Te Kāwanatanga o Aotearoa
New Zealand Government

NEW ZEALAND INFRASTRUCTURE COMMISSION
Te Waihanga

Asset Management and Investment Planning

Guidance for agencies covered under Cabinet Office circular CO (23) 9

New Zealand Infrastructure Commission / Te Waihanga

Te Waihanga seeks to transform infrastructure for all New Zealanders. By doing so our goal is to lift the economic performance of Aotearoa and improve the wellbeing of all New Zealanders.

We are an autonomous Crown entity, listed under the Crown Entities Act 2004, with an independent board. We were established by the New Zealand Infrastructure Commission/Te Waihanga Act 2019 on 25 September 2019.

Information on the Commission is available at www.tewaihanga.govt.nz/

How to cite this document

New Zealand Infrastructure Commission. (2025). *Asset Management and Investment Planning: Guidance for agencies covered under Cabinet Office circular CO (23) 9*. Wellington: New Zealand Infrastructure Commission/Te Waihanga.

Disclaimer

Contact

Andy Hagan
General Manager – Investment
Email: andy.hagan@tewaihanga.govt.nz
Website: tewaihanga.govt.nz
LinkedIn: tewaihanga

ISBN 978-1-7385911-4-5 (Online)

Acknowledgement

This guidance was drafted by **Siobhan Procter** with support from **Christian Gamst, Jeff Whitty, Erana Sitterle, Ryan McGowan, Jessie Lea, Simon Thomas, Andy Hagan** and **Peter Nunns**. The guidance also draws on the collective experience and insight of a working group of representatives from key government agencies: Department of Corrections, Health New Zealand – Te Whatu Ora, Kāinga Ora – Homes and Communities, Ministry of Education, Ministry of Justice, New Zealand Defence Force (Estate), New Zealand Police, New Zealand Transport Authority Waka Kotahi, and Treasury.

Foreword

Asset management means taking a whole-of-life approach to our infrastructure – from defining the level of service we need, to planning, investing, operating, maintaining, renewing, and, when appropriate, retiring assets. In short, it's how we make sure our infrastructure delivers the best value for money outcomes for New Zealanders.

Too often, we don't measure up. Across the public sector, poor asset management has led to leaking school roofs, sewage leaks in hospitals, and deteriorating public buildings.

We can, and must, do better.

This guidance defines what good asset management looks like. It sets clear expectations and supports agencies to improve their planning, delivery and encourages them to regularly monitor their performance. Aligned with international good practice, it targets the areas where improvement is most needed:

- consistent and transparent asset investment planning and delivery focused on value for money outcomes
- robust, reliable asset data to inform better decisions, and
- clear visibility of asset performance across agencies to provide assurance that we are looking after what we have.

When we get these things right, decision-makers have the insight they need to make sound, evidence-based choices – and the public can have confidence that agencies are being responsible stewards of the infrastructure they manage on behalf of all New Zealanders.

This guidance challenges every agency to raise the bar. Every agency leader has a responsibility to lift their asset management performance – not as an optional exercise, but as a core part of delivering public value. The time for incremental improvement has passed. We cannot continue to accept avoidable failures, wasted investment, or short-term thinking. We expect chief executives to actively adopt this guidance, embed it in their decision-making, and hold their organisations to account for implementing it.

By managing our assets well, we can avoid costly failures, make smarter investments, and deliver better infrastructure for all New Zealanders.

Hon Nicola Willis,
Minister of Finance

Hon Chris Bishop,
Minister for Infrastructure

Chair's Foreword

Central government owns nearly half of New Zealand's infrastructure assets, but it's not always great at taking care of what we have. The Organisation for Economic Co-operation and Development rank New Zealand near the bottom of its peers for asset management practices.

Improving performance at the centre is therefore critical to strengthening the quality, reliability, and resilience of our infrastructure system. We know what's possible, as we've seen the positive impact economic regulation, for example, has had in lifting asset management performance in the airport, gas, electricity transmission and distribution sectors.

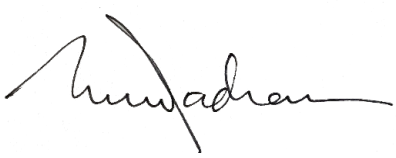
As a practical step towards system-wide improvement, the New Zealand Infrastructure Commission has developed this guidance to support agencies to develop structured, evidence-based strategic investment plans that clearly link asset management to service delivery and demonstrate long-term value. Specifically, the guidance will support agencies to improve practice in meeting Government's existing requirements through Cabinet Office circular CO (23) 9.

We haven't developed it alone, however. In June, the Commission brought together a working group of representatives from key agencies to support its development. Their passion to improve outcomes for the communities they serve, coupled with their engagement, expertise, and practical insight have been instrumental in shaping the direction and content of this document.

By putting this guidance into practice, agency leaders can turn asset management from a compliance exercise into a strategic advantage – delivering stronger, more resilient services, smarter investments, and greater public trust in how we care for New Zealand's infrastructure.

Better asset management means fewer unplanned failures, more reliable services, and safer, more resilient facilities. Improvement can take time, and it may take several years before agencies have all the essential asset data or develop the appropriate systems and processes to create robust asset management and investment plans.

This guidance is a practical tool to lift asset management performance across government – helping agencies plan smarter, manage better, and protect the infrastructure New Zealand depends on.



Raveen Jaduram, Board Chair

Table of Contents

Note To Chief Executives

Government infrastructure is critical to delivering essential services and represents a significant investment of public funds.

A complete, agency-wide view of all infrastructure spending gives you the visibility, credibility, and control to lead confidently, secure resources, and leave a legacy of well-managed public infrastructure. Over time, you may want to include asset management performance indicators in your Strategic Intentions or Statements of Intent.

This document has been designed to provide good practice guidance to support your agency in meeting the requirements of CO (23) 9. To apply it may require you to make significant changes in the way you plan, deliver and manage your infrastructure assets; it will likely require you to reassess the capability and capacity of staff and resources; it may also prompt you to elevate asset management to your top table. What is important to note is that asset management cannot be done well if you outsource your strategic thinking, planning and operational expertise.

You are encouraged to build an asset management system that is not only fit for purpose for the size and complexity of your organisation but also that is sustainable and has an ethos of continuous improvement at its core.

Good asset management is a leadership responsibility that protects public value and ensures services can be delivered safely and efficiently for generations to come.

About this guidance

Purpose

The *Asset Management and Investment Planning Guidance* provides good practice guidance on asset management and investment planning approaches for central government agencies. It supports those agencies' compliance with the requirements set out in Cabinet Office circular CO (23) 9[1] and any subsequent updates.

The primary aim of this guidance is to **enhance asset management and investment planning by clarifying the planning and performance expectations across central government**.

While designed for central government, the guidance can also be used by local authorities and other public asset owners.

> This guidance refers to an "Asset Management and Investment Plan" (AMIP) as the umbrella term which encompasses policy, objectives, strategy and plan as well promoting understanding that asset management covers all asset-related investment (not just maintenance and renewal).
>
> AMIP is not a standard term – it has been created to support a transition from siloed planning, in which asset management is viewed as a maintenance function, to collaborative planning where asset management is embraced as a system that aligns financial, technical, and operational asset decisions to achieve an agency's organisational objectives.
>
> A well-documented plan does not lead to improved asset management in and of itself; it is the planning and delivery activities that will lead to better outcomes. Agencies should treat the documented plan as the vehicle for reflecting that activity to an external audience.

The guidance sets out **non-binding** expectations of evidence, approaches, processes, methodologies and systems used in developing an agency AMIP which should provide a 10-year look ahead of **ALL planned asset investment**.

To avoid a "tick box" approach to developing AMIPs, the guidance also outlines several performance metrics that agencies should develop to assess the quality of their asset management planning and delivery activities. The intent of these metrics is to link performance to planning and provide agency leadership, governance, Ministers and, in the future, the public, an opportunity to assess the quality of planning and delivery of an agency's asset management activities.

The guidance draws on the ISO 55000 international standard that provides a framework for effective asset management. Agencies are encouraged to reference the ISO 55000 suite of documents in the development of their AMIP.

As a general guide, agencies that meet the ISO 55000 standard would be deemed to be competent and able to demonstrate they have fundamental good practice in place, as rated by an asset management maturity assessment – refer Appendix B.

[1] CO (23) 9: Investment Management and Asset Performance in Departments and Other Entities - 18 September 2023 - Cabinet Office

Implementation note

In applying this guidance, the expectation is that agencies will, over time, produce robust, evidence-based AMIPs that can be used by Cabinet to make the best investment choices for current and future generations. It will take some time for agencies to transition to good practice. The guidance has been developed to support ongoing monitoring and reporting of performance that will lift through improved practice.

The guidance is not a "how to" guide and agencies are encouraged to access the many asset management resources available such as the Āpōpō Guide,[2] the International Infrastructure Management Manual (IIMM),[3] the Institute of Asset Management Subject Specific Guides[4] and the Global Forum on Maintenance and Asset Management (GFMAM) Asset Management Landscape v.3.0[5] for further detailed guidance on how to develop the AMIP suite of artefacts required under this guidance. Examples of good practice asset management document can also be found through these resources.

Figure 1 – Relationship between Commission guidance, ISO 55000 and detailed industry guidance and training

The value of asset management

Asset management, when done well, provides a structured and evidence-based approach to planning, delivering, operating, maintaining, and renewing assets to deliver sustainable core services and long-term value. This value can be viewed through the lens of different stakeholders who, when faced with a decision to invest in better asset management may ask the question "what's in it for me?". The table below provides an answer to that question against the key artefacts covered by this document which are described in more detail in sections 3 through 7.

[2] The Āpōpō Guide - Your comprehensive asset management resource
[3] International Infrastructure Management Manual (IIMM) - Institute of Public Works Engineering Australasia
[4] Institute of Asset Management Subject Specific Guides (also available via Āpōpō)
[5] Asset Management Landscape v3.0 | GFMAM

Table 1 – Asset management value by stakeholder

Artefact	Ministers	Chief Executives/ Senior Leaders	Agency staff	Public
Asset Management and Investment Plan (AMIP)	Gives you confidence that planned infrastructure will meet future needs and deliver maximum benefit to the public	Gives you the insight to make strategic investment decisions, manage risk, and deliver sustainable services	Allows you to deliver reliable services, optimise asset performance, and provide the evidence that supports good investment decisions	Shows you how government is right sizing investment and planning to look after essential infrastructure like schools, hospitals and roads
Asset Management Policy	Allows you to see that agencies are taking stewardship of public assets seriously, with clear leadership commitment	Gives you authority and confidence to set expectations, allocate resources, and hold your organisation accountable	Gives you a clear mandate and support from leadership so you understand the purpose and importance of your role	Shows you that government agencies have a clear commitment to responsibly managing the assets you rely on
Asset Management Objectives (AMOs)	Allows you to see the connection between assets, services, and outcomes	Gives you confidence that asset management is aligned to your agency's strategic objectives	Provides clear targets for planning, delivery, and performance	Gives you confidence of future service delivery
Strategic Asset Management Plan (SAMP)	Allows you to understand how investment proposals align with national priorities and long-term needs	Gives you visibility of demand, risks, and priorities over the next 10+ years so you can plan with confidence	Provides you with a structured framework for decision-making, forecasting, and risk management	Allows you to understand how government's forward-looking infrastructure plans will support reliable, safe, and cost-effective services
Asset Management Plan (AMP)	Allows you to see upcoming investment needs and choices so you can make evidence-based prioritisation decisions	Gives you a clear investment "story" with scenarios which allow you to make appropriate trade-offs between cost, service and risk to help you explain what resources you need	Allows you to explain how your work connects directly to funding and service outcomes	Allows you to see where, when and how your money will be invested and give you confidence that essential services will remain reliable and sustainable over time
Performance Monitoring & Reporting	Provides you with assurance that agencies are delivering what they promised and managing fiscal and delivery risks	Allows you to track whether strategies are working, and step in quickly if they aren't	Gives you the data and evidence you need to make the case for decisions, improvements, and resources	Allows you to see whether essential infrastructure that you rely on is safe, reliable, and delivering good value for your money

Structure of this document

Section	Purpose
Section 1	Outlines five core principles to guide central government agencies' approach to asset management
Section 2	Provides an overview of asset management to an agency that relies on assets to deliver core services
Section 3	Introduces the concept of an Asset Management and Investment Plan which should include asset management policy, objectives, strategy and plans
Section 4	Provides a summary of expectations for an asset management policy
Section 5	Provides a summary of asset management objectives
Section 6	Provides a summary of the key elements that should be in an agency's strategic asset management plan
Section 7	Provides a summary of the key elements that should be in an agency's asset management plan
Section 8	Provides a summary of what should be included in an agency's asset management performance framework
Appendix A	Provides additional detail and formatted examples of recommended asset performance metrics
Appendix B	Provides an overview of asset management maturity assessments
Appendix C	Provides specific guidance for Chief Executives to support CO (23) 9 attestations

1. Asset management principles

In November 2023, the Treasury adopted the New South Wales Government's set of principles to underpin asset management within the public sector. These principles are intended to guide decision-making, behaviours and actions and should set the direction for an agency's asset management culture and values.

This guidance has updated these principles to more specifically reflect the core principles of asset management as defined by ISO 55000 such as value, alignment and leadership. These principles are universal and apply to all asset management activities within the scope of CO (23) 9.

1.1. Assets exist to provide value by supporting government services

Asset management is defined as the coordinated activity of an organisation to realise value from assets.[6]

Under this principle, agencies should define value in their context, develop asset management and service level objectives within their strategic planning activities, and plan the necessary asset management activities to achieve those objectives, thus realising value.

Realising value involves balancing cost, risk and service to meet an agency's defined strategic objectives. An agency's AMIP should clearly demonstrate the value it is pursuing, how its asset management and investment activities clearly contribute to that value, and how decisions are made.

1.2. Agencies act as stewards of public assets on behalf of the government

The Public Finance Act (PFA) establishes the core legislative framework for the Government's financial management, enabling it to borrow money and spend public money. Its primary purpose is to govern the use of public financial resources which includes its ownership and management of assets and to ensure parliamentary control and scrutiny over the Government's financial activities.[7]

Under the Act, agencies are entrusted with the control and management of assets on behalf of the Government and the community. This stewardship role requires agencies to apply responsible management practices and make decisions consistent with whole-of-government priorities, while considering any impacts on existing and future generations.

To demonstrate good stewardship of public assets, there needs to be active and sustained commitment of an agency's leadership team which ISO 55000 identifies as being "crucial for successful asset management".[8]

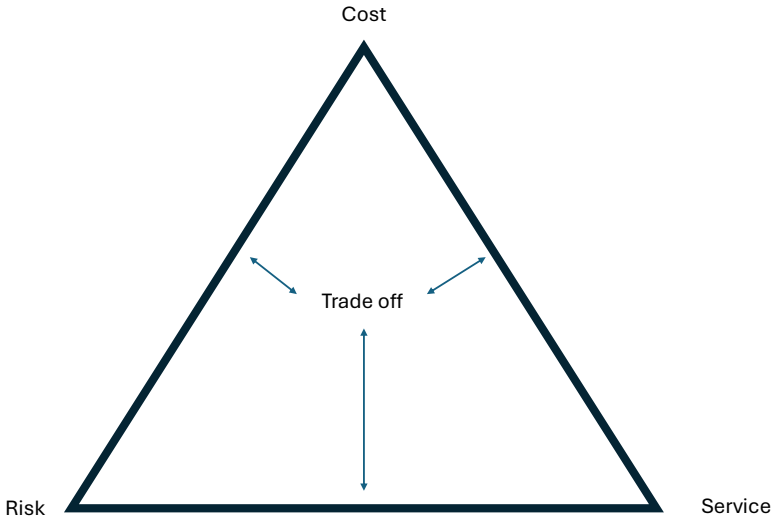
1.3. Asset management decisions must have regard to the appropriate balance of cost, risk and performance

Decisions about the management of current and future assets involve the balancing of costs, risks and performance in order to achieve the government's programme and service delivery objectives.

For the purposes of this guidance, we use the term "service" as the proxy for performance as the key element to trade off against cost and risk, and this is shown below.

[6] ISO 55000:2024, cl3.2.1
[7] Public Finance Act 1989, s 1A(2)(a)
[8] ISO 55000:2024, 4.2.4 Leadership

Figure 2 – Balancing cost, risk and service



Effective asset management will ensure that an agency can control costs and manage risks while delivering the required level of service, all in pursuit of realising the greatest possible value from its assets. This is discussed in detail in section 2.2.1.

1.4. Asset management must be integrated with other organisational functions, processes, activities and data

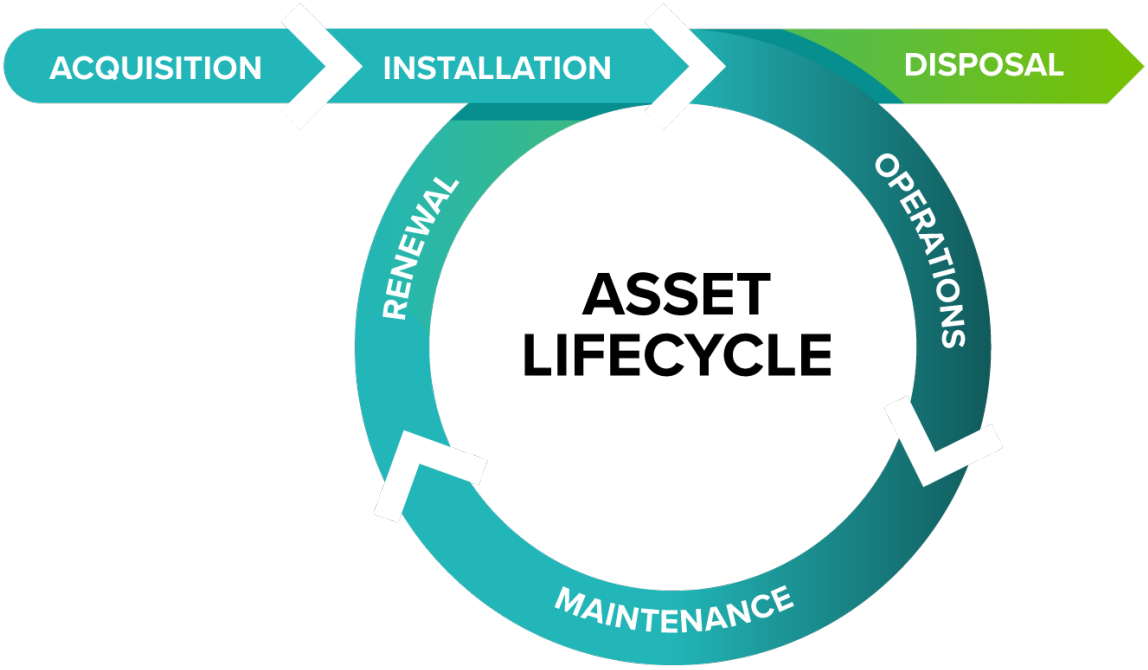
Asset management requires vertical alignment from the organisational objectives through to asset service delivery. Horizontal alignment through collaboration between functions at different stages of the asset life cycle is also required. This alignment is commonly referred to as the "line of sight" concept in asset management, which states that the approach to managing assets cannot exist in isolation within an organisation.

Under this principle, the agency's approach to asset management should be integrated with other frameworks and functions within the organisation as described in its Asset Management System (AMS) - refer section 2.3. In an organisation which is very mature in its asset management practices, this would include all existing asset policies, budget process, financial management, external reporting, procurement, investment assurance, project management and delivery, business planning, risk management, human resources, information management, operations, contingency planning and audit. For less mature organisations, it may be difficult to show the connections between people, processes and system and this should be a key focus of the asset management improvement plan (AMIP)(refer 7.5).

1.5. Asset management decisions must be made across all stages of an asset's life cycle

Under this principle, asset management decisions must consider a range of potential solutions (both asset and non-asset based) to respond to recognised service needs and assess alternative options, which account for full life-cycle costs, benefits and risks (financial and non-financial). The asset life cycle is illustrated below.

Figure 3 – Asset life-cycle stages



Deliberate decisions should be made for each stage of an asset's life, and these decisions should aim to deliver the lowest cost over the life of the asset.

For example, investment decisions for a new asset should take into account the costs and benefits of operations, maintenance, renewal and disposal of different asset and non-asset options (such as leasing or policy changes) over the period of analysis. The aim should be to determine the option that provides the lowest whole-of-life cost (including the consideration of benefits).

2. Asset management overview

While people have managed assets for centuries, asset management has evolved over the past six decades into a strategic discipline focused on optimising value across an organisation's asset portfolio. Good asset management is not just about how assets are maintained, nor should it be treated as a discrete engineering or technical discipline buried in the bowels of an organisation.

Asset management is a multidisciplinary approach involving strategic planning, financial/economic analysis, asset engineering, facility management, information management, data analysis, risk and assurance, and more. It requires a whole-of-system approach that aligns a set of Asset Management Objectives (AMOs) to an agency's organisational objectives and implements the necessary plans to deliver on them.

When done well, asset management will enable central government agencies to protect and optimise public value.

2.1. What is an asset?

An asset is defined in ISO 55000 as "*an item, thing or entity that has potential or actual value to an organisation*".[9] In the context of central government agencies – their assets exist to provide services to the public, which include such things as hospitals, schools, roads, housing and correctional facilities, as well as digital and data assets and fleet assets.

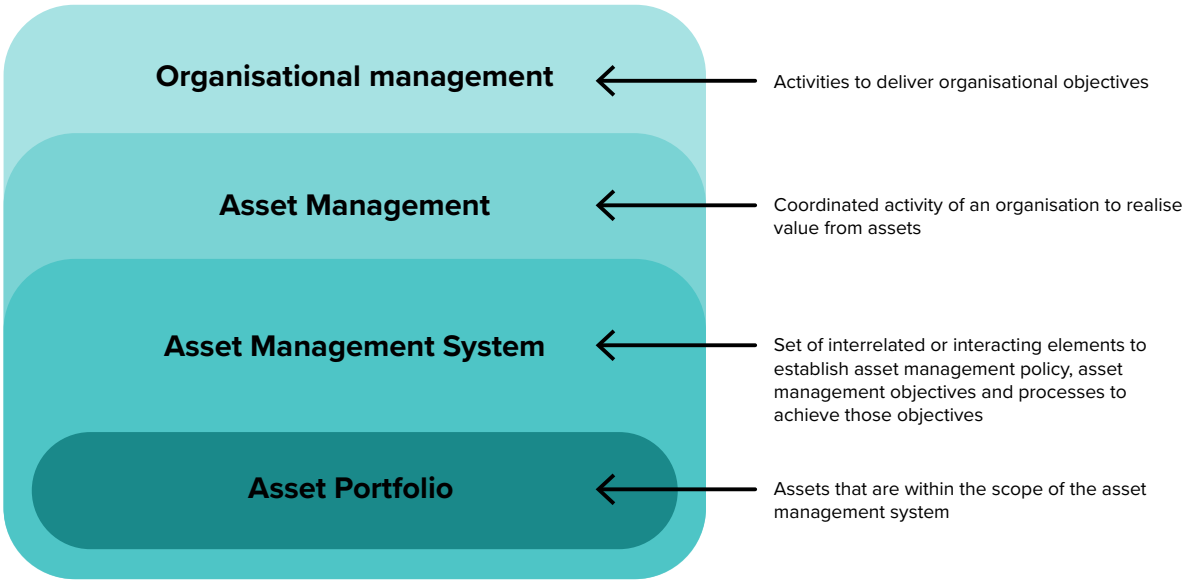
Agencies should determine what is within its "asset portfolio" which refers to the collection of assets within the scope of an agency's AMS, and this should be defined within the Strategic Asset Management Plan (SAMP) (refer section 6). Some agencies may choose to focus on traditional built infrastructure such as buildings and roads, while others may opt to include other classes such as digital and fleet assets.

2.1.1. Relationship between assets, asset management and the asset management system

Figure 4 below has been adapted from ISO 55000:2024 and shows, at a high level, the relationship between each of the essential components of asset management within an organisational context and each of these components is discussed within this section.

[9] ISO 55000:2024, cl3.1.1

Figure 4 – Relationship between key terms in asset management (ISO 55000:2024)



2.2. Asset management

ISO 55000 defines asset management as the "*coordinated activity of an organisation to realise value from its assets*".

Asset management takes a life-cycle approach to the management of assets which means it considers processes, methodologies, inputs and assumptions relating to the planning and delivery activities necessary to acquire, upgrade, operate, maintain, renew, dispose of or recycle assets across their life.

Effective asset management balances cost, performance and risk to ensure services can be supplied at the lowest whole-of-life cost. The whole-of-life cost is defined as the total cost of owning an asset over its life – from "cradle to grave".

2.2.1. Value

ISO 55000 defines value as the results from satisfying needs and expectations.[10] Asset management aims to realise this value, which typically involves balancing of cost, performance and risk.

For the purposes of this guidance, we use the term "service" as the proxy for performance as the key element to trade off against cost and risk.

2.2.2. Cost, service and risk

Cost, service and risk are critical elements that an agency must balance to realise value from its assets and achieve its strategic objectives. To monitor its asset management performance, an agency should develop appropriate metrics by which to measure and monitor these key elements. Further guidance on performance monitoring and reporting can be found sections 3.2 and 8.

Asset management requires agencies to define their performance objectives which in turn, inform the level of risk that will be tolerated in meeting those objectives. If the resulting cost of meeting those objectives is unaffordable, an agency will have to make conscious trade-off decisions on performance and risk tolerance to develop an acceptable plan.

[10] ISO 55000:2024, cl3.3.28

Agencies are encouraged to test their investment plans with different investment scenarios (refer section 7.3) to determine how constraints on one element affect the other two. For example, a constrained funding envelope will likely increase asset risk and reduce service performance, and these impacts should be articulated to the decision-maker along with the further mitigations that agencies can implement to bring the cost, service, performance triangle back into balance.

Cost

Cost must be controlled to ensure that an agency can realise value from its assets where value for money results from the benefit arising from an investment exceeds its cost.

Costs which need to be considered when developing an AMIP include:

- life-cycle costs – the capital, operating and financing costs and expenditures over an asset's entire life incurred through asset acquisition, upgrade, maintenance, renewal, disposal and/ or recycling
- non-asset costs related to solutions that do not require asset ownership, such as changes in policy and leasing options.

Agencies should ensure the criteria used in making asset investment decisions takes a whole-of-life approach which means considering the total cost and benefit of asset ownership across a specified period (often equivalent to the asset life).

Whole of life

"Whole of life" is a fundamental concept that should be applied when making asset management decisions relating to value. By considering all costs, revenue and benefits over the life of an asset, an agency will be able to deliver services at the lowest cost, or highest value, to the communities that it serves.

Whole of life may also be referred to as the "total cost of ownership", "life-cycle cost", "net present cost", "through life cost".

When making asset management decisions agencies will need to consider intervention options to solving problems. To enable comparison of options on the same basis, agencies should consider the net present value of all expected cashflows over an assumed period (often the asset life), discounted to today's dollars at a specified discount rate.

The Treasury New Zealand provides specific guidance on the public sector discount rates that agencies should use – Discount Rates | The Treasury New Zealand.

A simple example of discounted cash flow analysis demonstrating the whole-of-life cost concept can be found in section 6.78.

Service

Service as a concept includes the social, political, environmental and economic outcomes which an agency delivers. It cannot generally be described by one parameter but is made up of a number of parameters such as quality, quantity, capacity, reliability, availability and functionality (fitness for purpose).

One of the primary objectives for asset management is to ensure assets can meet the service needs of its customers and users. An essential component is therefore ensuring that service performance is tracked through consistent measurement and monitoring at appropriate layers through an organisation.

Where practicable, service performance should be measurable and expressed across different dimensions, such as the performance of:

- the service outcomes against a target such as asset utilisation
- asset performance against a target such as asset reliability
- the asset management performance of an agency against a target, such as management maturity level.

Performance metrics can be found in section 8.3.

Risk

ISO 55000 defines risk as *"the effect of uncertainty on objectives"*[11] and is often characterised by potential events, their likelihood, their consequences or a combination of these.

Asset management decisions should consider risk as an integral part of decision-making. For example, where the risk of corrosion on a bridge could result in asset failure and service interruption, the asset should be monitored, repairs scheduled appropriately and contingency plans in place to ensure the bridge remains safe, reliable and all expenditure can be justified as cost-effective.

Risks exist across a wide range of asset management areas including leadership, strategic objectives, processes, environmental and service performance. Effective asset management requires robust risk assessment processes and frameworks including identification, analysis, evaluation, determining asset criticality, and deciding on risk treatment options. These processes should be integrated into the organisation's overall risk management approach and should include contingency planning at the strategic, tactical and operational level.

The risk performance metrics that are detailed in section 8.3 of this guidance should support agencies in providing a view of compliance with legislative and regulatory requirements as well as providing Government with an indication of the Crown's financial exposure to asset management risks such as deferred maintenance and renewals as well as natural hazard and climate change risk exposure.

2.3. Asset management system

ISO 55000 defines an AMS as *"a set of interrelated or interacting elements of an organisation to establish policies and objectives as well as processes to achieve those objectives"*.[12]

In simple terms, the AMS is the machinery which produces and delivers on an agency's AMIP and ensures the agency's AMOs are realised.

[11] ISO 55000:2024, cl 3.3.8
[12] ISO 55000:2024, cl 3.3.4

How agencies "do" asset management will vary depending on the range of services their assets support, the makeup and structure of their organisation and their governing body.

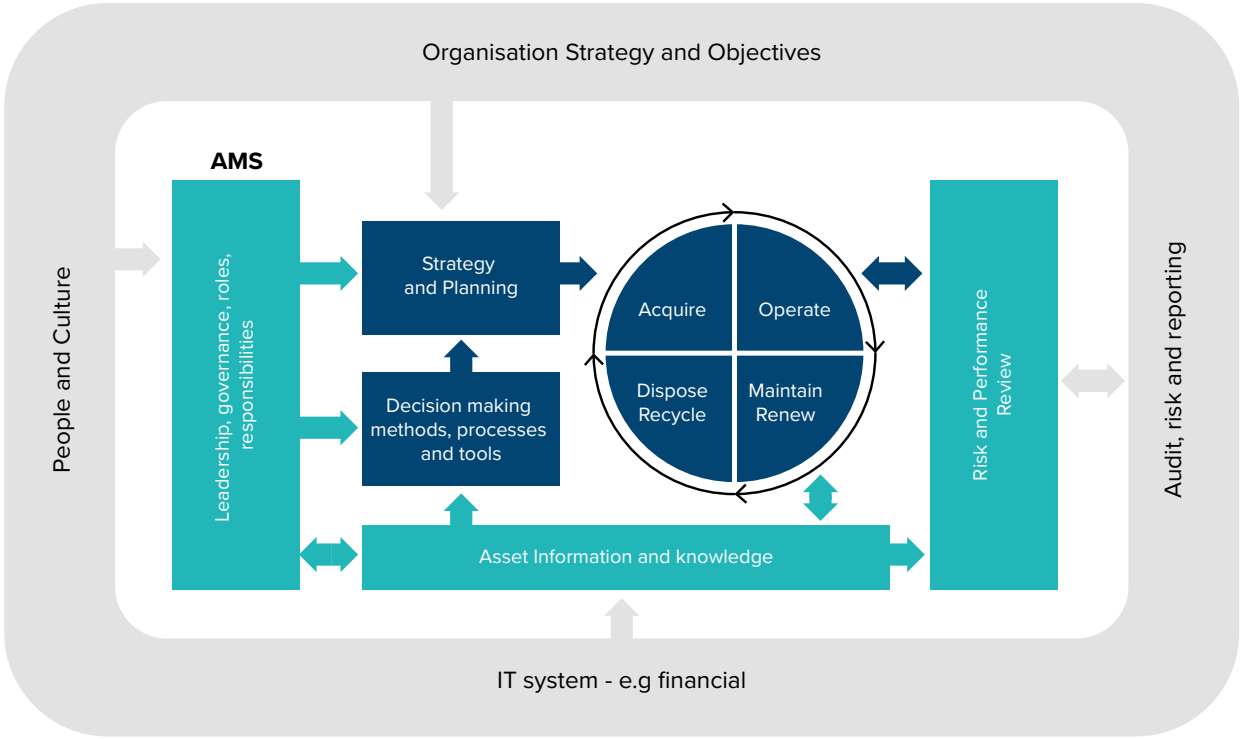
It is critical that agencies consider where the decision rights should be in their organisations – often there is a lack of alignment between functions accountable for asset management, strategic and financial planning, and a lack of clarity around asset ownership. This can create unnecessary barriers to the development of robust, credible and fundable asset management plans and will result in poor service outcomes over time.

A lack of integration between functions can limit the ability to interrogate financial systems and information making it challenging to focus efficiency improvements on those areas that drive cost in the system.

Applying this guidance requires agencies to think about and document the key elements that make up its AMS. Initially, given the relatively low maturity of asset management practices and process across central government as evidenced in the State of Play report,[13] it is expected that significant improvements will be required to ensure an agency's AMS can function in a cohesive and understandable way. Agencies are encouraged to focus on improving their respective AMS to lift asset management maturity and capability and all improvement activities should be included in its improvement plan (refer section 7.5).

Critically, the AMS should not sit in isolation from an organisation but should be informed by organisational plans and policies and integrated with the organisation as a whole. Figure 5 provides an illustrative example of an AMS.

Figure 5 – Illustrative AMS adapted from the Institute of Asset Management Landscape Diagram



[13] https://media.umbraco.io/te-waihanga-30-year-strategy/5a3dwxmx/taking-care-of-tomorrow-today-asset-management-state-of-play-report-combined.pdf

3. Asset management and investment plan

Sections 3 through 6 provide guidance to support compliance with the following clauses from CO (23) 9.

Cabinet Office circular CO (23) 9, paragraph 28

Agencies' strategic planning and asset management practices must incorporate consideration of whether, and the extent to which, existing and future assets are resilient to the effects of significant risks (for example, climate change, natural disasters or demographic changes). The level of resilience required for any given asset is determined by the agency and may vary based on factors including the asset type, location and the criticality of the asset.

Cabinet Office circular CO (23) 9, paragraph 29

Agencies must identify in their investment reporting as early as possible all investment intentions (over a minimum of 10 years) that would require Cabinet consideration.

Cabinet Office circular CO (23) 9, paragraph 30

Agencies must manage assets to ensure they deliver intended levels and methods of service.

Cabinet Office circular CO (23) 9, paragraph 31

Where agencies receive Crown funding attributable to the depreciation of assets, agencies must apply this funding to ensure the levels and methods of service enabled by the agency's asset reflect its strategic intentions.

Cabinet Office circular CO (23) 9, paragraph 32

Agencies must demonstrate a level of asset management practice and performance that is appropriate to the scale of assets under their management and the criticality of those assets to the delivery of key public services.

Cabinet Office circular CO (23) 9, paragraph 33

Agencies must maintain asset management plans to inform strategic, tactical and operational choices.

Cabinet Office circular CO (23) 9, paragraph 37

Agencies must plan for the eventual withdrawal or sale of assets and use approved asset disposal processes. Beyond the requirements set out in this circular, asset disposals can be subject to legal, statutory and Government policy requirements that must be fulfilled prior to disposal. This could require specialised assistance.

Cabinet Office circular CO (23) 9, paragraph 39

Agencies must complete a risk profile assessment (RPA) for an investment proposal prior to commencing business case development for an investment.

Cabinet Office circular CO (23) 9, paragraph 40

Agencies must complete a strategic assessment for an investment proposal self-assessed as medium- or high-risk prior to commencing business case development for an investment.

Often, the term Asset Management Plan (AMP) is used as an umbrella term which encompasses asset management policy, strategy and planning. However, ISO 55000 specifically refers to an AMP as the "***documented information that specifies the activities, resources, costs and timescales required for an individual asset, or a grouping of assets, to achieve an organization's asset management objectives***" and as such excludes the policy and strategy elements which it covers off in its requirements for the Asset Management Policy and the SAMP.

To reduce confusion between terms, this guidance has developed the term "**Asset Management and Investment Plan**" (AMIP) as the umbrella term which encompasses policy, strategy and plan, as well promoting understanding that asset management covers all asset-related investment (not just maintenance and renewal).

This section outlines the key components of an AMIP.

3.1. Asset management and investment plan

An AMIP should describe the why, the how, the what and the how much of an agency's asset management activities. It is important that these elements are clearly defined so the reader can understand how an agency intends to meet its objectives.

The AMIP is not intended to be a separate or additional document, but rather a collation of the information and artefacts which reflect an agency's asset management activities.

Each agency should determine how best to present its AMIP – be it in one document, or over several documents, and consideration should be given to ensuring there is an auditable trail from high-level summary documents to the detail of asset works plans.

Depending on the scale and scope of assets within an agency's portfolio, there may be some overlap between SAMP and AMP(s) content within the AMIP. For example, some agencies may have a SAMP that goes into a lot of detail at a lower level of their asset hierarchies, while others may have a high-level SAMP, with the detail contained in one single AMP, or a collection of AMP(s).

ISO 55000 describes the key artefacts that an organisation should develop to demonstrate its approach to asset management and detail the activities required to enable assets to deliver intended value. This includes the Asset Management Policy, AMOs, the SAMP and the AMP.

Figure 6 – Asset Management and Investment Plan artefacts

An **Asset Management Policy** is a foundational statement, guiding decision-making, behaviour, and actions within the organisation related to its assets. ***It should be reviewed every three years.***

AMOs are the results that an organisation's AMS seeks to achieve, and they express *why* the organisation manages its assets in the first place, for example, to ensure safety, reliability, cost efficiency, sustainability, or compliance.

These objectives can be both qualitative and quantitative reflecting the desired outcomes of managing assets effectively and are critical for ensuring that an agency's asset management practices will contribute to the overall success and sustainability of the organisation. **Objectives should be reviewed as part of the policy review every three years.**

The information that makes up the **SAMP** should describe *how* an organisation goes about its asset management activities, including input assumptions and processes used for planning decisions. ***The SAMP should be updated every three years*** or whenever there are significant changes to input assumptions, decision methodologies and frameworks, organisational context or any other key element.

An **AMP** should describe *what* asset investments[14] are planned, *when* they are planned for and *how much* it will cost in terms of financial, risk and service. ***Agencies should update the AMP information every year to inform the Budget process***.

Agencies should strive to ensure the content recommended in this guidance is included within the AMIP and agencies should use their discretion to determine how to best to present its AMIP.

[14] Investment in this context refers to the money and activities required to acquire, upgrade, operate, maintain, renew, dispose of and recycle assets in the pursuit of meeting the asset management objectives.

3.2. Performance against plans

The AMIP will provide the forward-looking investment intentions, and it is equally important to ensure there is a framework in place to demonstrate performance against those intentions.

Setting up performance metrics drives improvement by making expectations clear and measurable, establishing accountability, highlighting performance gaps early, and informing agencies on where resources should be prioritised.

Ultimately, performance metrics, when used well, will link day-to-day operations with strategic goals, making performance visible and improvements actionable.

A fundamental concept of good asset management is a focus on continuous improvement. To demonstrate this, there is an expectation that agencies will develop a **performance monitoring and reporting** framework which will assess how well it is managing its infrastructure assets to deliver its target levels of service by reporting against a number of performance metrics every year. The framework should be detailed in an agency's SAMP (section 6.11). Section 8 includes further details of good practice performance monitoring and reporting.

4. Asset management policy – the "foundation"

ISO 55000 states that an Asset Management Policy "*provides the organisation's vision, values, intentions and directions about asset management*".[15] As such it is a formal expression by an organisation's top management of its intentions and direction regarding asset management and is the instrument which establishes formal authority for asset management within an agency. It should align with the organisational strategy and corporate objectives.

An agency's policy should:

- be appropriate to the purpose of the organisation
- outline the principles that underpin asset management thereby setting a framework for development of AMOs
- be aligned with other relevant organisational policies and any existing Government asset management guidance or policies
- commit to the provision of resources to achieve the AMOs
- commit to monitoring and reporting on performance
- satisfy any regulatory and legislative requirements
- include a commitment to continually improve asset management practice and the AMS
- be approved and endorsed by the person who has the ultimate legal and decision-making responsibility for an organisation, and is accountable for its performance, compliance, and use of resources.

It should be noted that an asset management policy should aim to be a brief but enduring document which should be revised at least every three years.

[15] ISO 55002:2018, cl 5.2

5. Asset management objectives – the "why"

It is critically important that agencies can articulate its asset management and service level objectives prior to starting any planning activities.

This should be the top priority for any agency seeking to improve its asset management performance.

As a starting point for agency asset planning, it should clearly articulate **why** it owns assets. Invariably assets exist to support service delivery and knowing what service an agency is currently delivering from its current asset stock is an essential first step in determining what is required in the future.

5.1. Asset management objective (AMO)

An AMO is defined in ISO 55000:2024 as the "*result to be achieved*".[16] AMOs should be developed at various levels and cascade down through asset portfolio to asset sub-portfolio levels as required but should always be aligned to an agency's overall strategic objectives.

AMOs can include:

- the desired performance of the AMS
- the desired level of service to be delivered by the assets
- the target level of risk associated with meeting the agency's strategic objectives.

There is likely to be a broad range and number of AMOs that can be developed by an agency. It is important an agency can describe the level at which the AMO has been developed and most importantly, how the progress towards achievement of the AMO will be measured.

The SAMP should provide an overview of how its AMOs track back to the agency's overall strategic objectives and be clear about how they will be measured and communicated to relevant stakeholders.

5.2. Levels of service (LoS)

An overarching objective of asset management is to enable an organisation to meet the service needs of its customers and asset users. Agencies should determine what LoS they want their assets to deliver to meet the needs and expectations of their customers and users.

Target LoS are the specific parameters that describe the desired outcomes the agency aims to deliver from its assets, such as safety, customer satisfaction, quality, quantity, capacity, reliability, responsiveness, environmental acceptability, cost, and availability.

The guidance acknowledges that some agencies will not have well defined LoS. Where this is the case, making a start on defining target LoS should be a **priority focus** of an agency's improvement plan (section 7.5) – it's hard to plan if you don't know what you are aiming for. These targets should form part of the performance framework which is described in more detail in section 8.

[16] ISO 55000:2024, cl 3.3.7

Agencies should detail current LoS as well as explaining how target LoS have been developed, and the AMP should provide the plan by which those targets are met. Given there will likely be fiscal constraints which impact the ability of an agency to meet its desired level of service – the process to finalise a reasonable target level of service is likely to be an iterative one.

The following table shows some examples of potential AMOs. Note that we suggest all AMOs and LoS targets should be SMART (Specific, Measurable, Attainable, Relevant and Timebound) and have a defined performance measure.

Table 2 – Examples of AMOs incorporating LoS targets

Level	Asset Management Objective	Performance Measure
AMS	Improve data to drive better decision-making by the end of FY 2026/27	Asset register compliance report – % compliant against minimum requirements (refer section 6.910)
Asset portfolio LoS	Vacancy rates for our social housing stock will not exceed <x%> by the end of FY 2028/29	Annual asset utilisation metric – % utilisation at facility/site level
Sub-asset portfolio LoS	<<x%> of our most critical potable water assets will be in good or better condition by the end of FY29/30	Annual asset condition metric – % of assets in each condition grade by criticality

Several performance metrics are described in section 8 and these can be used by agencies to inform the reporting against their AMOs and LoS targets.

Example – target level of service

Using the Ministry of Education as a theoretical example, a useful target LoS measure could be that:

> By 2030, utilisation of our schools meets local community demand resulting in annual target utilisation rates of between 50% and 105% being achieved.

Let's assume that the expected demand forecast described in the SAMP showed that in the next 10 years, there would be some schools that would be over capacity and some under capacity.

The AMP would need to demonstrate how it would meet the target by articulating what asset development and disposal would need to occur across its entire portfolio– this would include new asset investment, upgrades, renewals and disposals.

Each year of the plan would then require reporting against the target utilisation range for all schools – refer section 8.

6. Strategic asset management plan – the "how"

Agencies should determine how it will achieve its AMOs and this should be documented in a SAMP. This is an agency's primary strategic asset planning document articulating how ALL asset investment decisions are made and what information and assumptions are used to support decision-making.

Agencies should update their SAMP at least every three years or whenever there are significant changes to input assumptions, decision methodologies and frameworks, organisational context or any other key element.

The target **audience** for the SAMP is intended to be top management, relevant stakeholders (refer section 6.5) and those involved in the development and implementation of the SAMP and the resulting AMP.

Implementation note

Agencies with relatively low levels of maturity are unlikely to be able to produce a SAMP that meets all the expectations set out in this guidance. For instance, agencies may not have well defined asset hierarchies, or they may not yet have the minimum asset data to drive decisions and may not be able to articulate how they make repeatable and consistent asset investment decisions.

Where this is the case, an agency's SAMP should detail the current approach and acknowledge where improvements are required and then ensure those improvements are included in the improvement plan (refer section 7.5).

Whilst there is no set formula for developing the content of a SAMP, at a minimum, it should describe the agency's:

- AMS
- organisational context including what's changed since the last SAMP
- governance, leadership and roles and responsibilities
- key stakeholders
- asset portfolio
- demand analysis
- decision-making frameworks
- life-cycle delivery
- asset information and data
- the asset management risk framework
- performance and reporting requirements.

The rest of this section describes the expectations for each element of an agency's SAMP.

6.1. Asset management system

A SAMP should include a description and scope of the agency's AMS.

An AMS is a structured framework which is integrated into other frameworks within an organisation to help to manage assets through their life cycle to achieve the organisation's AMOs.

An AMS includes the people, processes, tools, techniques, systems and software to help achieve asset management goals, such as tracking asset performance, minimising whole of life costs whilst ensuring that valuable resources are used efficiently and effectively throughout their life cycle.

To meet the requirements of the PFA in demonstrating fiscal responsibility and enabling "parliamentary scrutiny of the Government's management of its assets and liabilities", agencies should develop and maintain an AMS to:

- make the most of their existing assets
- enable the development of AMOs aligned to the agencies service delivery objectives recognising that services require healthy assets to be delivered as planned
- produce a consistent 10-year AMIP covering all planned asset acquisition, maintenance, renewal, upgrade, disposal and recycling activities required to meet the AMOs
- ensure investment scenarios can be tested against financial, risk and service performance constraints taking into account the uncertainty of investment drivers such as future demand for services
- ensure the use of quality data to support evidence-based decision-making to balance cost, risk and asset performance
- report performance against plan
- ensure continuous improvement across all asset management activities.

There are many ways to show or describe how an agency's AMS may operate within the context of the wider organisation and for agencies with low maturity, there may be significant gaps, overlaps or a general lack of clarity as to how the system is organised and connected to the wider organisation. The SAMP should explain this and describe what actions are planned to improve this – these should be included in the agency's improvement plan (refer section 7.5).

An illustrative example of an AMS can be found in section 2.3.

> The AMS should not be confused with the AMIP. The AMIP is the output of the AMS and is a point in time description of the why, the how, the what, the when and how much of an agency's asset management activities.

6.2. Organisational context

The SAMP should provide a view of an agency's organisational context within its wider environment and should summarise any internal or external risks or issues that will affect its ability to achieve its strategic objectives.

6.3. Governance, leadership, roles and responsibilities

Effective and committed leadership is critical to the success of an agency's asset management endeavours and in organisations where it is done well, it is represented at the executive level and is of keen interest to the governing body.

The SAMP should provide an overview of how an agency has allocated its resources to effectively manage its assets from strategic planning through the full range of life-cycle activities including:

- a description of the asset management governance structure
- the senior asset management leadership role along with details of that role's responsibilities including commentary on how accountability, culture and communication of asset management is done within the agency
- the functional group responsibilities for strategic and tactical planning, financial management and analysis, operations, maintenance and delivery, asset information, performance monitoring, as well as risk and review
- an overview of the outsourced functions and their responsibilities such as facilities maintenance contractors
- supporting functions such as ICT, fleet management, procurement, cost estimation, stakeholder engagement and technical standards and policy development
- any constraints in governance, leadership or delivery capability and the plans to mitigate them.

6.4. Competence

ISO 55000 places significant emphasis on competence as a critical component of an effective AMS and defines competence as the "*ability to apply knowledge and skills to achieve intended results*".[17]

Where agencies can, the SAMP should detail how agencies determine and apply, the competence levels required for all asset management roles, responsibilities, and accountabilities, including the necessary awareness, knowledge, understanding, skills, and experience.

It should include references to any asset management competence framework it uses and how the framework is used to improve competency as well as articulating any resource and competency constraints that may be impacting on an agency's ability to meet its AMOs and discussion about how it intends to respond to those constraints.

There are many asset management competency frameworks available, examples include Apōpō,[18] NZTA/Reg group,[19] and Institute of Asset Management.[20]

Implementation note

For agencies with relatively low level of maturity, there may be significant gaps between actual competence and the desired state. Some agencies may not be able to articulate what competence and capabilities currently exist within their organisation. If this is the case, future improvements should be included in the AMIP which is detailed in section 7.5.

[17] ISO 55002:2024, cl 3.9
[18] https://professionals.apopo.co.nz/apopo-competency-framework/
[19] https://www.nzta.govt.nz/assets/Road-Efficiency-Group/docs/REG-asset-management-framework.pdf
[20] https://theiam.org/knowledge-library/competences-framework/

6.5. Relevant stakeholders

The SAMP should describe the relevant stakeholders, their requirements, and how they will be impacted through the agency's approach and delivery of asset management activities. It should further detail how the agency plans to manage the various needs and expectations of each stakeholder group through its AMS and resulting plans.

Stakeholders may include internal staff responsible for asset management activities, outsourced consultants and contractors who may be responsible for aspects of life-cycle planning and delivery, customers and users of the service being delivered by the assets (the public), iwi, other government departments, local government agencies and Cabinet.

Agencies should show the touchpoints with various stakeholder against its asset management activities, for example, the interface with local government for resource management and local adaptation planning.

6.6. Asset portfolio and asset hierarchy

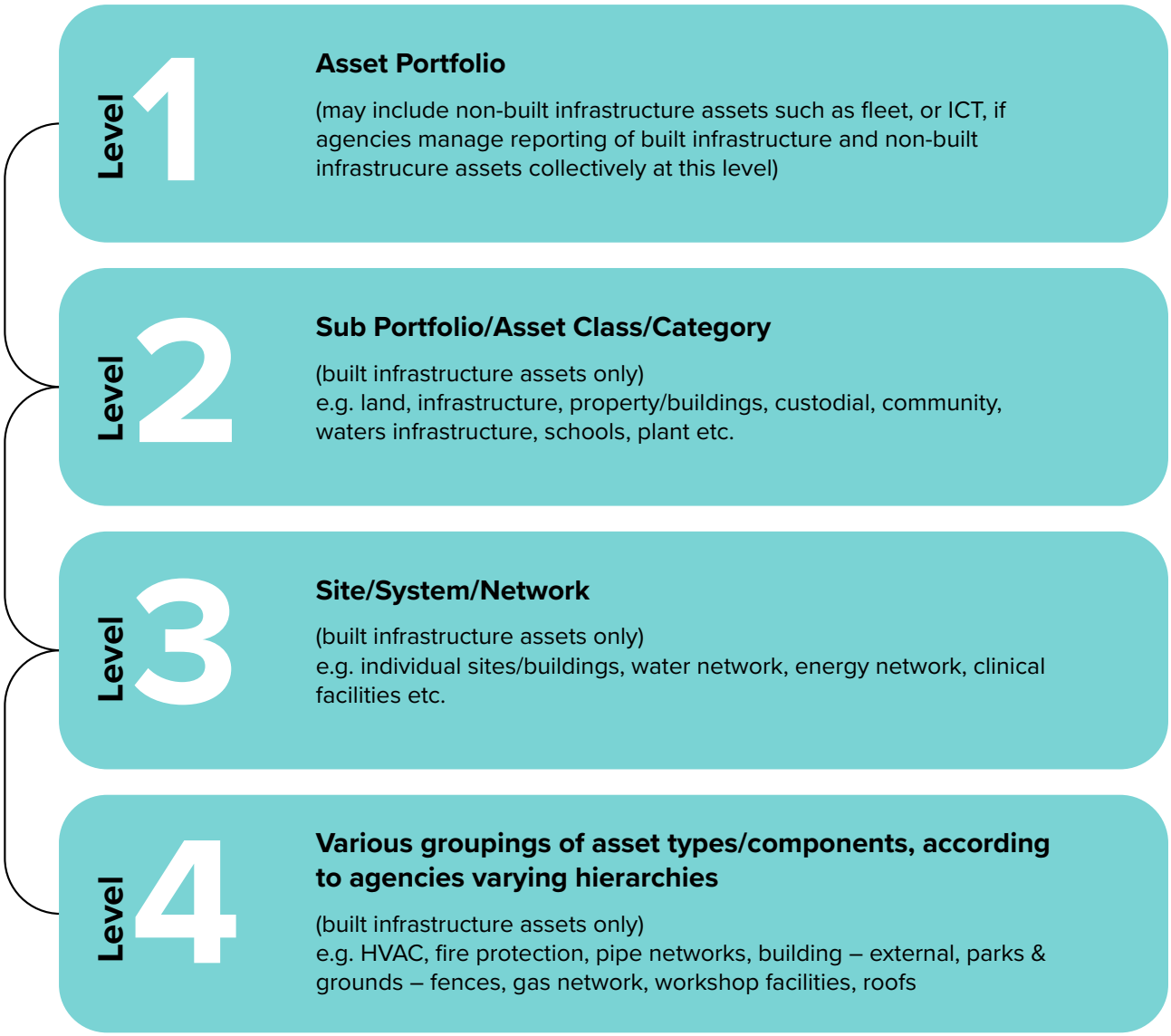
The SAMP should describe what assets are within the scope of its AMS – at the highest level this is referred to as the "asset portfolio".

In order to manage a complex asset portfolio that delivers services across different asset types and locations, agencies should develop and adopt an "asset hierarchy" to explain how assets are grouped to enable effective management across individual assets and grouping of assets. An asset hierarchy is an organised structure that classifies assets within an organisation into multiple levels, from high-level facilities to individual components. The hierarchy visualises how assets are related and helps streamline asset management planning, decision-making, maintenance and data analysis.

While there may be commonalities between agencies in terms of how they manage similar types of assets such as vertical building assets, there is no "one right way" to do this and every agency is likely to be different.

When developing and describing the asset hierarchy, agencies should consider the level at which it will present its planning as well as the asset performance reporting requirements to ensure alignment (section 8 contains details of the minimum expectations for agency performance reporting). An example is provided in Figure 7 below.

Figure 7 – Asset hierarchy example



6.6.1. Current performance of asset portfolio

The SAMP should include an "overview of the composition of the asset portfolio and its overall capability, performance, challenges, risks and opportunities when considering future demand".[21]

This overview should demonstrate the current LoS that assets at various levels of the hierarchy are delivering as well as showing the target LoS that are intended to be achieved over the next 10 years (refer section 5.2).

[21] ISO 55002:2018, Annex C4 (d)

6.6.2. Asset criticality

Cabinet Office circular CO (23) 9, paragraph 34

Agencies must identify their service critical assets and maintain details of the identity, condition, and risk exposure of these assets in the agency's asset register.

Asset criticality essentially describes the consequence of asset failure – it is a key component of a risk-based AMP where the risk associated with an asset is derived from the likelihood of failure (informed by asset condition) and the potential credible consequence of that failure (asset criticality).

Criticality is essential for asset management decision-making as it can ensure agencies are focusing on maintaining and renewing the assets that will have the most significant impact on service delivery. Having a view on less critical assets can also provide an opportunity for cost savings through reduced maintenance and extended renewal timeframes.

Assets with a high consequence of failure that could significantly impact societal wellbeing are considered critical assets.

Asset criticality can be considered over different dimensions such as:

- service performance – estimates of the impact of asset failure on delivery of service
- direct cost – estimates of the financial cost of asset failure including the average cost to restore service, repair or replace the asset
- public safety – potential harm to the public due to asset failure, based on the expected consequence and asset location
- workplace safety – impact of asset failure on workforce
- environmental – environment consequence
- compliance – articulation of how asset failure could impact ability to comply with laws and regulations.

It is standard practice to distil criticality assessments down to a criticality score, for example, between 1 and 5, where 1 represents very high criticality and 5 represents non-criticality. This score should be recorded against the asset in the register. Agencies should detail how they have assessed criticality across their asset portfolios and the process by which the criticality score has been derived.

6.6.3. Asset condition

Asset condition presents a view of how much of an asset's life has been consumed and how much service life it has left. Service life is defined as the typical expected life of an asset before it fails in service under normal operating conditions – this may vary between different operating environments and asset classes.

Asset condition can also be used as a proxy for the probability of failure, so when combined with criticality, can determine asset risk.

Asset condition data should be obtained through regular asset inspections – the frequency of which can be influenced by the asset itself, its location, usage and failure history. It should be used, alongside asset criticality to drive strategies for renewal and replacement of assets and be recorded in the asset register.

Asset condition, like asset criticality, is typically assessed using a scoring system such as that described in the International Infrastructure Management Manual[22] where a score of 1 is very good and 5 being very poor.

Future asset condition, which in more mature organisations may be referred to as "asset health" will be determined by how an asset degrades over time and as such, it can be forecast by use of asset degradation assumptions which take into account wear and tear, different failure modes and the positive impact of regular maintenance. Agencies should detail any approaches they use in forecasting the condition of their asset portfolio.

The table below shows an example of an asset condition grading scale showing how it provides an indication of remaining service life.

Table 3 – Example of condition grading

Asset Condition Grading Example

Grade	1	2	3	4	5
Condition	Very Good	Good	Moderate	Poor	Very Poor
Remaining Life	95%	75%	50%	30%	5%

The SAMP should specify the frequency of asset condition data collection across its asset portfolio and detail how this is collected, verified, stored and accessed for decision-making purposes. More detailed information which may be specific to an asset sub-portfolio may be more appropriately detailed in an agency's AMP.

Agencies should use the SAMP and/or AMP to detail what asset condition grading system they are using in determining the condition across the asset portfolio/sub-portfolios. Condition is a standard technical level of service indicator and should be reported through the performance monitoring and reporting framework (refer section 8).

6.6.4. Demand analysis

It is important to consider the current and forecast demand for service delivery and how this then translates into AMOs and specific target LoS. The SAMP should describe the demand analysis that has been undertaken including its consideration of:

- historical demand
- drivers for changing demand over time
- range of forecast demand scenarios and discussions of impact
- expected demand forecast (i.e., considered most likely to eventuate)
- likely changes in service level requirements.

It is likely that demand analysis will be most usefully presented at a regional or area level and the SAMP should describe how these areas have been delineated.

Future demand is inherently uncertain and there is likely to be a range of forecast demands that can be modelled. The guidance suggests at least three investment planning scenarios should be detailed in the AMP (refer section 7.3) to be modelled under the "expected" demand forecast. Agencies may choose to model investment planning scenarios under different demand scenarios within their AMPs, but these should be treated as a variation to an input assumption and as such, shown as sensitivity scenarios, rather than an investment planning scenario.

[22] International Infrastructure Management Manual (IIMM) - Aotearoa

Agencies should detail in the SAMP, the range of demand forecasts, the source of those forecasts, the high-level implications of the uncertainty and the methodology for deriving the most likely or "expected" demand forecast.

Agencies should reference the Commission's Infrastructure Needs Analysis Forecast[23] for information on forecast demand drivers that will influence future infrastructure needs in their respective sector.

6.7. Decision-making

Asset planning decisions should always balance cost, risk and service performance in a way that the communities that pay for the services get value for money from all asset investment.

For decision-making to be effective, consistent and repeatable, an agency should develop and maintain a decision-making framework.

The SAMP should detail the framework(s) used to justify and prioritise all asset expenditure (capex and opex) within the scope of the AMS. The framework should include a description of the decision-making criteria for its asset portfolio including the assumptions, methodologies and processes applied in determining long-term investment plans for:

- asset enhancement (upgrades) and development (new assets)
- asset renewal
- maintenance
- asset disposal and recycling.

Input assumptions, methodologies and approaches could include such things as:

- demand forecasts to determine future capacity constraints (over/under supply)
- AMOs and LoS targets
- risk tolerance
- investment scenario bounds
- the optioneering process to identify investment options
- how a whole-of-life cost approach is used within the optioneering process
- how non-asset solutions will be considered
- cost estimation
- funding options
- investment period
- discount rate
- investment gates and business case approach
- sensitivity analysis parameters
- asset class renewal and maintenance strategies used to determine operations and maintenance plans (see next section 6.7.1).

The framework should consider the impact of decisions across the asset life cycle. For example, if maintenance on assets is scaled back to reduce opex costs, it may mean that asset renewals have to occur sooner than if an asset was maintained adequately. This is shown in a simple example below.

Whole-of-life cost example

[23] https://tewaihanga.govt.nz/our-work/research-insights/infrastructure-needs-analysis

Asset A costs $1,000 and could last 20 years if maintained to its maintenance specification. This is shown as Option 1 in Table 4 below where the net present value[24] over 20 years, assuming an annual discount rate of 4%, of capex is $962 and opex is $271 making the whole-of-life cost of owning the asset $1,233 in today's dollars.

Option 2 assumes the bare minimum of maintenance to keep the asset in service and reduces opex costs but as a result, the asset only lasts for 10 years and needs to be replaced in year 11. The total npv cost of ownership in option 2 is 36% higher at $1,671 than option 1 despite opex costs being 78% lower at $60.

Table 4 – Whole-of-life cost example

Asset A		Net present value $ yro	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Option 1	Capex	$962	$1,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Opex	$271	$0	$5	$10	$15	$20	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25	$25
	WOL Cost	$1,233																				
Option 2	Capex	$1,611	$1,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,000	$0	$0	$0	$0	$0	$0	$0	$0	$0
	Opex	$60	$0	$5	$5	$5	$5	$5	$5	$5	$5	$5	$0	$5	$5	$5	$5	$5	$5	$5	$5	$5
	WOL Cost	$1,671																				
	Difference	$438	36%																			

The above example assumes that the benefits (or value) arising from the investment are the same. For options analysis where options are substantially different and provide different quantum of benefits, these should be included in the whole-of-life cost analysis and the highest-value option would be the one that returned the highest net benefit over the investment period.

6.7.1. Asset strategies

An agency may decide it is simpler to determine a general approach for asset maintenance, renewals and disposal to specific asset types or classes to avoid the need for several thousand individual decisions. Codifying a general approach can be done by way of asset strategies which should be aligned to the asset hierarchy (refer section 6.6). Some examples of these types of strategies are shown below.

Where an agency outsources some or all of its asset management planning, it should still articulate how that planning is undertaken and what contractual arrangements are in place to ensure alignment of objectives. It is also important that the SAMP details the high-level assurance mechanisms an agency has in place to ensure assets within its asset portfolio are being operated and maintained to result in a value for money outcome. An agency's AMP may contain the specific detail of such audit arrangements as they apply to a sub-portfolio of assets.

Operations and maintenance strategy

An operations and maintenance strategy should include the following:

- details of operations and maintenance service delivery such as the use of performance-based, competitively bid contracts to achieve defined service standards for the operation and maintenance of assets at lowest whole-of-life cost
- how an agency plans to respond to and manage unexpected asset failure or incidents to ensure system availability and service continuity and mitigate adverse effects
- how an agency uses a risk-based approach to prioritise operations and maintenance activities
- how an agency funds the operation and maintenance activities.

Renewals strategy

A renewal strategy should include details of how:

[24] Net Present Value (NPV) calculations allow the comparison of alternative options by discounting all expected future costs back to today's dollars.

- an agency identifies renewal needs, for example, cyclical renewal needs are identified by analysing the following:
  - age and material type data
  - condition reports
  - maintenance records (asset failure and expenditure history)
  - observations of staff and contractors
- renewal projects are prioritised, for example, renewal projects could be justified and prioritised using a risk-based criteria
- the renewals programme will be prepared, prioritised, and approved through the relevant approval processes
- all asset renewal works will be designed and constructed, for example, in accordance with current adopted industry standards
- asset renewals will be delivered, for example, using performance-based, competitively bid contracts to achieve defined service standards
- an agency funds its renewals.

Recycling/disposal strategy

A recycling/disposal strategy should include details of:

- how an agency identifies when assets can be disposed of or recycled
- specific policies or legislation relating to asset disposal including financial treatment
- any constraints around disposal of specific assets, or parts of assets, that are required to be recycled, handled in a specific way (for example, hazardous materials), or can be disposed of in a landfill
- how an agency will treat the disposal from a financial perspective, for example, a sale of an asset may be treated as revenue while a straight disposal could be treated as an opex expense.

It is the AMP that will demonstrate how the decision-making framework has been applied to determine specific asset investment and it is important for it to show the line of sight back to the SAMP.

If an agency has identified opportunities for cost savings and efficiencies, these can be articulated in the asset strategies. An example of this could be a move to using of drone technology for roof inspections which saves significant costs in physical inspections and potentially in the timing of renewals.

6.8. Life-cycle delivery

The SAMP should provide an overview of how the agency intends to deliver its asset life-cycle activities, including:

- Asset acquisition – how new assets are designed, procured, and delivered to meet current and future requirements efficiently.
- Asset operation – how assets will be operated to achieve intended levels of service safely and effectively, while monitoring performance.
- Asset maintenance – how planned, and unplanned maintenance strategies will be applied to sustain performance at lowest whole-of-life cost.
- Asset renewal and upgrade – determining how assets are renewed while managing any service delivery risk.
- Disposal and recycling – ensuring the processes are in place for safe disposal or recycling of assets.

This could include how an agency packages works to avoid costs with mobilisation, reinstatement, and minimise disruption.

The AMP should detail what activities are to be delivered – refer section 7.

Integration with risk and value frameworks

Life-cycle management should clearly link to the agency's risk management approach, ensuring that asset-related risks are understood and controlled. Decisions should be guided by an assessment of whole-of-life value, weighing cost, service and risk.

Information and monitoring

The SAMP should outline how asset information will be collected, maintained, and used to support life-cycle decisions. Performance metrics (for example, reliability, availability, utilisation, life-cycle cost) should be monitored to drive continuous improvement. The AMP should detail what asset data is collected, specific to the asset portfolio in scope of the AMP, refer section 6.9.110.

Continuous improvement

Life-cycle management practices should evolve as new technologies, methods, and expectations emerge. The SAMP should document an agency's commitment to innovation and learning, applying lessons from past decisions to strengthen future asset performance.

6.9. Asset information

> Cabinet Office circular CO (23) 9, paragraph 34
>
> Agencies must identify their service critical assets and maintain details of the identity, condition, and risk exposure of these assets in the agency's asset register.

Asset registers are repositories of asset data and information. Asset information is the foundation of sound asset management and should be used as the basis of all informed asset investment decisions.

To develop an effective asset register, an agency should:

- determine the data and information needed to support asset management and investment analysis and decision-making
- establish data and information standards and specifications that include attributes, units of measurement, quality and source
- develop a plan for collection, integration, quality improvement, and sharing of data and information.[25]

In most cases, the majority of asset information will be stored in an agency's physical asset register, which could be held in one or more repositories within an agency. A SAMP should describe how:

- an agency has determined the data and information needed to support asset management and investment analysis and decision-making
- the data and information will support performance monitoring and reporting requirements (refer section 8), including:

[25] ISO 55001:2024, cl 7.6

- how data will be governed as part of the wider AMS
- how the agency has established any data and information standards and specifications that include attributes, units of measurement, quality and source
- the tools and processes used for data collection, including such things as inspection frequency, condition assessment scores, photo and multimedia directions, defect management requirements
- how data is managed, stored, used (with reference to asset class strategies as described in section 6.7.1) and reported
- planned improvements.

An agency may have an asset data strategy which addresses the above and, if so, it should be referenced, or even included, in the SAMP.

6.9.1. Asset register

This section details the data and information that should be collected and recorded in an agency's asset register and as such it supports compliance with clause 34 of CO (23) 9.

In determining what data and information is required to support effective asset management, ISO 55002:2018[26] provides a high-level view of information requirements for individual assets, asset types, and asset systems and suggests organisations should consider the following:

- ***Identification and description****: Such as asset ID, location, topology, asset type, function, design parameters, date of acquisition, and date of entering service.*
- ***Utilisation and criticality****: How the asset is used and its importance.*
- ***Performance****: Current and required future state and performance.*
- ***Risks****: Associated risks (current and future), including financial and non-financial consequence.*
- ***Competence requirements****: Specific needs for competence related to the asset.*
- ***Commercial information****: Vendor/contractor, service provider, legal and contract documents, licenses, warranties.*
- ***Financial information****: Acquisition cost, replacement cost, operating cost, maintenance cost, disposal cost, carbon emissions and usage costs, life-cycle cost, asset value, expected service lives, depreciation, and residual value/liability.*

An agency's SAMP and/or AMP should detail the asset data attributes it collects and stores within its asset register.

Minimum asset data attributes

Whilst the choice of technology, structure, asset hierarchy and level of detail contained within the asset register will be determined by individual agencies, it would be expected that core information would include, but not be limited to the attributes shown below:

Identification and description

- asset unique identifier

[26] ISO 55002:2018, cl 7.5.2

- asset description
- asset level (determined by asset hierarchy)
- location
- installation date
- ownership details (e.g., business unit)

Utilisation and criticality

- condition grade – refer section 6.6.3
- condition last updated date
- criticality score – refer section 6.6.2
- maintenance history

Performance

- outage information (planned and unplanned)

Risks

- compliance details
- insurance details – policy name, maximum insurance cover, renewal date, etc.
- known natural hazard/climate change risk

Competence requirements

- professional competency requirements to work on assets such as holding New Zealand Certificate in Electrical Trade for electrical services work

Commercial information

- manufacturer
- warranty details

Financial information

- asset replacement value – cost of a like for like replacement
- book value – the capitalised cost less accumulated depreciation
- optimised depreciated replacement cost – the current replacement cost of an asset less deductions for physical deterioration and all relevant forms of obsolescence
- operations and maintenance annual cost detailed to a level that supports planning and performance reporting
- annual depreciation cost
- last valuation date

This guidance expects agencies to collect, store and maintain its asset data in such a way that it can be audited – in other words, it can be examined, validated, and confirmed by an independent reviewer if required.

Some data may not be as reliable as other data and agencies should indicate its level of confidence in the data and provide a pathway for improving it– this should be included in the asset management improvement plan (refer section 7.5).

6.10. Risk management

Risk is the "*effect of uncertainty on an organisation's objectives*".[27] The SAMP should include a description of the framework that an agency uses to identify and control asset management risks.

Examples of risks that could be identified in an agency's SAMP and further detailed in its AMP include:

- service delivery risks which are often significant operational risks such as building or critical element failure such as a leaking roof
- natural hazard and climate change risk such as the risk of flooding in a High Impact Low Probability (HILP) weather event
- political uncertainty risk where a change in policy could change the demand for service at short notice, for example, changes to a Government's approach to criminal offending which could result in the need for more, or less prison space
- health and safety risks such as asbestos, working at heights, working alone
- resource risk – capacity and capability of human resource including contracted resource
- compliance risks associated with meeting legislative or regulatory requirements such as The Building Act 2004 for such things such as requirements to remediate earthquake prone buildings within certain timeframes
- financial risks such as uncertainty of sustainable funding
- data and/or information risks.

The list above is not exhaustive, and an agency should develop and review its asset management risks regularly to ensure the risk register is as comprehensive as it can be and there are clear treatments in place. In most cases, these controls will feature in the agency's AMP as specific actions. For example, an AMP may include a new asset investment in response to a specific natural hazard risk, or it may include specific actions to improve asset management competency within the agency through its improvement plan (refer section 7.5).

ISO 31000 (2018) Risk management guidelines, provides guidance on embedding risk management functions within an organisation and identifies the individual steps involved. These steps include risk identification, analysis, evaluation, treatment, monitoring and reporting. The SAMP should describe the agency's approach to undertaking each of these risk management steps.

[27] As defined in ISO 31000:2018 Risk management — Guidelines and ISO 55000:2024 - Asset management — Vocabulary, overview and principles

Identification: Risks to an agency's assets can relate to all aspects of the agency's internal operations including governance, finance, operations, technical, workforce, and health and safety. Risk can also stem from external factors including third-party providers, supply chains, environmental, natural hazards, climate change and the policy environment. An agency's risk management policies should be tailored to assess the unique risk faced by each agency.

Risk analysis: The risk analysis process generally involves identifying a hazard, and assessing the consequence of an event if occurring across different frequencies and severity. The agency's risk management approach should link to its methodology for assessing asset criticality (section 6.6.2) as a means to inform the consequence of an event occurring. Ultimately, event likelihood and consequence are used to form a view on risk. Agencies may adopt a range of different approaches to analysing risk as suits their particular circumstances. IEC 31010 (2019) – *Risk assessment techniques*, provides guidance on the selection and application of 31 different risk assessment techniques for use in a wide range of situations.

Risk evaluation: Draws on the agency's agreed risk tolerance and considers what action to take – whether to consider risk treatment options, undertake further analysis or maintain the status quo.

Risk treatment: Risk treatment options include risk avoidance, addressing the risk source or its likelihood of occurring, limiting the consequence of a risk, risk transfer or acceptance. Risk treatments may include consideration of new assets, or a new means of delivering the service. If this is the case, the problem should be clearly articulated with reference to the risk analysis and risk value and the costs and benefits of various options should be assessed to identify a preferred option that addresses risk to an acceptable level, is affordable and deliverable.

The Research Insights report – *Invest or Insure? Preparing infrastructure for natural hazards*, provides practical guidance on identifying optimal risk treatment options.[28] Case studies demonstrate the importance of valuing both fiscal and structural risk treatment options and how the costs and benefits of these options may change over time.

Monitoring, reporting and communication: An agency's asset management risks and the effectiveness of risk treatments require regular monitoring, typically through a risk register. In addition to annual reporting required by the Cabinet circular, risk management issues should be reported regularly to the agency's senior leadership.

The agency's overall approach to risk management should also support its requirements to report against performance metrics, including an agency's natural hazard and climate risk, as described in section 8.

6.11. Performance monitoring and reporting

Performance monitoring and reporting are integral components of an agency's AMS and should be designed to ensure assets contribute effectively to the agency's strategic objectives and that the AMS itself continually improves.

By systematically monitoring, measuring, analysing, and evaluating its performance and transparently reporting these findings, an agency can drive continual improvement within its asset management practices, build trust with its key stakeholders and ensure long-term value realisation from its assets.

[28] New Zealand Infrastructure Commission (2025). Invest or insure? Preparing infrastructure for natural hazards

The SAMP should describe:

- how asset management and asset performance has been defined
- what needs to be monitored and measured
- how different reporting metrics may be viewed in concert to form a view on performance (for example, how asset condition, compliance, estimated natural hazard losses and insurance coverage combine to form a view on risk management performance).
- how performance will be evaluated and reported
- the agency's audit and management review processes, which could include consideration of the continuing suitability, adequacy, and effectiveness of the assets, asset management, and AMS.

Section 8.3 provides further detail and direction on performance monitoring and reporting.

Once an agency has implemented standardised performance monitoring and reporting, it should regularly audit and review its AMS, plans and outcomes and present all findings to its Audit and Risk Committee. It is also reasonable to expect that, over time, reporting performance against the plan features in an agency's annual reports.

7. Asset management plan – the "what, when and how much"

ISO 55000 defines the AMP as the ***"documented information that specifies the activities, resources, costs and timescales required for an individual asset, or a grouping of assets, to achieve an organization's asset management objectives".***[29]

Agencies may choose to have one AMP that covers all their assets, or individual AMPs for each group, or sub-portfolio of assets they manage. To give effect to the ISO 55000 requirements, an agency's AMP(s) should include the "what, when and how much" of an agency's long-term asset management and investment plan over 10 years. This includes implications in terms of cost, risk and service performance, the rationale for the proposed investments and the resource required to deliver it.

Most importantly, an agency's AMP it should tell the investment story and include the capital and operational investments it intends to make, within its scope, in each year of the planning period (minimum 10 years). This information should be provided within a minimum of three investment scenarios (refer section 7.3). Investment scenarios should not be confused with demand scenarios (refer section 6.6.4), which, unless being specifically tested as a sensitivity through the AMP process, are treated as a fixed input to the AMP investment scenarios to enable consistent comparison.

Agencies should update their AMP(s) every year to inform the Budget process.

This section of the guidance provides an expectation of what should be in an agency's AMP(s), noting that each agency's investment story will be different. However, there will be commonality between the types of investment required, the expenditure categories and the modelled investment scenarios.

7.1. The investment story

An agency's AMP should tell the investment story about what services the assets are currently providing, what is needed in the future, the potential gaps, the constraints and the options for future investment in each year of the plan. It should describe the costs, risks and service performance implications of each investment scenario and provide decision-makers with easily accessible information and summary analysis to provide them with the confidence to make the best decision in the interests of the public – both now and into the future.

An AMP should include details of how the agency has applied its decision-making framework(s) and asset strategies to determine all new capital investments, upgrades, renewals, operations and maintenance as well as the disposal or recycling activities that are planned over the next 10 years.

Importantly an AMP should describe the rationale for the proposed investment and activities and link them to the specific objectives they are trying to achieve.

Agencies can determine how best to document and present their AMP but should be cognisant that the rationale, costs, risks and service performance of the planning scenarios are clearly understandable and accessible to a range of audiences, ranging from executive management to auditors.

[29] ISO 55000:2024 cl 3.2.5

7.2. Asset portfolio and strategic alignment

An AMP should describe its scope in terms of the relevant asset portfolio or sub-portfolio. In many cases, the scope of the asset portfolio will directly align to the SAMP, but agencies may want to present sub-portfolio plans as separate AMPs.

Strategic alignment should be demonstrated within an AMP by articulating the objectives that the AMP is seeking to achieve. If not the same as those detailed in the SAMP, the AMP should explain how any new objectives have been derived from those described in its AMOs (refer section 5).

If an agency plans its investment at a regional or area level, it should detail how the areas have been defined.

7.3. Investment planning scenarios

To support consistent decision-making across agencies, the guidance proposes that an AMP has a minimum of three investment planning scenarios to be modelled under the expected demand forecast, (refer section 6.6.4):

1. Unconstrained – this scenario assumes that the target levels of service articulated in the AMOs will be met by the AMP at the lowest whole of life cost.

2. Expected funding levels - where an agency has an explicit expectation of future funding levels, it should use this to model the investment scenario.[30] In circumstances where future funding is less certain, this scenario should be modelled assuming the agency continues to receive appropriations at historical averages.[31] The AMP should set out the basis on which future funding is assumed irrespective of the method chosen..

3. Do minimum – this scenario assumes that only the minimum essential work is carried out to maintain current service levels.

Agencies should draw on the decision-making criteria and approach described in the SAMP (section 6.7) to detail how the plans have been derived. This should include a description of the inputs, assumptions and methodologies that have been applied in creating the investment plans.

Agencies can model more investment planning scenarios if they choose and can present these in an AMP.

Each investment scenario should produce a long-term investment plan.

7.4. Long-term investment plans

This is a critical element of an AMP. The long-term investment plans should include details of what needs to be delivered under different scenario constraints, when and at what cost in each of the planning scenarios that arise from applying the different planning parameters under the expected demand forecast.

The plans presented in an AMP should represent the output of an agency's strategic planning activities, which requires the application of the overarching objectives, strategy, systems, inputs assumptions and methodologies described in the SAMP.

[30] This could include revenue projections in relevant sectors, projected funding using the Commission's Needs Analysis or a projected level of funding from Government.
[31] For example, projected funding could be calculated based on available future baseline funding plus new funding at a rate equal to the average new funding received by the agency over the prior five years.

Typical information that would be used to describe the long-term capital investment plans under each scenario include:

- scope of plan (for example, asset portfolio by region)
- current and future service levels
- forecast demand assumption
- decision-making process
- forecast asset investments
- forecast expenditure summary
- forecast funding summary
- detailed plans
- asset risks.

Each of these areas are described in more detail below.

7.4.1. Scope of plan

Investment plans should be presented at an appropriate level of the agency's asset hierarchy, and this should be explained in an AMP. The alignment between the asset portfolio described in the asset hierarchy detailed in the SAMP should be clearly defined. Agencies should determine whether plans are best presented at a national aggregate level or on a regional basis.

7.4.2. Current and future service levels

Agencies should provide a view of the current state of the service levels within its asset portfolio. This should include targets for performance metrics such as those described in section 8 including asset condition, reliability, utilisation and functionality. Agencies can include other relevant service level targets and provide supporting information around current levels and the future levels that will be achieved under different investment scenarios.

Each investment plan should articulate how the planned investment impacts service levels with reference to one or more performance metrics. For example, under a reduced funding scenario, the condition of an agency's asset portfolio may decline, and if utilisation increases then functionality may be negatively impacted and deferred renewals might increase.

7.4.3. Forecast demand assumption

An agency determines the "expected" demand forecast to use in its SAMP (refer section 6.6.4). Forecast demand is an input assumption which should remain constant under the prescribed investment planning scenarios (refer section 7.3).

Agencies may choose, however, to show the impact of different demand input assumptions on its plans as sensitivity scenarios.

7.4.4. Decision-making process

It is critically important that an agency can demonstrate how it has applied its decision-making frameworks, as described in the SAMP (refer section 6.7) to derive a plan under any given investment scenario. The AMP(s) should include a high-level summary that senior executives, Ministers and the public can understand through to auditable detailed workings that supports the rationale for its investment plans.

Investment decisions should be underpinned by sound economic analysis to determine the most appropriate mix of investment to achieve the objectives of the investment scenario such as meeting target levels of service or delivering the most value within a constrained budget.

Asset strategies (section 6.7.1) can be applied to determine credible forecast investment profiles for the maintenance and renewal of certain asset classes and categories.

For capex investment such as new assets, upgrades and renewals over the near term (1-3 years), there may already be business cases underway, and the plan should reference these. For the remaining period of the plan, where new capital investment is required to meet target service levels but there has been no investment analysis undertaken, agencies should take care not to prematurely choose a preferred option. Rather they should indicate at a high level the quantified size of the problem (service gap) and the potential options that could be implemented to meet target service levels.

For example, the long-term investment plan might signal gaps between forecast utilisation and available utilisation – over or under. The plan should articulate, at a high level, what the impact of doing nothing would be and then offer potential high-level options such as building new assets, combining existing assets, disposing of assets and the financial implications of each option. It should then ensure there is a high-level cost/saving "placeholder" in the plan associated with the problem/service gap and note further work will be required to determine the preferred option in the future.

7.4.5. Forecast asset investments

AMPs, in each investment scenario, should provide a credible future roadmap for all asset investment including:

- capital investment in upgrading, building new and renewing assets driven by demand growth, level of service changes and asset strategies
- operational investment in servicing, maintaining, disposing and/or recycling assets.

There will be capital investment plans and associated operational plans for each scenario and there should be sufficient detail presented in an AMP to enable the reader to understand the drivers for investment, the choices of investment, how decisions have been made, what investments make up the plan and the overall expenditure required to deliver the plan.

The plan should summarise the planned investments over the period including details of the investment or problem/opportunity, expenditure category (see below), expected cost by delivery year. Agencies should determine the most appropriate way to present the summary information for decision-makers and other interested stakeholders.

For each investment scenario, the agency should detail the known and assumed funding sources including what actions are required to access funding where there is uncertainty.

7.4.6. Forecast expenditure summary

Expenditure should be categorised as follows:

Capex	Growth – new asset expenditure
	Level of service/demand change – asset upgrade expenditure
	Renewal – asset renewals and replacement expenditure
	Disposal/recycling – any specific capex associated with disposal and recycling assets
	Other – includes regulatory or legislative drivers such as heritage requirements
Opex	Corrective maintenance – required to bring back assets into service following unexpected failure (includes reactive and emergency maintenance)

Preventive maintenance – includes planned (time-based maintenance), fault-finding activities, risk-based maintenance, condition-based maintenance

Predictive maintenance – uses real-time data and condition monitoring to detect early signs of asset deterioration, allowing maintenance to be done at the optimal moment before failure occurs

Disposal/recycling – any specific opex associated with disposal and recycling assets

Operating costs – any infrastructure operating costs such as electricity costs, cleaning services, etc.

Lease costs

Other – any other costs not covered above

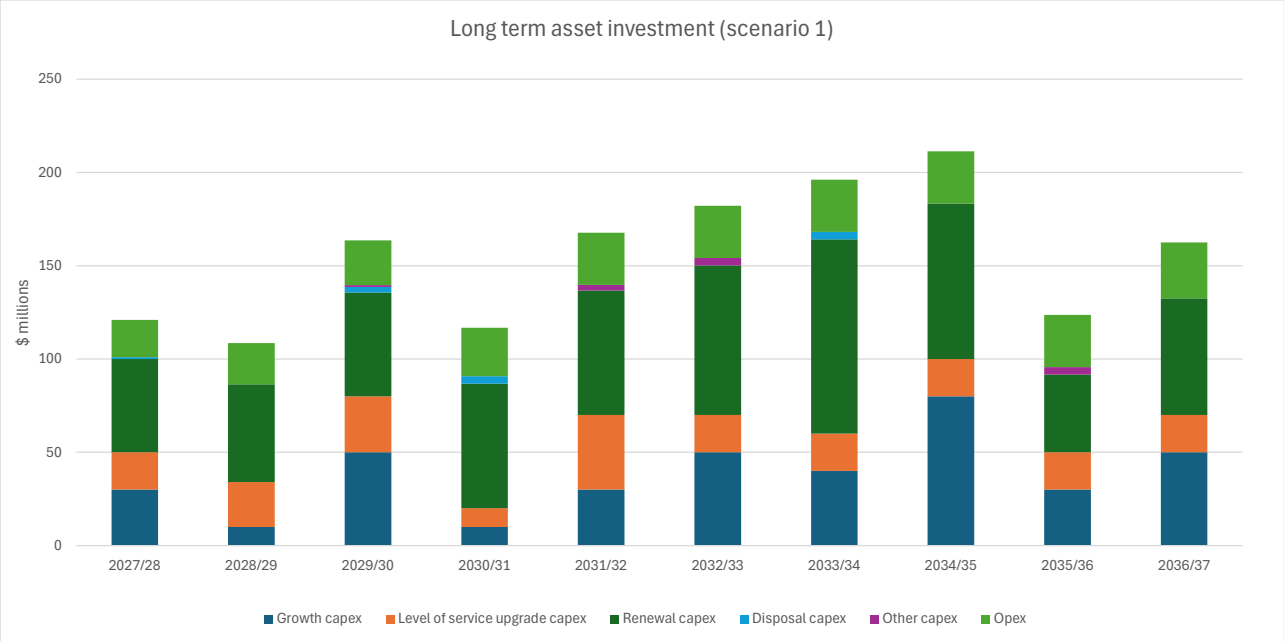
An AMP should also include appropriate breakdowns of the long-term investment plans for each investment planning scenarios as required. This could include showing the expenditure at a regional level, by asset category and providing more detailed breakdown and narrative of the opex expenditure (i.e., corrective, preventive and predictive maintenance, leases and other costs).

There should be sufficient detail to allow the reader to interpret the relationship between what will be physically delivered with the planned capital investment and the associated expenditure. For example, if a new hospital is in the plan, there should be capex and opex costs associated with that asset at the highest level.

Care should be taken to ensure the forecast expenditure aligns to the categories required by the performance indicators: growth, LoS increase, asset replacement and renewal, asset relocation/disposal (refer to Appendix A).

An example of the highest-level summary of expenditure is shown in below in Figure 8.

Figure 8 – Long-term asset expenditure summary example



7.4.7. Forecast funding summary

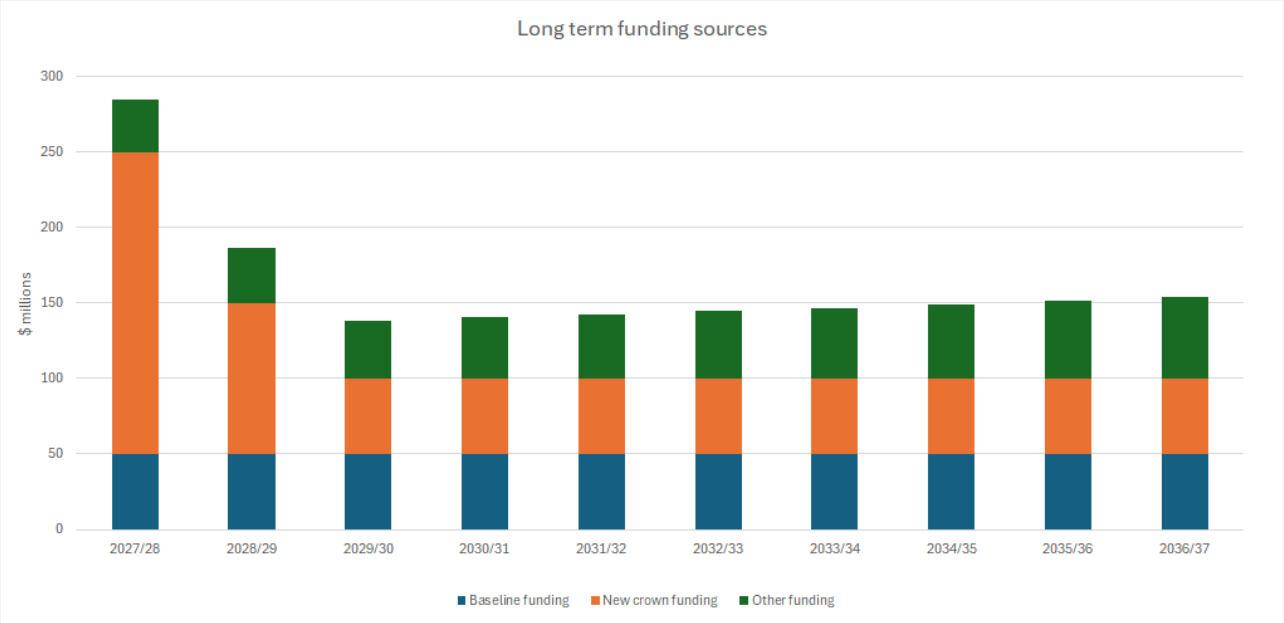
An AMP should also include appropriate breakdowns of the required long-term funding sources for each of investment planning scenarios. This should include the breakdown of funding an agency expects to receive from its baseline allocation, any new crown funding it expects to receive as well as any other sources of revenue.

Funding should be included for the following categories in each forecast year:

- Baseline funding – the nominal baseline funding amount.
- New crown funding – the forecast of new crown funding that will be made available
- Other funding – where agencies have revenue or income from other sources, it should be included along with a breakdown of the specific funding source.

An example of a summary of funding sources is shown in below in Figure 9.

Figure 9 – Long-term funding source example



7.4.8. Detailed plans

As well as summary information, there should be a clear line of sight showing how the decision framework has been applied to derive the detailed 10-year investment plan in detail.

Agencies should ideally include the details of the plans in a form that can be used in the National Infrastructure Pipeline[32] and include the following information:

- asset/project/programme name
- new/upgrade/renewal investment
- investment driver (e.g., demand growth, resilience, level of service change, renewal)
- estimated capex value ($)
- opex impact of investment ($pa)
- current investment stage aligned to the BBC framework
- next BBC stage gate due date
- build start date
- delivery date
- budget approved (y/n)
- other assets impacted (e.g., retirement/decommissioning, renewal)
- planning assumptions/additional commentary
- a description of the near-term investment proposals that are within the BBC process and a summary of, or reference to, the associated strategic and risk profile assessments
- details of operations and maintenance activities by asset category:
    - forecast spend by maintenance category – corrective, preventative, predictive maintenance
    - lease costs
    - other operational expenditure

[32] https://tewaihanga.govt.nz/the-pipeline

- details of any planned disposal[33] or recycling of assets including:
    - asset description
    - full or partial disposal/recycling
    - disposal/recycling driver
    - costs of disposal/recycling by expenditure category ($)
    - income from disposal/recycling ($)
    - depreciated value of asset ($)
    - date of disposal
    - disposal/recycling assumptions and any relevant additional commentary.

7.4.9. Asset risk

Each investment plan that is presented should include an assessment of the risks with reference to the risk framework that is outlined in its SAMP (refer section 6.10). This should be aligned to the key metrics and targets included in the agency's performance indicators and include those metrics described in section 8.3.

An AMP should detail specific risks alongside the controls and treatments and the resulting residual risk. The links between risk treatment and investment should be clear, as should an operational response to a risk.

7.5. Asset management improvement plan

An agency should include an improvement plan as part of its AMP detailing the improvement opportunities to the AMS (i.e., people, processes, systems as opposed to the assets themselves).

An improvement plan is intrinsically linked to the concept of continual improvement within an organisation's AMS. It is considered within ISO 55000 to be a fundamental principle of asset management, alongside value, alignment, and leadership.

It may be useful for an agency to think about how it develops, monitors and reports its AMIPs for its:

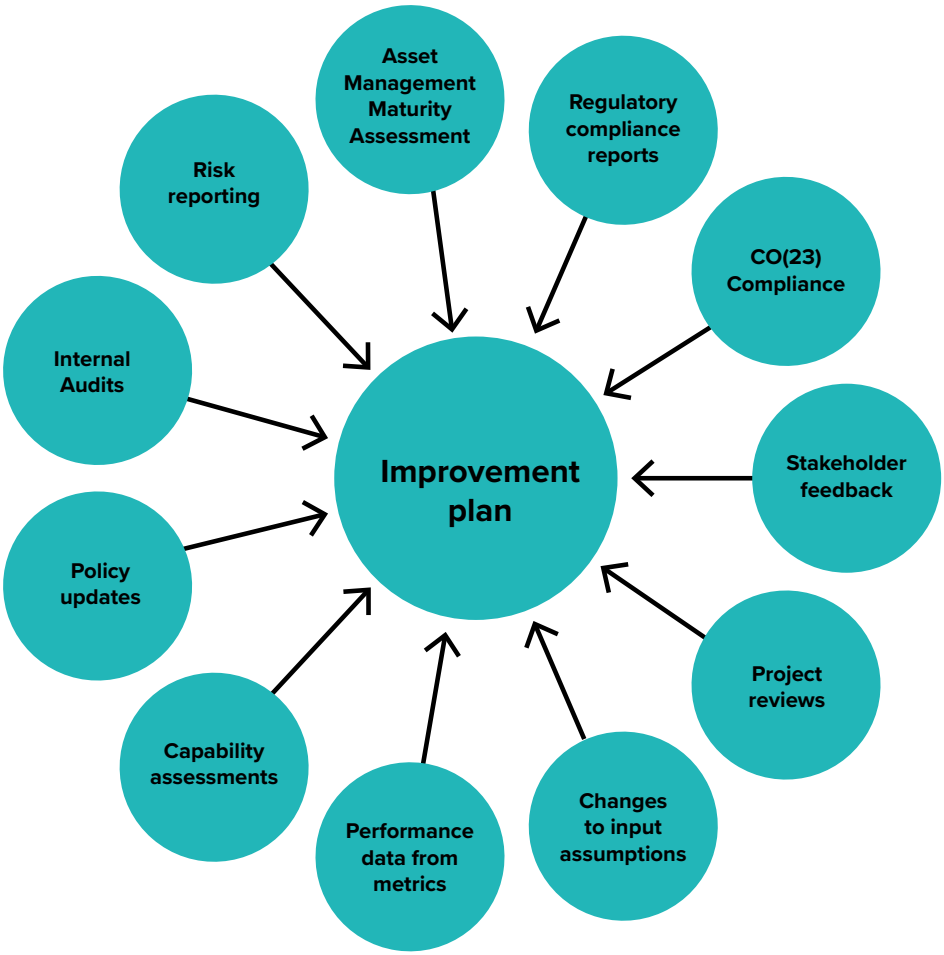
- asset portfolio (for example, improvements to decision-making methods and criteria)
- AMS (for example, changes in policy)
- overall asset management (for example, changes to leadership, culture, skill development and capability building across the organisation).

The improvement plan will also be informed by the CO (23) 9 compliance requirements as well as the agency's asset management maturity self-assessment – refer 8.3.Appendix A for more information.

The improvement plan can be informed by actions arising from many different sources – Figure 10 below provides some examples.

[33] It is expected that all agencies have a policy for asset disposal and that can be summarised in this section. The policy should cover how to derecognise assets from an accounting (financial statements) and physical (asset register) perspective.

Figure 10 – Potential Inputs to an improvement plan



The improvement plan should identify specific improvement actions, the action owner, timeframe for delivery, as well as the processes for monitoring, reviewing and updating. Progress on the plan should be regularly monitored by senior managers, and action reported to the overseeing governance structure.

8. Performance monitoring and reporting

Cabinet Office circular CO (23) 9 mandates the monitoring of relevant performance metrics. This section provides guidance on several relevant performance metrics that agencies can consider implementing to monitors their performance.

> Cabinet Office circular CO (23) 9, paragraph 35
>
> Agencies must capture relevant indicators of past and projected asset performance (for example, asset utilisation, condition, and fitness for purpose for service critical assets). Agencies must use these indicators in internal management and decision-making processes.
>
> Cabinet Office circular CO (23) 9, paragraph 36
>
> Agencies must report on relevant asset performance indicators for service critical assets in their annual reports.

Performance is defined in ISO 55000:2024 as a "measurable result".[34]

Agencies' performance frameworks should be directly aligned to their AMOs and Level of Service targets and provide a means of measuring the result against target.

Performance measurements should provide insights into asset condition, utilisation, reliability, maintenance performance, cost control, risk, compliance, and customer satisfaction – crucial for informed decision-making and continuous improvement.

8.1. Current requirements for asset performance indicators

The Annual Report Guidance for Departments – Asset Performance Indicators[35] requires agencies to report on three performance indicators covering utilisation, condition and functionality.

While useful, there are a number of additional backward looking performance metrics, which alongside the forward-looking AMP(s), can provide broader and deeper insights into an agency's asset management performance and capability and allows performance to be tracked over time.

This guidance expands the number of performance metrics beyond the current service metric requirements and includes reporting against a number of additional cost and risk performance metrics.

8.2. Proposed performance indicators

This guidance includes details of a number of performance metrics which align to ISO 55001:2024 which states that:

> *Documented information shall be available as evidence of the results of monitoring, measurement, analysis and evaluation.*

[34] ISO 55000:2024, cl 3.3.13
[35] Annual Report Guidance for Departments - Asset Performance Indicators - Version 2.0 - August 2017

The organisation shall evaluate the performance of the assets and asset management, and the effectiveness of the AMS and their contribution to the achievement of organisational objectives.

The organisation shall report this to relevant stakeholders.[36]

As well as reporting to relevant stakeholders as defined in section 6.5, performance metrics are an essential tool for management to direct its resources and attention to the areas that require it. For example, a common performance metric is asset condition and a target for this could be that all critical assets are in moderate condition or better. By setting such a target, an agency would be looking to minimise the risk of unexpected asset failure leading to a loss of critical services.

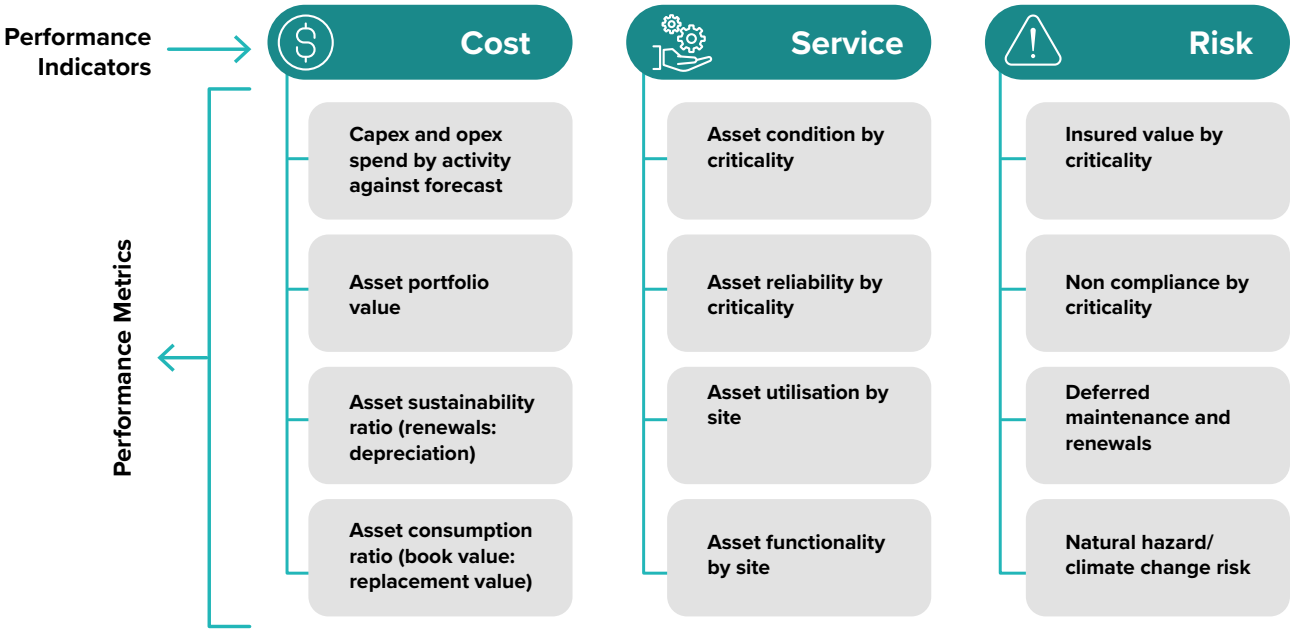
To monitor asset condition requires an agency to determine asset condition at various levels of its asset hierarchy, collect and update the asset data, store the data and report against it. This reporting may show that only 75% of critical assets meet the target and this will prompt the revision of maintenance strategies and plans to improve the condition of critical assets over time. The speed of improvement is likely to be determined by available funding and when making changes, an agency will need to consider the trade-off between the cost of meeting the target and the risk of failure. If the cost of meeting the target exceeds the value of service interruption, this should lead to a reduction in the performance target.

Without the performance data and without a mechanism to report the data, it will be difficult for agencies to make informed, evidence-based asset management decisions.

This guidance suggests developing performance indicators covering the key trade off elements in asset management planning and delivery, namely cost, service and risk. These indicators, which present a view of what agencies should monitor for its asset management activities, can be derived from a number of performance metrics as shown in Figure 11 below.

[36] ISO 55001:2024, cl 9.1

Figure 11 – Relationship between performance indicators and metrics



These performance metrics provide a useful indication of cost, service and risk across agencies. Agencies may determine that other metrics are required to set and meet their service level targets. All metrics should be described in an agency's SAMP.

Implementation note

The guidance recognises that not all agencies will have the requisite asset data in the short to medium term to inform the setting of performance targets or to support performance monitoring and reporting. If this is the case an agency should prioritise the development of its performance metrics and capture its plans to improve data collection, analysis and reporting in their improvement plan (refer section 7.5).

8.3. Asset performance metrics

ISO 55001:2024 notes that asset decision-making should ensure "*risks, costs and performance are managed to realise value across the asset life cycle*".[37] In this context, this guidance uses service as a proxy for performance and balancing these three factors is central to effective asset management.

The guidance therefore proposes that agencies should monitor and report performance across three performance indicators which provide a view on service, financial and risk performance.

Each agency's asset hierarchy will be different depending on the nature of the asset base and the associated service objectives so the level to which each agency can monitor, and report will differ. However, agencies should monitor and report performance to a level that is sufficient for agencies to track their performance over time against their level of service targets, and it is considered that at ideally two to three levels of an agency's built-infrastructure asset hierarchy would generally be required.

[37] ISO 55001:2024, cl 8.1

Agencies should describe the processes and methodology used to monitor, collect, collate and report each of the performance metrics within their AMIP. There should also be a direct correlation between target performance and the ongoing reporting.

Each performance indicator is made up of four performance metrics with another three metrics covering "general information" as shown in the table below.

Table 5 – Summary of performance metrics

Performance Indicator	Performance Metric	Performance Question	Measure	Asset Portfolio Level
General Information	Number of assets	How has the quantum of your asset portfolio changed over the year by criticality?	Units at the start and the end of the year	Ideally 2+ levels of asset hierarchy
	Asset age profile	What is the spread of age of assets by criticality?	Units by age (10-year increments)	Ideally 2+ levels of asset hierarchy
	Asset register	How complete is your physical asset register?	% complete	Consistent with minimum requirements detailed in section 6.9.1
Service Performance	Asset condition	What is the current physical condition of an agency's assets in each asset category and by criticality?	% assets at given condition grade	Ideally 2+ levels of asset hierarchy
	Asset reliability	How reliable are the assets in delivering target levels of service?	Number of asset-induced service outages Mean Time Between Failure	Ideally 2+ levels of asset hierarchy
	Asset utilisation	What is the current utilisation of assets?	12-month average % asset utilisation	Appropriate level(s) to be determined by Agency
	Asset functionality (fitness for purpose)	Are the assets performing as intended?	% assets by criticality at given functionality grade	Appropriate level(s) to be determined by Agency
Financial Performance	Actual vs forecast spend	Has the agency spent against its forecast in the approved AMP?	$ Spend vs planned by expenditure activity by year?	Ideally 2+ levels of asset hierarchy

Performance Indicator	Performance Metric	Performance Question	Measure	Asset Portfolio Level
	Asset portfolio value	What is the optimised depreciated replacement cost of your asset portfolio?	$ Optimised depreciated replacement cost	Highest 1-2 levels of hierarchy
	Asset sustainability ratio (renewals: depreciation)	Is actual and forecast capital spending on asset renewals tracking with depreciation?	Long run average ratio derived from actual depreciation and renewal spend over last 10 years and forecast depreciation and renewal spend over next 10 years spend forecast 10 years	Ideally 2+ levels of asset hierarchy
	Asset consumption ratio (book value: replacement value)	What proportion of the asset base has been consumed in each asset category and by criticality?	Current year ratio derived from dividing the book value of asset by the current replacement value	Ideally 2+ levels of asset hierarchy.
Risk Performance	Deferred maintenance and renewal	What is the approximate value of deferred renewal and maintenance?	$ difference in actual spend and forecast spend under the unconstrained planning scenario	Top 2 levels of hierarchy
	Insurance coverage	What is the ratio between asset value and insurance value?	Asset portfolio value (ODRC) divided by aggregate insurance cap	Top 2 levels of hierarchy
	Compliance	Is the agency compliant with statutory and legislative requirements such as the Building Act 2004,	Yes/No If no, list of non-compliance	Ideally 2+ levels of asset hierarchy.

Performance Indicator	Performance Metric	Performance Question	Measure	Asset Portfolio Level
		Fire, Seismic, Asbestos, Hazardous Substances, Resource Management and Waters regulation?	details and timeframe to bring into compliance	Agencies to self-report – specific non-compliance issues
	Natural hazard/climate change risk	What is the agency's exposure to natural hazard and climate change risks?	$ expected annual loss arising from natural hazard events and climate change	Appropriate level(s) to be determined by agency

Implementation note

The guidance recognises that some performance metrics will be easier to report against than others. For instance, metrics around asset age and value should be relatively straightforward but others such as functionality (fitness for purpose) and natural hazard/climate change risk value may prove far more challenging, and it may be several years before agencies can confidently report against these metrics.

It will take some time for agencies to be in a position to report against all metrics and they are encouraged to prioritise the monitoring and reporting of performance metrics that provide highest value to them.

Appendix A provides further detail of the data that should be included in the collection and collation of performance metrics and includes examples of formats for performance reporting.

Appendix A. Asset Performance Metrics

This guidance suggests that agencies use the following metrics in their asset performance reporting, to ensure risks, costs and performance are managed to realise value across the asset life cycle.

Agencies should monitor and report performance to a level of asset hierarchy (refer section 6.6) that is sufficient to track their performance over time against their level of service targets, and it is considered that at ideally two to three levels of an agency's built-infrastructure asset hierarchy would generally be required. However, agencies can report against more than 4 levels if it so chooses.

Asset criticality is a featured attribute in several of the proposed metrics. If criticality ratings are not available, agencies can simply report on condition, regardless of criticality, and aim to add the criticality factor once their maturity improves.

General information metrics

A.1. Number of assets

As part of the general information collection, this metric measures the change in asset base over the reporting period. An example is shown in the example below.

Table 6 – Number of assets

Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)		Number of assets		
						Start of the year (a)	End of the year (b)	Change (b-a)
All assets	*Buildings*	*Residential*	*Barracks*	1		150	152	2

Example only

A.2. Asset age profile

This metric provides a snapshot of the general age of an agency's asset base. Whilst there is not always a direct correlation between age and condition of assets, agencies should consider age as a factor when in developing future plans for asset life-cycle activities such as renewals, upgrades, disposals etc.

Table 7 – Asset age

Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)		Number of assets									
						pre-1940	1940-49	1950-59	<<other decades>>	2020	2021	2022	2023	2024	Unknown
All assets	*Buildings*	*Residential*	*Barracks*	1		2	5	2	.....	1	0	0	3	0	2

Example only

A.3. Asset register

This metric shows how comprehensive an agency's asset registers are in terms of completeness of asset data against a set of data requirements. This guidance includes a minimum set of asset data that should be collected and stored by agencies (refer section 6.9). However, agencies may require further data to inform its planning and decision-making and its SAMP should describe what asset data it does collect and show how it is reporting against that requirement in this metric.

An example is shown in the example below.

Table 8 – Asset register

Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)		Number of assets		% complete
						Complete asset data (d)	End of the year (b)	d/b
All assets	*Buildings*	*Residential*	*Barracks*	1		50	152	33%

Example only

Note the percentage of completeness uses the asset number data detailed in section A.1.

Service metrics

A.4. Asset condition

Asset condition provides a view of the general health of an asset portfolio and can be used as a proxy for probability of failure. Service critical assets should generally be maintained in a moderate or better condition and over time, as an agency's asset management practices improve, we would expect to see the condition measures also improve with less critical assets falling into the poor, or very poor condition rating. Section 6.6 contains more detail about asset criticality and condition.

An example is shown below.

Table 9 – Asset condition

Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)	Asset condition (percentage of total units) 2025						Target asset condition (percentage of total units)					
					Very Good	Good	Moderate	Poor	Very Poor	Unknown	Very Good	Good	Moderate	Poor	Very Poor	Unknown
All assets	*Energy*	*Gas network*	*Pipes*	*1*	10%	20%	35%	20%	10%	5%	15%	30%	35%	15%	5%	0%

Example only

A.5. Asset reliability

This measure shows the amount of time an asset is not able to deliver the intended LoS against target due to an unplanned asset failure. Knowing the extent of service interruptions which can be attributed to asset failure is a critical performance measures that should be used to inform asset investment plans.

An operational measure of reliability that is often used in asset management is Mean Time Between Failure (MTBF) which can be expressed as:

$$MTBF = \frac{Time\ in\ service}{\#\ unplanned\ outages}$$

MTBF can also be used to derive the asset failure rate:

$$Failure\ rate = \frac{1}{\text{MTBF}}$$

Agencies should determine what duration of asset failure impacts service and include in its performance targets at the appropriate asset level.

If the actual failure rate is higher than target, this is a signal that the maintenance and renewal strategies and plans may not be achieving the desired result and changes need to be made.

Agencies should provide some commentary as to the reasons behind failure rates higher than target.

Many agencies may not be currently collecting outage information so will not be able to implement this measure immediately. If this is the case, it should be acknowledged in relevant asset management documentation (e.g. SAMP or AMP), and a specific improvement action should be detailed in its improvement plan (refer section 7.5).

An example is shown below.

Table 10 – Asset reliability

Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Criticality Rating (1-5)		Units (#)	Target hours in service (e)	Actual Hours in service (f)	No. unplanned asset failure (g)		% of target in service (f/e)	Mean Time Between Failure (MTBF) in hour (f/g)	Failure rate per hour (1/MTBF)		Target failure rate must be less than	Result
All assets	*Community*	*Fire system*	*1*		40	8,760	8592	100		98%	85.92	0.01		0.01	Met

Example only

A.6. Asset utilisation

The intent of this metric is to provide a view of the proportion of capacity that is being used against a target utilisation rate. This metric should be reported at a site level. Agencies should explain in their SAMP/AMP the rationale for developing the target metric as well as details of what they are reporting. For example, we would expect an average utilisation rate to be of more use than a peak utilisation rate which may only represent a small portion of the reporting period.

The example shown below assumes a number of people measure, but this measure may differ according to the service provision. For instance, a more appropriate measure for hospital wards may be number of beds occupied, for Justice, it may be % of time a courtroom is occupied. Agencies should specify the measures they are using in their SAMPs/AMPs as well as in their performance reports.

An example of asset utilisation is shown below.

Table 11 – Asset utilisation

Unique ID	Asset category	Asset Site	Latitude	Longtitude		Target Capacity pax (a)	Current utilisation pax (b)	Utilisation b/a (%)		Target Utilisation		Variance
123456	*Property*	*Station*	*-41.33791*	*174.81929*		100	80	80%		95%		-15%

Example only

As agencies mature in their asset management planning practices, we would expect to see lower variances between actual and target over time. For instance, if a site was consistently underutilised and demand forecasts were reducing, there should be a plan for rationalisation of the facilities and future variances between actual and target would be lower as a result. Conversely, over utilisation, combined with increasing forecasts of demand are a useful indicator that new assets are required to meet target LoS.

A.7. Asset functionality (fitness for purpose)

Asset functionality is a composite measure which provides a subject matter expert view of whether assets are suitable for their current purpose.

Ideally, there would be a direct line of sight between the input assumptions that make up a functionality score and this should be detailed in the SAMP/AMP's levels of service sections. However, where an agency's asset management maturity is relatively low, target service levels and resulting performance monitoring may rely heavily on subjective assessment.

The following functionality grading framework provides as an example – it has been taken from the 2024 National State of the Assets report by the Australian Local Government Association.[38]

Table 12 – Function grading example

National Standard for Function Grading Scores

Function Grading		Description of Function
Good	**1**	**Very Good**: meets program/service delivery needs in a fully efficient and effective manner
	2	**Good**: meets program/service delivery needs in an acceptable manner
Fair	**3**	**Fair**: meets most program/service needs with some inefficiencies and ineffectiveness present
Poor	**4**	**Poor**: limited ability to meet program/service needs
	5	**Very Poor**: critically deficient, does not meet program/service needs, neither efficient or effective

Source: Adapted from Cloake & Sui, 2002

Some agencies have done considerable work in defining their functionality framework as part of the current asset performance requirements and use it as a primary input into their forward planning.

Given the metric covers several performance dimensions such as customer requirements, staff requirements, quality, quantity and location, care should be taken to ensure that the basis for scoring is clear in the SAMP/AMP.

An example of how functionality can be reported against other quantified performance measures such as condition and utilisation is shown below.

[38] https://alga.com.au/wp-content/uploads/2025/04/ALGA-2024-National-State-of-the-Assets-Technical-Report.pdf

Table 13 – Asset functionality

Unique ID	Asset category	Asset Site	Latitude	Longtitude		Assessed Functionality (1-5)
123456	*Property*	*Station*	*-41.33791*	*174.81929*		4

Example only

Financial metrics

A.8. Actual vs Forecast Spend

This metric provides a financial view of how well an agency has executed its plan from a financial perspective. It measures actual expenditure against planned expenditure presented in the AMP across both capex and opex categories of spend and against an appropriate level of asset hierarchy – the example below shows reporting against a particular asset category.

Reporting should be sufficiently disaggregated to support a direct relationship between investment and activity – this guidance suggests capex is reported for growth investments (new assets), level of service increases (asset upgrades), asset replacement and renewal and asset relocation and disposal. The "other" category can be used for compliance driven investment such as may be required for heritage buildings for example. Agencies should provide context and commentary when populating "other" expenditure.

Similar reporting should be developed for operational spend (opex) on assets which will largely be made up of maintenance costs. Agencies should endeavour to report opex in the categories defined in section 7.4.6. Like the capex reporting requirements, agencies should also show actual and forecast opex broken down into the first asset level – in the example shown in Table 15 below under asset category.

Table 14 – Actual versus forecast capex spend and variance

Actual Capex vs Forecast

Capital Expenditure on Assets

			Actual	Forecast	Variance
			($000)	($000)	($000)
Activity					
		Growth (new assets)			
		Level of Service increase (upgrade)			
		Asset replacement and renewal			
		Asset relocations/ Disposal			
		Other			
		Sub total			
Expenditure on assets					
	plus	Cost of financing			
	less	Value of capital contributions			
	plus	Value of vested assets			
		Sub total			
		TOTAL			

Capital Expenditure Breakdown (Actual)

Actual ($000)			Growth	LoS	Asset Renewal	Asset Disposal/ recycling	Other	Total
	Asset Category	Custodial						
		Water						
		Community						
		Housing						
		Corporate						
		TOTAL						

Capital Expenditure Breakdown (Forecast)

Forecast ($000)			Growth	LoS	Asset Renewal	Asset Disposal/ recycling	Other	Total
	Asset Category	Custodial						
		Water						
		Community						
		Housing						
		Corporate						
		TOTAL						

Table 15 – Actual versus forecast opex spend and variance

Actual Opex vs Forecast

Operational Expenditure on Assets

		Actual	Forecast	Variance
		($000)	($000)	($000)
Activity				
	Corrective maintenance			
	Preventive maintenance			
	Predictive maintenance			
	Lease Costs			
	Other			
	TOTAL			

Operational Expenditure Breakdown (Actual)

Actual ($000)			Corrective maintenance	Preventive Maintenance	Predictive Maintenance	Asset Disposal/ recycling	Lease Costs	Other	Total
	Asset Category	Custodial							
		Water							
		Community							
		Housing							
		Corporate							
		TOTAL							

Operational Expenditure Breakdown (Forecast)

Actual ($000)			Corrective maintenance	Preventive Maintenance	Predictive Maintenance	Asset Disposal/ recycling	Lease Costs	Other	Total
	Asset Category	Custodial							
		Water							
		Community							
		Housing							
		Corporate							
		TOTAL							

A.9. Asset portfolio value

This metric relates specifically to the financial value of the agency's asset portfolio and asks for data relating to the overall portfolio and asset categories within that portfolio.

In many cases, agencies will revalue their assets periodically by calculating the depreciated replacement cost in line with the requirements of the Public Benefit Entity International Public Sector Accounting Standard 17 – Property, Plant and Equipment (PBE IPSAS 17) i.[39]

Agencies should describe their approach to asset valuation and revaluation in their SAMP/AMP and provide reference to the relevant accounting standard.

Showing how the value of an agency's asset portfolio changes over time can provide useful information to decision-makers which can be used to assess asset renewal ratios to value as well as supporting better understanding of an agencies overall risk exposure. In the example below "CY" stands for current year.

[39] PBE IPSAS 17 Jan19_193773

Table 16 – Asset portfolio value

Asset Portfolio Value

	$000s	CY-4	CY-3	CY-2	CY-1	CY
	Total opening asset value					
less	Total depreciation					
plus	Total revaluations					
plus	Assets commissioned					
Less	Asset disposals					
plus	Asset adjustments					
	Total closing asset value					

		Asset category	**Asset category**	**Asset category**	**Asset category**	**Asset category**	**Asset category**	**Asset category**	**Total**
	Total opening asset value								
less	Total depreciation								
plus	Total revaluations								
plus	Assets commissioned								
less	Asset disposals								
plus	Asset adjustments								
	Total closing asset value								

A.10. Asset sustainability ratio

The proportion of renewals spend to depreciation can be used as a high-level indicator of how well an agency is preserving the health of their assets and provides a look back and a look ahead view.

Ratios less than 1 indicate that agencies may not be investing enough to keep up with replacement requirements and if this is the case, the forecast ratios should track towards 1 over time.

Agencies should provide full commentary regarding their plans for renewals in the AMPs as well as commentary against the actual performance. Where ratios continue to track below 1, agencies should provide an explanation of how the depreciation funds have been spent. In the example below "CY" stands for current year.

Table 17 – Renewals to depreciation ratio

Asset Renewals

							Past 10 years				**Next 10 years**		
<<Example Only>>	Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)	Average Renewals (k)	CY-9	CY-8	CY-7	.....CY+7	CY+8	CY+9	CY+10
Capex Spend ($000s)	*All assets*	*Water*	*Wastewater*	*Pipes*	3	18571	5000	15000	10000	25000	30000	25000	20000
	All assets	*Buildings*	*Residential*	*Roofs*	4	20	0	80	0	0	60	0	0

Asset Depreciation

							Past 10 years				Next 10 years		
<<Example Only>>	Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)	Average Depreciation (l)	CY-9	CY-8	CY-7	....CY+7	CY+8	CY+9	CY+10
Depreciation ($000s)	*All assets*	*Water*	*Wastewater*	*Pipes*	3	20000	20000	20000	25000	25000	25000	15000	10000
	All assets	*Buildings*	*Residential*	*Roofs*	4	40	40	40	40	40	40	40	40

Renewals: Depreciation (k/l)

							Past 10 years				**Next 10 years**		
<<Example Only>>	Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)	Average ratio	CY-9 k/l	CY-8 k/l	CY-7 k/l.....	.....CY+7 k/l	CY+8 k/l	CY+9 k/l	CY+9 k/l
	All assets	*Water*	*Wastewater*	*Pipes*	3	0.9	0.3	0.8	0.4	1.0	1.2	1.7	2.0
	All assets	*Buildings*	*Residential*	*Roofs*	4	0.5	0.0	2.0	0.0	0.0	1.5	0.0	0.0

A.11. Asset consumption ratio

This metric provides another financial view of how much asset life has been used up compared to the expected life. It is derived by dividing the book value of assets by the current replacement cost. A low ratio indicates that assets are relatively new and have plenty of life left in them and a high ratio indicates that assets may be nearing replacement.

As with the asset sustainability ratio, this is a high-level indicator as depreciation is an approximation of asset deterioration. Many factors will influence physical deterioration such as location, operations and asset design and make up.

Table 18 – Asset consumption ratio

Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)	Ratio (w/x)*100	Book Value ($000s) (w)	Replacement Value ($000s) (x)
All assets	*Water*	*Wastewater*	*Pipes*	3	70%	3500	5000
All assets	*Buildings*	*Residential*	*Roofs*	4	40%	200	500

Example only

Risk metrics

A.12. Deferred maintenance and renewals

This metric is useful to determine whether an agency is keeping up with its "unconstrained" maintenance and renewals intention as detailed it is unconstrained investment scenario within the AMP (refer section 7.3).

Should an alternative scenario, or combination of scenarios be approved to address fiscal constraints, there is a high likelihood that the approved budget will not accommodate the unconstrained scenario, and this will lead to a future maintenance and renewal liability. To quantify this requires a comparison of the actual budget against the unconstrained plan.

Current budget allocations happen annually so it is likely that reporting against past year is all that is possible. Where multi-year budgets have been approved, agencies should report against these.

An example is shown below.

Table 19 – Annual deferred maintenance and renewal

Annual deferred maintenance and renewals ($000s)

Asset category	AMP unconstrained maintenance spend (r)	Actual maintenance spend (s)	Deferred maintenance (r-s)	AMP unconstrained renewal spend (t)	Actual renewal spend (v)	Deferred renewal (t-v)
Custodial						
Water						
Community						
Housing						
Corporate						

A.13. Insurance coverage

This metric provides a view of the insurance coverage of an agency's asset portfolio. How this can be reported will largely depend on the way in which agencies have arranged insurance cover and the example below should be treated as an example. Agencies can choose how to report this metric, but should provide sound reasoning for its approach as well as any other relevant notes alongside the data.

Uninsured risk can be calculated by deducting the maximum insurance coverage from the asset replacement value as described in the section above. The total quantum of uninsured risk across central government is currently not known and having this information reported regularly will allow for well informed decisions across government with regard to future insurance requirements.

Table 20 – Insurance coverage

Asset coverage - insured value ($000s)

Asset Hierarchy Level 1	Asset Hierarchy Level 2	Asset Hierarchy Level 3	Asset Hierarchy Level 4	Criticality Rating (1-5)	Units	CY Asset Value (p)	Maximum sum Insured (q)	Uninsured (p-q)	Self insurance Y/N
All assets	School	School 1	Building 1	3	1	5000	3000	2000	N

A.14. Compliance

There are many legislative and regulatory requirements that agencies are required to comply with covering many aspects including fire, seismic, asbestos, hazardous substances, resource management and waters regulations. Non-compliance with regulations presents risks to agencies and will be of keen interest to decision-makers. Agencies should report any instances of non-compliance and provide an estimate of the cost of remediation and the required timeframe. This information will be critical in future planning.

Table 21 – Compliance risk

Compliance

Unique ID	Asset category	Asset Site	Detail	Cost to remediate ($000s)	Deadline date
123456	*Buildings*	*Clinical building 1*	BWOF	75	1-Jan-26
123457	*Buildings*	*Clinical building 1*	Resource Consent	50	1-Jan-27
123458	*Buildings*	*Clinical building 1*	Asbestos Plan	60	1-Mar-27

A.15. Natural hazard and climate change risk

Purpose

Assessing natural hazard and climate change risk requires reporting against two metrics - an estimate of the expected annual loss and estimate of maximum credible loss (in dollars) arising from natural hazard events and climate change. These metrics aim to provide visibility of the risk value associated with natural hazard and climate change. When fiscal risks are understood, agencies can better assess how much should be spent on managing those risks – whether through decisions to protect, insure, accommodate, retreat, avoid, transfer or accept a risk.[40]

Ideally, risk management efforts should result in lower fiscal risk reported annually each year. In practice, however, fiscal risk may increase when additional assets are created or where updated natural hazard science improves understanding of risk. Reporting on this metric should include a narrative to explain changes in reported fiscal risk year-on-year.

The PFA requires that Fiscal Risks are reported in Treasury's Economic and Fiscal Updates.[41] Fiscal Risks are reported where the impact is likely to exceed $100m over the reporting period (typically five-year periods) and either:

- a decision has not yet been taken but it is reasonably possible[42] (but not probable[43]) that the matter will be approved or the situation will occur, or

[40] In the field of resilience planning, two frameworks have emerged: PARA (Protect, Accommodate, Retreat and Avoid) and ACTA (Avoid, Control, Transfer and Accept). Both offer agencies with options for managing natural hazard and climate change risk.
[41] Public Finance Act 1989, Section 26Q (3) (b) (ii)
[42] For these purposes, 'reasonably possible' is taken to mean that the matter might be approved within the forecast period (i.e., there is a 20% to 50% chance of the matter occurring or being approved).
[43] For these purposes, 'reasonably probable' is taken to mean that the matter is more likely than not to be approved within the forecast period (i.e., there is a greater than 50% chance of the matter occurring or being approved) in which case the risk is reported within the fiscal forecast rather than as a fiscal risk.

- it is reasonably probable or possible that the matter will be approved or the situation will occur, but the matter cannot be quantified for, or assigned to, particular years with reasonable certainty.[44]

Some fiscal risks associated with natural hazards and climate change may not meet the threshold for reporting as a specific Fiscal Risk within economic and fiscal forecasts but will still be included within
CO (23)9 reporting obligations.

Given that valuing risk in this way is new to many agencies, we recognise that it may be challenging in the near term to calculate and report on risk value and we have included some further guidance on how to measure and report below.

Table 22 – Natural hazard/ climate change risk

Unique ID	Asset category	Asset Site	Latitude	Longtitude	Risk Value ($000s)
123456	*Property*	*Station*	*-41.33791*	*174.81929*	*20000*

Example only

Scope

The hazards to be considered when reporting against these performance metrics are limited to natural and climate-induced hazard events.

Hazards may also arise from an agency's dependence on other infrastructure services (e.g., the loss of electricity, water supply or road access). Dialogue with other essential service providers is recommended to understand the hazards they pose to an agency's services. Such dialogue may be needed to adequately satisfy business continuity planning requirements under the Civil Defence Emergency Management Act (and its successor). However, quantifying the fiscal risk posed by other infrastructure services is outside the scope of reporting under this guidance.

An agency's risk management plans should also consider a range of other human-induced threats to services including accidents and malign actors (e.g., sabotage, terrorism, cyber-intrusion). Some agencies may be subject to requirements to manage these national security risks however, quantifying the fiscal risk they pose is outside the scope of reporting under this guidance.

Quantifying the fiscal cost of broader economic and social impacts associated with service interruption is also out of scope.

[44] Treasury (2025) Budget Economic and Fiscal Update 2025, p.70.

How to assess expected annual loss arising from natural hazard events and climate change

The assessment process should align with the agency's risk management approach described in the SAMP (Section 7.10).

The ISO 31000 suite of standards provide a generic overview of the steps comprising a risk assessment process. While risk assessment is not a new area of practice, climate change risks are unique, uncertain and have limited historical experience to draw upon. As such, the ISO 31000 standards are supplemented by a number of guidance documents and standards for assessing climate risk[45] and for assessing climate risk in specific sectors.[46]

The risk assessment process generally involves the following:

Hazard identification

The natural hazards affecting an agency's assets will vary but may include geological hazards (seismic, liquefaction, tsunami, volcanic, earthquake-induced landslides) or weather-related hazards (coastal inundation, fluvial and pluvial flooding, high winds, drought, fire and weather-induced landslides). Weather-related hazards can be exacerbated by climate change.

Hazard identification will rely on an understanding of both historical events, emerging science and predictive models. Agencies may find it helpful to identify the severity of hazards which pose a threat of damage (e.g., earthquake magnitude > 5.0), thereby identifying hazard thresholds to focus attention on. Hazard models will generally be required to conduct the risk analysis step.

Risk analysis

The risk analysis step aims to reveal the extent to which natural hazards translate into physical risk to an agency's assets. This step requires factoring a range of uncertainties including:

- **estimating the hazard's likelihood of occurring** based on modelling of historic events and predictive science. The likelihood of an event occurring may change over time. Climate-related hazards should be modelled against a range of climate scenarios. Probabilistic software models exist to model hazard likelihood (annual exceedance probability) across a range of hazard intensities. The quality of information available may create limitations and caveats to the estimation of likelihood. These limitations should be considered and documented in the agency's performance reporting.

  Hazard likelihood is also informed by an asset's exposure and vulnerability to a given hazard:

  - **assessing asset exposure** to the hazard requires geospatial data to accurately locate the asset. An asset's exposure to natural and climate-induced hazards can be assessed through hazard mapping

[45] Examples include ISO 14091 (2021) – Adaptation to climate change – Guidelines on vulnerability, impacts and risk assessment and AS 5334 (2013) – Climate change adaptation for settlements and infrastructure - a risk based approach

[46] Examples include the Reserve Bank's Guidance for prudentially regulated entities and Australian Electricity Sector Climate Information (ESCI)

- **assessing the asset's vulnerability** to a hazard requires understanding the relationship between a given hazard and its effect on system performance. An asset's materials of construction, design specifications and asset condition (section 7.6.3) all shape its vulnerability to a hazard.

- **assessing the consequence** of an event occurring means understanding the impact an event could have on an asset or the services it provides. Drawing on the asset vulnerability step above, vulnerability, or damage curves exist for a range of standard construction types. These curves provide an estimate of the damage that may result from a hazard at a given severity.

  Asset criticality (section 7.6.2) alongside asset replacement cost (section 7.9.1), also informs the consequence of a given event. Hazard models exist to estimate the damage expected from hazard events of different intensities. Losses should be modelled for various recurrence intervals up to a 1-in-1000-year event.[47]

  In addition to the cost of repairing or replacing physical assets, agencies should consider the costs of emergency response activities and providing temporary services until assets are restored.

  When determining consequence, agencies should limit their assessment to the direct impacts that an event may impose on an agency's balance sheet. Quantifying the fiscal cost of broader economic and social impacts associated with service interruption may be considered in future versions of this guidance.

Performance reporting

Modelling the potential damage to individual assets or sites (i.e., the consequences described above) can be aggregated at the portfolio level to provide an estimate of annual loss arising from natural and climate-induced hazards. An estimate of maximum credible loss is the highest loss estimated for the 1 in 1000-year event. These fiscal risks should be reported in dollar figures in the agency's annual performance reporting.

Important steps in the risk management process remain, however. After hazard consequences have been assessed and reported, the agency's risk management framework requires focus on assigning risk ratings, risk evaluation and risk treatment as described below.

- **Risk analysis** involves consideration of hazard likelihood and consequence to assign a risk rating. IEC 31010 (2019) – *Risk assessment techniques*, provides guidance on a range of different risk assessment techniques. Risk matrices that plot likelihood and consequence to determine risk level are commonly used.

- **Risk evaluation** considers whether and how to act on a risk. For instance, a hazard's risk rating and the agency's risk tolerance may inform its decision to consider risk treatment options, undertake further analysis or maintain the status quo.

[47] Within a 100-year planning horizon, the probability of experiencing a 1-in-1000-year event is 9.5%.

- **Risk treatment** is where the risk evaluation step results in a decision to consider risk treatment options, the costs and benefits of various options should be assessed. Options under the PARA and ACTA frameworks include:
    - protection (e.g., hardening against a hazard to reduce vulnerability)
    - accommodate (e.g., elevating building floor levels above the flood line)
    - retreat (e.g., relocating the asset to reduce or eliminate hazard exposure)
    - avoid (e.g., through site selection)
    - transfer (e.g., through commercial insurance)
    - accept (e.g., deciding to maintain the status quo and re-evaluate in future).

  A decision on the most appropriate risk treatment option to pursue requires cost-benefit analysis across a range of options. Such analysis will necessarily draw on numerous factors including asset condition, remaining life, utilisation, future demand, statutory obligations alongside resource and funding availability.

The AMP should include a description of the risk treatment options that have been chosen to lower an agency's annual fiscal risk.

Appendix B. Asset Management Maturity Assessment

An asset management maturity assessment provides a structured way of evaluating how well an organisation manages its assets across their life cycle and provides a valuable source of feedback to support continuous improvements of an organisation's AMS in supporting the achievements of its AMOs.

The assessment should:

- provide a snapshot of where the organisation currently stands in terms of asset management practices
- identify how well developed and embedded processes and practices are across the agency's AMS
- highlight underperforming areas such as poor maintenance planning
- surface systemic issues such as inconsistent decision-making
- support an agency to build an improvement plan
- promote a shared understanding of common language across the organisation about what good asset management looks like.

As such, a maturity assessment provides a system lens through which to view performance and along with the performance indicators, should provide agencies and interested stakeholders with a comprehensive view of an agency's overall asset management performance.

For most agencies, this guidance suggests a minimum of self-assessment undertaken once every three years, using the Āpōpō self-assessment tool[48].

For agencies with relatively low asset management maturity, this guidance recommends annual self-assessments are conducted and reported into the appropriate governance group to monitor improvements.

Procuring an external AM maturity assessor to provide an impartial and independent view provides additional assurance to agencies, either alongside, or instead of, a self-assessment and agencies may choose to do this periodically.

As illustrated in Figure 12 an agency that applies this guidance should achieve a maturity score of at least 3 as a competent asset management organisation which demonstrates it has the fundamentals of good practice in place.

[48] https://apopo.co.nz/product/asset-management-maturity-assessment-tool-xlsx/.

Figure 12 – Target maturity

AM Maturity Scale and ISO Standard

Score	0	1	2	3	4	5
Āpōpō Scale **IAM Scale**	**Unaware** **Innocent**	**Aware** **Aware**	**Basic** **Developing**	**Core** **Competent**	**Intermediate** **Optimizing**	**Advanced** **Excellent**
Description						
Āpōpō *AM Maturity Scale Definition* (aligned to GFMAM AM Landscape and ISO 5500x series)	**Unaware** of the subject(s) and fundamentals of the discipline of Asset Management	**Aware** of the subject(s) and fundamentals of the discipline of Asset Management	**Meets some** subject(s) and fundamentals of the discipline of Asset Management	**Meets all** subject(s) and fundamentals of the discipline of Asset Management	**Exceeds some** of the subject(s) and fundamentals of the discipline of Asset Management	**Exceeds most** of the subject(s) and fundamentals of the discipline of Asset Management
Institute of Asset Management (IAM) *AM Maturity Scale Definition* (aligned to PAS 55/PAM and ISO 5500x series)	The organisation has **not recognised the need** for this requirement and/or there is **no evidence of commitment** to put it in place	The organisation has **identified the need** for this requirement, and there is **evidence of intent** to progress it	The organisation has **identified the means** of systematically and consistently achieving the requirements, and **can demonstrate that these are being progressed** with credible and resourced plans in place	The organisation can demonstrate that it **systematically and consistently achieves relevant requirements set out in ISO 55001**.	The organisation can demonstrate that it is **systematically and consistently optimizing its Asset Management practice**, in line with the organisation's objectives and operating context	The organisation can demonstrate that it **employs the leading practices, and achieves maximum value from the management of its assets**, in line with the organisation's objectives and operating context

Compliance with ISO 55001 is equivalent to achievement of the Level 3 (Competent/Core) state.

Āpōpō Asset Management Maturity Assessment Tool

The Āpōpō Asset Management Maturity Assessment Tool (due to be updated in 2026) looks at the gap between current and target or appropriate levels of asset management maturity. It was originally developed using the 2011 International Infrastructure Management Manual (IIMM) and has been updated alongside updates to that manual and is aligned to ISO 55000.

The assessment tool allows agencies to score themselves against 16 asset management performance criteria ranging from how well the asset management policy and SAMP have been communicated horizontally and vertically within the organisation, through leadership, performance management to audit and review.

The assessment tool uses a 5-point scale as the maturity measure as shown in the table below.

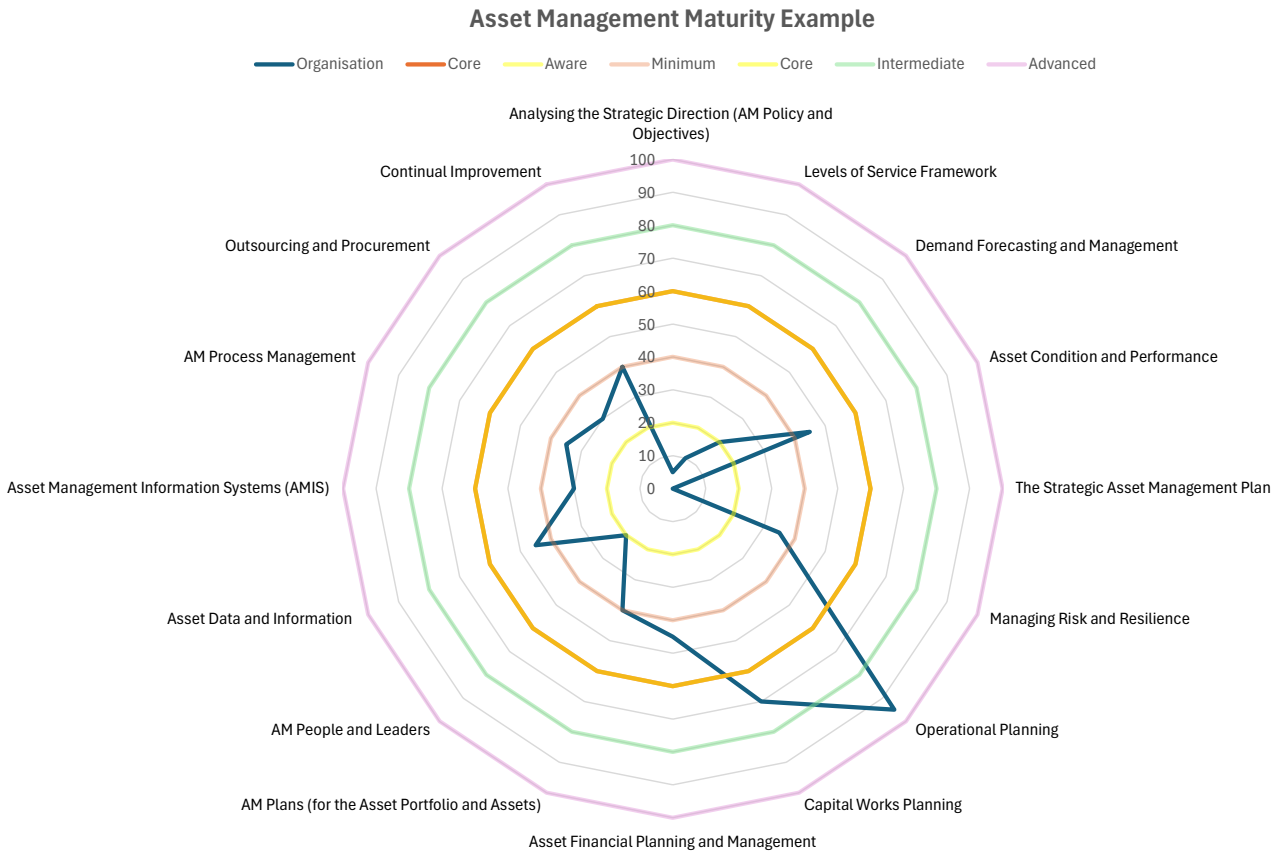
Table 23 – Asset management maturity ratings

Level	Description	Characteristics
1. Aware	Basic awareness of AM principles	Ad hoc, unstructured, reactive management
2. Minimum	Initial practices exist	Limited documentation, compliance-driven
3. Core	Fundamental good practice in place	Documented processes, consistent data use, supports ISO 55001
4. Intermediate	Integrated, proactive AM	Optimised life-cycle planning, risk-based, whole-of-organisation adoption
5. Advanced	Leading practice	Innovation, optimisation, continuous improvement, embedded culture

An example of how an agency's maturity results against each of the 16 elements is shown below.

This example shows a typical score for an organisation that is excellent at operational planning but lacks strategic direction and tends to make asset decisions on a reactive basis.

Figure 13 – Asset Management Maturity Example



The role of self-assessment

A core concept of asset management is continual improvement, and the SAMP requires the development and maintenance of an improvement plan (refer section 7.5). Agencies should ensure that there are active and ongoing improvement plans for any areas where performance lags in target levels of service.

A regular asset management maturity assessment is therefore a useful tool for identifying areas which need improvement, and it also allows for consistent monitoring of performance over time. This consistent evidence of the current state of performance at a system level as well as an asset portfolio level (performance indicators) can support the Chief Executive in the annual attestation process.

The self-assessment data can also be used to identify common areas for improvement and inform pan-agency skills development programmes.

Appendix C. Attestation Support

This section suggests the potential evidential bases that could be used to support Chief Executive attestations under CO (23) 9. The table below indicates the supporting material that we would expect to see, but this level of evidence to support attestation is not a requirement of CO23(9). It is for each agency to determine whether it is meeting the requirements of the circular.

Table 24 – CE attestation support

Attestation #	CO 23 (9) Requirement	Supporting material
2.02	The Agency's strategic planning and asset management practices has incorporated consideration of whether, and the extent to which, existing and future assets are resilient to the effects of significant risks (for example, climate change, natural disasters or demographic changes). The level of resilience required for any given asset is determined by the agency and may vary based on factors including the asset type, location and the criticality of the asset.	Supporting material might include the agency's asset risk and performance framework, the demand assumptions and analysis and evidence in the SAMP that agencies collect and collate data on risk and insurance in its asset register. If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps. **SAMP/AMP** • the asset risk and performance framework including details of key asset management and asset portfolio risks including natural hazard, climate change, unexpected changes in demand or other key investment drivers are evaluated, quantified and controlled • the range of demand forecasts, the source of those forecasts, the high-level implications of the uncertainty and the methodology for deriving the most likely or "expected" demand forecast • asset data is collected on: ○ known natural hazard/climate change risk ○ Insurance details All drivers for investment plans should be clearly articulated through detailed plans. • agencies should include the details of the plans in a form that can be used in the Infrastructure Pipeline[49] and include the following information:

[49] https://tewaihanga.govt.nz/the-pipeline

Attestation #	CO 23 (9) Requirement	Supporting material
		○ asset/project/programme name ○ new/upgrade/investment ○ investment driver (e.g., demand growth, resilience, level of service change, renewal) An agency should implement standardised performance monitoring and reporting, and this should be detailed in the **SAMP/AMP.** Over time, this could be evidenced by the risk value and insurance coverage **performance metrics:** • Natural hazard/Climate change risk reported annually showing an estimate of the expected annual loss (in dollars) arising from natural hazard events and climate change. • Insurance coverage showing the ratio between asset value and insurance value.
2.03	The Agency has identified in their investment reporting all investment intentions (over a minimum of 10 years) that would require Cabinet consideration.	Supporting material might include tables and charts showing all planned investments and expenditure over the next 10 years. Where summarised information is provided, it should include evidence of the detail work, assumptions and how the decision-making framework has been applied to come up with the plan. If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps. **AMP** • the investment story including all capital and operational investments it intends to make, within its asset portfolio scope, in each year of the planning period (minimum 10 years) • long-term investment plans which is the output of an agency's strategic planning activities which requires the application of the overarching objectives, strategy, systems, inputs assumptions and methodologies described in the SAMP

Attestation #	CO 23 (9) Requirement	Supporting material

		• detailed plans:
		  ○ asset/project/programme name
		  ○ new/upgrade/investment
		  ○ investment driver (e.g., demand growth, resilience, level of service change, renewal)
		  ○ estimated capex value ($)
		  ○ opex impact of investment ($pa)
		  ○ current investment stage aligned to the BBC framework
		  ○ next BBC stage gate due date
		  ○ build start date
		  ○ delivery date
		  ○ budget approved (y/n)
		  ○ other assets impacted (e.g., retirement/ decommissioning, renewal etc)
		  ○ planning assumptions/additional commentary
		• details of operations and maintenance activities by asset category:
		  ○ forecast spend by maintenance category – corrective, preventative, predictive maintenance
		  ○ lease costs
		  ○ other operational expenditure
		• details of any planned disposal or recycling of assets including:
		  ○ asset description
		  ○ full or partial disposal/recycling
		  ○ disposal/recycling driver
		  ○ costs of disposal/recycling by expenditure category ($)
		  ○ income from disposal/recycling ($)
		  ○ depreciated value of asset ($)
		  ○ date of disposal
		  ○ disposal/recycling assumptions and any relevant additional commentary

Attestation #	CO 23 (9) Requirement	Supporting material
		• summary tables and charts showing all asset management expenditure by asset class over the next 10 years including: o new assets required to meet demand – asset description and associated spend by expenditure type o upgraded assets required to meet demand – asset description and associated spend by expenditure type o asset renewals – asset description and associated spend by expenditure type.
2.04	The Agency has managed its assets by ensuring that they deliver intended levels and methods of service.	Supporting material might include: • target levels of service and an "unconstrained" long-term investment plan that meets those targets • other investment scenarios that have been modelled • asset performance data which monitor and report against performance. If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps. **SAMP/AMP** • a description of the AMOs defined as the "result to be achieved"[50]– for instance, including: o how the AMOs are derived from the agency's strategic objectives o the desired performance of the AMS o the desired performance of assets to meet target service levels o the target level of risk associated with meeting the agency's strategic objectives

[50] ISO 55000:2024

Attestation #	CO 23 (9) Requirement	Supporting material
		• details of how the agency's target levels of service have been defined • details of how service performance will be monitored, measured and reported against target performance and include performance indicators such as those described in section 8. • details of asset performance over the preceding period compared to the previous AMP including, but not limited to the performance indicators described in section 8. • the long-term investment plans under each investment planning scenario showing effect of plan on meeting target levels of service • AMIP. Over time, this could be evidenced by actual service performance against performance**.**
2.05	Where the Agency has received Crown funding attributable to the depreciation of assets, the Agency has applied this funding to ensure the levels and methods of service enabled by the Agency's assets reflect its strategic intentions.	Supporting material might include data showing actual and forecast depreciation and renewals spend which over time, should be reported annually through an agency's standardised performance metrics. If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps
2.06	The Agency has demonstrated a level of asset management practice and performance that is appropriate to the scale of assets under their management and the criticality of those assets to the delivery of key public services.	Supporting material might include agency's performance against target which over time, should be reported annually through an agency's standardised performance metrics. Asset management maturity may be evidenced by an agency's self-assessment. If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps.
2.07	The Agency has maintained AMPs to inform strategic, tactical, and operational choices.	Supporting material would be included in an agency's AMIP.

Attestation #	CO 23 (9) Requirement	Supporting material
		If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps.
2.08	The Agency has identified their service critical assets and maintain details of the identity, condition, and risk exposure of these assets in the Agency's asset register.	Supporting material might include audit reports or similar, which show, over time, that an agency's asset register contains an agency's minimum data attributes including such things as: • Asset unique identifier • Asset description • Asset level (determined by asset hierarchy) • Location • Installation date • Ownership details (e.g., business unit) • Condition grade • Condition last updated date • Criticality score • Maintenance history • Outage information (planned and unplanned) • Compliance details • Insurance details – policy name, maximum insurance cover, renewal date etc. • Known natural hazard/climate change risk • Professional competency requirements to work on assets such as holding New Zealand Certificate in Electrical Trade for electrical services work • Manufacturer • Warranty details • Asset replacement value – cost of a like for like replacement • Book value – the capitalised cost less accumulated depreciation

Attestation #	CO 23 (9) Requirement	Supporting material
		• Optimised depreciated replacement cost - the current replacement cost of an asset less deductions for physical deterioration and all relevant forms of obsolescence • Operations and maintenance annual cost • Annual depreciation cost • Last valuation date If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps
2.09	The Agency has captured relevant indicators of past and projected asset performance (for example, asset utilisation, condition, and fitness-for-purpose) for service critical assets. The Agency has used these indicators in internal management and decision-making processes.	Supporting material might include agency's performance reports against target which over time, should be reported annually through an agency's standardised performance metrics. If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps.
2.10	The Agency has reported on relevant asset performance indicators for service critical assets in their annual report.	Asset performance reporting is included in an agency's annual report. If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps.
2.11	The Agency has planned for the eventual withdrawal or sale of its assets, using approved asset disposal processes.	Supporting material describing the approved asset disposal process would be found in the SAMP which might detail a recycling/disposal strategy including details of: • how an agency identifies when assets can be disposed of or recycled • specific policies or legislation relating to asset disposal including financial treatment • any constraints around disposal of specific assets, or parts of assets, that are required to be recycled, handled in a specific way (for example, hazardous materials), or can be disposed of in a landfill

Attestation #	CO 23 (9) Requirement	Supporting material
		• how an agency will treat the disposal from a financial perspective, for example, a sale of an asset may be treated as revenue while a straight disposal could be treated as an opex expense. In terms of the plan for disposal of assets an agency's AMP might include details of any planned disposal or recycling of assets including: ○ asset description ○ full or partial disposal/recycling ○ disposal/recycling driver ○ costs of disposal/recycling by expenditure category ($) ○ income from disposal/recycling ($) ○ depreciated value of asset ($) ○ date of disposal • disposal/recycling assumptions and any relevant additional commentary If there are gaps in information, an agency's AMIP improvement should include actions and timeframes to address these gaps
3.04	The Agency has completed a risk profile assessment (RPA) for all investment proposals prior to commencing business case development for the investment.	Supporting material in an agency's AMP might include a description of the near-term investment proposals that are within the BBC process and a summary of, or reference to, the associated strategic and risk profile assessments
3.05	The Agency has completed a strategic assessment for all investment proposals which are self-assessed as medium- or high-risk prior to commencing business case development for the investment.	Supporting material in an agency's AMP might include a description of the near-term investment proposals that are within the BBC process and a summary of, or reference to, the associated strategic and risk profile assessments.

Glossary

Term	Definition
Āpōpō Asset Management Maturity Assessment Tool	A self-assessment tool aligned with ISO 55000 used to evaluate an agency's asset management maturity across 16 criteria.
Asset	An item, thing or entity that has potential or actual value to an organisation.
Asset Condition	An assessment of an asset's physical state and remaining service life, often scored on a scale from 1 (very good) to 5 (very poor).
Asset Criticality	A measure of the consequence of asset failure, used to prioritise asset management activities.
Asset Data Strategy	A plan outlining how asset data is collected, managed, and used to support decision-making and performance monitoring.
Asset Disposal	The process of removing assets from service, which may include sale, recycling, or decommissioning, subject to legal and policy requirements.
Asset Hierarchy	An organised structure that breaks down assets into levels (e.g., facilities, systems, components) to support planning, decision-making, and reporting.
Asset Management	The coordinated activity of an organisation to realise value from its assets, considering the full life cycle: acquisition, upgrade, operation, maintenance, renewal, disposal, and recycling.
Asset Management Objective (AMO)	A result to be achieved through asset management activities, aligned with organisational strategic objectives.
Asset Management Plan (AMP)	A detailed plan specifying activities, resources, costs, and timelines for managing assets to achieve the AMOs.
Asset Management Policy	A formal statement of an organisation's intentions and direction regarding asset management, aligned with its strategy and objectives.
Asset Management System (AMS)	A set of interrelated elements (policies, objectives, processes) that enable an organisation to manage assets effectively and achieve its AMOs.
Asset Portfolio	The collection of assets within the scope of an agency's asset management system.

Term	Definition
Asset sub-portfolio	A collection of assets within a sub-set of the asset portfolio – could be a specific asset class or category.
Asset sustainability ratio	A financial metric comparing actual and forecast renewal spending to depreciation, indicating sustainability of asset investment
Asset work plan	A detailed operational plan outlining specific actions, timelines, and resources required to implement asset management activities.
Baseline funding	The level of funding an agency receives each year which excludes any new crown funding..
BBC framework	Refers to the Better Business Case framework used in New Zealand for investment decision-making and assurance.
Capital investment	Expenditure on acquiring, upgrading, or renewing physical assets to meet service delivery needs.
Compliance risk	The risk of failing to meet statutory or regulatory obligations related to asset ownership, operation, or condition.
Condition	An assessment of an asset's physical state and remaining service life, often scored on a scale from 1 (very good) to 5 (very poor).
Corrective maintenance	Reactive maintenance performed to restore an asset to service after unexpected failure.
Deferred maintenance	Maintenance activities that have been postponed, potentially increasing future costs and risks.
Depreciation	The reduction in value of an asset over time due to wear and tear, age, or obsolescence.
Expected annual loss	The estimated annual financial loss from natural hazard or climate change risks, used to assess fiscal exposure.
Expected demand forecast	The most likely scenario for future service demand, used as a basis for investment planning.
Functionality	A measure of how well an asset performs its intended function, considering suitability, location, and capacity. It may also be referred to as "fitness for purposes".

Term	Definition
Investment planning scenario	A modelled approach to asset investment planning under different fiscal constraints (e.g., unconstrained, no change, reduced).
Investment story	A narrative within the AMP that explains the rationale, timing, and impact of planned investments over a 10-year horizon.
Level of service	The parameters, or combination of parameters which reflect social, political, environmental, and economic outcomes that an organization delivers or seeks to deliver.
Life-cycle delivery	The coordinated management of assets through all stages of their life—from planning and acquisition to operation, maintenance, renewal, and disposal (i.e. applying *asset management* over the life cycle of *assets*).
Line of sight	A concept in asset management referring to the alignment between organisational objectives and asset-level activities, ensuring decisions are connected across strategic, tactical, and operational levels.
Optimised depreciated replacement cost	The estimated cost to replace an asset at current standards, adjusted for depreciation and optimised for service delivery.
Performance indicator	A measurable result used to evaluate asset management effectiveness, including cost, service, and risk metrics.
Performance metric	A specific, quantifiable measure used to assess aspects of asset performance, such as condition, utilisation, or financial efficiency.
Predictive maintenance	Maintenance based on data-driven predictions of asset failure, often using analytics or condition monitoring.
Preventive maintenance	Planned maintenance activities aimed at preventing asset failure and extending asset life.
Reliability	The ability of an asset to perform its required function without failure, often measured by Mean Time Between Failure (MTBF).
Risk	The effect of uncertainty on objectives, including potential events, their likelihood, and consequences.
Risk profile assessment	A required assessment under CO (23) 9 to evaluate the risk level of an investment proposal before business case development.

Term	Definition
Service performance	A measure of how well assets support the delivery of services, including metrics like reliability, availability, and functionality.
Strategic assessment	A required evaluation for medium- or high-risk investment proposals to ensure alignment with strategic objectives.
Strategic asset management plan	A document that defines the strategy, objectives, system, and processes for developing and managing the asset portfolio.
Tactical planning	Mid-level planning that translates strategic objectives into actionable asset management activities and investment decisions.
Utilisation	The extent to which an asset's capacity is used, typically expressed as a percentage.
Value	The results from satisfying needs and expectations.
Whole-of-life cost	The total cost of owning an asset over its entire life cycle, including acquisition, operation, maintenance, renewal, and disposal. Also known as total cost of ownership or life-cycle cost.

References

Aditya, Parida. (2016). Asset performance measurement and management: Bridging the gap between failure and success. https://www.researchgate.net/publication/303767904_Asset_performance_measurement_and_management_Bridging_the_gap_between_failure_and_success

Āpōpō. The Āpōpō Guide. https://apopo.co.nz/apopo-guide/

Australia Local Government Association. (2024). 2024 National State of the Assets report. https://alga.com.au/2024-national-state-of-the-assets-report/#:~:text=The%202024%20National%20State%20of%20the%20Assets%20Report,cent%20of%20local%20governments%29%20across%20eight%20asset%20categories

Bacalu, V. (2016). Asset Management Overview. https://www.slideshare.net/slideshow/asset-management-overview-vlad-bacalu-2016-07-pdf/277291499

Bascand, G. (2018). The effect of daylight: disclosure and market discipline. https://www.rbnz.govt.nz/hub/publications/speech/2018/speech2018-02-27#_ftn5.

Bruiners, J.; Njuguna, J.; and Agarwal, A. (2022). Case study: multi-billion pound infrastructure decision making: a regulatory infrastructure asset management assessment. https://rgu-repository.worktribe.com/output/1777830

Commerce Commission New Zealand. (2012). Electricity Distribution Information Disclosure Determination 2012. https://www.comcom.govt.nz/__data/assets/pdf_file/0025/78703/Electricity-distribution-information-disclosure-determination-2012-consolidated-3-April-2018.pdf

Condition Grading Table. (2021). SPM Assets. https://landing.spmassets.com/condition-grading-table

Construction Sector Accord. (2023). The New Zealand BIM Handbook. https://www.biminnz.co.nz/nz-bim-handbook

da Silva, Renan; Melani, Arthur; Michalski, Miguel; Souza, Gilberto; Nabeta, Silvio; and Hamaji, Fernando. (2020). Defining Maintenance Performance Indicators for asset management based on ISO 55000 and Balanced Scorecard: A hydropower plant case study. 10.3850/978-981-14-8593-0_3820-cd. https://www.researchgate.net/publication/342365399_Defining_Maintenance_Performance_Indicators_for_asset_management_based_on_ISO_55000_and_Balanced_Scorecard_A_hydropower_plant_case_study

Department of Treasury and Finance, State of Victoria. (2017). Asset Management Accountability Framework. https://www.dtf.vic.gov.au/asset-management-accountability-framework

Department of Treasury and Finance, State of Victoria. (2017). AMAF Guidance note – intangible assets. https://www.dtf.vic.gov.au/asset-management-accountability-framework

Dolan, T.; Walsh, C.; Bouch, C.; and Carhart, N. (2017). A conceptual approach to strategic performance indicators. https://www.sciencedirect.com/org/science/article/pii/S2053025016000087

External reporting Board. (2022). New Zealand Equivalent to International Accounting Standard 16 Property, Plant and Equipment (NZ IAS 16). https://www.xrb.govt.nz/dmsdocument/1021/

Hanif, Navid; Lombardo, Caroline; Platz, Daniel; Chan, Claire; Machano, Jaffer; Pozhidaev, Dmitry; and Balakrishnan, Suresh eds. (2021). Managing Infrastructure Assets for Sustainable Development: A Handbook for Local and National Governments. https://desapublications.un.org/publications/managing-infrastructure[1]assets-sustainable-development-handbook-local-and-national

Hwang, J. and Lee, C. (2018). Level of Service-based Performance Measurement of Asset Management of Public Office Buildings. https://www.sciencedirect.com/science/article/pii/S122679882401969X

Global Forum on Maintenance and Asset Management. (2021). Criteria for Evaluating Asset Management Indicators. https://gfmam.org/sites/default/files/2021-11/Criteria_Evalution_Asset_Management_Indicators_First_Edition_English.pdf

Global Forum on Maintenance and Asset Management (GFMAM). (2024). The Asset management Landscape Third edition. https://gfmam.org/publications/asset-management-landscape-v30

Infrastructure NSW. (2023). State of Infrastructure Report 2022–23 review of the NSW Government asset portfolio. https://www.infrastructure.nsw.gov.au/media/oznlnai5/insw-state-of-infrastructure-report-2022-23.pdf

Institute of Asset Management. (2015). Asset Management an anatomy. https://theiam.org/knowledge-library/asset-management-an-anatomy/

Institute of Asset Management. (2021). Developing and Maintaining a Strategic Asset Management Plan. https://theiam.org/media/4402/preview-developing-and-maintaining-a-strategic-asset-management-plan-samp.pdf

International Standards Organisation. (2018). ISO 55002:2018 Asset management – Management systems – Guidelines for the application of ISO 55001. https://www.iso.org/standard/70402.html

International Standards Organisation. (2024). ISO 55001:2024 Asset management system – Requirements. https://www.iso.org/standard/83054.html

International Standards Organisation. (2024). ISO 55000:2024 Asset management – Vocabulary, overview and principles. https://www.iso.org/standard/83053.html

IPWEA. (2015). International Infrastructure Management Manual (IIMM). https://www.ipwea.org/resourcesnew/bookshop/iimm

Kellen, V. (2003). Business Performance Measurement. https://www.kellen.net/bpm.pdf

Ministry of Business, Innovation and Employment (MBIE) Government Procurement Branch. (2013). Total Cost of Ownership: An introduction to whole-of life costing. https://www.procurement.govt.nz/assets/procurement-property/documents/guide-total-cost-ownership.pdf

New Zealand House of Representatives, Finance and Expenditure Committee. (2025). Inquiry into performance reporting and public accountability (interim report). https://selectcommittees.parliament.nz/view/SelectCommitteeReport/6d4b160e-375a-4964-8864-08ddf56bda09

New Zealand Infrastructure Commission. (2024). Build or Maintain? New Zealand's infrastructure asset value, investment, and depreciation, 1990–2022. https://tewaihanga.govt.nz/our-work/research-insights/build-or-maintain

New Zealand Infrastructure Commission. (2024). Taking care of tomorrow today: Asset management State of Play. https://tewaihanga.govt.nz/our-work/research-insights/taking-care-of-tomorrow-today

New Zealand Infrastructure Commission. (2025). Draft National Infrastructure Plan. https://tewaihanga.govt.nz/draft-national-infrastructure-plan

New Zealand Infrastructure Commission. (2025). From plans to projects. An assessment of how central government plans, fund and manages infrastructure. https://tewaihanga.govt.nz/our-work/research-insights/from-plans-to-projects

NSW Treasury. (2019). Asset Management Policy for the NSW Public Sector (2019). https://www.infrastructure.nsw.gov.au/media/cq3jy13u/ttip19-07-nsw-asset-management-policy-master-approved_31-october-2019.pdf

Office of the Auditor-General. (2017). Reflections from our audits: Investment and asset management. https://oag.parliament.nz/2017/asset-reflections/docs/asset-reflections.pdf/view

Office of the Auditor-General. (2021). Insights into local government: 2021. https://www.oag.parliament.nz/2022/local-govt

Office of the Auditor-General. (2023). Asset management and long-term planning: Learning from local government long-term planning 2021–31. https://auditnz.parliament.nz/resources/good-practice/asset-management/asset-mgmt-and-long-term-planning/docs/asset-mgmt-long-term-planning.pdf

Scott, R. and Chesher, J. Asset Management Associates. (2022). The Ultimate Guide to Asset Management KPIs. https://assetmanagementassociates.com.au/thought-leadership/f/the-ultimate-guide-to-asset-management-kpis

Service Works Group Ltd. (2017). A Guide to effective Asset Management for Buildings & Equipment. https://info.swg.com/guide-to-asset-management-wp

Treasury New Zealand. (2023). Asset Management Principles, Asset Management Plans and Asset Registers guide for agencies covered under Cabinet Office circular CO (23) 9. https://www.treasury.govt.nz/sites/default/files/2023-11/asset-management-guidance-agencies-nov23.pdf

Varma, S. and Proctor, G. (2020). Asset Management Practices and Benefits: Case Study 1. *https://www.tamguide.com/reference/f15-case-study-1-asset-management-practices-and-benefits/*