Asset management and long-term planning:

Learning from audit findings 2015 to 2017

AUDIT NEW ZEALAND
Mana Arotake Aotearoa

Improving performance   Improving public trust

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Foreword

This publication is intended to be a resource for public sector organisations that manage significant infrastructure networks and other asset categories. It targets several audiences, including asset managers and those responsible for managing asset functions, and senior management and governing bodies that have responsibility for making asset-related decisions.

It builds on our similar publication of April 2010. In that publication, we said that good asset management makes an essential contribution to the governance and management of a public entity's business, and is an integral part of an organisation's wider service and financial planning process. That is even more true as our population increases and makes more demands on public services.

Local authorities and other public entities manage significant infrastructural and community assets that are the means by which they deliver most of their critical quality-of-life services to their communities. We are making the most of our unique view across the public sector as we conduct our audits. We want to foster further improvement of asset management in the public sector by sharing our views and examples.

We are confident that the information in this publication will add value and encourage sharing of more good practice examples, as well as lessons learned, between asset managers and public sector organisations.

I want to thank the public sector organisations whose examples are included in this publication. Their willingness to be open and transparent contributes to the effectiveness and efficiency of the public sector.

I also want to thank our Specialist Audit and Assurance Services team, in particular Martin Richardson and Suzanne Merriott, for their work in producing this publication. This reflects their knowledge and expertise in asset management and will continue to be a useful resource in their work to provide advice and assurance to the public sector.

We hope that this publication will be helpful as we all plan for the next major audit of long-term plans and consultation documents in 2018.

Stephen Walker
Executive Director, Audit New Zealand

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Summary and introduction

Audit New Zealand has reviewed the asset management planning of public entities around the country. While many of our findings come from auditing local government, they are relevant to any organisation managing a significant portfolio of assets. This report summarises some of our findings and draws attention to interesting practice, organisations that are doing well, and areas in which the public sector could improve.

It provides some detailed feedback for asset managers, illustrated by our audit findings and case studies of notable practice. It also provides high-level messages for governors, including the ten questions that every senior manager and member of a governing body needs to know the answer to.

Asset management is important but also well supported

Asset management is important because much public service delivery relies on assets. Unless the assets are well managed, the services they support will suffer. Assets are sometimes taken for granted until they fail. Failed assets have social and economic effects on the communities they serve. Assets represent a significant investment by New Zealanders that needs protecting.

Asset management benefits from good quality, and up-to-date standards and guidance. The International Standard ISO 55000 was introduced in 2014, followed by an updated International Infrastructure Management Manual (IIMM) in 2015. Our observations are informed by these standards and guidance. We support and encourage their use.

Our key messages for asset managers

We have reached conclusions and offer suggestions in eight key areas of practice:

1 **Learning** – We analysed our audit findings and have identified examples that we think are notable. Not all of them will be relevant to every situation but they may help stimulate your own thinking. Our conclusions and supporting case studies are presented throughout this report.

2 **Risk** – We expect the sophistication of asset management practices to be informed by risk. However, there appear to be widely differing practices in organisations facing essentially similar challenges. We believe there is greater scope for organisations to learn from each other and share good practice.

3 **The asset management hierarchy** – We expect planning to operate at strategic and operational levels, and for the linkages between them to be clear. We expect planning to be based on a strong foundation of reliable asset information and good quality analysis.

4 Strategic asset management – Infrastructure Strategies and strategic asset management plans mark step changes in the way that planning is documented. We have seen a range of interesting Infrastructure Strategies with ideas that could help cement strategic asset management planning as a valuable layer of the hierarchy.

5 A planned approach to planning – It is important that diverse disciplines are co-ordinated to work well together and that entities take a project-managed approach to planning. However, co-ordination can go beyond the boundaries of a single organisation, with collaboration between similar or neighbouring entities offering potential to overcome shortages of expertise.

6 Data basics – Good quality data is at the heart of effective planning. It allows accurate and informative analysis to help manage risk and facilitate forecasting. It allows trade-offs to be determined with confidence so that the best value whole-of-life strategies can be developed. In our view, more can be done to improve the reliability of asset data and the way it is used.

7 Challenges for smaller entities – We have identified areas where smaller entities consistently seem to struggle. Addressing them would significantly strengthen practice. Most are organisational improvements rather than technical issues – ensuring that policies are clear, governing bodies are well informed, learning from peer review, and adopting a more structured approach to maintaining data.

8 Being prepared – Asset management planning is not for the auditor's benefit – but preparing for accountability can be helpful in its own right. Aiming for clear, concise, consistent, and timely accountability documents is key.

Parts 1 to 8 of this report provide more detail, audit findings, and case studies on each of these issues.

Some questions for governing bodies and senior management

Our work has revealed some messages for governing bodies and senior management, and highlighted the importance of well-informed debate. We believe that there are ten questions that every senior manager and member of a governing body needs to know the answer to:

1 Have you got a strategy for the long-term sustainability of your assets?

2 Have you set an asset management policy?

3 Do you have good quality up-to-date asset management plans for achieving your strategy?

4 Does your organisation have appropriate asset management skills and experience?

5   Do you know the reliability of your asset information?

6   Do you have a structured approach to assessing the condition and performance of your assets?

7   Have you defined a clear and comprehensive set of service levels to be delivered or supported by the assets?

8   How well do you forecast future demand for the services that are delivered or supported by your assets?

9   Do you report, and get reports, on achievement of your asset management plan(s)?

10   Do you have a backlog of repairs, maintenance, and asset renewals? And what are you doing about it?

Part 9 of this report is specifically for governing bodies and senior management, with more detail to help answer these questions.

For Asset Managers

Part 1
Learning from our audit findings

We have reviewed the planning of a wide range of organisations. We have assessed asset-related risk across the public sector, and in 2015 we again specifically audited the long-term planning of local government. We are required to do this by the Local Government Act 2002. We have seen a variety of practice, and noticed some common themes. While a lot of our learning comes from auditing local authorities, it is applicable more widely. The principles are common to any organisation managing or relying on assets to support service delivery.

Our audits show that asset management performance continues to improve. However, there is more that could be done for practice to be fully effective.

In our 2010 publication *Asset management for public entities: Learning from local government examples*, we suggested that the science of asset management may be outpacing the capability of councils to apply it.

An asset management plateau?

Of the organisations we have reviewed over the past few years some have improved, some seem to have gone backward, but the majority have stayed broadly the same.

Within any sample, it is likely that performance in some areas will decline over time, perhaps because of the loss of a key person or a change of priorities. These should be the exceptions. Overcoming setbacks and recovering from shocks should allow performance to bounce back.

Of more concern are the organisations where performance has plateaued. This was an issue we raised in 2010, and it remains an issue today. It would not be a problem if all these organisations were operating at the level of practice appropriate for them. However, this still does not appear to be the case.

Not enough organisations have made a clear policy decision about the level of sophistication that is appropriate. The majority of asset owners can improve some aspects of their planning.

Learning from our audit findings

We analysed the findings from our audits, and have identified examples that we think are notable. These supplement the examples we reported in *Asset management for public entities* back in 2010. While the organisations we use to illustrate our points are predominantly from local government, we include some examples from our work in other sectors. We think these examples demonstrate what is possible no matter the size of the organisation. In fact, for a small organisation with limited resources, learning from others can be a cost-effective way of improving practice.

Part 2
Assessing risk and opportunities for improvement

How do we think about risk and why does it matter to you?

Risk is the effect of uncertainty on objectives. When we assess risk, we consider two angles:

- environmental risk influenced by the type of activities being undertaken, complexity, instability, change, the criticality of services, interdependencies, and reliance on third parties. Size, strategic direction and organisational structure are also important. There is often limited scope to reduce this inherent risk short of ceasing to deliver some services. That is not usually an option for the public sector.
- risk related to the effective application of good practice management systems and processes. This type of risk is more controllable with proper investment in systems and processes.

We assessed asset management risk across the public sector and graphed the results on a 3x3 heat map. This helps show the relationship between inherent and management process risks. We use a simple high, medium, low scale. Stronger systems and processes reduce management risk. We expect organisations with high levels of inherent risk to have stronger management systems, processes, and controls and more sophisticated management approaches to deal with the importance and complexity of their assets. Conversely, for organisations with lower inherent risk, less complex approaches may be appropriate.

The key point is that the management approach needs to match the complexity and importance of the task. There is no ideal approach, but the chosen approach needs to be appropriate.

In Figure 1, each dot represents an organisation – a council, a district health board, a tertiary education institution, etc, showing the levels of inherent and management-related risk we assessed for each.

Figure 1

Our recent asset management risk ratings, showing a range of organisations displayed on our 3x3 heat map
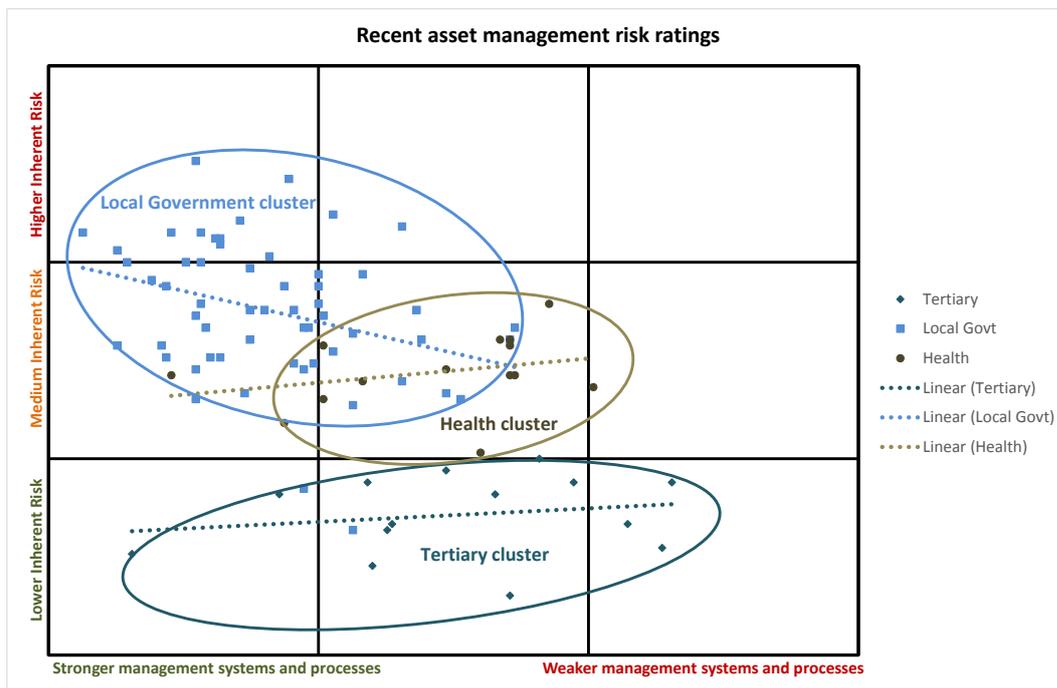
Our heat map allows us to compare sectors, and organisations within sectors. Our work indicates that similar organisations tend to have relatively similar levels of inherent risk. We can see this from the way organisations in the same sector tend to cluster together. Within this clustering, the vertical spread (representing inherent risk) is much less than the horizontal spread (representing management processes).

Of course, there is inherent variation as some councils are larger and more complex than others. However, they are all broadly performing similar functions through a similar asset base. The same goes for the health and tertiary education clusters. Where they differ is in the strength of the asset management systems and processes they have in place to deal with these risks. We expected that the sophistication of asset management approach would be related to the significance and complexity of the task.

The health and tertiary education sectors have lower levels of inherent risk, and so do not need such a sophisticated approach. Nevertheless, the quality of asset management in these sectors varies widely. The trend lines are flat, indicating that there is little relationship between the scale of asset-related risk, and the quality of asset management. This was an unexpected finding.

Local government faces high levels of inherent risk. It manages some of the highest value and most critical assets across the public sector. The sector generally has an approach to asset management that matches its inherent risk, although there is some variability. The trend line illustrates the fact that, as inherent risk increases, so, generally, does the strength of council systems and processes.

From the risk assessments we have completed, we are able to consider the relative levels of risk faced by different types of organisation. We considered whether different council types were associated with greater or lesser risk. In general, our findings show that there is more variability between councils of the same type than there is between types. That said, it is clear that city councils face the highest levels of inherent risk, while regional councils generally have lower inherent risk. Within the district councils, there are a number operating towards the weaker end of the spectrum.

Figure 2

Our recent asset management risk ratings considering differences between large and small local authorities
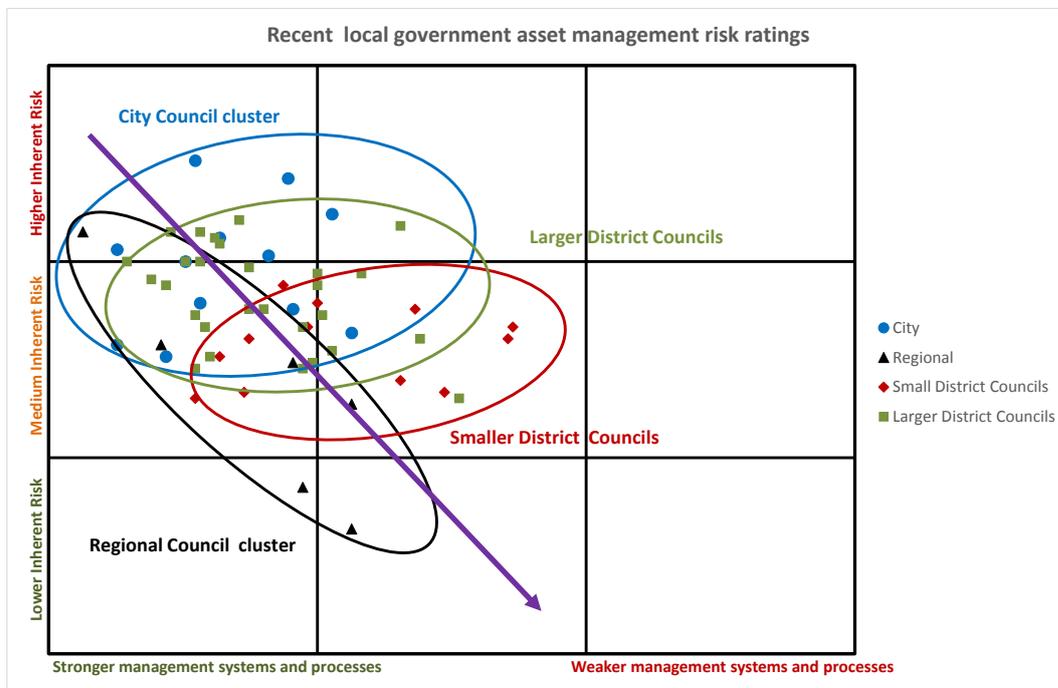
We considered whether there is a difference between risk at large councils compared to smaller ones. Not surprisingly, the level of inherent risk falls as we cascade down the graph from the city council cluster, through the large districts to the small district councils.

We can also see a general "drift to the right" across these three groups, as demonstrated by the purple arrow in Figure 2. Generally speaking, as levels of inherent risk fall it is possible to operate effectively with less formal systems and processes. Reducing asset management risk does not mean small organisations should adopt sophisticated systems unsuited to their challenges. However, we believe that organisations with similar levels of inherent risk, with similar assets bases, facing similar challenges in similar parts of the public sector can learn from organisations similar to themselves.

We have included some thoughts on asset management for small entities in Part 7.

What makes asset ownership inherently risky?

We considered what makes owning, operating, and managing public sector assets inherently risky by asking twelve questions (summarised in Figure 3). Two main factors stood out. They are unlikely to come as a surprise:

- The gross book value of property, plant, and equipment, representing the replacement cost of your assets;
- "critical" assets: those of importance in protecting local and national interests, health and well-being, economic performance, or the natural environment.

Figure 3
Our assessment of the relative extent to which certain factors drive the risk inherent in owning, operating, and managing assets
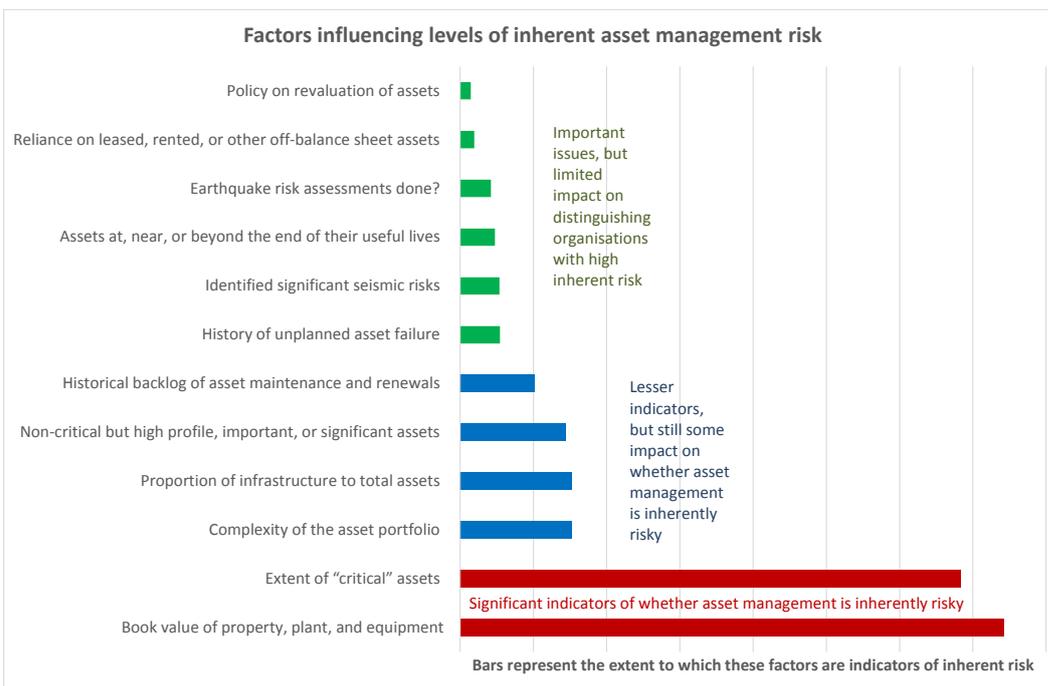
In other words, the more significant the asset base – a combination of its size and importance – the better management it needs.

The extent of these two factors varies by sector, as we would expect, but their relative importance remains constant across all sectors.

The other factors we considered to assess inherent risk did not have a significant influence on the national picture. However, this does not make them unimportant locally. Entities need to consider whether other issues, such as those that we list below, might make having strong asset management practices even more important:

- the complexity of the asset portfolio;
- vulnerability to seismic events, floods, and other natural disasters;
- the numbers of assets at, near, or beyond the end of their useful lives;
- the extent of historical backlog in asset maintenance/renewals work;
- a history of unplanned asset failure; and
- the degree of reliance on leased, rented or other off-balance sheet assets to support service delivery where the significance of these assets is not reflected in your book values.

Where are the opportunities for improvement?

We assessed the risks to effective control of asset management by asking 18 questions about systems and processes.

We distinguished between the systems and processes used to actually manage assets, and factors that give senior managers and governors confidence that assets are being well managed. It is important that senior managers and governors are assured that appropriate systems and processes are in place and operating well. Without this, they will not be well-enough informed to rely on current practice or support investment to improve it.

Across the public sector, we assessed lack of third-party review as the greatest weakness. External review provides assurance to governors that asset management practice is effective. It can challenge the robustness of strategic decisions. It draws on best practice and can bring a new perspective to planning. It also supplements in-house expertise with specialist input.

Other areas where our work indicates there is scope for improvement are shown as amber in Figure 4. The graph shows all 18 areas that we considered, ordered by the room for improvement. The different lengths of bar represent the scope for practice to be strengthened.

Accountability for asset management results is one of the areas for improvement we have identified. It is important to be clear about what has been achieved and what remains to be done. It helps you build support for priorities and confidence in management.

Figure 4

Our recent assessment of the risks in the way assets are managed and the areas of practice with greatest scope for improvement

Risks and opportunities for improving asset management
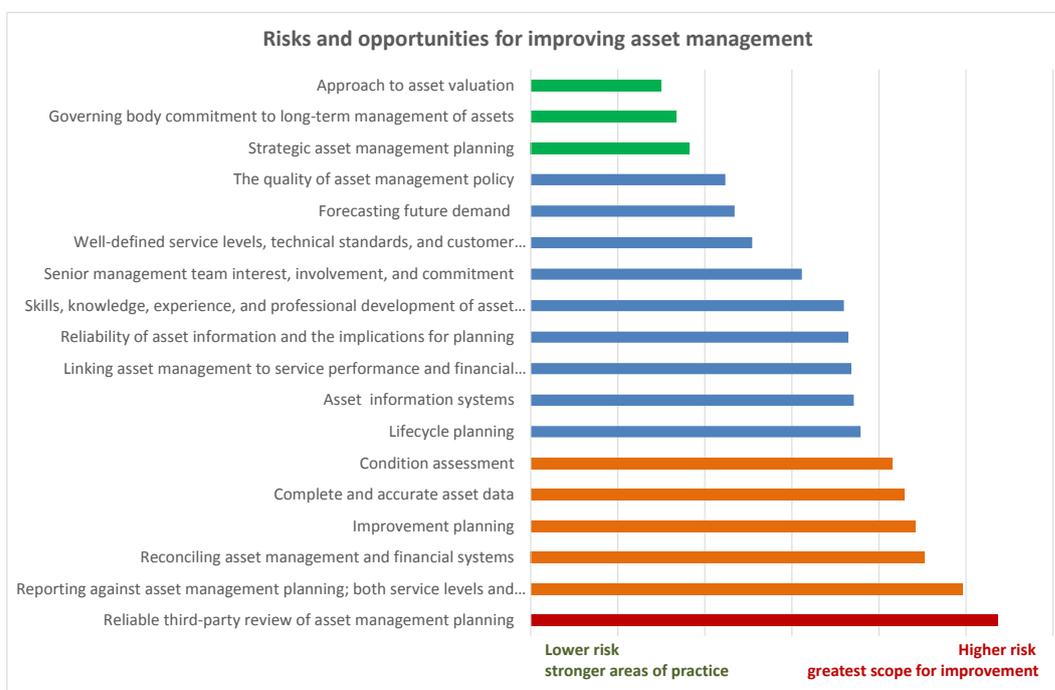
Three of the greatest opportunities for improvement relate to asset information:

- ensuring that there is complete and accurate data on your asset base;

- supplementing basic data with up-to-date assessments of asset condition and performance; and

- making sure that asset data is consistent across systems, so that financial forecasting is accurate and budgets reflect real asset need.

Do priorities vary by sector?

Our work indicates that local government generally has the strongest approach to asset management. That is not to say that every council has stronger systems and processes than entities in other sectors. Some district health boards, central government departments and tertiary education institutions have robust, appropriate asset management, but practices tend to vary more widely across these sectors. Entities in these sectors could learn a lot from their peers with more developed approaches to asset management.

The health sector could strengthen the way it reports achievements against its asset management planning. This should cover:

- progress with planned work;
- actual expenditure against financial forecasts; and
- achievement of planned service levels. This last area seems to be a particular issue.

In the tertiary education sector, we identified scope for the asset management planning process to be strengthened:

- regularly updating asset management plans to make sure that they cover the whole life cycle of the assets;
- getting plans reviewed so that new perspectives help influence improvement plans;
- ensuring that asset management planning informs forecast financial and service performance; and
- reporting on achievements.

For local government, the core processes of asset management are less of a priority as they are generally effective. The next area to strengthen is asset data. Councils need to ensure that they have:

- appropriate asset information systems in place;
- controls over the completeness and accuracy of data;
- a structured approach to assessing and monitoring the condition of the assets; and
- an assessment of the reliability of asset information and the implications for asset management.

Overall, in our view, if the organisations with weaker approaches to asset management applied some of the lessons from those similar organisations with stronger systems and processes, the overall level of risk to public sector assets could be reduced.

Part 3
The asset management hierarchy

Asset management planning occurs at a number of different levels. The Infrastructure Strategy helps local authorities bridge the gap between operational and tactical planning at a detailed level, and high-level corporate planning. However, it is equally important that the detail of asset management planning links to operational planning as well as to the wider planning for the services that the assets are intended to support.

Figure 5
Our view of the asset management planning and accountability framework – a planning hierarchy with clear linkages from one level to the next

Hierarchy	Generic examples	Local government specifics
Corporate	Corporate plan	Long-term plan Consultation document
Strategic	Strategic asset management plan (SAMP)	Infrastructure Strategy
Tactical	Asset management plans (AMPs)	
Operational	Maintenance plans Operating plans	

The asset management pyramid

Just as asset management planning operates at a number of different levels, so the disciplines that make up asset management can also be considered as levels within a pyramid (see Figure 6).

We see asset management planning as a series of levels in the pyramid, each one supporting the one above. The starting point is understanding the asset base. Good quality planning relies on good quality asset knowledge. Confidence in data is needed to have confidence in the resulting plans. Asset knowledge needs to cover a description of the assets, their age, condition, performance, and value. The quality of asset knowledge can depend on how well entities carry out their plans. Completed work often leads to better quality, updated asset information.

At the next level of the pyramid, it is important to have information about what local service users demand, and how well the assets can meet that demand. Building on that, service levels are defined such that they can be supported by the assets while meeting demand. In turn, these provide the basis for plans and strategies to manage and maintain the assets across their life cycle. Finally, the plans lead to financial forecasts of the expenditure needed to deliver them as well as the funding sources that enable the forecasts.

Figure 6

Our overall impressions of the state of asset management practices at each level in the pyramid

Finance — Reliability compromised by incomplete condition information, unreliable valuations, and affordability issues.

Whole of life — Better general understanding of this.

Levels of service — Generally better but incomplete technical/customer measures. Still some confusion between measures, indicators, and targets.

Demand — Good information on population, but limited on other factors affecting demand. Non-asset solutions not fully developed.

Asset knowledge — Weaknesses in condition information. Lack of structured approaches gathering condition information. Questionable or unknown data reliability.

Policy
- Some with no policy.
- Disparate approaches between asset groups.
- Weak co-ordination in some cases.

Risk
- Poorly developed risk assessments.
- Critical assets sometimes not identified.
- Link between criticality and action not made.

Continuous improvement
- Area of poorest performance.
- Lack of commitment.
- Good intentions, without firm plans, timelines, and resources.
- Four planning cycles of broken promises for some in local government.

The order of the levels in the pyramid is important. Each layer builds on, and is supported by the layer below it.

We believe that there are three factors that span the layers of the pyramid, enabling good quality planning to take place:

- Policy needs to define the appropriate level of sophistication for planning, who is responsible for delivering it, what plans should look like, and how often they are updated.

- Risk is associated with managing assets and itself needs to be managed. Critical assets, whose failure would have a significant effect on the organisation's objectives need to be defined. It should be clear what their criticality leads to, whether that be more frequent inspection, maintenance, or earlier replacement. Asset managers need to consider what would reduce the likelihood or effect of their failure. Asset managers also need to consider the risks to achieving the organisation's objectives by thinking about the effect of any alternatives that service users may have.

- Continuous improvement is important to ensure that planning keeps pace with technical developments and new asset types. Planning needs to evolve as more and better asset information becomes available.

Part 4
Strategic asset management and the introduction of Infrastructure Strategies to local government

Strategic asset management planning

The International Standard on asset management (ISO 55000) introduced the concept of the Strategic Asset Management Plan or SAMP, saying *"integration of an organisation's SAMP, with its long-term financial plans can enable the balancing of short-term financial needs with the needs of medium-term activity plans, and the much longer-term plans that some assets require"*.

We couldn't agree more. The standard recognises the need to bridge the gap between long-term strategic planning, and shorter-term operational planning.

Introducing the Infrastructure Strategy

Asset management planning has always been a long-term business. However, practice seems to have settled on a ten-year horizon for documented AMPs. While it is a long enough horizon to bring in some significant decisions, ten years is often too short to consider the whole life cycle of many infrastructural assets. The Local Government Act 2002 was amended in 2014 with the introduction of Infrastructure Strategies, designed to cover a 30-year period.

Throughout 2015, we reviewed councils' Infrastructure Strategies, in particular assessing how well they stepped up from a 10-year horizon to a 30-year horizon, and how well they supported consultation with stakeholders.

The new documents unleashed the creativity in many local authorities. There were many good examples emerging and we soon formed an impression of what was working well. By sharing the best of these examples, we hope we can improve the next round of Infrastructure Strategies due in 2018. We also think than any organisation developing a SAMP can learn a lot from local government's experiences.

An Infrastructure Strategy – what is it?

Infrastructure Strategies add a new dimension to planning. They provide a higher-level view of infrastructure issues than perhaps AMPs have done in the past, and play a key part in justifying what does, and does not, need consultation.

In our view, an Infrastructure Strategy should stand alone as a key piece of information. It should be understood without reference to other documents. Its 30-year horizon means that all the planning and analysis that formerly underpinned a 10-year AMP now needs to be considered over 30 years. Its role in bridging the gap between strategic and operational planning means it is best produced early, setting the direction for more detailed asset management planning.

Next time they are produced, we expect Infrastructure Strategies will have become the key strategic plan for the assets.

Basic requirements, context and coverage

Many local authorities struggled with how long an Infrastructure Strategy should be. Our reviews indicate that 40+ pages is typically about right to cover the issues effectively. Much shorter and important issues are missed or insufficiently detailed. Much longer and the document is no longer strategic. Of course, the length is really dependent on the extent and complexity of the issues. Templates can be useful but the key is in how well they are completed.

The best strategies set the historical, demographic, and geographic context, outlining those features that make a district unique. A high-level summary of the assets owned and managed by councils in terms of numbers, quantity, and value also helps frame the discussion.

The Local Government Act sets out the purpose of an Infrastructure Strategy, just as the ISO defines a SAMP. The poorer strategies met legal requirements but no more. The best are not constrained by the legislation. They meet the minimum requirements but consider what more is needed in a document that hangs together strategically.

Councils included their core infrastructure in their strategies as a matter of course – water supply; the collection, treatment and disposal of sewage; storm water drainage; flood protection and control; roads and footpaths. The best considered the strategic importance of other assets. We were disappointed with councils that excluded their other assets first time but plan to include them next time. The benefit of time may allow more consideration of what to include, but ultimately all strategically important assets should be covered.

We identified six Infrastructure Strategies that we thought had particularly interesting aspects.

- The Thames Coromandel District Council strategy is succinct and easy to read.
- Hamilton City Council is a good example that covers more than just the core assets.
- Whangarei District Council learnt through the planning process and came out with a much stronger document as a result.
- Tasman District Council presents its strategy clearly.
- Horowhenua District Council is honest about its challenges.
- Wellington City Council's strategy is underpinned by significant data analysis.

Be strategic and clear

To be a useful document, it is important to tell the reader what the strategy is. In our view, it is not enough to discuss issues. It is important to be clear what approach is being taken to address the issues and why.

Most councils identify significant issues, but often they do not make the link back to the infrastructure and the implications for the assets. Some do not explain why they have judged an issue to be important. Affordability was a case in point. Many councils raised affordability as an issue but did not explain what the limits on funding were, what work could not be afforded that was otherwise planned, what effect this might have on the assets, and what the strategy for dealing with that effect is. Unless the reader is clear why an issue is important, and what its implications are, the strategy is not as effective as it could be.

Case study
4.1

Case study: We liked the clarity with which Whangarei District Council made its strategic priority explicit.

Figure 7
Whangarei District Council's strategic priority

Assumptions, principle options and decisions

The principle options considered, and the assumptions relating to these options, are summarised in this section. The associated costs are outlined in the matrix of expenditure considerations (table below).

WHAU VALLEY WATER TREATMENT PLANT		
THE OPTIONS		THE PRINCIPAL ALTERNATIVES
Do nothing	The Whau Valley Water Treatment Plant was constructed in 1953 and is in need of a major upgrade due to the age and condition of a number of its critical component assets.	Use other (more expensive to operate) treatment plants. This will cause restrictions in the summer months when the capacity of those plants is limited.
Upgrade the existing plant	Structural investigations of the existing plant determined that extensive works would be required to meet the Earthquake Strengthening requirements under the Building Act. Even then at best it can only be brought up to 67% compliance. Chlorine gas separation proves to be a challenge and insufficient room to manoeuvre large delivery vehicles. The capacity of this plant cannot be extended any further on the current site.	Build a new plant on a new site or demolish building and rebuild on the same site. Acquire more land adjacent to the current plant to cater for the constrained site issues.
Build a new plant on a new site	Other issues at the current plant are chemical storage and delivery in a residential zone. The building of a new plant on a new site is deemed a more sustainable long term option.	Investigate alternative new sites to optimise construction costs, overcome issues at current site and provide for long term capacity increases.
THE MOST LIKELY SCENARIO		
That Council will construct a new Whau Valley Water Treatment Plant on a new site and then demolish the current plant.		

Figure 8

How Whangarei District Council described its significant capital expenditure decisions and considerations

SIGNIFICANT CAPITAL EXPENDITURE DECISIONS AND CONSIDERATIONS

Timelines, drivers and funding options

There are three primary drivers influencing Council's decisions to plan for future projects. These are:

- the need to increase expenditure to replace ageing reticulation assets
- the obligation to increase performance of assets due to consent expiration and other level of service drivers
- the requirement to expand the capacity of existing infrastructure to meet the needs of a growing community.

Council's planned infrastructure investments are considered to be relatively conservative over the next 30 years, with no 'significant' capital expenditure decisions currently made for this time period.

Council has not identified any infrastructure projects qualifying as significant using the threshold measures in the Significance and Engagement Policy (page 188). However, Council feels it is prudent to include the new Whau Valley Water Treatment Plant in this classification and section of the Strategy. This project is deemed to be of high importance to the community, and although expenditure is split into several smaller elements, the total of these come close to qualifying as a project meeting the net expenditure over rates threshold as per the 2014 Significance and Engagement Policy.

The Whangarei City Wastewater Treatment Plant renewal works does not qualify as significant but there is a small risk that resource consent conditions and public interest may change by year 2021 when the current consent expires. This has the potential to result in significant expenditure at that time. Consequently a level of uncertainty surrounds the future consent conditions and their potential financial impact.

The following table indicates the one water project Council currently considers prudent to include in this section of the Strategy.

YEAR		SIGNIFICANT/MAJOR PROJECTS
1	2015-16	Whau Valley Water Treatment Plant
2	2016-17	
3	2017-18	
4	2018-19	
5	2019-20	
6	2020-21	
7	2021-22	
8	2022-23	
9	2023-24	
10	2024-25	
11-30	2025-46	Council currently has no infrastructure projects deemed major or significant programmed for years 2025- 2045

Our reviews indicate that issues are usually identified at two levels:

- at corporate level – where four or five high-level issues are identified and linked back to individual asset groups – these links are made more or less well; and
- at individual asset group level – which may or may not be strategic.

Some councils did both – which, unless skilfully explained, we do not believe is the right approach. There needs to be a clear, concise set of strategic issues identified, explained, and used as the basis for planning.

Many fail to link options to the issues. Options are generally not set out clearly. Many councils fail to set out genuine alternatives to their preferred option – perhaps because the issues they have identified do not lend themselves to alternative approaches, or perhaps because alternative options were not clearly considered? There is little sense of a debate about options from the strategies we reviewed.

The implications of options are generally not well expressed, and alternative options often do not have costs associated with them to allow readers to consider the trade-off between them.

Support significant decisions

Infrastructure Strategies often did not explain significant decisions well. Many are silent on what is significant. Some just refer to the whole work programme, although it is unlikely that all work will require significant decisions. We liked Horowhenua's reference to its Significance Policy to define what a significant asset management decision is.

It appeared from our reviews that many of the significant decisions had already been made. Councils were much more comfortable with current decisions than forecasting what might need to be decided in future and when.

Even if significant decisions are made explicit, most strategies do not tell the reader when the decision will be required. Many rely on scheduling the expenditure in their 30-year forecasts – but "the decision" needs to be made much earlier.

We believe significant issues should be:
- linked to the significant infrastructure issues and options that have been identified;
- few in number – some infrastructure might not have any significant decisions required;
- explicit; and
- linked to genuine options with approximate costs/benefits for the alternatives.

Case study: Tararua District Council dealt with significant decisions well.

Figure 9
Tararua District Council's table of significant capital expenditure decisions

Table 7 - Significant Capital Expenditure Decisions

Asset/ Network	Issue / Risk	Practical Options	Implications / Decision (Cost and timing)	Purpose of Expenditure				
				Renewal	LOS Increase	Growth	Public Health	Natural Hazard
Woodville Water supply	The Woodville water supply consists of an unlined earth embankment impounded supply that supplements the flow from the river. The supply is used when the river water is too turbid to harvest, or river levels are low and consent conditions require the harvest volume to be reduced. Historical issues with the supply are: • Water must be pumped to the treatment plant • Unlined leading to murky water and higher treatment costs and processing time • Algal problems due to being uncovered- higher temperatures and duck effluent • Insufficient volume to met town needs during long dry periods	1. Optimize the existing impounded supply through deepening and adding an impervious liner 2. Seek a site for a new impounded supply, that optimizes construction costs with a reduction in pumping costs Objective: Ensure Woodville water treatment plant can access a secure source and appropriate volume of water, that has the best whole of life cost. This objective will be the basis of a business case in year 1 to establish which of the two main options is the best NB- The Woodville water treatment plant was upgraded in 2013 to address water clarity, odour and taste issues.	Business case prepared year 1. Consultation as part of 2015/2016 Draft Annual Planning process Financial provision of $2M in Year 3 of LTP (2018/2019) based on an upgrade to the existing impounded supply Note: once decision has been made, there is a long lead in time for this project due to engineering designs, consents for building and managing the storage.		✓	✓	✓	✓

Significant decisions on capital expenditure were explained in detail. Using a table allowed a lot of information to be presented succinctly. Splitting the information according to asset types helped the reader navigate the strategy. Linking the key issues, levels of service, asset condition, and the significant decisions helped the reader engage with the debate.

Most likely scenarios and alternatives

We found that readers were often left to work out for themselves what the Council had determined the most likely scenario to be. Councils typically left this implicit. The best, however, make a clear statement of the most likely scenario they have selected and why.

The most likely scenario always has alternatives. Sometimes alternative scenarios are outside the organisation's control. Other factors in the environment or economy can have an unforeseen effect. More often, however, the distinction between the most likely scenario and others depends on the decisions the organisation makes and the options it decides to pursue. It is important to be clear.

Options are generally not clearly set out. Many councils fail to set out genuine alternatives to their preferred option. Even where options are identified, their costs and other implications are generally not well expressed.

Arrangements for service delivery

The best strategies outline the Council's intended approach to service delivery – operating and maintaining existing assets or building new assets. The rationale for contracting out or in-house delivery is discussed well by some. A few councils go further by indicating any significant changes in the way assets will be managed over time compared to the current arrangements. However, it is often not clear why the preferred service delivery option was chosen.

Life cycle management, forecasting, and funding

Section 101B(3)(a) of the Local Government Act requires local authorities to describe how they will renew or replace existing assets. Most discuss renewals. Very few discuss this in the context of a strategy for their assets' entire life cycle.

Almost no-one talks about striking the optimal balance between maintenance and renewal. Many have deferred renewals, or are talking about deferring renewals – largely for reasons of affordability, or sometimes because analysis suggests actual lives could be longer than theory suggests. Sometimes for both reasons.

Most strategies do not outline the proposed funding for the planned expenditure. Some make links to the Financial Strategy, but many don't. Most do not discuss the Council's planned response to funding issues.

Forecasts can be imaginatively presented. Graphs and graphics can help present a lot of complex information in a way that engages readers' interest and is easy for them to interpret. A summary of historical expenditure helps put future plans in context.

Comparing renewals and other capital expenditure with depreciation over the long run gives an indication of whether assets are being replaced at a prudent rate and funding is sufficient. Ideally, this is not constrained to a 30-year view. The best strategies have analysed this correlation over the life cycle of their longest-lived asset – sometimes 100 years.

Case study 4.3

Case study: Wellington City Council has forecast the effect of its renewals over the course of 100 years.

This was done as a proof of concept between the Council and its technology supplier. The data did have limitations in that it did not include growth assumptions and was deterministic in nature. The Council has since invested in a new software solution integrating Finance, HR and Enterprise Asset Management rather than independent systems. This allows the Council to keep the expertise in-house re-run and update the modelling more frequently as its data and assumptions become more refined.

While the analysis is based on assumptions, many of which may later need adjusting, it does provide a forward view of where the peaks in expenditure are coming up as

major components of the city's network fall due to be replaced. This in turn allows the Council to start planning for the financial effect of these spikes in expenditure.

The proof of concept allowed 3-Waters and Transport to delay the timing of some of the renewal expenditure in the 2015 LTP as a result of improved information. However, given the many assumptions, not all of the potential reduction in renewals was removed from the budget. A contingent fund was created to allow for unforeseen or assumption corrections. The fund is managed centrally and requires a sound business case to call on the funds. This resulted in a savings to rates due to the reduction in interest charges.

Figure 10
Wellington City Council's renewals model
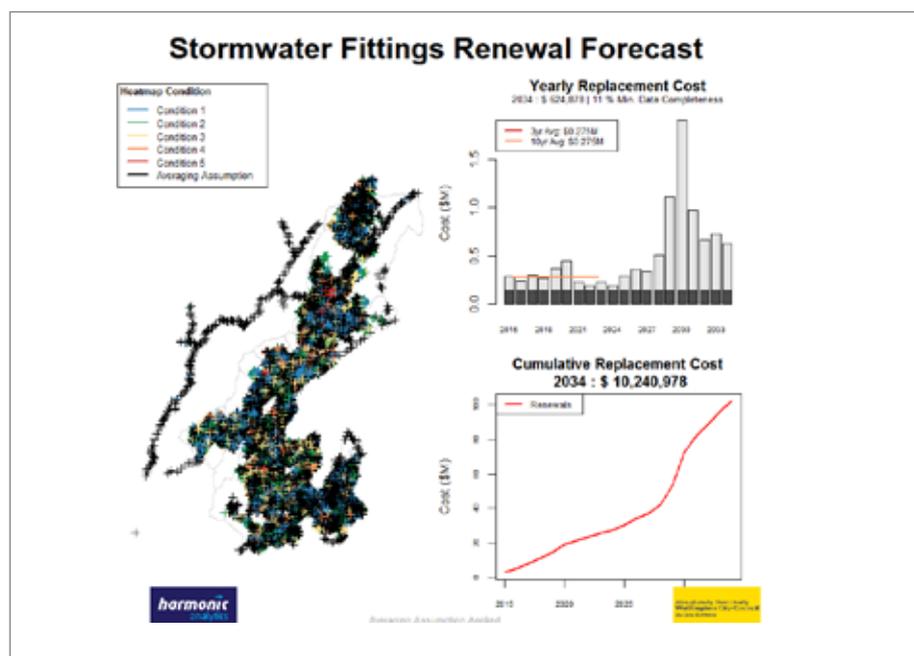
Consistency in the way financial forecasts are presented between corporate plans, Infrastructure Strategies and AMPs helps stakeholders interpret the various documents. Differences should be constrained to greater levels of detail in the various plans.

Risks, hazards, and resilience

Section 101B(3)(b) of the Local Government Act requires local authorities to provide for the resilience of their infrastructure by identifying and managing risks relating to natural hazards. We found reasonable coverage of these issues, but strategies are typically silent on critical assets. This seems odd as critical assets should be central to risk, hazard, and resilience.

Coverage of financial provision for risks is variable at best. In our view, this could mean:

- explaining how forecast work links to risk;
- outlining specific work designed to build resilience; or
- discussing insurance arrangements, reserves, and emergency planning.

It probably means all of these.

Growth and demand

Section 101B(3)(b) requires local authorities to cover how they intend to respond to growth or decline in the demand. This is generally done by differentiating between these drivers in capital expenditure forecasts. However, it is typically done in isolation from any explanation or analysis of growth and demand. Even where there is growth set out, the link to the effect on assets is not always clear.

Levels of service

Section 101B(3)(c) requires local authorities to cover how they intend to allow for planned increases or decreases in levels of service provided through their assets. Again this is generally done by differentiating between these drivers in capital expenditure forecasts. However, almost all the Infrastructure Strategies that we reviewed are silent on what the levels of service actually are.

It seems some councils have limited their thinking to legislative requirements. We cannot understand how a strategy for increases or decreases in levels of service can be presented without summarising for the reader what these service levels are, how they are defined, and how they are measured. For the strategy to be understood, it should be clear what measurable difference service users are likely to experience, and what effect this will have.

Some councils included an assumption that there will be no change to levels of service unless indicated otherwise. In isolation from understanding what these service levels are, the reader can be left to hunt through the document for any reference to changes.

Consider scope to be creative with graphs, info-graphics, and timelines

The Act allows local authorities to show expenditure in 5-year blocks. We do not find this useful for aiding comparison with earlier years. At best, it looks misleading on a graph where years 1-10 are shown individually. A glance can give the impression that spending is set to rise significantly.

The best strategies are engaging documents that present information clearly.

Case study 4.4

Case study: Hamilton City Council made particularly engaging use of info-graphics.

Figure 11
An extract from Hamilton City Council's timeline showing when major items of capital expenditure are forecast
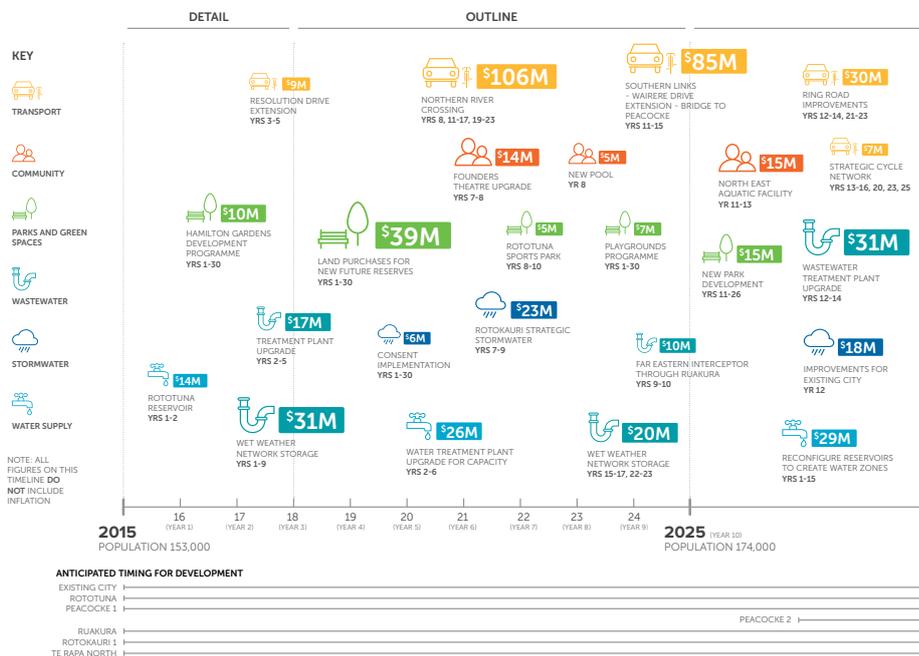
The Hamilton strategy went further than just core infrastructure and incorporates social infrastructure as well. Its imaginative use of infographics helps put projects in context. The results aren't perfect in terms of the readability of footnotes, but the graphics are effective and make a change from the typical bar/pie graphs that have been used in most of the other strategies we reviewed.

Coping with uncertainty

Strategy, by its nature, is long term. As there is inherent uncertainty about what the future might bring, assumptions have to be made. Our reviews show that these are generally well covered, but not many councils indicate the level of uncertainty.

Case study
4.5

Case study: Thames Coromandel District Council's strategy had good coverage of assumptions.

Figure 12
Thames Coromandel District Council had thought about the uncertainty of its assumptions

Description	Assumption	Risk
Population growth	Our growth assumptions are based on a low growth scenario. This will result in our usually resident population increasing gradually over the next 30 years; with an expected net increase 0.1% per year The usually resident population of the Mercury Bay Community Board area is expected to increase by around 0.8% per year and the Coromandel-Colville Community Board area is expected to increase by around 0.2%. The usually resident population in the Tairua-Pauanui is expected to decline by around -0.5% per year, Thames by - 0.2% per year and Whangamata by -0.4%	**Level of uncertainty:** medium **Potential impact:** if we have underestimated the level or location of population growth we may have insufficient capacity to meet demand and this will place pressure on our assets and networks and may impact on levels of service. If we overestimate the level or location of growth we will have an oversupply of capacity and the cost of servicing our infrastructure networks may become unsustainable given our smaller than expected rating base.
Peak Demand	The summer seasonal peak and peak days will continue based on historical trends and locations	**Level of uncertainty:** medium **Potential impact:** if peak demand increases at a rate greater than expected it will place pressure on our networks and this may impact on our ability to maintain levels of service.
Inflation	All costs have been adjusted to include inflation in accordance with the guidelines provided by the Society of Local Government Managers; set out in the BERL *Forecasts of Price Level Change Adjustors – 2014 Update.*	**Level of uncertainty:** Medium **Potential impact:** Variation will impact on expected operational and capital costs and on rating requirements
Vested Assets	Vested assets are assumed to be received by Council in proportion to the growth of the District.	**Level of uncertainty:** Low **Potential impact:** A higher level of vested assets than expected would impact on capital and operational costs and on rating requirements
Development Contributions	Any contributions have been included based on estimated growth forecasts. This funding is used to provide growth related asset development.	**Level of uncertainty:** Medium **Potential impact:** If growth does not occur or occurs a slower rate than expected this will have an impact on Councils debt levels.
Legislation	The strategy has been developed based on the current the legislative	**Level of uncertainty:** Medium

Give the reader confidence they can rely on the strategy

The best strategies indicate the quality of the asset information they are based on, including asset age, physical description, condition, and performance. This gives the reader a good sense of uncertainty, its potential effect, and how the Council is going to deal with it.

Fulfilling the strategy's potential

Infrastructure Strategies add a new dimension to planning. Perhaps the most important things to bridge the gap between strategic planning, and the detail of engineering based asset management planning are:

- Be strategic – don't get caught up in the detail, AMPs are for documenting that. Be selective about the strategic issues and make it clear what they mean for the assets;

- Don't be constrained by the legislation – if a good strategy needs it, put it in. Legislation sets out minimum requirements, not good practice guidance;

- Be clear – tell the reader what is proposed and why – don't just discuss issues;

- Make sure that significant decisions have options and are clearly linked to strategic issues;

- Link plans to address growth and demand with the basis behind it;

- Explain how levels of service are defined in support of any work to change them.

Part 5
Planning for success

Good asset management takes a team

Effective planning takes a team, drawing on and co-ordinating resources from across the organisation. Asset management is a discipline that brings together:

- engineering;
- financial planning;
- economic and demographic forecasting;
- corporate and strategic planning;
- performance monitoring and management;
- risk management and lifelines planning; and
- political decision-making and leadership.

It is important to ensure that there is some way in which these disciplines are able to work together, particularly at the point when the organisation is refreshing its planning and putting together a long-term strategic plan. This is a task that is done periodically – in local government's case, every three years. Bringing together a temporary structure to work on the development can be useful, much like treating it as a project. Clear leadership and accountability is essential. As with any project, the business owner, the supplier, and the users all need to be represented. In the case of asset management, this means bringing together those who control the resources, those who lead asset management, and those who will use asset management to develop the corporate strategy.

Case study 5.1	**Case study: Napier City Council has a clearly defined asset management.**

Napier City Council has structured its organisation and Infrastructure Directorate to better position Council to meet the requirements of local government today and well into the future. This is from a regulatory perspective as well as to enable the delivery of excellent customer service to meet defined community outcomes. The whole-of-organisation structure has been developed to provide for integrated and co-ordinated operations and decision-making across all activities. The reorganisation of the Infrastructure Directorate was designed to:

- Better align roles and responsibilities with organisational goals and objectives;

- Separate responsibility for project management and delivery from long-term planning and technical design; and

- Establish a more transparent and consistent process across the organisation for prioritisation and delivery of infrastructure service needs.

The Director Infrastructure Services is responsible for overseeing all of the City's primary infrastructure and related services including:

- Wastewater, Stormwater, and Water Supply
- Transportation network
- Refuse and recycling activities
- Parks, Reserves, and Sportsgrounds
- Public Toilets
- Cemetery Strategy and Forward Planning.

The Director is responsible for the Design and Projects office that delivers the capital programme for both asset and non-asset projects, and the Environmental Solutions team, which both monitor the 3 waters networks for compliance with consent conditions and national standards, and lead stormwater quality improvement initiatives.

Figure 13
Napier City Council's Infrastructure Services
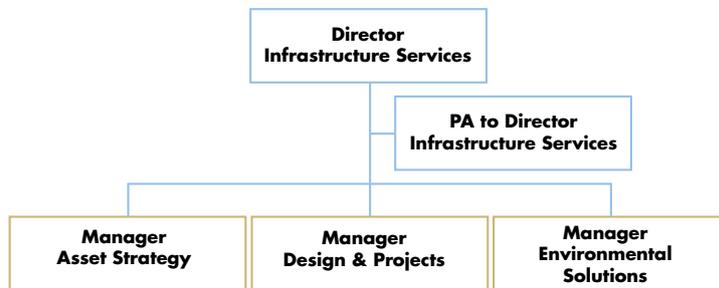
Long-term vision and strategy for each activity is led by the Director Infrastructure Services. The Manager Asset Strategy, together with fellow managers within the Infrastructure Directorate, will be integral to the development of strategy and the delivery of consistent, integrated long-term programmes (both physical and non-physical) across all core infrastructure-related activities to achieve the vision and long-term strategy.

Figure 14
Napier City Council's Asset Strategy team
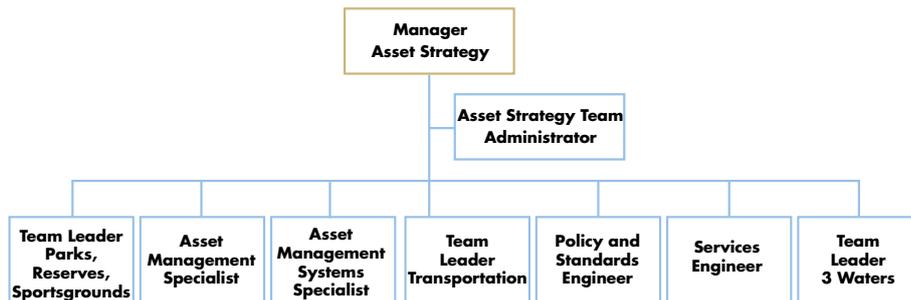
Included in the Asset Strategy team is the role of Asset Management Systems Specialist and Asset Management Specialist. These roles are tasked with developing and implementing systems and processes consistent with ISO 55000 Standards of Asset Management across all activities, together with non-asset specific programmes of work to support those systems.

This structure will enable all asset groups to work across asset boundaries on a daily basis to improve communication and ensure the co-ordination and integration of work programmes that are well understood across the various teams within the directorate. An early outcome of this approach is the development of a "One Investment Plan" that identifies all scheduled projects, their resource requirements (both internal and external) and their relative timing that better informs the team of current and future workflow and how this may be integrated with operational programmes.

Regularly scheduled meetings take place within each team at an operational level, while fortnightly meetings are held between the Director and Managers within the Directorate to regularly transfer information, discuss risks and issues back and forth between the Governance and Senior Leadership and the Management team.

The Asset Strategy and Design and Projects teams work closely together to deliver capital programmes for the Infrastructure Directorate. Council's Project Management Framework informs the process associated with the asset acquisition cycle; from asset planning, programme development and management, project delivery, commissioning and handover. This framework is being updated to better meet the new organisational structure and when updated will provide clear guidance on responsibilities at all levels for role holders associated with the delivery of both asset and non-asset related projects.

Councillors are formally inducted when they join Council, as part of which they are given a briefing on significant projects, risks and issues. Throughout the triennial term, seminars are held with Council to provide further information on matters of interest and in anticipation of formal reports and or business cases to be presented to Council. Briefing sessions associated with Annual Plan, Infrastructure Strategy, and Long-Term Plan development processes are also scheduled as the need arises.

In addition to redefining the organisational structure, and roles and responsibilities of those within it, The Directorate has also embarked on a programme to implement a single "source of truth" for all project and asset information. Supporting this objective is the development of a Project Management Framework that defines project phases, quality gateways for projects to pass through to ensure appropriate documentation, data collection, and knowledge transfer between team members during the project life cycle. Examples include engagement of operations staff and project managers during the very early conceptual stages of a project to ensure the right scope is defined and clear boundaries established relative to project objectives. Risk identification and active mitigation will become a more visible part of this process.

Through these changes NCC seeks to further improve the service it delivers to its public and gather the information to demonstrate it has done so responsibly, and sustainably.

Asset management is not only, or even mainly, about pulling together strategic planning documents every few years. The real business of managing the assets goes on day in day out. Just like strategic planning, however, it needs to bring together the appropriate disciplines and be well co-ordinated.

Case study: Hamilton City Council has clear Asset Management team structures.

During 2015, a Centre of Excellence for asset management was established within the Council to drive improvement in asset management. The centre is led by a small (1.5 FTE) centralised Asset Strategy team and is contributed to by key staff in other support areas and operational parts of the business. The use of cross-organisational teams with clear responsibilities is critical to ensure that the work of the largely virtual team integrates with the priorities within activity and operational areas.

The centralised Asset Strategy staff provide the consistency across the three key teams that operate within the organisation.

The Council commissioned an Asset Management Maturity Assessment in 2012, which challenged the lack of an enduring corporate AM team. There was a concern at the time about having asset management spread across many groups and units of Council, with no single member of the senior management team having responsibility for ensuring that asset management practices and processes were aligned. This is no longer an issue after HCC established an organisational governance structure for asset management in 2013. The establishment of the Asset Management Centre of Excellence has built on this work over recent years and is delivering on an updated organisational improvement programme that was approved by executive leadership in mid-2016. The various organisational groups focussed on asset management improvement are now regarded as business as usual. The Asset Strategy staff report regularly to the full executive team on the activities of the Centre of Excellence.

Figure 15
Hamilton City Council's three Asset Management teams

AM Sponsor Team
Executive team sponsor and core Centre of Excellence staff.
Provides overall AM leadership and demonstrate ongoing organisational commitment to AM across the Council.

AM Leadership Team
Experienced Asset management staff from across the organisation.
Helps embed the AM culture across the organisation.
Improves AM at a corporate level.

AM Working Team
Asset activity managers from each of the activities.
Lifts the capability of AM across the organisation.
Improves AM at an activity level.
Encourages sharing across activities.

All of Hamilton City Council's asset management plans are prepared by Asset Managers within the specific activities, with leadership from the Centre of Excellence on structure and consistency in analysis and presentation. The Asset Managers are embedded within the operational units so have a good awareness of the assets being operated and where issues exist.

Figure 16
Hamilton City Council's Centre of Excellence functions

The Centre of Excellence approach has been developed to perform five primary functions:

Support: The team offers support to activities on Asset Management practice. This may be through procuring and providing services to help asset managers, or providing subject matter experts.

Guidance: The team provides organisational standards, methodologies, tools, and knowledge repositories. Coaching is also provided to asset managers in the use of these tools and frameworks.

Shared Learning: The team manages and provides a corporate training programme for Asset Management. The Centre works with AM staff to ensure that necessary skills are held and provides plans for filling gaps in knowledge. The CoE creates a culture of valuing Asset Management through facilitating asset manager forums to encourage shared learning. The CoE will represent Council interests in wider sector discussions on strategic Asset Management issues and bring learning back into the Council environment.

Measurements: The Asset Strategy Team monitors AM practices and reports this to senior management. In doing so it also demonstrates the value of the CoE and its role in improving corporate performance in Asset Management.

Governance: Where necessary, the Asset Strategy Team will analyse matters of concern and recommend to SLT plans of action. This may include reallocating limited resources (money, people, etc). The CoE will also produce strategies and plans for Asset Management to help ensure Council invests in the most valuable projects and create economies of scale in undertaking Asset Management responsibilities.

A culture of valuing asset management is being built at the Council by the Centre of Excellence. With a virtual team made up from staff of different areas, the use of a visual cue has been crucial in creating awareness of asset management improvement in the organisation.

Figure 17

Hamilton City Council's Asset Management Centre of Excellence has its own defined identity

Key to making clear and enduring change has been the adoption of Asset Management Goals for the Council. A set of 11 goals was adopted in 2013 to help prioritise and drive change. These 11 goals have since been refined down to the current five goals. These are deliberately expressed in plain English and the reason for these goals are also presented. This helps all staff to understand why the Council is taking a particular approach to asset management.

The goals will be used by Council staff in deciding and prioritising what aspects of Asset Management require an intervention, the nature of that intervention, and priorities for work to be undertaken.

Figure 18

Hamilton City Council's Asset Management Goals

Goals	Benefit sought
The Asset Management Plan drives financial decision-making for the Council's 10-year Plan and 30-year Infrastructure Strategy.	Asset-related budgets are informed by solid and robust underlying data, and good information is available for making decisions on trade-offs.
Accessible, reliable asset data is available; data entry is devolved, repeatable, and timely.	Data quality and efficiency in collection and use is consistent and appropriate.
There is a culture of valuing Asset Management – "We are an Asset Management business".	Decisions are based on sound Asset Management information and analysis.
In-house Asset Management expertise is available.	Staff have the right skills and knowledge to undertake their roles. Consultant costs are minimised and used for the appropriate tasks and functions.
Maturity level is best practice, where appropriate, with smart thinking applied to core infrastructure.	Council gets good value for money from appropriate investment in Asset Management.

Asset management requires a concerted effort to bring disciplines together. Leadership is important, and formal structures can help. If the organisation's own structure does not lead to all those who need to be involved being in the same part of the business, a virtual structure can help overcome barriers and support effective working. Standing committees, centres of excellence, and communities of practice can all be effective ways to bring professionals working on different asset groups together. They can also help facilitate joint working across professional boundaries. KiwiRail recognised both of these opportunities as it put new arrangements in place.

Case study 5.3

Case study: KiwiRail has recognised the importance of asset management to strategic planning and service delivery and is building a support structure around it.

KiwiRail has policies and processes that define its framework for asset management. Asset management is a corporate responsibility and recognised as a prerequisite to effective service management. A restructure of organisational arrangements across KiwiRail clarified responsibilities. Most significantly, there is now clear leadership for the discipline with co-ordination across the organisation, in particular the main asset-intensive parts of Interislander, Engineering Services, and Network Services.

An Asset Management Centre of Excellence has been established as an organisational focal point to ensure a consistent approach. KiwiRail is currently embarking on implementing the Asset Management Knowledge Centre portal for all of its asset management tools, business processes and procedures, as well as using it as a Community of Practice and Knowledge and Training Centre.

KiwiRail has established a Strategic Asset Management Committee (SAMC) to unite the organisation's key business managers who have a remit in asset-management-centred activities. With the support of the Chief Executive, the SAMC's role is to "ensure that KiwiRail's asset management practices and its investment in plant and infrastructure, support the business objectives and is consistent with best practice". The Committee operates under an approved Terms of Reference and meets every two months to largely preside over its Corporate Asset Management Programme.

The SAMC is supported by the Asset Management Information System (AMIS) Steering Committee, which leads the review of the appropriate data and parent systems to support effective strategic planning. The AMIS Steering Committee (ASC) held its first meeting in June 2016. The ASC acts to govern over the AMIS eco-system and operates under its own approved Terms of Reference, and meets once every month.

The SAMC approved KiwiRail's Asset Management System (AMS) and uses it as the Framework for the business. Among other things, the AMS defines an audit function under its Framework element called "Review". KiwiRail plans to review Business Unit performance against the delivery specified within their Asset Management Plans. The same applies for their AMIS environment and the performance delivery of the AMIS Works Programme.

Figure 19
KiwiRail's Asset Management System
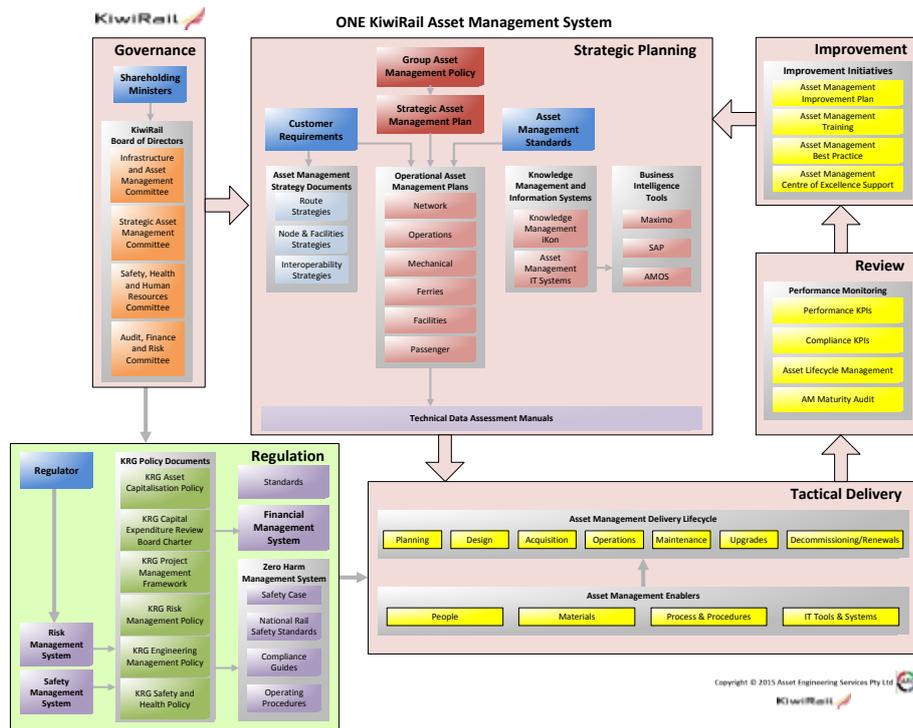
There is strong interest and support for asset management delivery as monitored by the Board and its dedicated Infrastructure and Asset Management Committee (IAMC). The IAMC receives progress reports and presentations from the AM CoE and associated BUs at every two-monthly meeting. The IAMC presides as KiwiRail's governance body over its progress with asset management strategic planning, as well as providing direction on the organisation's strategies and risk management.

Looking beyond the organisation's boundaries

Co-ordination can go beyond the boundaries of a single organisation. With specialist asset management resources in short supply and challenges for smaller organisations to justify the full time employment of some technical specialities, sharing can be an effective strategy. Setting up a special organisation to enable sharing is not always necessary, but we did see co-ordination and sharing working effectively across the Wellington region where the regional council and city councils have come together to co-ordinate their management of the three waters.

Case study: Wellington Water brings together specialist resources in a trusted adviser model.

Wellington Water manages water treatment and supply, stormwater and wastewater service delivery in the Wellington region. It is a council-owned, shared service organisation, providing three-waters network management services to the regional council and city councils in the area. A representative from each council sits on the regional Wellington Water Committee that provides overall leadership and direction for the company. Wellington Water is governed by a board of independent directors.

Figure 20
Wellington Water's trusted adviser model

Our trusted adviser model
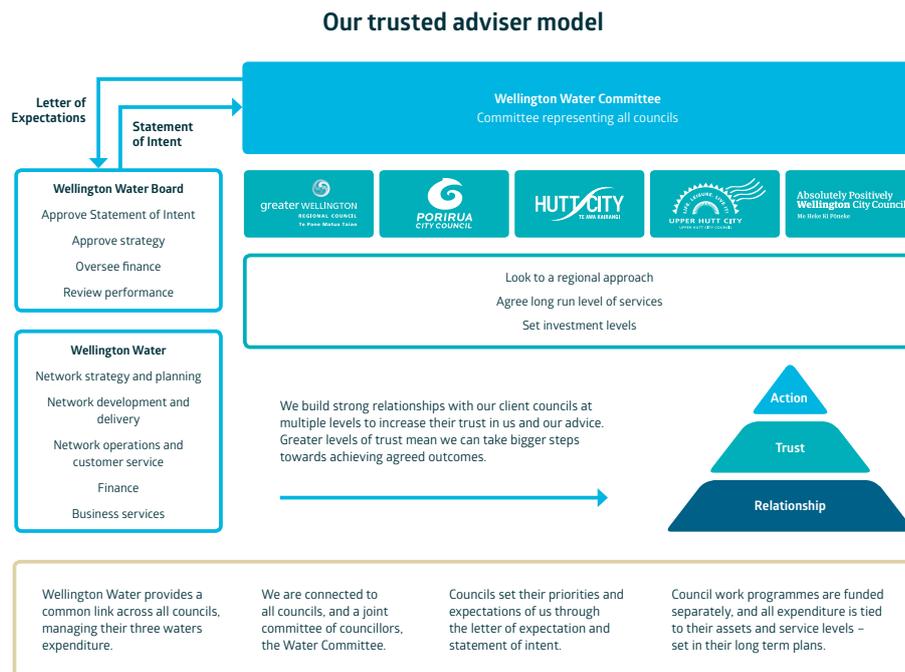
The organisation is striving to work collaboratively with councils, stakeholders and the wider community. To this end, it has established a trusted adviser model. It aims to put the delivery of outcomes shared with customers at the heart of everything it does. A key document in this process is the Letter of Expectations, an annual expression of shareholders' priorities for the Company, which it publishes on its website as part of being accountable to the local community. The trusted adviser model has been developed from the viewpoint that effective action is built on a foundation of trust and strong relationships. Wellington Water provides advice to help councils make well-informed decisions, in pursuit of agreed outcomes.

> Co-ordinating and bringing together specialist resources across a region as Wellington Water does helps the councils in the region to overcome the issues of critical staff shortages and succession planning that we observed elsewhere in the country. Wellington Water has good and robust approaches to gathering and maintaining data on the condition and performance of its assets, with more sophisticated monitoring of renewal needs and capital projects than we saw in many other areas. In part, it seems to us that this is a benefit of having pooled the scarce technical resources required to do this.

Our work led us to question whether collaboration could offer a solution to some of the issues we see organisations challenged by across the country. We think it might be interesting and useful for asset-intensive organisations to reflect on Wellington Water and other similar models to consider what a shared service can achieve.

Succession planning is a common theme across our reviews and is clearly a challenge for the sector. Working together across organisational boundaries could be a way to help ensure that the best use is made of limited resources.

Asset management is a continuous exercise

While asset management is a continuous exercise, at certain points in the strategic planning cycle it is useful and necessary to crystallise planning into a formally documented plan. This is no small undertaking. While the task can be made more manageable by having a slim template that ensures that the essentials are covered and no more, there is still considerable work involved in drafting a plan that addresses all the elements that good practice suggests a plan should include.

Timing may be the answer. A planned approach to development helps. Ideally this should build in time for peer review or some other way to build confidence and get assurance over your plans. We liked Upper Hutt City Council's solution to the problem.

Case study 5.5

Case study: Upper Hutt City Council is never more than a year away from an up-to-date, fully complete plan.

The way Upper Hutt City Council approaches its asset management planning is interesting. It refreshes its AMPs each year. This has the effect of making its plans much more "live" documents than we generally see elsewhere. There is a well-defined annual planning cycle, which links the gathering of asset information, development of life cycle plans to address asset need, analysis of changes in demand, and the resulting financial forecasts. While that might not be unusual, the document is updated at the same time, a practice that differs from our usual experience.

There are some risks with this approach. There is a danger that an incrementally updated document may not be subject to the same level of fresh thinking and challenge that a less frequent review can stimulate. There can also be challenges with the timing of the planning

cycle. Should assumptions and levels of service be updated in the detailed planning that flows up to the corporate level, or should they flow back down into AMPs from corporate, strategic decision-making? There is perhaps no perfect answer to these questions, but the case study does illustrate how regular review makes the business of updating a plan manageable. Our experience indicates that leaving a review too long can lead to a very daunting and resource-intensive process. This in turn has its own dangers of failing to join up with other service and financial planning processes if progress gets stuck.

Timaru District Council had an effective approach to ensure that its planning process joined up.

Case study 5.6

Case study: Timaru District Council won the Society of Local Government Managers' (SOLGM) award for best Consultation Document. That meant joining up asset/activity management planning and making sure that the issues were identified in plenty of time.

Figure 21
Timaru District Council had an engaging, and ultimately prize-winning, approach to consultation

The SOLGM website (www.solgm.org.nz) explains how Timaru District Council's Consultation Document "Are We There Yet?" was awarded first place in the SOLGM Great CD Competition. As it says, "The judging panel received some great CDs from councils across the country, [but] the five judges all felt that "Are We There Yet?" best demonstrated the qualities of an effective CD…Timaru District Council Chief Executive, Peter Nixon, attributed the success to three main factors: understanding the new legislative requirements of the CD, the involvement and commitment of the elected members during the 18-month LTP process, and a talented team of staff who worked exceptionally hard and still managed to think outside the square."

We found this interesting because, of all the councils we reviewed, Timaru District Council was the one that seemed to have most bought into the consultation process required by the Local Government Act and it was well organised as a result. This was reflected in asset/activity management planning co-ordination.

The Council started its AMP planning process in June 2014 with monthly and then fortnightly meetings for the writers and managers responsible for producing the AMPs. This was a year ahead of the Council needing a long-term plan. The meetings were to monitor progress, discuss issues, and ensure a consistent approach. They continued through to October. During this time, some meetings included presentations and training from internal and external experts on aspects of planning. A consultant was also on site on certain days, running drop-in clinics and site visits to some activities to further assist those who needed it.

In November, the Council held a one-day workshop where AMP managers presented key aspects from their draft plans to the Council. Councillors were able to engage with the emerging plans. TDC felt this approach formed a strong foundation for the 2018 long-term plan process.

TDC saw the benefits of its approach being:

- Breaking down internal silos in order to provide a forum for AMP writers to ask questions and receive collegial support;
- Allowing the Council's consultant to gain an understanding of AMP status via the drop-in clinics and visits, which enabled clear reporting of that status to the LTP project team.

This contrasts with other councils we reviewed that were not so well co-ordinated, had different functions working more in silos, did not engage as well with their governing body, and were well behind where we would have expected them to be in the 3-year long-term planning cycle.

There is no perfect asset management planning cycle, but it can be risky and time consuming if plans are not regularly revisited:

- Effective planning takes a team effort; this means bringing together those who control the resources, those who lead asset management, and those who will use asset management to develop the corporate strategy.
- It is important that diverse disciplines are co-ordinated to work well together; good leadership is needed and formal structures can help. A centre of excellence can be a useful addition to the structure.
- Co-ordination can go beyond the boundaries of a single organisation. Collaboration may help overcome shortages of available expertise.
- While asset management is a continuous exercise, at certain points in the strategic planning cycle it is useful and necessary to crystallise planning into a formally documented plan. This is a significant undertaking and needs a planned approach.

Part 6
Data basics

Good quality data is at the heart of effective planning. It provides a starting point and allows analysis to be accurate and informative. It allows trade-offs to be determined with confidence so that the best value whole-of-life strategies can be determined. It allows risk to be managed and issues to be addressed quickly and efficiently when they arise.

Good planning relies on good quality data. Equally, good quality asset management practices update asset knowledge and information systems as work is carried out, a virtuous circle where good quality data informs work, which in turn leads to better asset information should be the aim.

However, data systems can only be as good as the way in which they are operated. The best organisations know the reliability of their asset data and have firm plans in place to maintain its accuracy or bring it up to the level it needs to be. The most open organisations make clear assumptions about the effect any uncertainty in asset information will have on their plans; they are not surprised when plans need to change because they recognised the limitations of their analysis.

The asset management system is about more than managing asset information

The International Standard on asset management sets expectations for an asset management system. It uses system to mean the entire planning framework. But the word "system" is often used to refer to the database of information that planning is built on. This is a vital part of the overall system, being the repository of information, but also the tool to analyse and make sense of the data.

> *Asset management is data intensive and new tools and processes are often necessary to collect, assemble, manage, analyse and use asset data. The creation and use of these tools can stimulate and improve organizational knowledge and decision making.*[1]

Some asset information systems provide the asset register that the financial management system relies on. Others do not. In this case, it is important to ensure that the general ledger reconciles to the asset data. Data should be reconciled in a timely manner. Getting some assurance over the completeness of asset records is also helpful.

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1   International Standard on asset management ISO 55000, 2.5.2a.

Data should be clean

The International Standard ISO 55000 recognises the importance of good quality data.

Data needs to be clean, which means free from errors that would make a material difference to planning. Controls and quality assurance processes over the data in the asset management system provide confidence that the asset data is:

- complete (all assets are included);
- accurate (the data relating to each asset is accurate);
- up to date (no backlog of data entry or assets input in incorrect periods);
- in existence (the assets listed actually exist); and
- accurately valued (the assets recorded are at an appropriate value).

Organisations need a clear process to update their data in a timely and accurate manner, including:

- incorporating new, renewed, and vested-assets into the asset information systems; and
- removing replaced/disposed assets.

The better asset managers have a process to record maintenance history and performance information against assets in the asset information system.

A QA process helps ensure that the coding structure is applied accurately by those with access to enter data in the asset information system. A process for physically reviewing a sample of assets against those recorded in the asset information system to ensure their continued existence helps build confidence in the data.

Once there is a sound base of data recorded in an asset information system, it is important to invest not only in its continued maintenance, but also in its improvement.

Case study
6.1

Case study: Buller District Council demonstrates that improving asset data is an ongoing process.

Buller District Council has been accumulating information on its water, wastewater, and stormwater assets in its asset management information system since 2007. Since then, the staff member responsible for its AMIS has done a lot of work to check and improve the quality of data held, including going out and surveying the asset using a GPS unit. In some cases, he has needed to go back to prior years' contracts to check that assets are accurately recorded for work that has not been surveyed.

Contractors are required, when doing work, to provide electronic as-built information to the Council before they get paid. Additionally, during 2013/14, the Council purchased a GPS unit that is provided to the contractors when they complete a job so that it can be surveyed accurately.

Case Study: Tauranga City Council critical water reticulation assets.

Critical water mains, valves, and plant assets are identified using different criticality analysis. The following criteria is used to calculate pipe criticality:

C (pipe i) = Average (P1+P2+P3+P5) (pipe i).

Water demand criterion (P1) is computed as ratio QPipe/QDemand, where Qpipe represents flow in pipe at the specified time and QDemand represents total average network demand (in flow units). The range of this indicator varies from 0 to 1, where 1 corresponds to the total demand.

Service pressure criterion (P2) is computed as a ratio NONodes<Treshols/ NOTotalNodes, where NONodes<Treshols represents number of network junctions where calculated service pressure is below the required level. NOTotalNodes represents total number of all network junctions. The range of this indicator varies from 0 to 1, with the value of 1 corresponding to the total number of nodes.

Pipe flow criterion (P3) is computed as ratio QPipe/Qhour, where Qhour represents the average hour demand (in flow units). The range of this indicator varies from 0 to 1, with the value of 1 corresponding to the total value of the average hour demand.

Population (P5) criterion is computed as a ratio NOPop/NOPop_Total, where NOPop represents number of customers disconnected from the water supply due to pressure drop below the minimum service pressure threshold. The range of this indicator varies from 0 to 1, with the value of 1 corresponding to the total population figure.

Asset criticality is captured in the asset management system (Accela) for each asset and is used to inform the following asset management practices:

- Renewal Planning: The criticality of the asset, together with condition and failure information, is used in identifying assets for renewals.

- Asset Maintenance: The criticality of the assets was used to prepare operational response plans/maps (see Figure 23) that show the critical pipeline, the location of all the isolation valves (by street location and asset number) and options for alternative supplies and the valves associated with providing this supply. This information is then available to TCC and their contractor to facilitate understanding the impact of any maintenance / repairs on critical mains, enhancing the locating and operation of valves, providing alternative water supplies where possible, and ensuring a clear understanding of the assets involved in the maintenance/repair process.

- Risk and Resilience Planning: A risk identification and control plan are created for critical assets that are vulnerable to natural disasters. Additional risk controls are identified where current control (e.g. condition assessments and maintenance programmes) does not adequately reduce risks to an acceptable level.

- Emergency Response: The results from the assessment inform the Critical Asset Lifelines layer in the BOP Lifeline GIS tool. This information is used in the planning and response to emergency events.

Figure 22
Tauranga City Council's renewal priority calculation

Case study 6.3

Case Study: Tauranga City Council critical roading assets.

Since 2009, Tauranga City Council identifies critical pavements, bridges, walls, and embankments using the analysis framework below. (Note: This framework is currently being reviewed to consider One Network Roading Classifications and how these could inform the process.)

Figure 23
Structured Analysis Framework – Definitions used to assess asset criticality

Aspects		Low (3)	Moderate (6)	High (10)
Safety (40%)	**Human Safety**	Some injuries	Hospitalisation, multiple injuries, single fatality	Multiple fatalities
	Property Safety	Some minor damage	Significant damage to 3rd party properties/ infrastructure	Loss of multiple properties, 3rd party infrastructure
Availability (40%)		Some inconvenience and delays	Significant inconvenience and delays > 2 weeks	Major prolonged inconvenience and delays, loss of emergency access
Capacity (10%)		Some inconvenience and delays	Significant inconvenience and delays > 2 weeks	Major prolonged inconvenience and delays
Quality (5%)		Default	> 8,000 vpd	CBD, tourist route, > 15,000 vpd
Environment (3%)		Minimal effect, short term and reversible	Significant but non-permanent effect	Major long-term environmental damage
Cost Effectiveness (2%)		Wouldn't greatly affect any planned works	Significant effect to works programmes in a single year	Major effect on existing programmes

Assets with a total criticality score of 9 or more are classified as Critical A, 4 or more as Critical B, and less than 4 as non-critical.

Asset criticality is used to inform the following asset management practices:

- Renewal Planning: The criticality of the asset, together with condition and failure information, is used in identifying assets for renewals.

- Risk and Resilience Planning: A risk identification and control plan are created for critical assets that are vulnerable to natural disasters and/or support other critical lifeline assets (e.g. water supply assets). Additional risk controls are identified where current controls (e.g. condition assessments and maintenance programmes) do not adequately reduce risks to an acceptable level.

- Emergency Response: The results from the assessment inform the critical asset lifelines layer in the BOP Lifeline GIS tool. This information is used in the planning and response to emergency events.

Assessing data reliability

Clear data reliability provides clarity over the robustness of plans, and the degree of contingency that may need to be built in to achieve the planned result. The International Standard ISO 55000 agrees. It states that:

> The organisation should develop processes to provide for the systematic measurement, monitoring, analysis and evaluation of the organization's assets, asset management system and asset management activity on a regular basis… The processes for monitoring performance should address … the quality, reliability and completeness of the financial and non-financial asset information.[2]

Having worked hard to establish a dataset, it is important to understand its strengths and weaknesses. We expect a clear, comprehensive schedule of data reliability covering:

- asset information;
- condition;
- performance;
- valuation; and
- financial forecasts.

It is important that an assessment of data reliability is based on a structured review; a planned process. Some analysis of the database is required. While there are many aspects of asset management that appropriately rely on professional judgement, this is not one of them. Once data reliability is known of course, judgement becomes important in working out the implications.

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2   International Standard on asset management ISO 55002 9.1.1.1 to 9.1.1.2.

Case Study: Greater Wellington Regional Council is clear about its data reliability.

The Council's Transport AMP covers data confidence levels with a series of tables set out in line with International Infrastructure Management Manual good practice. These tables set out an excellent analysis of data reliability covering all the dimensions of data we would expect.

In the absence of a grading system designed specifically for bus related assets, the Council has been resourceful and borrowed from the best practice developed in other asset areas. The confidence in data used as a basis for the financial forecasts has been assessed using a grading system from Water New Zealand – the New Zealand Water and Wastes Association Guidelines for Infrastructure Asset Grading Standards. While the asset groups might be different, the principles of data reliability remain the same.

More important than where they sourced the grading system from, the Council now has a frank and robust assessment of its data reliability and is able to think clearly about what it means for planning.

Figure 24
Greater Wellington Regional Council is clear on the reliability of its data

Confidence grade definitions

Grade	General Meaning
A	**Highly reliable -** Data based on sound records, procedures, investigations and analysis which is properly documented and recognised as the best method of assessment
B	**Reliable -** Data based on sound records, procedures, investigations, and analysis which is properly documented but has minor shortcomings, for example the data is old, some documentation is missing and reliance is placed on unconfirmed reports or some extrapolation
C	**Uncertain -** Data based on sound records, procedures, investigations or analysis which is incomplete or unsupported, or extrapolation from a limited sample for which grade A or B data is available
D	**Very uncertain -** Data is based on unconfirmed verbal reports and/or cursory inspection and analysis

Confidence grades have been assessed as:

Demand forecasts	B	Reliable
Performance and service gap interpretation	B	Reliable
Asset inventory	B	Reliable
Unit rates	B	Reliable
Base lives	B	Reliable
Condition data		
- **Bus**	B	Reliable
- **Rail infrastructure**	B	Reliable
- **Rolling stock**	B	Reliable
Remaining lives		
- **Short term**	B	Reliable
- **Long term**	D	Very uncertain
Valuation and depreciation	B	Reliable
Financial forecasts		
- **Short term**	B	Reliable
- **Long term**	C	Uncertain

Data confidence

Attribute	A Highly Reliable	B Reliable	C Uncertain	D Very Uncertain
Bus Assets				
Asset type	✓			
Quantity		✓		
Location		✓		
Date of construction			✓	
Asset performance		✓		
Condition/remaining life		✓		
Rail Infrastructure Assets				
Condition/remaining life		✓		
Asset type	✓			
Date of construction			✓	
Location		✓		
Quantity		✓		
Asset performance		✓		
Rolling Stock Assets				
Condition/ remaining life		✓		
Asset type	✓			
Date of construction	✓			
Location	✓			
Quantity	✓			
Asset performance		✓		

Data must inform

ISO 55000 recognises that turning data into information is a significant task. However, it is a necessary one.

> *Asset information systems can be extremely large and complex in some organizations, and there are many issues involved in collecting, verifying and consolidating asset data in order to transform it into asset information.*[3]

> *Effective asset data management and the transformation of data to information is a key to measuring asset performance.*[4]

Case study 6.5 **Case study: Investing in Strategic Asset Management Assessment tools at Interislander to generate maintenance plans, forward works programmes and other key deliverables.**

InterIslander recognised the need to improve its knowledge and strategic understanding of its assets, principally ships and terminal infrastructure.

Figure 25
Interislander's Asset Management Assessment tools have been applied to all three ships' asset components

Interislander has engaged Asset Engineering Services Pty Ltd to introduce Strategic Asset Management Assessment tools, accessed via a web application portal – the "Asset Management Knowledge Centre" (AM KC).

These tools allow for a range of assessments on the asset, including:

• Asset component criticality and condition;

• A prioritised works list, to inform the Opex and Capex work programmes;

• Asset component baseline ratings; and

• Forward Works Programme.

3   International Standard on asset management ISO 55000, 2.5.3.5.
4   International Standard on asset management ISO 55000, 2.5.3.7.

Interislander applied considerable effort into gathering asset condition information for each ship within the ferry fleet, through both self-assessment inspections and by contracting Global Class Society DNV GL to perform a thorough "ship walk-over" and condition documentation. This activity, combined with the outputs of a range of other assessments, has formed a strong basis from which a robust Forward Works Programme was able to be developed.

Interislander will feed some of the summary information, stored within the AM KC, into its works management system, called AMOS, to improve the targeting and timing of work activities applied to the ships asset components.

To support works management compliance, a detailed report is generated from the AMOS data on a monthly basis for each ship, and the fleet as a whole. This Compliance Report, and AM KC Strategic Asset Assessment tool outputs, are regularly reviewed by the IAMC Board via presentation of results and a KPI Dashboard.

Figure 26
Interislander's KPI Dashboard for the AM KC Strategic Asset Assessment tool outputs
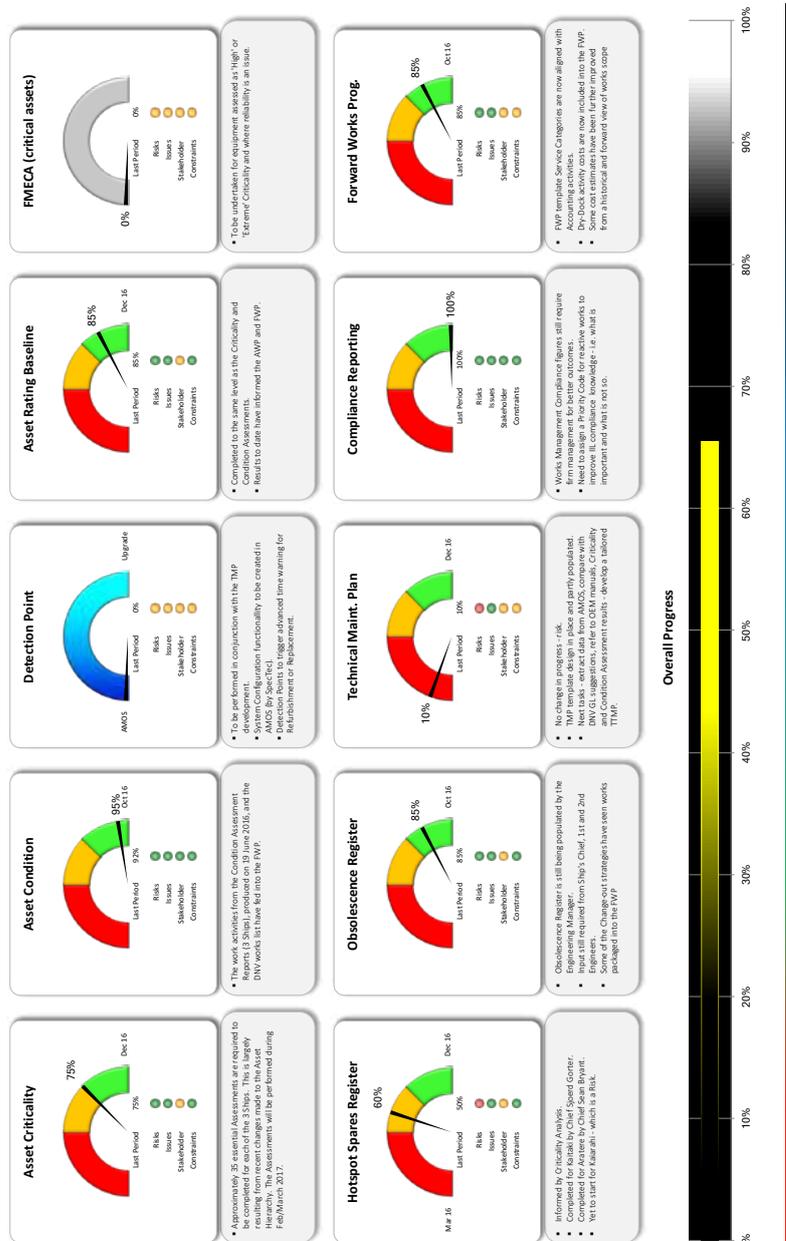
These planning tools provide the business with the visibility of performance and the information necessary to govern over such works to move toward alignment with agreed performance targets.

KiwiRail recognises the value of its asset information, and has invested in it. To move beyond using age as a proxy for when assets need replacement, good quality up-to-date condition information is required to assess actual deterioration rates. A programme of condition assessment surveys results in condition ratings that can be used with other data in the asset management system. There are recognised condition-grading systems for groups of assets. The IIMM provides information on this.

Once condition assessment is gathered, it can be considered as part of the basis for:

- determining intervention points in the assets' life cycle;
- making remaining life predictions; and
- developing programmes of maintenance and asset renewal.

Case study 6.6

Case study: Wellington Water Limited and Upper Hutt City Council working together to make sure that plans are informed by asset condition assessment.

Wellington Water works collaboratively with Upper Hutt City Council to ensure that planning is based on up-to-date and reliable condition information.

Figure 27
Wellington Water and Upper Hutt City Council have a regular and structured programme of condition assessment of the underground pipe assets – illustrated are CCTV inspections of UPVC sewer main and a large root intrusion defect found through the inspection of the sewer main.

For wastewater and stormwater, CCTV inspection of mains has been carried out to identify the structural and service-level condition. The first City-wide CCTV inspection was completed in 2000 and about 90% of mains were inspected. Second City-wide CCTV inspections were completed in 2013 and 2014. To provide a new baseline, an e-CCTV programme is carried out each year as necessary to improve confidence levels. The Council surveys every pipe in the city over 5-year blocks in a 10-year cycle, and in the year of renewal the asset condition is again checked to see whether its replacement priority still applies.

For water supply system assets, pipe sampling is undertaken on both a reactive and pro-active basis. Samples are collected annually based on the inclusion of pipe renewal in the replacement programme within the next five years, reliability of asset information, type of material, and age.

A visual grading of any pipe that is exposed is recorded and a sample retained where any section of pipe is removed during maintenance operations. Pipes are graded from 1 to 5 in terms of the exterior and interior condition of the pipe sample from Grade 1: Very good to Grade 5: Very poor. The sample grading is determined as the poorest condition assessed and recorded in the appropriate works order field.

Figure 28
Wellington Water and Upper Hutt City Council have a regular and structured programme of condition assessment of the underground pipe assets – illustrated are a cast iron water main showing depth of degraded (dark grey) material around a crack and an AC water main showing reduced effective wall thickness (magenta) as indicated by phenolphthalein.

The Council has developed decay curves from the regular assessment of condition. The information is modelled for every asset based on the asset material. The latest condition from the date of inspection to the current date and the decayed condition is used in the model to determine possible replacement year and cost.

Figure 29

Upper Hutt City Council water main condition rating curve example
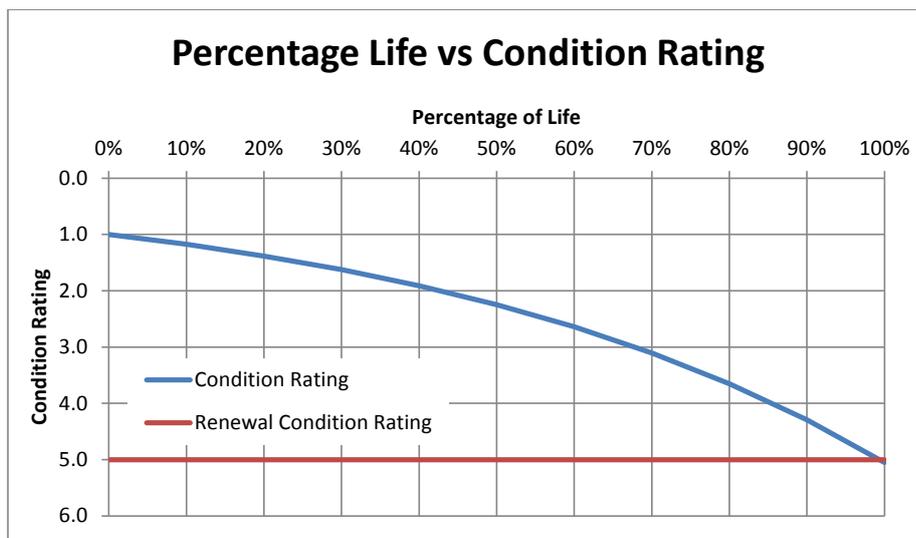
As a result of the effort put into condition rating, Wellington Water and Upper Hut City Council have a clear view of the reliability of their asset data and its potential effect on planning.

Condition information is also important for governing bodies and other decision-makers to understand. It can help them make better-informed decisions or understand the engineers' rationale better. Communicating the data effectively is the key to using it with stakeholders.

Case study 6.7

Case study: Tamaki Regeneration Limited's (TRL) AMP summarises asset condition information for major asset components in a concise, easily understood format.

TRL assessed the condition of houses recently transferred to the company and presented the information for major components using a combination of narrative and pie charts summarising:

- condition of the component (as-new, fit for purpose, minor or major repair);
- asset attribute – e.g. cladding types (weatherboard, brick, stucco, etc.).

Figure 30
TRL has good records of asset characteristics and condition, which it can display in an easily understood visual form

Exterior Cladding
House cladding is mostly weatherboard and 79% is either fit for purpose or as new. Minor and major repairs costs will be assessed and included in budgets (308 require minor repair, while 73 need major repair or have failed). There are currently 1094 timber weatherboard houses, 375 brick, 613 Hardieplank, and 123 stucco.
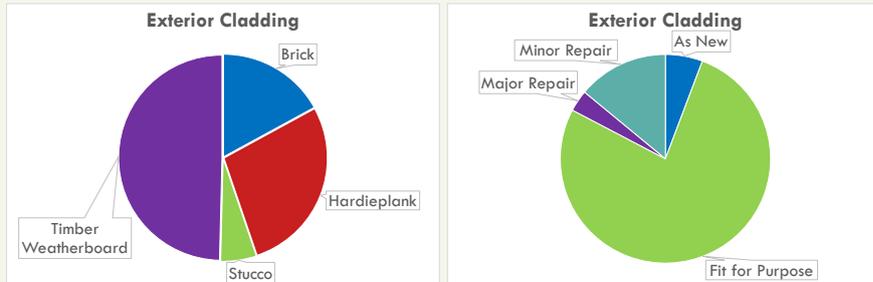
Exterior Joinery
73% of the exterior joinery types are either as new or fit for purpose. 313 require minor repair, while 215 need major repair or have failed. There are 1862 timber joinery and 707 aluminium.
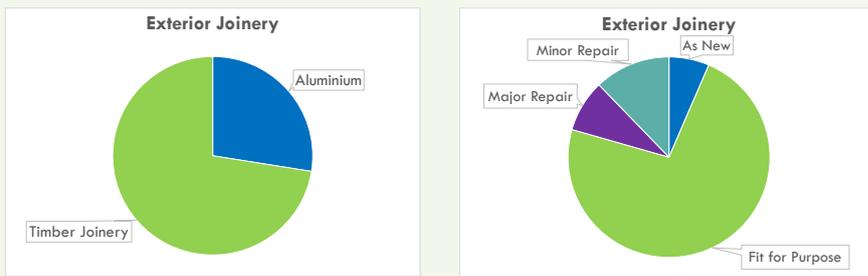
We feel that this is a good practice example because it describes asset condition using terminology that is meaningful to all readers rather than just being a reference document for staff directly involved with asset management. Asset components have been graded using a simple condition rating scale of 1 to 5. The grading for each component has been loaded into TRL's asset management system and forms the basis of the summarised analysis shown above.

The characteristics for each grade from 1 to 5 by major asset component is described in a table that is also included in the AMP.

Figure 31
TRL has well-defined condition grades

Definitions of Condition Grades of Component Groups					
Condition grade	**1 Very Good**	**2 Good**	**3 Moderate**	**4 Poor**	**5 Very Poor**
Estimated proportion of life remaining	Above 55%	55%–37%	37%–25%	25%–11%	Below 11%
Description	As-new condition.	Minor defects only.	Some wear and tear but serviceable. May renew as part of an integrated upgrade approach.	Requires replacement or renewal in near future.	Asset has failed or is approaching failure. Renew or replacement.

Once base data is in place and analysed to come up with programmes of work, communication with stakeholders and decision-makers is key. Being able to communicate effectively about the strategies that result from analysis is the final step in turning data into information.

Case study 6.8

Case Study: Tamaki Regeneration Limited (TRL) has established investment strategies.

TRL has used its asset data to good effect by establishing five investment strategies for the approximately 2800 assets it manages. These strategies range from retaining good-condition, recently built properties to redeveloping houses that are in poor condition within the next two years.

The asset management plan includes a one-page Portfolio Snapshot for each of the five investment strategies that summarise asset data within the housing portfolio. We believe that these portfolio snapshots are particularly effective in that they draw together several key facets of asset management so that the TRL Board and senior management have an overview of the properties within the portfolio for each investment strategy. Each Portfolio Snapshot includes information about:

- Year built; Number of bedrooms; Floor area of the houses;
- Condition of components (using the simple condition grading scale of 1 = very good to 5 = very poor);
- Key KPIs and narrative summarising key facts about the portfolio; and
- Annual operating expenditure and capital expenditure for each of the 15 years that the redevelopment programme covers.

The AMP also includes a Portfolio Snapshot that consolidates the asset data for all properties across the five investment strategies.

Figure 32

An example of TRL's investment strategy on a page approach

Making informed assumptions

Good quality planning relies on clear assumptions to help address uncertainty. Corporate assumptions ensure consistency across multiple service areas. A good set of assumptions balances corporate considerations with factors specifically relevant to the asset group.

Corporate assumptions are likely to include:

- any subsidies or other sources of funding that planning relies on – the New Zealand Transport Agency subsidy is a good example of an assumption applying to roading, but with such significance that it could affect the corporate strategy;
- depreciation and asset lives; and
- population growth/decline.

In addition asset management planning should consider:

- physical asset assumptions (reliability of age data, condition, and performance);
- financial assumptions (reliability of renewal forecasts – unit or contract rates); and
- service assumptions (intentions to review/revisit the manner in which a service is conducted or concerns with the effectiveness of the service to achieve intended levels of service).

Assumptions are based on corporate practices and the extent of knowledge that the organisation has. Asset managers should be provided with a clear set of corporate assumptions on which to base plans and financial forecasts. They should also have the opportunity to influence these assumptions. It is important to recognise and reconcile any differences between the corporate long-term strategic planning and asset management planning including:

- discussing the consequences of any inconsistency; and
- reporting differences and resulting effects.

Case study 6.9 **Case study: Nelson City Council: planning based on consistent assumptions.**

Nelson City Council had a well-described approach to setting assumptions and ensuring consistency across its various asset groups.

Corporate-level assumptions were developed and cascaded to the AMP delivery teams at the beginning of the planning process. A corporate team provides oversight and co-ordination of the AMPs in development and can identify any assumptions identified at service level that may have wider implications. This circular arrangement helps make sure that everyone involved in the plan is clear on its basis.

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Case study: Greater Wellington Regional Council was clear what it was assuming at both corporate and service levels.

GWRC documented a clear set of corporate assumptions covering NZTA subsidy, depreciation and asset lives, and population growth/decline.

Specific assumptions supplement and support these at asset group level. For water, they cover population, consumption, supply, and levy.

For transport, they cover inflation on diesel bus contracts, debt funding, interest-free Crown loan, rates, fare revenue, growth in patronage, trolley buses, integrated fares, and ticketing.

Assumptions about service delivery arrangements are not explicit in the corporate set of assumptions, but there is good coverage of GWRC's integration with Wellington Water in the relevant AMPs.

Assumptions about the reliability of asset age, description, condition, and performance are well covered with dedicated sections in GWRC's AMPs.

Figure 33

An extract from Greater Wellington Regional Council's corporate assumptions document – in this case, showing some of its non-financial assumptions. The entire document ran to 10 pages of clearly documented assumptions. Estimates of potential effects were included where the Council could assess these with confidence.

Non-Financial Assumptions

	Assumption	Level of uncertainty
Population trends	That the regional population will continue to grow at the medium growth rate as projected by Statistics New Zealand and will reach approximately 538,700 by 2026 and 559,900 by 2046.[1] Natural increase is the primary driver for growth. More than three quarters of the region's projected growth will be at 65+ years. Population decline is expected at the 0-4 and 15-29 year age groups. The ratio of elderly (65+ years) to children (0-14 years) will increase rapidly from the current 0.64 (six elderly for every ten children), to 1.16 (12 elderly for every ten children) by 2031. Only modest changes to the overall ethnic composition of the region. The 'European / Other' ethnic group is expected to decrease slightly to 67.7% by 2021. Maori, Pacific Island, and Asian groups will increase slightly.[2]	Medium
Indicative areas of urban growth / intensification	Our assumptions on where urban growth and intensification will take place are based on the best publically available information from territorial authorities various urban growth / development strategies including: • Kāpiti Coast: Choosing Futures - Development Management Strategy 2007 (Kāpiti Coast District Council) • Proposed Kāpiti Coast District Plan 2012 (Kāpiti Coast District Council) • 2007 Urban Growth Strategy (Upper Hutt City Council) – *under review* • 2012-2032 Urban Growth Strategy (Hutt City Council) • Wellington Urban Growth Plan 2014-2043 (Wellington City Council) • Porirua Development Framework 2009 (Porirua City Council) • Operative Wairarapa Combined District Plan (Masterton, Carterton and South Wairarapa District Councils) – Subdivision, Land Development & Urban Growth chapter.	Medium
Economic growth[3]	Employment in the region is projected to grow from 226,600 full-time equivalents (FTEs) in 2013 to 285,300 FTEs in 2041. This equates to an annual growth rate of 0.82% (which is 0.33% below the national average). GDP in the region is projected to grow from $23,020 million in 2013, to $44,180 million in 2041. This equates to an annual growth rate of 2.36% (which is 0.15% below the national average).	Medium

[1] Source: Projections produced by Statistics New Zealand according to assumptions agreed by GWRC. 2006 base year
[2] More details, including breakdowns by territorial authority are included in Professor Natalie Jackson's report for GWRC - Greater Wellington – Socio-Demographic Profile 1986-2031, August 2012
[3] Source: BERL economics, August 2014, *Growth scenarios for the Wellington Region: Towards 2041*
Draft GWRC LTP Combined Planning Assumptions 18 December 2014

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Clearly expressing your assumptions is an important part of accountability. It allows your stakeholders to take an informed view of your planning, and to understand what factors might leads to plans changing. They can also take a view on whether your assumptions are reasonable, which is all part of ensuring that the right debate takes place.

Case study: Tasman District Council included a nicely formatted example of how to express asset-related assumptions in its Asset Management Plans.

It is important for assumptions to be consistent between strategies and plans. Tasman District Council managed consistency between its Infrastructure Strategy and the detailed asset management plans it developed for its asset-intensive services.

We liked the discussion the Council included alongside its assumptions, which we felt gave the reader a more informed view of why the Council had made the various assumptions. Assumptions will never be perfect. It is their role to deal with uncertainty. However, they need to be reasonable, so explaining their basis, the thinking that has gone into them, and what might require them to be changed is good practice.

Figure 34

Tasman District Council has clear and consistent assumptions supporting both its strategy and plans

Assumption Type	Assumption	Discussion
Financial assumptions	That all expenditure has been stated in 1 July 2014 dollar values and no allowance has been made for inflation and all financial projections are GST-exclusive.	The LTP will incorporate inflation factors. This could have a significant impact on the affordability of the plans if inflation is higher than allowed for, but the Council is using the best information practically available from Business and Economic Research Limited (BERL). The bitumen cost index is subject to high fluctuations and is difficult to predict and manage.
Asset data knowledge	That the Council has adequate knowledge of the assets and their condition so that the planned renewal works will allow the Council to meet the proposed levels of service.	There are several areas where the Council needs to improve its knowledge and assessments, but there is a low risk that the improved knowledge will cause a significant change to the level of expenditure required.

Assumption Type	Assumption	Discussion
Growth forecasts	That the district will grow as forecast in the Growth Demand and Supply Model (refer to Appendix F).	If the growth is very different, it will have a moderate impact. If higher, Council may need to advance capital projects. If it is lower, Council may have to defer planned works.
Timing of capital projects	That capital projects will be undertaken when planned.	The risk of the timing of projects changing is high due to factors like resource consents, funding, and land purchase. The Council tries to mitigate these issues by undertaking the consultation, investigation, and design phases sufficiently in advance of the construction phase. If delays are to occur, it could have significant effects on the level of service.
Funding of capital projects	That the projects identified for subsidies will receive subsidy at the anticipated levels.	The risk of Council not receiving project subsidy is high due to the current NZ Transport Agency's criteria. If subsidies are not secured, it may have a significant effect on the levels of service, as projects may be deferred due to lack of funding.
Accuracy of capital project cost estimates	That the capital project cost estimates are sufficiently accurate enough to determine the required funding level.	The risk of large underestimation is low; however the importance is moderate as the Council may not be able to afford the true cost of the projects. The Council tries to reduce the risk by including a standard contingency based on the projects' life cycle.
Land purchase and access	That the Council will be able to secure land and/or access to enable completion of projects.	The risk of delays to project timing or changes in scope is high due to the possibility of delays in obtaining land. Where possible, the Council undertakes land negotiations well in advance of construction to minimise delays. If delays do occur, they may influence the level of service the Council can provide.

Assumption Type	Assumption	Discussion
Changes in legislation and policy, and financial assistance	That there will be no major changes in legislation or policy.	The risk of major change is high due to the changing nature of the Government and politics. If major changes occur, it is likely to have an impact on the required expenditure. The Council has not mitigated the effect of this.
Resource consents	That there will be no material change in the need to secure consents for construction activities and that consent costs for future projects will be broadly in line with the cost of consents in the past.	The risk of material change in the resource consent process is low.
Emergency funding	That the level of funding in these budgets and held in Council's disaster fund reserves will be adequate to cover reinstatement following emergency events.	Funding levels are based on historic requirements. The risk of requiring additional funding is moderate and may have a moderate effect on planned works due to reprioritisation of funds. Note, this assumption may need to be revised once the costs of the December 2011 heavy rain event are known.
Network capacity	That Council's knowledge of network capacity is sufficient enough to accurately programme capital works.	If the network capacity is higher than assumed, Council may be able to defer works. The risk of this occurring is low and will have little significance. If the network capacity is lower than assumed, Council may be required to advance capital works projects to address congestion. The risk of this occurring is low; however the impact on expenditure would be significant.

Good-quality data is at the heart of effective planning. It allows accurate and informative analysis. It allows trade-offs to be determined with confidence so that the best value whole-of-life strategies can be determined:

- good planning relies on good quality data, and good asset management practice updates asset knowledge and information systems as work is carried out;

- data systems can only be as good as the way in which they are operated;

- it is important to be clear on the reliability of asset data and have firm plans in place to maintain its accuracy or bring it up to the level it needs to be;

- data needs to be clean, and free from errors that would make a material difference;

- organisations need a clear process to update their data in a timely and accurate manner – condition information can be particularly useful; and

- good-quality planning relies on clear assumptions to help address uncertainty.

Part 7
Asset management for small entities

What do we mean by a small entity?

In 2015, Audit New Zealand audited the long-term plans of 63 councils. These councils varied in size from the Chatham Islands with just over 600 residents through to the Auckland super-city with over 1.5 million residents.

We identified 15 councils that we classify as "small'. These councils have resident populations of less than 15,000 and generally cover a large area with one or more towns servicing rural communities. For many of the small councils, there is limited growth in demand for infrastructural assets and, in some cases, de-population resulting in redundant capacity.

Our audit findings from working with these small councils are equally applicable to any smaller organisation that has a significant asset base to manage. The councils we identify as being small are not small asset owners in the context of the New Zealand public sector. They have significant networks of infrastructure to manage, and rely on it for their core service delivery. Their challenges are just as likely to apply in other organisations with a significant asset base but limited resources. We think that some of the solutions could be applicable too.

Strengths and weaknesses

Our long-term plan audits looked at six key areas:

- The control environment surrounding asset management planning;
- The quality of asset data;
- Asset life cycles;
- Financial forecasts of operating costs, repairs, maintenance, and capital expenditure;
- Assumptions; and
- Levels of service.

We scored each area as well as assigning an overall score. We used a four-point scale: "excellent", "good", "needs improvement", and "poor".

We took the size of the council into account and based the grading on what we would consider appropriate or fit-for-purpose for a council of that size. Consequently, our expectation of what constitutes "excellent" for a small council is quite different to what "excellent" looks like for a big city or larger district council.

Figure 35 shows what percentage of all the councils we reviewed were assessed as being "excellent", "good", "needs improvement", or "poor" for each of the six key areas and overall.

We carried out a similar exercise looking at the grades assigned to the 15 "small" councils we reviewed. You can find the results at Figure 36. Graphing the results gave us some interesting insights into the challenges for small councils.

Figure 35
The percentage of all councils given the four grades for each aspect of planning we assessed
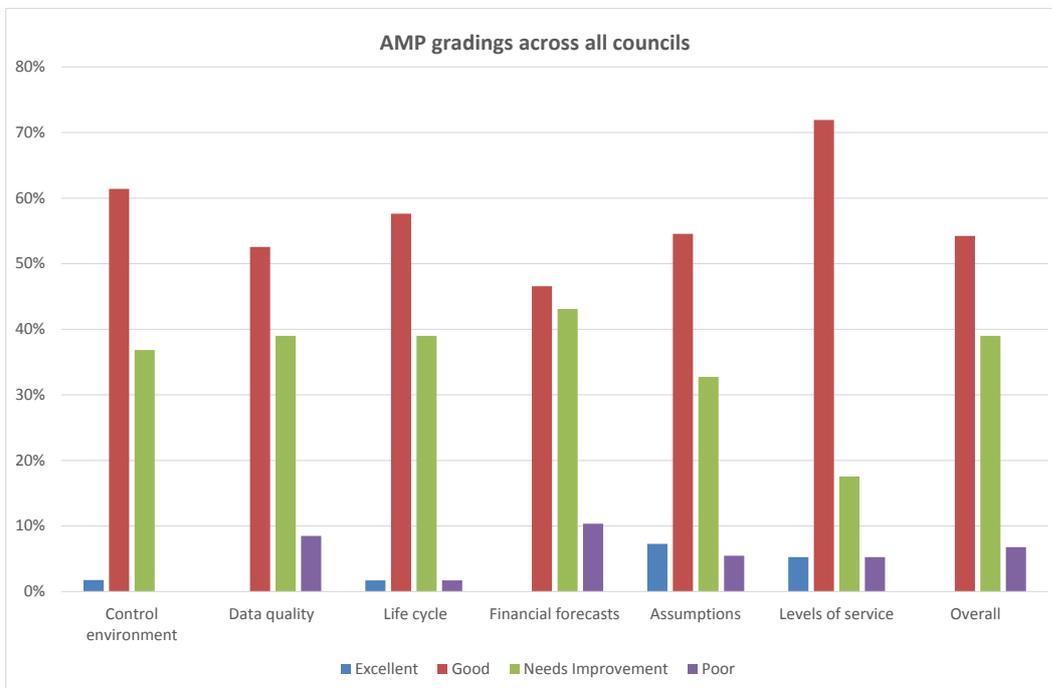
Figure 36

The percentage of small councils given the four grades for each aspect of planning we assessed, showing the generally weaker performance of the small entities
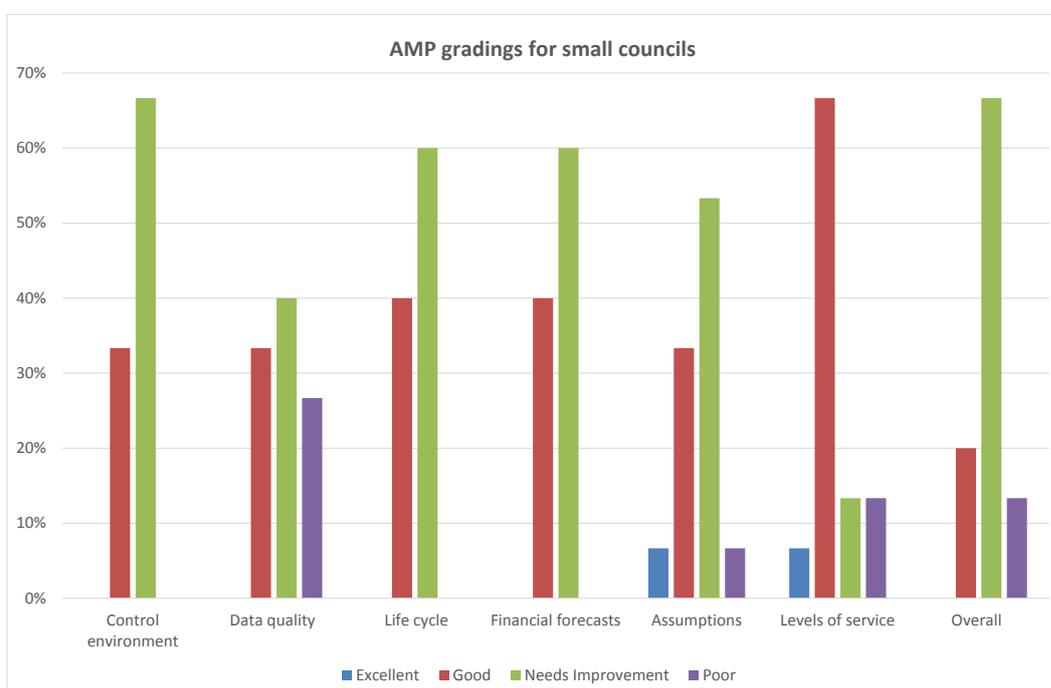
As Figure 35 shows, the majority of the 63 councils we reviewed were "excellent" or "good" across most aspects of their asset management planning. The exceptions were the financial forecasts resulting from asset management. This contrasts markedly with our grades for small councils (Figure 36), with five of the six key areas showing the majority as "needs improvement" or "poor".

Across all councils, three areas of strength stood out. With more than 60% graded "excellent" or "good", the strongest areas of practice were:

- the control environment for asset management planning;
- the appropriateness of assumptions; and
- having a clearly identified set of service levels supported by the assets.

The only area where more than 60% of small councils were graded as "excellent" or "good" was identifying levels of service for assets. In all other aspects of asset management, at least 60% of small councils were assessed as "needs improvement" or "poor", with 80% receiving one of these grades for their overall asset management practices.

Areas that small entities can improve

As we were only looking for an appropriate, fit-for-purpose approach to planning in the small organisations, we wondered what was leading to our lower assessments. Identifying them should help indicate priorities for improvement and help share our learning.

We identified a number of themes that seem to be common to many of the 15 small councils. It is important to note that we also identified almost all of these weaknesses in one or more larger councils too, but they do not appear as frequently.

1   No asset management policies

None of the smaller councils had a clear policy defining the organisation's approach to asset management. An asset management policy framework should give clear guidance on the:

- organisational context for AM;
- services for which AMPs are required;
- how AM practices are integrated into the organisation's business processes;
- roles and responsibilities for AM;
- process for deciding on required level of sophistication (minimum, core, intermediate, or advanced);
- performance measures for AM, such as time frames for reviews and community consultation; and
- the extent to which AM is expected to contribute to the Council's sustainable development objectives.

Policy should reflect what is realistic and desirable for a particular organisation.

2   Asset management sophistication

Smaller organisations should focus on performing asset management consistently well, but at the appropriate level. It is better to be realistic than set aspirational targets, so that the appropriate level can be achieved within reasonable time frames.

Consequently, for most if not all small councils, a core level of maturity across the board may well be sufficient to ensure that asset management information is appropriate for use in long-term planning and other decision-making processes (e.g. deciding on life cycle strategies for what assets are replaced and when).

3   Resourcing the asset management function

There are limited staff resources available to carry out asset management in smaller councils. In some cases, there is no formal asset management structure and asset management planning is viewed as an add-on to an engineer's responsibilities. This is fine, as long as the staff have the time to devote to planning alongside their day-to-day responsibilities.

In a few cases, we found that asset management is carried out by contractors with varying degrees of involvement by council staff. While contracting-out facets of asset management is reasonable, it is important that overall responsibility for asset management remains with the organisation so that it is able to access accurate information as and when required.

4   Documenting practices and succession planning

In many cases, asset management is carried out by long-standing staff who have excellent knowledge of the assets within their district. The extent to which asset management processes and data are documented is variable, with decisions instead being based on staff knowledge of what has happened to different assets in the district over a long period of time. There is a risk that effective decision-making may be hindered and institutional knowledge lost if systems and process are not documented before these staff leave or retire. There may be opportunities to broaden the range of staff involved in asset management planning so that the absence of key AM staff (either temporarily or permanently) would not leave the organisation exposed.

5   Collaboration with other councils

We saw benefits from collaboration between small entities. While there are some alliances in place, either formally or informally, we think small organisations could consider again whether there are opportunities for working collaboratively with other similar organisations to improve asset management processes and data.

6   Engaging governance groups in discussions about asset management

We found that some small councils had excellent engagement with the elected representatives. We also found others where the elected representatives were not involved in discussions with staff (either by choice or design) to enable them to make better-informed decisions as part of their long-term planning.

7   Improvement planning

We noted that many AMPs included a statement along the lines of "Council takes a managed approach to improvement planning, with adequate resources allocated and clear monitoring of performance". In practice, we found this was often not the case, with insufficient or no resources allocated for working on the actions identified in the improvement plan and/or no monitoring of progress with improvement initiatives.

8   Use of peer review

Given the limited resources available for asset management at small councils, we were surprised at how many chose not to make use of independent peer review as a way of ensuring that asset management plans prepared by council staff were fit for purpose and provided an appropriate basis for long-term planning. In cases where AMPs were prepared by an external consultant, we expected that council staff would still need to review them.

A genuinely independent review can add significant value, especially when there is limited asset management expertise locally. If not using a consultant with specialist asset management knowledge, entities can consider having planning peer-reviewed by staff at another similar organisation, potentially in return for doing a peer review themselves. This can be a cost-effective way to expose planning to the rigour of another perspective by sharing the expertise already available in the sector.

9   Asset management systems

There is a high degree of consistency in the asset management systems used by small councils. All 15 use RAMM for roading assets and the majority use AssetFinda for other infrastructural assets with varying levels of detail, accuracy, and interfaces with the GIS system. In a few cases, asset information is still held on spreadsheets instead of a proper asset management system. This limits the use of the asset data to provide accurate, up-to-date information for staff managing the assets as well as challenges with version control and maintaining the integrity of the spreadsheet.

The fact that so many councils use the same systems provides opportunity for sharing hints, tips, and practices through the user groups devoted to the various systems available. We suggest that all small entities with significant asset bases to manage should work towards having asset information system functionality that (as stated in the 2015 IMM Manual) delivers as a minimum:

- an asset register to store primary asset attributes (type, material, dimensions, quantity, construction date) including metadata;
- provision for accounting requirements (e.g. produce asset listings with sufficient information for periodic revaluations by an external valuer);
- ability to report on key measures of condition and performance;
- basic risk functions (recording lifelines and asset criticality);
- customer service request management; and
- maintenance management.

10   Determining work programmes

Maintenance and renewals programmes are often driven primarily from staff knowledge and historical issues with assets. This results in there being no formal or planned basis for determining what the programmes of maintenance and asset renewal should in fact be. This makes it hard to judge whether the optimal balance has been struck between continuing to maintain the assets rather than renewing them.

11   Quality of data held in the asset management system

We identified a variety of weaknesses in the quality of data held in the small councils' asset management systems including:

- significant chunks of data being graded "very poor" or "poor" in terms of reliability, especially for in-ground infrastructural assets;

- functionality of systems such as AssetFinda not being used to its potential;

- no systematic process in place for asset condition surveys;

- processes to keep data up to date reliant on a key resource rather than being a key part of an embedded process;

- an absence of QA processes to confirm that assets in the asset management match those being used on the ground;

- information about asset performance not recorded in the AM system; and

- critical assets, if identified, not being recorded as such in the asset management system.

12 Improvement plan

The improvement plan should be allocated sufficient resource to actually undertake the planned work. Progress against the plan should be monitored regularly.

If there is limited resource and/or time to carry out all the actions identified as being necessary to achieve the desired levels of asset management sophistication and data reliability, entities need to ensure that the required tasks are prioritised and the most important initiatives progressed.

It is better to have a few improvement initiatives that the organisation actively progresses rather than including a long list that ends up being purely academic or that cannot be progressed due to insufficient resources.

Across the New Zealand public sector, even relatively small organisations can have significant networks of infrastructure to manage. While their approach does not need to be as sophisticated as would be expected in a larger entity, there are a number of areas that small entities need to improve:

- putting in place fit-for-purpose asset management policies;

- resourcing the asset management function;

- engaging governance groups;

- taking a planned approach to necessary improvements;

- using peer review to challenge practices and suggest cost-effective improvements;

- ensuring that procedures and practices are documented, so that they can be retained when experienced staff move on;

- sharing the experience of others using the same asset information systems; and

- being more structured about how data is gathered and kept up to date.

Part 8
How helping your auditor can be helping yourself

Asset management planning should not be done purely for the auditor's benefit – but there are some things that make it easier to be accountable. In being prepared for the auditor, we believe you can also help yourself. The planning required to be ready for an audit, and the rigour of external accountability, help focus the minds of those in senior management and governance roles on the clarity of asset information, analysis, and the resulting decisions.

Some general points on preparing for accountability

1 Seek direction from the governing body early

Priorities, especially those requiring stakeholder consultation, need to be clearly defined ahead of an audit. For local government, it is important that staff preparing the consultation document, LTP, and underlying information understand what strategic direction Councillors wish to take. The governing body has a lead role in determining acceptable scenarios. Being clear about scenarios underpins effective decision-making. We have found that, when staff have clear direction, long-term planning becomes more efficient.

Getting timely direction enables everyone to be on the same page as to the key issues. This often reduces the number of versions of draft documents that come our way for review, resulting in a more efficient audit.

The importance of this direction-setting is not unique to Councillors; it applies to all those in governance roles at asset-intensive organisations.

2 Engage with the auditor early

Planning, preparation, and openness are key. For example, auditors will start discussing the 2018 LTP round well before the start of 2018. Even before we have been in touch, we encourage organisations to contact us if risks and issues become apparent. Openness supports accountability. Being prepared is the key to an efficient audit. We can be more helpful if we are aware of the issues an organisation is wrestling with. An auditor's view can often help resolve how to deal with a tricky issue appropriately.

3 Follow a project-management approach

It is useful to treat any long-term planning process and the accompanying audit as a project. We find the audits that go well are those where the client has a project plan. Milestones need to be set, recognising interdependencies between all the parties involved in preparing planning documents.

Progress against this plan needs to be continually monitored and adjustments made to factor in any slippage in delivery of outputs and meeting milestones.

4   Be realistic about time frames for delivering documents for audit

We understand that long-term strategic planning is a complex undertaking with input from many people both within and external to your organisation. However, in every local government planning round, we have found some councils unable to deliver to optimistic timelines. It helps our planning and our ability to resource audits better if we have achievable estimates of when information will be available for audit.

This is really a point about having a planned approach, and everybody sticking to it. If the auditor's input is planned at the right time, the feedback from the audit is likely to be more valuable.

5   Assign a senior staff member responsibility for quality assurance

It saves a lot of time for everyone if a senior staff member carries out a quality assurance (QA) review of draft planning documents before passing them to audit. In local government, this might mean the Consultation Document, Infrastructure Strategy and Financial Strategy. This QA should include checking that the messages, themes, issues, assumptions, and financial information are consistent across all documents. Inconsistencies mean auditors have to spend time trying to work out which fact or figure is right. It is not the auditor's role to perform the QA role; nor should QA be carried out in-house by a junior staff member. It is not an administrative task, it is about ensuring the quality of planning.

6   Asset management planning is not a compliance exercise, and neither is the production of asset management planning documents

Preparation of AMPs and SAMPs should not be regarded as a compliance exercise done to keep auditors happy. They are a key deliverable of a good quality robust planning process. They help provide clarity around AM decisions and identify gaps in AM processes, systems, and data.

It is best to assume that any plan could be subject to audit. Try not to find yourself in the same position as one council that focussed on preparing plans only for activities they knew were being audited. When we asked to see the plans for some of their other activities, that council was unable to provide them.

If you do not have sufficient resource to prepare AMPs for all activities, focus on getting them in place for the key infrastructure before looking at other less critical and/or risky assets. The SAMP should support strategic planning, so needs to be in place at least for all those services that are strategically significant.

7   Less can be more

An effective strategy when preparing operational AMPs is to work on the principle of less is more. Rather than populating an AMP with academic-type information that you believe audit will want to see, make it a "living" document that presents relevant information in a concise manner that is up to date and easy to keep up to date.

Some of the more effective AMPs we have seen have less than 50 pages but still manage to incorporate all the significant information we expect to find in a well-thought-out AMP.

8   Scenario analysis

The tools available in asset management systems provide some good analytical tools. Better analysis and information facilitates better informed decision-making. For example, running some scenarios over the timing of maintenance and renewals to see how asset need can be met while balancing disruption and affordability can be useful. Looking for synergies between asset groups is helpful so that you only "dig up the road once" is good practice and can be well explained in an AMP.

Smoothing expenditure levels between years is reasonable business practice but we expect asset managers to demonstrate how asset management decisions affect the financial position. Conversely, we expect the accountants and financial planners to understand the effect of financial decisions on the assets.

Asset management planning is not for the auditor's benefit – but there are some things that make it easier to be accountable and can be helpful in their own right:

- Make sure that the governing body is clear on its priorities, and engage early with auditors on significant issues.
- Be realistic about time frames and follow a project-managed approach.
- Assign a senior staff member responsibility for quality assurance.
- Asset management planning is not a compliance exercise, and neither is the production of an asset management plan. The process and the resulting document needs to be useful.
- Documented plans do not need to be lengthy. They need to cover all the issues, but the best are readable, living documents.
- A good plan sets out scenarios that link planning decisions to the organisation's financial position. Clear assumptions and an assessment of data reliability complete the information required for accountability.

For Governing Bodies and Senior Management

Part 9
The top ten questions that governing bodies and senior management need answered

Long-Term Investment Strategy, Long-Term Plan, Infrastructure Strategy, or SAMP; whatever your asset-related strategic document's name, there are some key questions that apply.

Reflecting on the findings from our work, we believe that there are ten questions that every senior manager and member of a governing body needs to know the answer to. If your organisation owns and operates a significant asset base, or your service delivery is highly reliant on assets, we think you should ask yourself these questions:

1 Have you got a strategy for the long-term sustainability of your assets?

This should set out your long-term approach to owning and managing assets in support of service delivery. The levels of service you have committed to should be clear. The strategy should match the work that the assets require to meet these service levels and a funding strategy that ensures that this work is affordable.

2 Have you set an asset management policy?

This defines your approach. It should cover what you are trying to achieve; who is responsible; what you need in order to be successful; the appropriate level of sophistication for your planning; an assessment of whether you are already there or need to improve some things; a clear definition of when plans should be updated, by whom, and who approves them.

3 Do you have good quality up-to-date asset management plans for achieving your strategy?

Plans need to be up to date, realistic, and achievable. The plans should cover all assets, detail their life cycle management strategies, and explain how to put these into practice. They should include detailed financial forecasts and budgets.

4 Does your organisation have appropriate asset management skills and experience?

Good planning needs well qualified, experienced staff. You should be assured that you have appropriately qualified and experienced staff responsible for all asset categories. Staff should have access to continuing professional development. You should access external expertise when needed.

5 Do you know the reliability of your asset information?

You should have formally assessed the reliability of asset information so that you understand the implications for your planning. With less reliable information, you may make less well-informed decisions and face more unplanned work. You should be working to improve the reliability of your data.

6   Do you have a structured approach to assessing the condition and performance of your assets?

Condition and performance information contribute to well-informed decision-making. Data should be up to date, reliable, and captured in an asset information system.

7   Have you defined a clear and comprehensive set of service levels to be delivered or supported by the assets?

Support for service delivery is the purpose of asset management. For planning to be well informed, service levels need to be clearly expressed. They should cover technical standards and levels of performance as well as customer expectations of service delivery.

8   How well do you forecast future demand for the services that are delivered or supported by your assets?

Current and future demand for your assets should be clear, including an assessment of alternatives and substitutes that people can choose, as well as changes in demographics and patterns of use. Understanding changing demand and its effect on assets is central to long-term sustainability.

9   Do you report, and get reports on, achievement of your asset management plan(s)?

Good quality monitoring and reporting provides assurance that plans are actually being delivered and are having the desired effect. Reporting should cover performance against service levels, delivery of planned work, and actual expenditure against financial forecasts.

10 Do you have a backlog of repairs, maintenance, and asset renewals? And what are you doing about it?

You should be aware of any deferred work, and have made a well-informed decision to defer it. You should understand the risks and knock-on implications. You should have a strategy of divesting assets that cannot be maintained, or catching up with the backlog for assets you need to keep.

Appendix
Asset management glossary

To assist your reading of this report and asset management plans, we have defined the following terms that you will find in the notable examples throughout this report.

AMP: asset management plan.

As-built: refers to a survey or drawing of the actual assets that have been constructed, recognising that they can sometimes vary from what was planned before work started on site. As-built drawings are needed to ensure that asset information systems contain data on the asset as it has been constructed, not how it was planned in theory.

Capex: capital expenditure.

Condition assessment: Condition assessment measures the physical integrity of an asset. It is the systematic process of gathering data on the physical state of assets. It often involves gathering data on a sample of assets and interpolating the condition of others with similar characteristics. The IIMM 2015 says that "condition assessment rating systems provide a standardised descriptive framework that allows comparative benchmarking with similar asset types" Condition is different from asset performance. An asset in poor condition may continue to perform up to the point it fails. Conversely, an asset in good physical condition may no longer provide the required level of performance. An obsolete IT component is a good example.

Critical assets: those assets with a high consequence of failure. They are often found as part of a network in which, for example, their failure would compromise the performance of the entire network. Critical assets should be formally identified as such in an asset information system so that their significance can influence planning. Because of their importance, their management needs special consideration. Options include reducing the effect of their failure (for example, by having a back-up asset), or reducing the likelihood of failure (for example, by not running them at full capacity). Identifying critical assets is closely aligned with managing risk.

Development contributions: funds paid, typically by developers, to local authorities to help with the cost of growth. Coverage of policy on development contributions or financial contributions is provided for in section 106 of the Local Government Act 2002.

Level of service / service level (and relationship to performance measures): The term "level of service" has a particular meaning in asset management. The IIMM 2015 states that the organisation should define a framework with the levels of service it provides its customers. This should include meaningful performance measures that address issues of importance. It should establish targets, conscious of the balance between cost and desired service. Clearly defined levels of service enable good communication with customers and help to inform decisions.

There is a distinction between "customer" and "technical" levels of service. The IIMM 2015 says that customer levels of service "focus on measuring how the customer receives the service … making sure the organisation is providing customer value". Customer levels of service should define the key characteristics of the service that the customer gets, and should describe how the customer experiences the service in a way that they can understand. By contrast, technical levels of service are for the asset engineer to use. Technical levels of service are about how the organisation provides the service, and should help guide day-to-day work on the assets. They should form the basis of contract specifications with suppliers. They will be expressed in technical language and are often associated with technical specifications and monitoring.

The IIMM 2015 suggests performance measures covering:

- Customer satisfaction;
- Financial performance;
- Responsiveness measures;
- Reliability measures;
- Asset utilisation measures; and
- Capacity.

Life cycle asset management: means considering management options from the time that the need for an asset is identified, through its period of operation, to the time when the asset is disposed of.

LTP: Long-term plan.

Opex: operational expenditure. According to the IIMM 2015 operational expenditure or operating costs "include costs for operations personnel, materials, fuel, chemicals and energy consumption etc." Opex is revenue spending.

Sophistication: the level of sophistication refers to the degree to which criteria for advanced asset management planning have been achieved. The New Zealand Treasury has adopted a maturity assessment tool as part of its Investor Confidence Rating based on four levels – Minimum, Core, Intermediate, and Advanced practice. More detail is available on the Treasury website – www.treasury.govt.nz.

AUDIT NEW ZEALAND

Mana Arotake Aotearoa