisms including volumetric charging where it makes sense to do so
- utilise the proposed review of regulation arising from the Better Local Government programme to rationalise the current disparate national regulatory framework.

Specific opportunities

At a detailed principle level, opportunities have been identified to improve individual scores.

Investment analysis

Utilisation of enhanced investment analysis will provide a better understanding of the wider economic benefits of proposed expenditures in addition to more robust cost benefit assessment. Operator scale influences the ability and extent to which analysis can be successfully implemented.

There was very limited consideration of other infrastructure funding opportunities such as public private partnerships (PPPs). This was due to multiple factors, including lack of project scale, regulatory requirements, and lack of political appetite.

Recommendations related to this principle are to:

- actively consider different ownership structures
- implement robust demand forecast processing
- adopt greater consideration of asset lives during AMP appraisal processes
- better understand the value of reduced levels of service.

Resilience

Hazards and risks are generally well understood, but there is some work to do in the area of mitigations for these risks.

Recommendations related to this principle are to:

- implement comprehensive asset assessment in terms of natural hazards and vulnerabilities
- undertake more work in the area of network duplication and redundancy

- formalise contingency plans for power outages.

Funding mechanisms

Subject to some limited exceptions, there is a high dependency on rates. This provides weak signals to the economic use of water and wastewater assets. Scale of project size was an issue in considering broader funding mechanisms.

Recommendations related to this principle are to:

- put in place improvement programmes for the implementation of capital works budgets as outlined in the annual and long term plans
- review and refine the cost and revenue equations for water and wastewater
- consider the wider range of funding tools available, including volumetric metering, where it makes sense to do so.

Accountability and performance

Generally operators had performance indicator frameworks in place. A number were involved in external benchmarking activities. It was not evident however, that these were being used as a driver to continually review assets as a means of improving investment and service deliver outcomes.

Recommendations related to this principle are to:

- develop a focused set of KPIs to drive performance improvement
- undertake robust condition assessments within the context of the asset management plan reviews
- consider where appropriate other governance models for the operation of water and wastewater services
- implement a consistent reporting framework that is comparable across operators.

Regulation

Operators have limited opportunity to influence the regulatory framework under which they operate, for the betterment of their operations and service delivery. Shared or integrated arrangements can mitigate some of the variability and apparent lack of affordability of compliance costs evident for smaller operators.

Recommendations related to this principle are to:

- advocate for rationalisation of the current regulatory regime through existing local government and RMA reform processes.

Coordination

While there is room for improvement, infrastructure decisions are generally well coordinated across the operators and are integrated with broader council land-use decisions.

Recommendations related to this principle are to:

- seek further collaboration opportunities with other infrastructure providers.

In summary, the study has fleshed out the NIP industry picture, through an assessment of individual operators based on a detailed performance framework endorsed by stakeholders. This has enabled the identification of opportunities for improvement at both the industry and individual operator level.

Next steps

We have set out above a list of opportunities for achieving improvement in the water and wastewater sector. Some involve improvements by individual operators; others require regulatory and/or governance solutions.

- We recommend that the participating operators utilise the outcomes of their individual assessments to inform their business planning priorities, and provide further direction for current improvement processes (including shared services arrangements).
- We recommend that the findings, and opportunities identified, be incorporated into the infrastructure workstream being established as part of the *Better Local Government* programme.

The findings of this study help industry bodies better understand the nature of performance in the sector.

- We recommend that WNZ, NZCID, LGNZ and INGENIUM use the findings to inform their thinking regarding the potential outcomes for water and wastewater within any proposed council integration that may arise as a result of the *Better Local Government* reform programme.
- We recommend that the NIU use the findings to inform future NIPs, including assessments of the sector's performance and priorities for improvement.

In addition, we support any movement to assess performance across all of New Zealand's water and wastewater operators. We believe that the framework used for this pilot study is appropriate for this purpose. We would expect that details of the methodology may change as part of an evolutionary process, eg due to future refinements to the NIP principles, or additional availability of information such as that relating to the funding mechanisms principle.

LGNZ has expressed a desire to continue to progress a performance assessment of all water and wastewater operators across New Zealand, in conjunction with WNZ and INGENIUM. They have suggested that the methodology used in this report could be used as a basis for this assessment, subject to further refinements of the metrics and criteria. In addition they wish to consider the merits of alternative frameworks with which performance could be assessed (eg frameworks which are not explicitly based on the NIP principles).

There is the potential for an assessment of this type to be used as a regular reporting framework across all water and wastewater operators. In addition to publication of information, there may be opportunities to consider incentivising operators for continuous improvement.

1. Introduction

The water sector received an unfavourable assessment by Treasury's National Infrastructure Unit (NIU) in their 2011 National Infrastructure Plan (NIP). As a result of this, and in anticipation of a future review of the infrastructure services provided by local government, WNZ and NZCID have sought to gain a better understanding of the performance of New Zealand water and wastewater operators. They wished to understand how performance differed across operators, and identify potential opportunities for improvement.

PwC and GHD were engaged to:

- develop a detailed framework for assessing the performance of a water and wastewater operator against the six guiding principles in the NIP
- undertake a pilot study, assessing a subset of operators, using this framework.

In this report, we describe the assessment methodology that we have developed, outline the process followed, and detail the results of the pilot study.

The report proceeds as follows:

- in section 2 we provide background information on the NZ water sector, the NIP assessment, the process we used to develop the assessment framework and the pilot study
- in section 3 we describe the assessment methodology
- in section 4 we present the results of the pilot study
- in section 5 we analyse the results of the pilot study and discuss key findings
- in section 6 we present our recommendations and next steps.

2. Background

2.1. Current provision of water and wastewater

Currently, the delivery of water and wastewater services to New Zealand's households and businesses is the responsibility of the 67 Territorial Local Authorities (TLAs).

Most councils operate vertically integrated systems through in-house teams, but some use slightly different structures.

- Auckland Council provides water and wastewater through its 100% owned council organisation (CO) Watercare Services Limited (Watercare).
- In the Wellington urban area, the Wellington Regional Council provides bulk water to the city councils. Wellington, Hutt and Upper Hutt City Councils contract out the management and operation (including maintenance and retail services) of their water and wastewater businesses to Capacity Infrastructure Services (Capacity), a council controlled organisation (CCO) owned by the Hutt and Wellington City Councils.

Regulation of the provision of water and wastewater services is dispersed across multiple government agencies and regional councils. Water allocation and wastewater discharges are regulated by regional councils via resource consent processes. Drinking water standards are regulated by the Ministry of Health and District Health Boards. Expenditure and pricing is loosely regulated by the councils responsible for service provision through the Local Government Act 2002. A list of these and other entities which regulate water and wastewater provision is provided in Appendix A.

2.2. National Infrastructure Plan assessment

In 2011 the NIU of Treasury published the NIP.² This document included a high level assessment of the current state of five key infrastructure sectors, in the context of six guiding principles for infrastructure development as set out below:

Table 2. The NIP Guiding Principles

Guiding Principle	Good practice description
Investment Analysis	Investment is well analysed and takes sufficient account of potential changes in demand.
Resilience	National infrastructure networks are able to deal with significant disruption and changing circumstances.
Funding Mechanisms	Maintain a consistent and long term commitment to infrastructure funding and utilise a broad range of funding tools.
Accountability and Performance	It is clear who is making decisions, and on what basis, and what outcomes are being sought.
Regulation	Regulation enables investment in infrastructure that is consistent with other principles, and reduces lead times and certainty.
Coordination	Infrastructure decisions are well coordinated across different providers and are sufficiently integrated with decisions about land use.

² This was the second version of this document, following publication of the 2010 National Infrastructure Plan (which did not include an explicit assessment of each sector's performance).

The principles focus on processes and decision-making, rather than outcomes. The NIP assessment was therefore based on the quality of processes and decision-making. The NIP implicitly assumed that good processes and decision-making lead to good outcomes.

The NIP assessed each infrastructure sector against each principle using high-level assessment criteria and a ‘traffic-light’ scoring scale. A sector received a green score on a principle if it “occurs effectively”, an amber score if “occurs but

could be further developed”, and a red score if it “does not occur or is ineffective”. This scoring scale is essentially the same as the RAG (red, amber, green) method commonly used in benchmarking.

Table 3 presents the NIP scores. The water sector (which included water, wastewater, stormwater and productive/rural water) was the worst performer, receiving three red scores and three ambers. All other sectors received at least two green scores and no red scores.

Table 3. National Infrastructure Plan 2011 assessment of the state of infrastructure development across sectors

	Transport	Telecommunications	Energy	Water	Social
Investment Analysis	Amber	Amber	Amber	Red	Amber
Resilience	Green	Green	Amber	Amber	Green
Funding Mechanisms	Green	Green	Green	Red	Amber
Accountability and Performance	Green	Green	Green	Amber	Amber
Regulation	Green	Amber	Green	Red	Green
Coordination	Amber	Green	Amber	Amber	Amber

2.3. Previous recommendations for change

The NIP detailed the state of the water sector, and set out a vision for what it should look like in the future, including six “goals” for water infrastructure. The NIP then set out eight ‘action points’ (across all sectors) which the government committed to, in order to give effect to the vision discussed throughout the plan.

In addition, the Land and Water Forum, a cabinet-instigated initiative, submitted a report in 2010³ which contained 53 recommendations for government. One recommendation was to conduct a review into the potential benefits of rationalising water services. This pilot study provides some evidence of performance correlation which should be included in any comprehensive study of the benefits of rationalisation.

³ Land and Water Forum (2010), *Report of the Land and Water Forum: A Fresh Start for Freshwater*.

There have also been a number of recent initiatives which have altered, or recommended changes to, local government governance arrangements. These include:

- Recent ministerial initiatives, including:
 - the 2011 review of the overall local government system, *Smarter Government, Stronger Communities: towards better local governance and public services*⁴
 - the 2012 *Better Local Government*⁵ reform programme
- The 2010 Auckland governance reforms, including re-organising water services from the legacy Council departments and CCOs into a single vertically integrated regional water utility
 - in this role, Watercare now supplies bulk and retail water and wastewater services to the 1.4 million citizens of the Auckland region
- Several councils or groups of councils, including those in the Wellington, Waikato and Dunedin areas, are currently considering changes to their water services arrangements
- Several councils, groups of councils or community groups, including some in the Wellington and Waikato regions, are currently considering potential council amalgamations under any future *Better Local Government* reforms.

⁴ Office of the Minister of Local Government (2011), *Smarter Government, Stronger Communities: Towards better local governance and public services*, paper presented to the Cabinet Business Committee.

⁵ New Zealand Government (March 2012), *Better Local Government*.

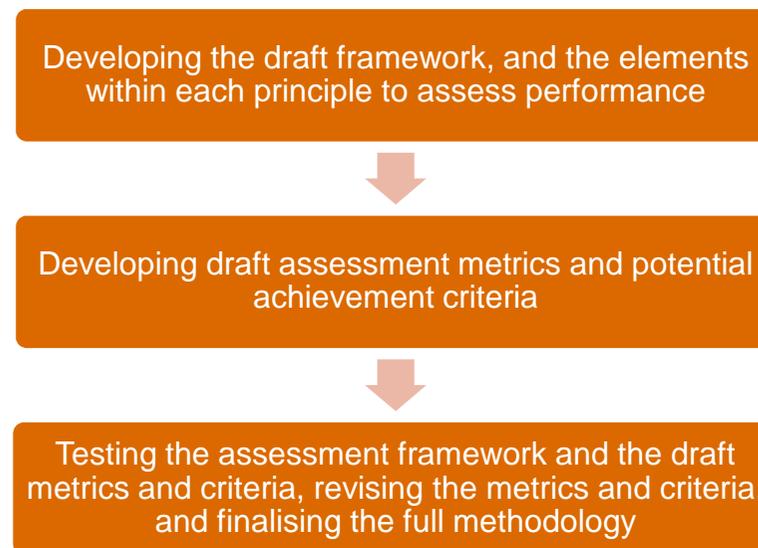
2.4. Development of assessment methodology

Our methodology for assessing the performance of individual water and wastewater operators is based on the NIP principles framework, which was used to assess the water sector as a whole in the NIP.

The objective was to develop a methodology which allowed operator-specific assessments, using a considerably more detailed approach than the high-level NIP assessment, in order to gain a better understanding of operator performance and identify specific improvement opportunities.

We developed the assessment methodology using three key steps. The overall process is outlined below, and in Figure 1.

Figure 1. Our process for developing the assessment framework



The process involved a considerable amount of consultation with the participating operators and various other stakeholders, over multiple steps. The full list of organisations and people we consulted with is provided in Appendix B.

The initial framework

The proposed framework involves assessing several elements within each principle, where the scores for each principle are derived from scores for each element.

Our initial set of draft elements incorporated metrics from existing benchmarking processes, such as those used by WNZ and the Water Services Association of Australia (WSAA), ideas from existing best practice literature, such as Treasury's Better Business Cases guidance, and our own ideas drawn from our experience in the sector.

We discussed the proposed framework and elements with the operators participating in the pilot study – at a workshop in Hamilton with the Waikato-based operators and at a series of individual meetings with the others. We also discussed the overall framework with WNZ and NZCID.

All study participants supported the proposed overall framework of the assessment methodology.

The operators provided a considerable amount of useful information on both the feasibility of assessment and the relevance of the information.

In addition, following this extensive consultation process, we determined that the elements should be phrased in the form of individual questions in order to elicit appropriate information from operators.

Draft metrics and achievement criteria, following further consultation

Following consultation on the framework and elements covered in the assessment, we drafted a set of individual metrics for each principle, each with associated questions for operators and potential achievement criteria.

We discussed our draft metrics and potential achievement criteria with the participating operators in a further workshop and individual meetings. We also consulted with a range of other stakeholders including WNZ, NZCID, Treasury, BNZ, LGNZ and INGENIUM.

The participants were satisfied with the draft metrics, and they provided some useful advice regarding details of the metrics, how questions could be phrased, and the achievement criteria.

There was considerable discussion around the achievement criteria. This ranged from detailed issues to high-level generic issues regarding how 'aspirational' the criteria should be.

Other stakeholder feedback included additional potential metrics.

Following this consultation, we developed a final draft set of metrics to use for the pilot study, which included several suggested by stakeholders. In addition, we adjusted some of the achievement criteria, whilst agreeing that finalisation should be best completed after the information was collected during the pilot study.

Revised metrics and achievement criteria, following the pilot study

Following collection of information for the pilot study, we revised both the metrics and the achievement criteria. Some metrics were unusable in practice, while others were too similar to other metrics. We clarified the achievement criteria substantially, following consideration of the actual behaviours of operators.

We then finalised the assessment methodology which is described in section 3.

2.5. Pilot Study

The pilot study had two purposes:

- To help develop the assessment methodology, by understanding how the draft methodology worked in practice.
- To assess the performance of a subset of strategically chosen operators, to enable us to identify areas for improvement (in advance of any full assessment of performance across all operators).

The participants in the pilot study were a core group of councils situated on the Waikato river catchment, and a set of ‘comparator’ operators from urban areas across New Zealand as listed below.

Table 4. Pilot study participants

Waikato river catchment operators	Comparator operators
Waikato District Council	Watercare ¹
Hamilton City Council	New Plymouth District Council
Waipa District Council	Hutt City Council ²
Taupo District Council	Wellington City Council ²
	Dunedin City Council

Notes: (1) Watercare is owned by Auckland Council, and is the operator across the Auckland region; (2) We interacted with Capacity, a CCO owned by these councils, which provides asset management and operations services under contract.

In addition, we consulted with the Waikato Regional Council (WRC) and Waikato River Authority within the context of the river based grouping. WRC was particularly helpful with information about the performance of regulation. South Waikato District Council assisted in the development of the detailed assessment methodology but was unable to participate in the assessment phase.

3. Assessment methodology

In this section we present the assessment methodology that was developed, and which we used to assess the performance of the operators in the pilot study.

The objective was to develop a methodology which allowed operator-specific assessments, using a considerably more detailed approach than the high-level NIP assessment, in order to gain a better understanding of operator performance and identify specific improvement opportunities. The NIU was supportive of this objective.

The assessment methodology is limited to assessing urban water and wastewater provision. The NIP assessment also covered stormwater and productive water.

3.1. Overview of framework

The NIP assessed the water sector as a whole against each of its six principles, allocating the sector a ‘traffic light’ score for each.

The pilot study methodology allows an assessment of individual water operators against the same principles, and allocation to each operator of a traffic light score for each principle.

At a detailed level, the methodology is based on a set of performance metrics for each principle. This enabled the assessment of operators at the more detailed metric level, compared to the general principle level utilised for the NIP. Traffic light scores are assessed for each metric, and aggregated to derive a traffic light score for each principle.

All metrics utilised are focused on processes and decision-making, consistent with the discussion of the principles in the NIP. The only difference between the two assessments is the inclusion of stormwater and productive water within the NIU assessment.

3.2. Assessment metrics for each principle

In this sub-section we outline the metrics used for each principle. We discuss the extent to which the metrics cover the key elements of the principles as discussed in the NIP.

Consistent with the discussion of the principles in the NIP, our metrics focus on processes and decision-making, rather than actual outcomes. We note that they cover the key elements of the principles in the context of water and wastewater – appropriate metrics for other infrastructure sectors may be different.

These metrics could be refined in the future; for example, as a result of future refinements to the NIP or additional availability of information.

The detailed criteria used to determine scores on the traffic light, and the questions we asked operators in the pilot study in order to elicit the information, are set out in Appendix D and Appendix E.

Investment Analysis

Good performance against the principle of investment analysis is described in the NIP as “*investment is well analysed and takes sufficient account of potential changes in demand.*”

The NIP states that investment should be subject to rigorous analysis and be based on consistent evaluation techniques. It states that investment decisions should consider future demand, building additional capacity and development options into infrastructure, the value of networks, wider economic benefits, and the effects of ownership over the life of the infrastructure.

The metrics that are used to assess performance against this principle are:

1. The methodology used for appraising investments
2. The frequency, and method, of revisions to asset management plans (AMPs)
3. The extent to which different ownership structures are considered for potential new capital investments
4. The process used to forecast water demand
5. The time period used to appraise the costs and benefits of potential capital investments
6. The cost and benefit items included in an appraisal of potential capital investments
7. The basis for decisions to replace existing assets.

These metrics provide a good coverage of the elements of the investment analysis principle.

Resilience

Good performance against the principle of resilience is described in the NIP as “*national infrastructure networks are able to deal with significant disruption and changing circumstances.*”

The NIP states that to improve the resilience of infrastructure networks, there needs to be appropriate design and construction standards, organisations should identify hazards, assess vulnerabilities and plan for emergencies, they should acknowledge the value of adaptability and redundancy, and identify and manage cross-sectoral dependencies.

The metrics that are used to assess performance against this principle are:

1. The design and constructions standards followed
2. The extent of any risk assessment for natural hazards

3. The extent of any assessments of asset/network vulnerability
4. The extent to which key risks are understood and mitigated
5. The extent to which investment in the resilience of the network is considered
6. The elements of a contingency plan for a power outage.

These metrics provide a wide coverage of the elements of the resilience principle.

Funding Mechanisms

Good performance against the principle of funding mechanisms is described in the NIP as “*maintain a consistent and long-term commitment to infrastructure funding and utilise a broad range of funding tools.*”

This description covers two items, and these are the key elements of the detailed discussion of funding mechanisms in the NIP.

The metrics that are used to assess performance against this principle are:

1. The difference between actual capex and planned capex
2. The difference between the costs of service provision and the revenue collected
3. The type of funding tools used to collect revenue
4. The extent to which alternative funding tools are considered.

These metrics cover some, but not all, of the elements of this principle. The inability to obtain robust data from the operators in the pilot study precluded us from including metrics for two important areas:

- the extent to which planned and/or actual capex reflects all cost-beneficial capex
- the level of debt.

While some operators were able to provide data on the level of capex included in early draft AMPs (which we hoped to use as a proxy for the level of cost beneficial capex), the difference in AMP processes between operators made obtaining like-for-like data difficult. In addition, many council-based operators did not allocate their debt across services as a matter of course, and hence it was not possible to obtain robust data on debt levels for the water and wastewater services.

This lack of data restricts our ability to assess performance against the full meaning within the funding NIP mechanism principle. Our assessment methodology therefore only assesses a subset of the important elements of this principle. We hope that future refinements of this methodology may be able to include metrics that cover these issues,

Accountability and Performance

Good performance against the principle of accountability and performance is described in the NIP as “*it is clear who is making decisions and on what basis, and what outcomes are being sought.*”

The NIP states that there needs to be stronger indicators of performance, that there needs to be ongoing reviews of whether assets are fit for purpose and have the best ownership structure, and that there is consideration of the best governance and ownership structures.

The metrics that are used to assess performance against this principle are:

1. The set of KPIs which the operator measures itself against
2. The extent to which benchmarking is used
3. How asset condition assessments are undertaken
4. How criticality assessments are undertaken, and the extent to which a hierarchy of assets by criticality exists
5. The extent to which different operational models are considered.

These metrics provide a good coverage of the elements of the accountability and performance principle.

Regulation

Good performance against the principle of regulation is described in the NIP as “*regulation enables investment in infrastructure that is consistent with other principles, and reduces lead times and uncertainty.*”

The NIP states regulation should ensure that infrastructure is provided at the right time in the right place, balancing short and long-term objectives, and that regulation should allow more streamlined and efficient infrastructure delivery. The NIP includes a lengthy discussion of various items that regulation should aim to achieve.

The metrics that are used to assess performance against this principle are:

1. The extent to which the regulations are understood
2. The achievability of regulations
3. Whether the benefits of regulation exceed the burden
4. Whether regulations are understandable, certain, and predictable
5. Whether regulations allow for innovative solutions
6. Whether regulations recognise the long-term nature of the sector
7. The extent to which regulation helps achieve high quality services
8. The enforcement of regulations.

These metrics provide a good coverage of the elements of the regulation principle. For most of these metrics, the operators themselves have little control over the performance being assessed.

Coordination

Good performance against the principle of investment analysis is described in the NIP as “*infrastructure decisions are well coordinated across different providers and are integrated with decisions about land use.*”

The NIP states that land-use and infrastructure decisions should be coordinated, that different infrastructure sectors should coordinate provision, and that strategic regional plans be used to inform local infrastructure decisions.

The metrics that are used to assess performance against this principle are:

1. The interface between water planners and land-use planners
2. The extent to which water plans recognise regional plans
3. The extent to which operators coordinate with other water operators regarding water use plans
4. The extent to which operators coordinate with other water operators in the delivery of expenditure
5. The extent to which operators collaborate with other infrastructure providers in the delivery of expenditure.

These metrics provide a good coverage of the elements of the coordination principle.

3.3. Scoring and aggregation

Scoring for each metric

We assess performance against each metric using a traffic light scoring system.

Each metric has its own individual achievement criteria, which the scores are based on. That is, for each question is a criterion for each of green, amber and red, which the operator has to meet in order to achieve that score.

For some metrics, there is also a ‘black’ score, where the metric is not applicable. In each case, ‘not applicable’ is described with the other criteria.

The criteria for each question are set out in Appendix D.

Deriving scores for each principle from scores for each metric

It was agreed that scores for each principle would be derived using the following formulae.

If metric scores are weighted as:

Green = 1

Amber = 0.5

Red = 0

Then principle scores are derived as:

Green = average of at least 0.8 across applicable metrics

Amber = average of at least 0.4 across applicable metrics

Red = average of less than 0.4 across applicable metrics

These average scores were deemed appropriate given that they intuitively correspond with the NIP scoring criteria of “occurs effectively”, “occurs but could be improved” and “does not occur effectively”.

Analysis was undertaken on the sensitivity of the results to the '0.8 threshold' used for the achievement of a green score for a principle.

- If the threshold is increased to 0.9, the key difference in results is that five of the nine operators' green scores for the coordination principle become amber – almost all other scores remain the same.
- If the threshold is reduced to 0.7, the key difference is that for four of the nine operators, their amber scores for investment analysis and resilience become green, while for each of funding mechanisms and accountability and performance one operators' amber score becomes green.

The changes were not considered significant and reinforce our view that the 0.8 threshold is reasonable.

4. Results of pilot study

In this section we present the results of the pilot study, where we used the assessment framework to assess the performance of the water and wastewater operators in nine TLA areas.

4.1. Principle-level results

Table 5 presents the scores for each operator against the NIP principles. These scores are determined by the scores achieved for the metrics within each principle. Sub-metrics relating to each principle are contained in Appendix C.

Table 5. Scores against each principle for pilot study operators

Principles	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Investment Analysis	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Resilience	Yellow	Yellow	Yellow	Yellow	Green	Green	Yellow	Yellow	Yellow
Funding Mechanisms	Red	Red	Red	Red	Yellow	Red	Red	Red	Red
Accountability and Performance	Red	Yellow	Yellow	Red	Green	Yellow	Green	Green	Green
Regulation	Red	Yellow	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Coordination	Green	Green	Green	Green	Green	Green	Green	Green	Green

4.2. Metric-level results for each principle

Investment Analysis

Table 6 presents the scores for each operator against the metrics within the investment analysis principle. The criteria used to determine green, amber and red scores are presented in Appendix D.

Table 6. Scores against each metric for the Investment Analysis principle, for pilot study operators

Metrics for Investment Analysis	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for principle	Amber	Amber	Amber	Amber	Green	Amber	Amber	Amber	Amber
Methodology	Amber	Amber	Amber	Green	Green	Green	Green	Green	Amber
AMP revisions	Green	Amber	Amber	Amber	Green	Green	Green	Green	Green
Ownership structure consideration	Red	Red	Red	Red	Amber	Red	Amber	Amber	Red
Demand forecasting process	Amber	Amber	Amber	Amber	Green	Amber	Amber	Amber	Amber
Time period for appraisal	Amber	Green	Green	Green	Green	Amber	Amber	Amber	Amber
Cost & benefits included *	Amber	Amber	Amber	Green	Green	Green	Amber	Amber	Amber
Basis of replacement decisions	Amber	Amber	Green	Green	Green	Green	Green	Green	Green

Note: (*) The score for this metric was derived from scores for sub-metrics. The scores for each sub-metric are shown in Appendix C.

Key matters that we identified include:

- robust approach to business case methodology and asset management planning
- lack of consideration of different ownership structures and funding approaches for capital investments
- variable demand forecasting processes

- lack of consideration regarding the value of reduced levels of service
- good understanding of legislative imperatives.

Resilience

Table 7 presents the scores for each operator against the metrics within the resilience principle. The criteria used to determine green, amber and red scores are presented in Appendix D.

Table 7. Scores against each metric for the Resilience principle, for pilot study operators

Metrics for Resilience	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for principle	Amber	Amber	Amber	Amber	Green	Green	Amber	Amber	Amber
Design & construction standards	Green	Green	Green	Green	Green	Green	Green	Green	Green
Natural hazard risk assessments	Red	Amber	Red	Green	Green	Green	Amber	Amber	Amber
Vulnerability assessments	Red	Amber	Red	Amber	Green	Green	Amber	Amber	Amber
Key risks: understand & mitigation	Red	Amber	Amber	Amber	Green	Green	Green	Green	Amber
Network resilience consideration *	Amber	Amber	Green	Amber	Green	Green	Amber	Green	Amber
Power outage contingency plan	Green	Green	Amber	Amber	Green	Amber	Amber	Amber	Amber

Note: (*) The score for this metric was derived from scores for sub-metrics. The scores for each sub-metric are shown in Appendix C.

Key matters that we identified include:

- high degree of compliance with industry design and construction standards
- significant issues around the degree and extent of assessments relating to natural hazards, vulnerabilities and mitigations
- good consideration of network interruption mitigations including power supply contingencies.

Funding Mechanisms

Table 8 presents the scores for each operator against the metrics within the funding mechanism principle. The criteria used to determine green, amber and red scores are presented in Appendix D.

Table 8. Scores against each metric for the Funding Mechanisms principle, for pilot study operators

Metrics for Funding Mechanisms	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for principle	Red	Red	Red	Red	Amber	Red	Red	Red	Red
Actual vs planned capex *	Red	Red	Red	Amber	Green	Red	Amber	Amber	Amber
Costs vs revenue *	Red	Red	Red	Red	Red	Red	Red	Red	Red
Funding tools used *	Amber	Green	Amber	Red	Green	Amber	Amber	Amber	Red
Consideration of alternative tools *	Green	Amber	Green	Amber	Green	Amber	Red	Red	Amber

Note: (*) The score for this metric was derived from scores for sub-metrics. The scores for each sub-metric are shown in Appendix C.

The funding principle was generally problematic given a number of factors including:

- a high degree of vulnerability in operational and capital expenditure and revenue information
- variations in cost and revenue equations
- lack of progress in pursuing other funding tools due to governance and community resistance, particularly relating to the utilisation of volumetric metering.

Accountability and Performance

Table 9 presents the scores for each operator against the metrics within the performance and accountability principle. The criteria used to determine green, amber and red scores are presented in Appendix D.

Table 9. Scores against each metric for the Performance and Accountability principle, for pilot study operators

Metrics for Performance and Accountability	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for principle	Red	Amber	Amber	Red	Green	Amber	Green	Green	Green
KPIs	Red	Green	Amber	Amber	Green	Amber	Green	Green	Amber
Benchmarking	Amber	Amber	Amber	Red	Green	Amber	Green	Green	Green
Condition assessments	Red	Amber	Amber	Amber	Green	Green	Green	Green	Amber
Criticality assessments & hierarchy	Red	Amber	Amber	Amber	Green	Amber	Green	Green	Green
Operational model consideration *	Amber	Amber	Amber	Red	Green	Green	Green	Green	Green

Note: (*) The score for this metric was derived from scores for sub-metrics. The scores for each sub-metric are shown in Appendix C.

Mixed results were achieved in the accountability and performance area and it was evident that a number of the council operators took a more strategic approach to the provision of water and wastewater services. Findings included:

- some involvement and acceptance of the need to participate in robust benchmarking schemes, including the use of studies beyond that undertaken by Water NZ
- the lack of widespread proactive programmes of criticality and fit-for-purpose assessments of assets
- active consideration of alternative governance models, albeit lack of political will to progress
- lack of consistent and reliable reporting, both within and across the operators.

Regulation

Table 10 presents the scores for each operator against the metrics within the regulation principle. The criteria used to determine green, amber and red scores are presented in Appendix D.

Table 10. Scores against each metric for the Regulation principle, for pilot study operators

Metrics for Regulation	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for principle	Red	Amber	Red	Amber	Amber	Amber	Amber	Amber	Amber
Understanding of regulations	Green	Amber	Amber	Amber	Green	Green	Amber	Amber	Amber
Achievability	Red	Green	Amber	Amber	Green	Amber	Green	Green	Green
Burden vs benefits	Red	Amber	Red	Green	Amber	Amber	Amber	Amber	Amber
Understandability, certainty, predictability	Amber	Amber	Amber	Green	Green	Green	Green	Green	Green
Allowance of innovation	Amber	Amber	Amber	Red	Red	Amber	Amber	Amber	Red
Long-term nature recognised	Red	Red	Red	Red	Red	Red	Red	Red	Red
Help achieve quality	Amber	Amber	Amber	Amber	Amber	Amber	Amber	Amber	Amber
Enforcement	Red	Amber	Red	Amber	Amber	Red	Red	Red	Red

Regulation is widely recognised as a problematic area. The operators themselves are takers of regulation and the regulatory framework itself is highly fragmented across a number of government agencies, regional and unitary councils. This issue has already been identified by the NIU and there is an opportunity to drive change at a government level within the context of current local government and RMA reviews.

Coordination

Table 11 presents the scores for each operator against the metrics within the coordination principle. The criteria used to determine green, amber and red scores are presented in Appendix D.

Table 11. Scores against each metric for the Coordination principle, for pilot study operators

Metrics for Coordination	Waikato DC	Hamilton CC	Waipa DC	Taupo DC	Watercare	New Plymouth DC	Hutt CC	Wellington CC	Dunedin CC
Overall score for principle	Green	Green	Green	Green	Green	Green	Green	Green	Green
Interface with land-use planners	Green	Green	Green	Green	Amber	Green	Green	Green	Green
Recognition of regional plans	Green	Green	Green	Green	Green	Green	Green	Green	Green
Collaboration with other operators on water use plans	Green	Green	Green	Black	Black	Amber	Green	Green	Black
Collaboration with other operators on delivery *	Green	Green	Green	Black	Green	Green	Green	Green	Black
Collaboration with other infrastructure providers	Red	Red	Amber	Amber	Green	Green	Green	Green	Amber

Note: (*) The score for this metric was derived from scores for sub-metrics. The scores for each sub-metric are shown in Appendix C.

'Black' scores mean that the metric was considered 'not applicable' for that operator.

Generally the councils have adequate coordination mechanisms in place for council land use planning, which was a critical coordination principle issue. However, improvement areas highlighted included collaboration with other councils where there was the opportunity for cross-boundary infrastructure and also collaboration with other infrastructure providers such as those in the energy and telecommunications sectors.

5. Analysis of pilot study results

In this section we analyse and discuss the results of the pilot study.

5.1. Overall view of performance

Overall, the performance of the operators in our pilot study is better than the NIP sector wide assessment. This is evident when comparing the operators' scores in Table 5 with the NIP scores in Table 3. This may be due to a combination of factors including the exclusion of stormwater and productive water from our study, and improvements in operators' performance since the NIP was published. We note that many operators demonstrated processes and decision-making which were improving over time.

At the level of individual metrics, there was a large mix of results, showing a very complex picture of differing performance across the operators. All operators received a mix of green, amber and red scores – in many cases, even within a principle. All operators gained at least several green scores across all the metrics, illustrating best practice, despite some receiving relatively poor scores overall. While there were some clear trends across the scores, there were

also some pockets of variance, related to the specific situation of the operator in that area.

The four Waikato-based operators did not perform as well as the five comparator operators. There are several likely factors which drive this difference, which we discuss in section 5.2.

5.2. Features of those operators receiving good scores

Scale and strategic focus

There is a clear correlation between an operator's scale and its results. Larger operators scored better than smaller operators. Table 12 presents the operators' scores for each principle, with the operators ordered by size.

Table 12. Scores against each principle for pilot study operators, ordered by annual costs incurred

Principles	Watercare	Wellington	Hamilton	Dunedin	Hutt	New Plymouth	Taupo	Waipa	Waikato
Investment Analysis	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Resilience	Green	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow
Funding Mechanisms	Yellow	Red	Red	Red	Red	Red	Red	Red	Red
Accountability and Performance	Green	Green	Yellow	Green	Green	Yellow	Red	Yellow	Red
Regulation	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Red	Red
Coordination	Green	Green	Green	Green	Green	Green	Green	Green	Green

The key reason why scores are correlated with scale is that increased scale provides better ability to achieve greater strategic focus on the provision of water services.

The more attention that operators were devoting to water infrastructure generally, the more focused they were across the range of assessment metrics and in implementation of better practice. There are multiple factors which help achieve greater strategic focus. These include increased scale, being a single-purpose-entity, and employment of staff with a dedicated focus on water.

Scale is also useful because it enables the provision of additional resources, enhancing operators' ability to cover all elements of the process of providing water services.

The participating councils used several different governance models. The study found that single-purpose entities have a greater degree of strategic focus. The single purpose operator is able to maximise a range of other benefits including performance, accountability and transparency.

It is possible to have strategic focus without having large scale. For example, New Plymouth achieved scores befitting a much larger organisation, largely through management having a special focus on water.

In addition, shared services arrangements can help achieve some of the benefits typically achieved by greater scale, without integration. The two main examples of shared services in our pilot operators are Capacity and the shared services arrangements between Waikato, Hamilton and Waipa. While these can achieve many benefits, they cannot fully replicate the benefits of an amalgamated water operator.

The ability to share services, and to coordinate and collaborate more generally, is easier for operators which are geographically proximate. For example, the main service areas of the Waikato and Waipa districts are very close to Hamilton city, which provides more opportunities for collaboration. In contrast, the main service areas of Taupo and Dunedin councils are some distance from the main service areas in the adjacent districts.

5.3. Factors inhibiting good performance

The study identified a number of factors that inhibited good performance. Resolution would require a combination of both local and national responses.

Regulation

All the operators currently suffer from a disparate regulatory environment with regulations spread across a range of central and regional agencies, often with conflicting priorities. Given the operators are "takers" of regulation, they have limited opportunity to influence this principle.

Change capability

The majority of operators had proactively sought reform from their governing bodies across a range of improvement areas including governance and funding mechanisms. In many instances they were unable to progress them due to community resistance to change and the political reflection of this.

Affordability

The ongoing requirement for operators to upgrade water and wastewater systems continues to create affordability challenges in small districts which cannot spread costs across a wider network. The Auckland area is an exception where the new integrated Watercare is able to manage the satellite infrastructure in the former rural districts of Franklin and Rodney within its overall network.

Feedback from operators highlighted that this issue is in part the result of quality standards being set by government agencies without consideration of the cost of achieving them or funding required. In many areas, the local community may prefer to receive lower quality services for lower funding requirements. But the current regulatory framework does not allow local communities to consider variations from national standards.

Funding

While in some areas consideration has been given, little progress was evidenced by the councils in terms of the consideration of alternative funding tools as recommended by the NIP. In addition, it was evident there were a number of

issues relating to the robustness of operational and balance sheet financial data able to be produced by a number of operators.

Resilience

A number of the councils have to grapple with infrastructure resilience issues. Given the reluctance to consider other governance and funding models, mitigation of critical areas of risk is more difficult to achieve.

5.4. General operator issues

During the data collection phase, all participants were asked to consider current industry issues. Analysis of these issues highlight that they generally fall into two areas, the first being generic industry-wide, and the other being specific to the smaller operators.

Generic issues

Industry-wide issues include:

- increased funding requirements driven by a combination of factors including:
 - increases in growth
 - increased service levels required under legislation
 - ageing infrastructure
- lack of a coherent approach to national water policy which has led to a highly complex regulatory environment
- the RMA consenting process being very expensive and time consuming, particularly given that each consent stands on its own merits despite a high degree of commonality across many consents
- general demand for increased security of supply as infrastructure issues have become more familiar to the community generally

- requirements for fire service pressure flow upgrades which are costly and are arguably only appropriate for large urban areas
- staff retention given the fragmentation around the industry and also its general lack of profile.

Small operators

Specific issues that relate to the smaller operators included:

- affordability of schemes for small towns
- operation of multiple schemes, making compliance difficult, impractical and involving higher compliance costs
- capacity of smaller councils to allocate resources to all compliance requirements.

Regarding affordability, we note that the provision of water and wastewater involves a series of activities (see Figure 2), each of which can be costly. These activities are often subject to considerable economies of scale, and small towns typically face a higher per-person cost than larger towns and cities.

Figure 2. Water and wastewater activity chain.



Other matters

Other significant matters of concern that were not necessarily shared by all operators, included:

- uncertainty regarding future bulk water sources
- integration of fragmented metropolitan services
- community and elected member technical competency and understanding of strategic issues
- managing conflicts between land development and water use
- lack of flexibility of drinking water, and other quality, standards
- not being able to quantify the economic value of water to guide priorities, particularly between productive and urban water demands.

6. Recommendations and next steps

6.1. Recommendations for improvement

General opportunities

The NIU, in its 2011 NIP, identified three key areas of opportunity to improve urban water infrastructure:

- improved management of urban water assets
- more efficient water use
- an improved and coordinated regulatory environment.

In addition, it outlined that Government was to:

- work with local government to educate water users about the real costs of water
- educate users on the importance of volumetric charging from a resource rationalisation perspective
- facilitate the sharing of best practice and procurement asset management and infrastructure funding
- identify cross-sector alternate methods for long term procurement
- work with local government to improve asset management capability
- in the regulatory and policy environment:
 - seek to reduce compliance and transaction costs
 - collaborate to establish a consistent and clear decision-making framework between the levels of government

- establish a common platform for reporting nationally against 'three waters' infrastructure
- continue to work on the best means of regulating and seeking compliance with drinking water quality standards.

The results of the pilot study reinforce the need for central and local government to progress these opportunities. However the study also highlights that more fundamental change will be required to improve the performance of this sector in the short to medium term. In particular, there is a need to:

- consider and address the issue of scale and resources, which is a problem that cannot be addressed by the smaller operators unless they commit to cross border integration via joint CCOs or similar
- provide a mandate for operators to move toward modern utility governance structures
- actively promote the implementation of wider funding mechanisms including volumetric charging where it makes sense to do so
- utilise the proposed review of regulation arising from the Better Local Government programme to rationalise the current disparate national regulatory framework.

Specific opportunities

At a detailed principle level, opportunities have been identified to improve individual scores.

Investment Analysis

Utilisation of enhanced investment analysis will provide a better understanding of the wider economic benefits of proposed expenditures in addition to more

robust cost benefit assessment. Operator scale influences the ability and extent to which analysis can be successfully implemented.

There was very limited consideration of other infrastructure funding opportunities such as public private partnerships (PPPs). This was due to multiple factors, including lack of project scale, regulatory requirements, and lack of political appetite.

Recommendations related to this principle are to:

- actively consider different ownership structures
- implement robust demand forecast processing
- adopt greater consideration of asset lives during AMP appraisal processes
- better understand the value of reduced levels of service.

Resilience

Hazards and risks are generally well understood, but there is some work to do in the area of mitigations for these risks.

Recommendations related to this principle are to:

- implement comprehensive asset assessment in terms of natural hazards and vulnerabilities
- undertake more work in the area of network duplication and redundancy
- formalise contingency plans for power outages.

Funding Mechanisms

Subject to some limited exceptions, there is a high dependency on rates. This provides weak signals to the economic use of water and wastewater assets. Scale of project size was an issue in considering broader funding mechanisms.

Recommendations related to this principle are to:

- put in place improvement programmes for the implementation of capital works budgets as outlined in the annual and long term plans
- review and refine the cost and revenue equations for water and wastewater
- consider the wider range of funding tools available, including volumetric metering, where it makes sense to do so.

Accountability and Performance

Generally operators had performance indicator frameworks in place. A number were involved in external benchmarking activities. It was not evident however, that these were being used as a driver to continually review assets as a means of improving investment and service deliver outcomes.

Recommendations related to this principle are to:

- develop a focused set of KPIs to drive performance improvement
- undertake robust condition assessments within the context of the asset management plan reviews
- consider where appropriate other governance models for the operation of water and wastewater services
- implement a consistent reporting framework that is comparable across operators.

Regulation

Operators have limited opportunity to influence the regulatory framework under which they operate, for the betterment of their operations and service delivery. Shared or integrated arrangements can mitigate some of the variability and apparent lack of affordability of compliance costs evident for smaller operators.

Recommendations related to this principle are to:

- advocate for rationalisation of the current regulatory regime through existing local government and RMA reform processes.

Coordination

While there is room for improvement, infrastructure decisions are generally well coordinated across the operators and are integrated with broader council land-use decisions.

Recommendations related to this principle are to:

- seek further collaboration opportunities with other infrastructure providers.

Specific initiatives for individual council approval were identified and documented during the analysis phase. These have been provided directly to each operator.

6.2. Next steps

We have set out above a list of opportunities for achieving improvement in the water and wastewater sector. Some involve improvements by individual operators; others require regulatory and/or governance solutions.

- We recommend that the participating operators utilise the outcomes of their individual assessments to inform their business planning priorities, and provide further direction for current improvement processes (including shared services arrangements).
- We recommend that the findings, and opportunities identified, be incorporated into the infrastructure workstream being established as part of the *Better Local Government* programme.

The findings of this study help industry bodies better understand the nature of performance in the sector.

- We recommend that WNZ, NZCID, LGNZ and INGENIUM use the findings to inform their thinking regarding the potential outcomes for water and wastewater within any proposed council integration that may arise as a result of the *Better Local Government* reform programme.
- We recommend that the NIU use the findings to inform future NIPs, including assessments of the sector's performance and priorities for improvement.

In addition, we support any movement to assess performance across all of New Zealand's water and wastewater operators. We believe that the framework used for this pilot study is appropriate for this purpose. We would expect that details of the methodology may change as part of an evolutionary process, eg due to future refinements to the NIP principles, or additional availability of information such as that relating to the funding mechanisms principle.

LGNZ has expressed a desire to continue to progress a performance assessment of all water and wastewater operators across New Zealand, in conjunction with WNZ and INGENIUM. They have suggested that the assessment methodology described in this report could be used as a basis for this assessment, subject to further refinements of the metrics and criteria. In addition, they wish to consider the merits of alternative frameworks with which performance could be assessed (eg frameworks which are not explicitly based on the NIP principles).

There is the potential for an assessment of this type to be used as a regular reporting framework across all water and wastewater operators. In addition to publication of information, there may be opportunities to consider incentivising operators for continuous improvement.

Appendix A : Agencies regulating provision of water and wastewater services

Table 13 lists the government agencies which regulate the provision of water and wastewater services.

Table 13. Agencies regulating the provision of water and wastewater services

Ministry for the Environment
Ministry of Health
District Health Boards
Ministry of Business, Innovation and Employment
Department of Internal Affairs
Regional councils
Unitary councils
Environmental Protection Authority

In addition, the Department of Conservation and the Ministry for Primary Industries are involved in the regulation of water more generally.

Appendix B : Stakeholder engagement

Table 14. Organisations, and their individual participants, who attended meetings to help develop the methodology

Organisation	Representatives	Involvement
BNZ	Ross Campbell	Assisted in funding the study
Capacity *	David Hill, Robert McCrone	Helped develop methodology; provided information for study
Dunedin City Council	John Mackie, Laura McElhone, Graeme Mitchell	Helped develop methodology; provided information for study
Hamilton City Council	Tim Harty, Emily Botje, Emma Klinkhammer	Helped develop methodology; provided information for study
INGENIUM	Board members	Consulted on methodology
Local Government New Zealand	Geoff Swainson	Consulted on methodology
New Plymouth District Council	Anthony Wilson, Brent Manning	Helped develop methodology; provided information for study
New Zealand Council of Infrastructure Development	Stephen Selwood	Helped develop methodology
South Waikato District Council	Andrew Pascoe	Helped develop methodology
Taupo District Council	Ramesh Sharma	Helped develop methodology; provided information for study
The Treasury	Brian Hallinan, Olivia Sullivan	Helped develop methodology
Waikato District Council	Richard Bax, Mervyn Sumanaratne	Helped develop methodology; provided information for study
Waikato Regional Council	Scott Fowlds, David Speirs	Helped develop methodology
Waikato River Authority	Bob Penter	Consulted on methodology
Waipa District Council	Joanne Cumming, Barry Bergin, Lorraine Kendrik	Helped develop methodology; provided information for study
Watercare Services Limited	John Brockies, Myles Lind, Raveen Jaduram	Helped develop methodology; provided information for study
Water New Zealand	Murray Gibb, Peter Whitehouse, Margaret Devlin	Helped develop methodology

Note: (*) Capacity represented Hutt and Wellington City Councils.

Appendix C : Scores for sub-metrics

Several of the metrics have their scores derived from the scores for sub-metrics. The tables below present the scores for these sub-metrics. We note that the method for deriving scores for the metrics from those for sub-metrics is the same as the method for deriving scores for principles from scores for metrics.

Table 15. Scores against the sub-metrics for the “costs and benefits included” metric within the Investment Analysis principle

Sub-metrics	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for “costs & benefits included” metric	Yellow	Yellow	Yellow	Green	Green	Green	Yellow	Yellow	Yellow
Environmental effects	Green	Green	Green	Green	Green	Green	Green	Green	Green
Social effects	Green	Green	Green	Green	Green	Green	Green	Green	Green
Economic development	Green	Red	Yellow	Green	Green	Green	Yellow	Yellow	Yellow
Integration with other sectors	Yellow	Yellow	Yellow	Yellow	Green	Green	Yellow	Yellow	Green
Value of reduced service levels	Red	Red	Red	Yellow	Yellow	Yellow	Yellow	Yellow	Red
Future legislative change	Green	Green	Green	Green	Green	Green	Green	Green	Green

Table 16. Scores against the sub-metrics for the “network resilience consideration” metric within the Resilience principle

Sub-metrics	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for “network resilience consideration” metric	Yellow	Yellow	Green	Yellow	Green	Green	Yellow	Green	Yellow
Duplications and redundancies	Yellow	Yellow	Green	Yellow	Green	Green	Yellow	Green	Yellow
Secondary power supplies	Green	Green	Green	Green	Green	Green	Green	Green	Green

Table 17. Scores against the sub-metrics for the “actual vs planned capex”, “costs vs revenues”, “funding tools used” and “consideration of alternative tools” metrics within the Funding Mechanisms principle

Sub-metrics	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for “actual vs planned capex” metric	Red	Red	Red	Yellow	Green	Red	Yellow	Yellow	Yellow
Water	Red	Yellow	Red	Yellow	Green	Red	Green	Green	Yellow
Wastewater	Red	Red	Red	Yellow	Green	Red	Yellow	Yellow	Yellow
Overall score for “costs vs revenues” metric	Red	Red	Red	Red	Red	Red	Red	Red	Red
Water	Red	Red	Red	Red	Red	Red	Red	Red	Red
Wastewater	Red	Red	Yellow	Red	Red	Red	Red	Red	Red
Overall score for “funding tools used” metric	Yellow	Green	Yellow	Red	Green	Yellow	Yellow	Yellow	Red
Water	Green	Green	Green	Yellow	Green	Green	Yellow	Yellow	Yellow
Wastewater	Red	Green	Red	Red	Green	Yellow	Yellow	Yellow	Red
Overall score for “consideration of alternative tools” metric	Green	Yellow	Green	Yellow	Green	Yellow	Red	Red	Yellow
Metering	Green	Yellow	Green	Yellow	Green	Yellow	Red	Red	Yellow
Volumetric vs fixed charges	Green	Red	Green	Yellow	Green	Yellow	Red	Red	Yellow
User charges vs rates	Green	Red	Green	Yellow	Green	Yellow	Red	Red	Red
Targeted vs general rates	Green	Green	Green	Green	Black	Green	Red	Red	Green
Development contributions policy	Green	Green	Green	Green	Green	Green	Green	Green	Green

Table 18. Scores against the sub-metrics for the “operational model consideration” metric within the Accountability and Performance principle

Sub-metrics	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for “operational model consideration” metric	Yellow	Yellow	Yellow	Red	Green	Green	Green	Green	Green
Governance	Yellow	Yellow	Yellow	Red	Green	Green	Green	Green	Green
Service delivery	Green	Green	Green	Yellow	Green	Green	Green	Green	Green

Table 19. Scores against the sub-metrics for the “collaboration with other operators on delivery” metric within the Collaboration principle

Sub-metrics	Waikato	Hamilton	Waipa	Taupo	Watercare	New Plymouth	Hutt	Wellington	Dunedin
Overall score for “collaboration with other operators on delivery” metric	Green	Green	Green	Black	Green	Green	Green	Green	Black
Governance	Green	Green	Green	Black	Green	Green	Green	Green	Black
Service delivery	Green	Green	Green	Black	Black	Green	Green	Green	Black

Appendix D : Achievement criteria for determining traffic light scores for each metric

The tables in this appendix present the criteria used to set scores for each metric and sub-metric. As discussed in section 2.4, the criteria were developed jointly with the participating councils, study partners, and other stakeholders. For some metrics, we have included additional information to explain why the criteria were selected.

Investment Analysis

Metric	Criteria for green score	Criteria for amber score	Criteria for red score
Methodology	External guidelines	Internal guidelines	Minimal guidelines
AMP revisions	Live, updated at least annually	At least 3 yearly with LTP	Less frequently than 3 years
Ownership structure consideration	Need to have some projects of sufficient scale, and to seriously consider them for each large project	Scale plus some consideration	No scale or no consideration
Demand forecasting process	Have detailed data, and forecasts internally consistent with assumptions (eg demand management)	Limited data, but forecasts internally consistent with assumptions	Internal inconsistencies
Time period for appraisal	Useful lives	Long term where appropriate	Short term
Cost & benefits included			
Environmental effects	Included to a sufficient extent	Included to a limited extent	Not included
Social effects	Included to a sufficient extent	Included to a limited extent	Not included
Economic development	Yes with examples	In general or to some extent	No consideration
Integration with other sectors	Yes with examples	In general or to some extent	No consideration
Value of reduced levels of service	Valued	Qualitative consideration, or only some items considered	Not really considered
Future legislative change	Money spent in advance of requirement	Consideration in advance	Not considered
Basis of replacement decisions	Condition assessment	Some condition assessment, some design life	Design life

Resilience

Metric	Criteria for green score	Criteria for amber score	Criteria for red score
Design & construction standards	No problems; have code of compliance, manual or similar	Some code of compliance or similar, but issues experienced	Inconsistent standards, minimal code of compliance of similar, or significant problems experienced
Natural hazard risk assessments	Most assets assessed for natural hazard risk	Some assets assessed (eg for critical assets)	Minimal understanding of natural hazard risk
Vulnerability assessments	Most assets to a standard	Critical assets	Not even all critical assets
Key risks: understand & mitigation	Well understood and well mitigated	Either (i) well understood but limited mitigation, or (ii) some understanding and some mitigation	Minimal understanding and mitigation
Network resilience consideration			
Duplication & redundancies	Serious consideration	Some consideration	Minimal consideration
Secondary power supplies	Serious consideration	Some consideration	Minimal consideration
Power outage contingency plan	Contingency plan and agreement with Lines Company	Contingency Plan	Limited contingency plan

Funding Mechanisms

Metric	Criteria for green score	Criteria for amber score	Criteria for red score
Actual vs planned capex			
Water	Actual within 10% of budget on average or in total over 3 years, and within 20% in each year	Actual within 20% of budget on average or in total over 3 years	Other
Wastewater	Actual within 10% of budget on average or in total over 3 years, and within 20% in each year	Actual within 20% of budget on average or in total over 3 years	Other
Costs vs revenue			
Water	Revenue between 0-5% above costs, in average or in total over 3 years	Revenue between 5-10% above costs, in average or in total over 3 years	Other
Wastewater	Revenue between 0-5% above costs, in average or in total over 3 years	Revenue between 5-10% above costs, in average or in total over 3 years	Other

Metric	Criteria for green score	Criteria for amber score	Criteria for red score
Funding tools used ¹			
Water	Volumetric charges account for at least 30% of revenue, in total over 3 years	Volumetric charges account for 10-30% of revenue, and targeted rates at least 50%, in total over 3 years	Other
Wastewater	Volumetric charges account for at least 30% of revenue, in total over 3 years	Volumetric charges account for 10-30% of revenue, and targeted rates at least 50%, in total over 3 years	Other
Consideration of alternative tools			
Metering	Full study undertaken, or already universal metering	Some consideration	Minimal consideration
Volumetric vs fixed charges	Full study undertaken	Some consideration	Minimal consideration
User charges vs rates	Full study undertaken, or only user charges used	Some consideration	Minimal consideration
Targeted vs general rates *	Full study undertaken, or all rates targeted	Some consideration	Minimal consideration
Development contributions policy	Yes	Some consideration	No

Note: (*) This metric was deemed 'not applicable' if no rates were used.

(1) The aim of these thresholds is to set objective criteria around our desired behaviour. In essence, to achieve a green score an operator must charge domestic customers volumetrically, at least to some extent, while to achieve an amber score an operator must charge non-domestic customers volumetrically and then use targeted rates to cover most of domestic costs. While the numerical thresholds chosen are somewhat arbitrary, it was decided that objective numerical criteria were preferable to behaviour-based criteria for these metrics. We considered a higher threshold than 30% to achieve a green score, but it was decided that this would unfairly penalise operators who use volumetric charges but consider that using a large fixed charge component alongside a volumetric charge is appropriate.

Accountability and Performance

Metric	Criteria for green score	Criteria for amber score	Criteria for red score
KPIs	8-25 KPIs; In general they enable an assessment of performance; Include at least 5 KPIs related to the following 6 areas: water leakage, water quality, sewer overflows, service interruptions, customer service, cost recovery.	In general they enable an assessment of performance; Include at least 3 KPIs related to the following 6 areas: water leakage, water quality, sewer overflows, service interruptions, customer service, cost recovery.	Other
Benchmarking	Water NZ and something else	Water NZ	Not Water NZ
Condition assessments	Done at least 3 yearly, reflected in LTP, for all critical assets and a sample of others	Some conditional assessment, and linked to LTP	Minimal condition assessment or poor link to LTP
Criticality assessments & hierarchy	Rigorous assessment & documented hierarchy	Informal hierarchy and/or assessment	Minimal assessments
Operational model consideration			
Governance	Formal consideration of external governance options	Some and/or informal consideration of external options	Minimal consideration - eg only considered structure of in-house dept
Service delivery	Formal consideration	Some consideration	Minimal consideration

Regulation

Metric	Criteria for green score	Criteria for amber score	Criteria for red score
Understanding of regulations	Formal identification process, and internal documentation	Intuitive knowledge of main regulations	Limited understanding
Achievability	Yes - need scale to be able to achieve with resources	Yes, but difficult (eg because of limited resources)	Generally not
Burden vs benefits	Yes	To some extent	No
Understandability, certainty, predictability	Yes, understood and predictable	To some extent	No

Metric	Criteria for green score	Criteria for amber score	Criteria for red score
Allowance of innovation	Regional council encourages innovation	Some allowance	Minimal allowance
Long-term nature recognised	Yes	To some extent	No
Help achieve quality	Yes	Partial (eg drinking water is national, but wastewater standards are not)	No
Enforcement	Strong, well-understood, predictable	Mixed (incl prosecution experience)	Inconsistent and uncertain, and/or weak

Coordination

Metric	Criteria for green score	Criteria for amber score	Criteria for red score
Interface with land-use planners	Consistent plans, useful interaction between planners; right throughout planning process	Problematic engagement	Inconsistent planning
Recognition of regional plans	Have a regional water plan and this being followed in AMP	No regional water plan but consistency with District Plan	Inconsistency
Collaboration with other operators on water use plans *	Collaboration with other councils	Limited collaboration	No collaboration
Collaboration with other operators on delivery *			
Capital investments & assets	Extensive collaboration with other providers	Limited collaboration	No collaboration
Operations & maintenance	Extensive collaboration with other providers	Limited collaboration	No collaboration
Collaboration with other infrastructure providers	Extensive attempts at collaboration, with providers both within council and external	Some attempt at collaboration, eg only with providers within council	Minimal collaboration

Note: (*) This metric was deemed 'not applicable' if the geography of the area either doesn't allow collaboration or limits its usefulness.

Appendix E : Questions asked of respondents

Investment Analysis

Metric	Question asked of operators
Methodology	When appraising potential capital investments in your most recent AMP/LTP, did you follow any published guidance or methodologies? If so, please name it/them. If not, please explain why.
AMP revisions	How often do you review your AMP? For example, do you revisit the AMP following preparation of the LTP or annual plans? And if so, is the revised AMP used as an input into annual plans? What are the key drivers for reviewing the AMP?
Ownership structure consideration	When appraising potential capital investments in your most recent AMP/LTP, did you consider the merits of different ownership structures? Examples include: joint ventures with other councils, PPPs, BOOT schemes, and other options involving ownership by entities other than council. <i>If yes, please provide evidence.</i>
Demand forecasting process	Please state and explain the formula used in the most recent AMP/LTP to estimate peak and average volumes of water consumption in future years. <i>Please provide, referencing any sources, inputs to this calculation (e.g. projected population changes).</i>
Time period for appraisal	When appraising potential capital investments in your most recent AMP/LTP, over what period did you consider the future costs and benefits of the investment? Does this differ by investment type? Why did you choose this time period(s)?
Cost & benefits included	When appraising potential capital investments in your most recent AMP/LTP, did you consider/include: <ul style="list-style-type: none">• the value of environmental effects?• the value of social & cultural effects?• the possibilities for economic development, attraction of new investment, and retention of existing industries?• possible integration with networks from other infrastructure sectors?• the value of water restrictions to different customers?• future legislative changes?

Metric**Question asked of operators**

If yes to any, please provide evidence.

Basis of replacement decisions

How is asset replacement decisions made?

Do they utilise condition assessments and/or asset design lives?

Resilience

Metric**Question asked of operators****Design & construction standards**

What design and construction standards will the assets you propose to construct in the next 2 years meet?

Are these standards mandatory?

Who, if anyone, has specified that you have to meet these standards?

Do these standards meet international best practice?

Natural hazard risk assessments

What proportion (by value) of your assets has been recently subjected to a risk assessment for natural hazards?

What risk mitigation measures, if any, have you put in place?

Vulnerability assessments

How often do you assess your network and asset base for vulnerabilities?

Is this assessment carried out to any particular standard, or based on any particular guidance?

Key risks: understand & mitigation

What are your top five risks (by the effect on your ability to provide services)?

For each risk:

- how have you sought to mitigate it?
- how do you plan to respond if it occurs?

Please provide evidence of any discussion/consideration of mitigants. Please provide evidence of any response plan.

Network resilience consideration

When considering potential capital investments prior to your most recent AMP/LTP, did you consider the merits of:

- duplicating any existing assets (e.g. mains/sewers, pumping stations, abstraction points, treatment facilities)?
- providing secondary (back-up) power supplies?

If yes, please provide evidence of any discussion or consideration.

Power outage contingency plan

What processes do you have in place to respond to a significant power outage?

What do you expect would happen in such a case?

What arrangements, if any, do you have with your power suppliers regarding outages?

Funding Mechanisms

Metric	Question asked of operators
Actual vs planned capex	<p>Please provide annual values, over at least the last 3 years, for your actual capex, for both water and wastewater.</p> <p>Please provide annual values, over at least the last 3 years, for the projected capex for both water and wastewater in your annual plans.</p> <p>What % of your planned capital programmes (water and wastewater) did you deliver in each year?</p>
Costs vs revenue	<p>Please provide annual values, over at least the last 3 years, for both water and wastewater, for:</p> <ul style="list-style-type: none">• revenues collected (excludes general rates)• financial costs incurred (i.e. include depreciation & interest costs, not cash capex).
Funding tools used	<p>Please provide, for each of the last 3 years, for both water and wastewater, the proportion of total revenue for that service (excludes general rates) collected through each of the following methods:</p> <ul style="list-style-type: none">• fixed charges• volumetric charges• targeted rates• development contributions• connection/disconnection fees• other external revenue
Consideration of alternative tools	<p>In your most recent LTP, did you consider the merits of any of the following:</p> <ul style="list-style-type: none">• metering domestic customers (unless already fully metered)?• changing the mix of volumetric and fixed charges?• changing the mix of user charges and rates (unless rates not used)?• changing the mix of targeted and general rates (unless rates not used)?• revising the development contributions policy? <p><i>If yes to any, please provide evidence.</i></p>

Accountability and Performance

Metric	Question asked of operators
KPIs	<p>What are your key KPIs for water and wastewater? For each, do you have sufficient information to be able to assess it on a robust basis? <i>Please provide results, for the most recent year, for each of your KPIs.</i> <i>For each KPI, please state whether your result is an actual or an estimate.</i></p>
Benchmarking	<p>Do you undertake benchmarking exercises? Are you a part of external benchmarking exercises/groups (e.g. WSAA, Water NZ)? <i>If yes, please briefly explain what you do in this area.</i></p>
Condition assessments	<p>How frequently do you assess your assets for condition and fitness for purpose? Is the assessment programme linked to your LTP? What proportion of assets do you sample?</p>
Criticality assessments & hierarchy	<p>Do you undertake assessments of asset criticality? How formal is your hierarchy of assets, in terms of criticality? How does your asset management differ by criticality? How often do you re-consider the management of different assets? <i>Please explain any difference between asset types.</i></p>
Operational model consideration	<p>When was the last time you considered the merits of your current operational model, and any potential alternative models, for each of the following:</p> <ul style="list-style-type: none">• the relationship between the ultimate decision-makers of the “water unit” and the council?<ul style="list-style-type: none">○ e.g. in-house council departments, stand-alone council business units, CCOs, and all the associated arrangements• the delivery of construction, maintenance and related services?<ul style="list-style-type: none">○ i.e. who undertakes the work, who they report to, how they are funded○ e.g. in-house provision, sub-contract to external providers• ownership and management of assets?<ul style="list-style-type: none">○ e.g. private ownership, joint ventures, sub-contracted asset management <p><i>Please provide evidence and results of any consideration.</i></p>

Regulation

Metric	Question asked of operators
Understanding of regulations	Name the main parties who you understand regulate your activities. Are each party's specific roles published? If so, where? State any overlaps of regulatory roles as you see them.
Achievability	Are regulations generally achievable in practice?
Burden vs benefits	Is the burden of current regulations proportionate to the benefit achieved from them?
Understandability, certainty, predictability	Are regulations well-understood? Do they provide you with certainty regarding your obligations? Does the regulatory regime provide predictability over time?
Allowance of innovation	Do regulations allow you, or encourage you, to make use of least-cost or innovative approaches to meeting obligations?
Long-term nature recognised	Do regulations: <ul style="list-style-type: none">• recognise the long-term nature of the sector?• encourage the use of long-term investment planning?• encourage consideration of the sustainability of resources?
Help achieve quality	Do regulations: <ul style="list-style-type: none">• encourage the meeting of quality standards?• provide guidance about appropriate quality levels?• promote high-quality products and/or national quality consistency?
Enforcement	What happens if you: <ul style="list-style-type: none">• do not fully comply with drinking water standards?• do not fully comply with all the provisions in a discharge consent?

Coordination

Metric	Question asked of operators
Interface with land-use planners	<p>How is water provision represented in your council's land-use planning?</p> <p>Do the "water/wastewater staff" provide inputs to the land-use planning process, and/or comment on draft land-use plans (e.g. District/Unitary)?</p> <p>How does your most recent AMP/LTP recognise your council's land-use plans?</p> <p><i>Please provide any evidence of how this interface operates.</i></p>
Recognition of regional plans	<p>How does your most recent AMP/LTP recognise the water/wastewater elements of any regional plan?</p> <p><i>If yes, please name the regional plan, state which elements are recognised, and provide evidence of how the AMP/LTP recognises it.</i></p>
Collaboration with other operators on water use plans	<p>Do you collaborate with other councils when developing water use plans?</p> <p>If not, have you recently considered this?</p> <p><i>If yes, please provide evidence.</i></p>
Collaboration with other operators on delivery	<p>When considering potential capital investments prior to your most recent AMP/LTP, did you discuss the possibility of inter-council schemes with other councils?</p> <p>Within the last 3 years, have you considered the merits of coordinating the provision of operational and/or other services with other councils?</p> <p><i>If yes, please provide evidence of any consideration.</i></p>
Collaboration with other infrastructure providers	<p>When preparing your most recent AMP/LTP, did you discuss the possibility of coordinating with other infrastructure providers (including other departments of your council) regarding the provision of:</p> <ul style="list-style-type: none">• capital investments?• the maintenance of existing assets?• operating activities? <p><i>If yes, please provide evidence of any consideration.</i></p>

Appendix F : Restrictions

This report has been prepared for Water New Zealand and the New Zealand Council of Infrastructure Development to detail the results of a pilot study on the performance of water industry operators against the guiding principles set out in the 2011 National Infrastructure Plan. This report has been prepared solely for this purpose and should not be relied upon for any other purpose. We accept no liability to any party should it used for any purpose other than that for which it was prepared.

This report has been prepared solely for use by Water New Zealand and the New Zealand Council of Infrastructure Development and may not be copied or distributed to third parties without our prior written consent.

To the fullest extent permitted by law, PwC accepts no duty of care to any third party in connection with the provision of this report and/or any related information or explanation (together, the “Information”). Accordingly, regardless of the form of action, whether in contract, tort (including without limitation, negligence) or otherwise, and to the extent permitted by applicable law, PwC accepts no liability of any kind to any third party and disclaims all responsibility for the consequences of any third party acting or refraining to act in reliance on the Information.

We have not independently verified the accuracy of information provided to us, and have not conducted any form of audit in respect of any of the participating water operators. Accordingly, we express no opinion on the reliability, accuracy, or completeness of the information provided to us and upon which we have relied.

The statements and opinions expressed herein have been made in good faith, and on the basis that all information relied upon is true and accurate in all material respects, and not misleading by reason of omission or otherwise.

The statements and opinions expressed in this report are based on information available as at the date of the report.

We reserve the right, but will be under no obligation, to review or amend our report, if any additional information, which was in existence on the date of this report, was not brought to our attention, or subsequently comes to light.

This report is issued pursuant to the terms and conditions set out in our letters of engagement dated 23 November 2011 and 27 February 2012.