



BUILT TO LAST

HOW CAN WE TAKE A MORE
STRATEGIC APPROACH TO
INFRASTRUCTURE ASSET
MANAGEMENT IN AOTEAROA
NEW ZEALAND?

A REPORT BY **KALI MERCIER**

TABLE OF CONTENTS

Executive Summary 01

Recommendations 05

Chapter 1: Asset Management –
Where are we going wrong? 11

Chapter 2: Making trade-offs with
the full lifecycle in mind 25

Chapter 3: Getting back to basics:
Tracking what we have, and what
we're planning to do with it 29

Chapter 4: Improving information
and transparency on asset
performance and condition 39

Chapter 5: Depreciation should
fund renewals – Why is this not
happening? 47

Conclusion 61

References 63





ABOUT MAHI A RONGO / THE HELEN CLARK FOUNDATION

ABOUT MAHI A RONGO / THE HELEN CLARK FOUNDATION



The Right Honourable Helen Clark
Photo credit The Elders/Jeff Moore.

Our Philosophy

New problems confront our society and our environment, both in Aotearoa New Zealand and internationally. Unacceptable levels of inequality persist. Women's interests remain underrepresented. Through new technology we are more connected than ever, yet loneliness is increasing, and civic engagement is declining. Environmental neglect continues despite greater awareness. We aim to address these issues in a manner consistent with the values of former New Zealand Prime Minister Helen Clark ONZ, who serves as our patron.

Our Purpose

The Foundation publishes research that aims to contribute to a more just, sustainable, and peaceful society.

Our goal is to gather, interpret, and communicate evidence in order to both diagnose the problems we face and propose new solutions to tackle them. We welcome your support.

Please see our website helenclark.foundation for more information about getting involved.



ABOUT WSP
ABOUT WSP
ABOUT WSP
ABOUT WSP
ABOUT WSP



About WSP

WSP is one of the world's leading professional services firms, uniting its engineering, advisory and science-based expertise to shape communities to advance humanity.

With roots in New Zealand's earliest infrastructure projects more than 150 years ago, WSP today has offices and labs in 24 towns and cities across Aotearoa New Zealand – from Whangārei to Invercargill – and employs over 2000 professionals, known as Visioneers.

Together they pioneer solutions and deliver innovative projects across the transport, building, environment, water, energy and advisory sectors.



ACKNOWLEDGEMENTS ACKNOWLEDGEMENTS ACKNOWLEDGEMENTS ACKNOWLEDGEMENTS



Kali Mercier

WSP Fellow, and Deputy Director of the Helen Clark Foundation

5 June 2025

To all those who helped with this report in so many different ways, ngā mihi ki a koutou katoa. I'd particularly like to thank Rosie Collins, who was instrumental in the research and writing, and Oliver Winter, who assisted with a range of tasks and research. I hope you enjoy seeing your words and thoughts reflected here.

As always, a huge thank you and grateful acknowledgements to our partners at WSP for their help, support and expertise. In particular, thank you to Wayne Hatcher, Elke Beca, Adele Jones, Nathan Capper, Nadine France, Amy Richardson, Campbell Gardiner, Gary Porteous, Toby Horstead, Hunter Dean, Morten Engedal Sørensen, David Monkman, Claire Edmondson and the talented design team.

I'd also like to thank the Helen Clark Foundation staff and board for their encouragement, support and feedback, particularly our Executive Director, Murray Bruges, and our patron, Rt Hon Helen Clark.

I am extremely grateful to the following people, who generously shared their wealth of knowledge on this topic. Thank you to Geoff Cooper, Erana Sitterle, Hugh Jory, Nick Leggett, Simon Randall, Liam Doyle, Ranjani Ponnuchetty and Bernard Hickey.

We rely greatly on our partners at AUT for the support that allows us to continue this important work - ngā mihi nui.

EXECUTIVE SUMMARY

The ability of Aotearoa New Zealand's infrastructure to provide for future wellbeing hinges in no small part on the often-overlooked discipline of lifecycle asset management. As the country faces growing demands on its aging infrastructure, the need for a more strategic approach to managing assets throughout their lifecycle has become critical.



Evidence shows that investment in long-term asset management and planned, preventative maintenance are essential for ensuring infrastructure is both sustainable and efficient. Yet, several barriers prevent the realisation of long-term value from our infrastructure.

One of the key challenges is the inconsistent use of depreciation across sectors, where a mismatch between depreciation and renewal funding means many assets are not adequately supported for their long-term

maintenance needs. As a result, critical infrastructure becomes vulnerable to premature degradation or failure, leading to costly emergency repairs or replacements that could have been avoided with better planning.

But the problem also reflects a wider lack of a systems approach. Poor data collection and inconsistent publication of key information prevents problems coming to light in advance, and stymies effective decision making. Operating without good information means decision makers are often unable to evaluate alternative investments or establish clear management objectives that consider the long-term needs of the entire infrastructure network, and instead focus on putting out one fire at a time.

Short-term thinking drives this dynamic. When decision makers prioritise minimising upfront costs over ensuring

long-term value, this can perpetuate a 'cheapest is best' mentality. While this approach may lead to short-term savings, it can come at the expense of long-term performance and durability. Now, as Aotearoa New Zealand's population continues to grow and age rapidly, extracting the best possible value from our infrastructure over the long-term will be essential to provide New Zealanders with the quality of infrastructure they expect. Failing to account for these long-term needs today will exacerbate the financial strain in the future (New Zealand Infrastructure Commission / Te Waihangā, 2024b).

In general, better information about the country's assets is needed across the board to raise the profile of these challenges. While improving the collection and accessibility of information will not lead to better decision making by default, the importance of building in mechanisms for public scrutiny was a central finding from the expert interviews and research that informed this report. Better and more accessible data on asset condition will also create more opportunities to engage the public on the issue of long-term value and help create an understanding of the importance of investing in long-term maintenance, even if that sometimes means delaying or not pursuing new projects.

Without this more systemic approach, Aotearoa New Zealand's infrastructure owners, ultimately ratepayers and taxpayers, are flying in the dark. The country suffers from inefficient and unequal outcomes as a result, as those who benefit from infrastructure today are not necessarily required to reinvest in its upkeep. Improving effective lifecycle asset management practice and capability in Aotearoa New Zealand is therefore a clear priority and a key recommendation of this report. Doing so will ensure our infrastructure systems remain resilient, efficient, and capable of supporting the needs of its citizens for decades to come.

Although it is tempting for politicians at the central and local level to focus on new or high-profile infrastructure projects, this report shows the central importance of taking better care of what the country already has. The good news is that there are clear, practicable opportunities for improvement – action we could take today that would make a major difference in improving the performance of our infrastructure. This includes setting consistent standards for assurance, matching depreciation with renewals funding,

and collecting better information on asset performance and condition.

As Canada has recently done in over 2,700 communities through their Municipal Asset Management Program (Federation of Canadian Municipalities, 2025), we can also invest in our people, ensuring investments in capability are being made across the infrastructure sector to lift the gaze on lifecycle asset management principles. This includes investing in activities such as regularly tracking performance against desired service levels; addressing shifts in demand ahead of time by investing in forecasting and scenario modelling; applying whole-of-life value frameworks when designing new assets and deciding when to invest in old ones; and proactively identifying, evaluating, and managing risks in a structured and appropriate manner.

Proactiveness is perhaps the key principle missing from the country's current approach to infrastructure. We must commit to a long-term financial strategy and create the mechanisms for securing the necessary resources to realise full value from our assets. This means orienting decision making towards taking care of our systems for a range of possible futures.

On the investment side, a more consistent pipeline of infrastructure work – made up of operational maintenance, renewals, and new builds – will help ensure those who are trained in asset management practice do not leave for Australia or elsewhere because work dries up. The government can support improvements to institutional settings, but must also match this with steady investments in maintenance, renewals, and asset condition assessment technologies and processes. This would be a significant factor in allowing Aotearoa New Zealand to shift from a reactive, crisis-driven approach to a proactive, future-focused strategy.

AS MUCH AS

99%

OF AOTEAROA
NEW ZEALAND'S
INFRASTRUCTURE IS
ALREADY IN EXISTENCE.
(Te Waihangā 2024b)

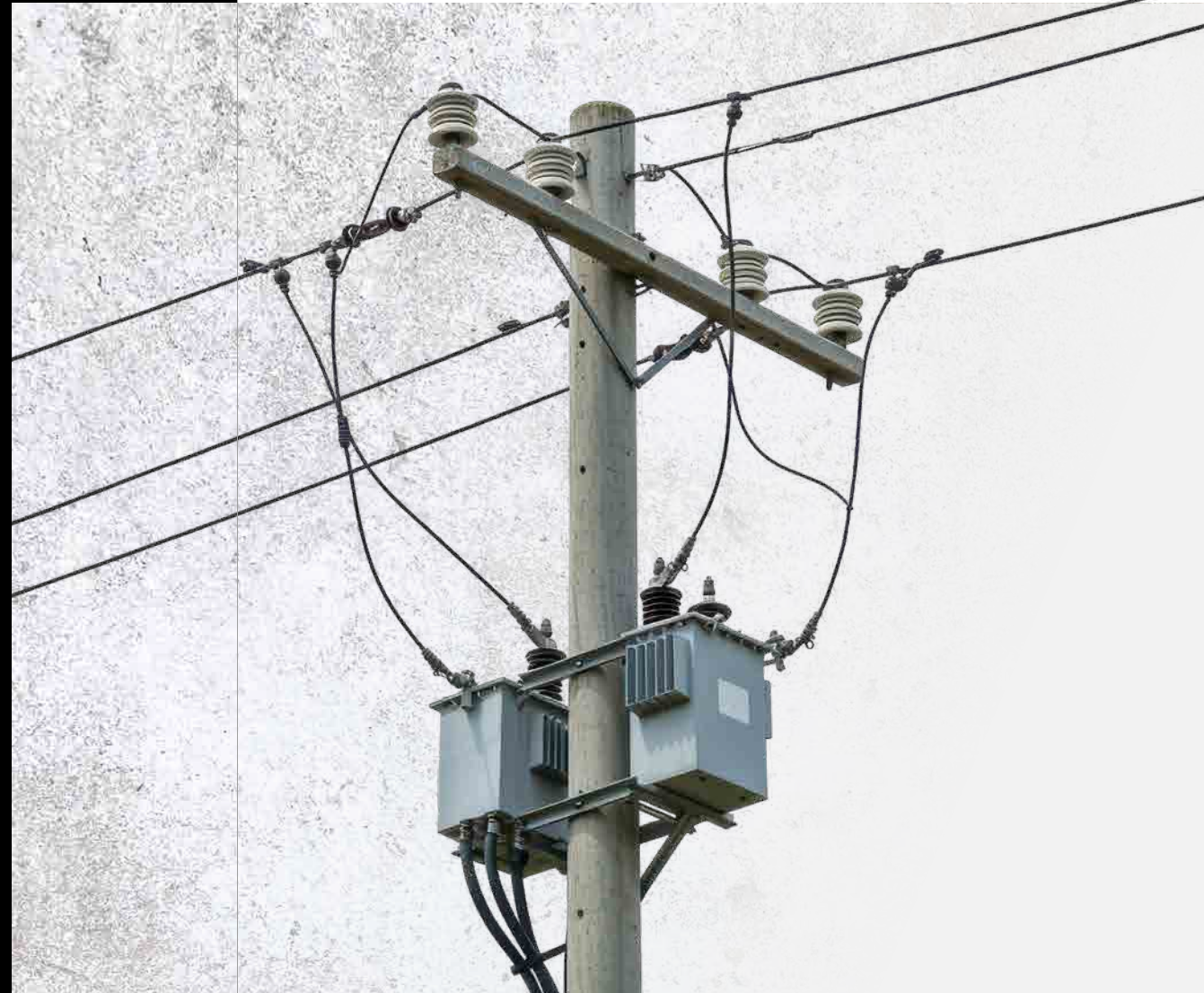
As our infrastructure assets continue to age, shifting our focus and getting organised – guided by clear parameters and systems – is not just prudent but essential. As much as 99% of the infrastructure we need to support the country's future is actually already in existence, according to the New Zealand Infrastructure Commission / Te Waihangā (2024b). Realising long-term resilience and value in a changing world means politicians can no longer present infrastructure projects to the public as if they are one-off investments. They must instead think and talk systemically about the importance of caring for the assets Aotearoa New Zealand already has.



RECOMMENDATIONS RECOMMENDATIONS RECOMMENDATIONS RECOMMENDATIONS RECOMMENDATIONS

wsp

THE
Helen
Clark
FOUNDATION



With our infrastructure under increasing pressure, implementing better systems to strategically manage assets across their full lifecycle could offer significant cost savings to the country.

RECOMMENDATION

01

MAKE INVESTMENT DECISIONS ABOUT INFRASTRUCTURE ASSETS OVER THEIR FULL LIFECYCLE

- Initiate a nationwide dialogue on how New Zealanders would like the country to look in the future, and the critical role of infrastructure in that vision. The outcome of that conversation should provide a framework to inform future decisions on infrastructure investment.
- Develop guidance and criteria to help decision makers determine what level of service is appropriate for an asset or portfolio of assets, what to consider when making trade-offs about current and future cost, performance and risk, and how to calculate the impact of those decisions on long-term value.
- Rather than choosing the cheapest solution at each investment point, infrastructure owners should be incentivised to focus on long-term value throughout the lifecycle of assets, taking into account a range of factors, for example climate resilience, future population growth, and future potential changes in technology.

RECOMMENDATION

02

CENTRAL GOVERNMENT SHOULD FOLLOW BEST PRACTICE IN ASSET MANAGEMENT, FOR EXAMPLE BY KEEPING ASSET REGISTERS AND DEVELOPING ASSET MANAGEMENT PLANS

- Continue and expand the attestation process set out in Cabinet Circular CO (23)9 (Cabinet Office, 2023) to improve transparency about the way central government agencies manage their infrastructure assets, including by:
 - Requiring more detail to be submitted as part of the asset management reporting process, which is currently very high level.
 - Lifting the level of reporting to help strengthen accountability, by requiring attestations to be presented to Ministers or a governance board, not just to Treasury.
 - Monitoring the impact of the reporting process over time to ensure the attestation process results in better practice at agency level.

RECOMMENDATION

03

INCREASE COMPLIANCE WITH BEST PRACTICE AT BOTH CENTRAL AND LOCAL GOVERNMENT LEVELS BY IMPROVING ASSURANCE PROCESSES AND INCREASING PUBLIC SCRUTINY

- Empower an agency - such as the New Zealand Infrastructure Commission / Te Waihanga - to become a 'watchdog' as part of a formal assurance process. The watchdog should ensure central government agencies and local authorities are following best practice processes in asset management, for example by maintaining an asset register and developing high-quality asset management plans.
- Develop a 'scorecard' system to increase transparency around asset management and make this easily understood by the public.
- Ensure decision making is embedded into the strategic thinking of all providers, for example by implementing the New Zealand Infrastructure Commission / Te Waihanga's recommendation (2024b) that public infrastructure providers be required to have an identified and accountable governance body or executive lead for asset management.

RECOMMENDATION

04

INCREASE ASSET MANAGEMENT WORKFORCE CAPABILITY

Aotearoa New Zealand should:

- Recognise and resource established asset management professional credentials and qualifications (such as those of Apōpō), and support Engineering New Zealand's proposal to establish asset management as a distinct engineering discipline.
- Invest in standardised training and ongoing professional development for asset management professionals.
- Commit to a workforce planning and development strategy backed up by a commitment to steady strategic investment in infrastructure over the long term (via the National Infrastructure Plan, for example).

RECOMMENDATION

05

IMPROVE UNDERSTANDING OF PERFORMANCE AND CONDITION OF EXISTING ASSETS TO IMPROVE STRATEGIC DECISION MAKING

- Establish clear, consistent data collection and reporting standards across all infrastructure providers about infrastructure performance and condition, and make those metrics publicly available.
- Prioritise condition-based assessments over age-based assessments to inform a better understanding of asset performance and health.
- Subsidise improved assessments to assist smaller councils to increase their understanding of the performance and condition of their assets.
- Prioritise the use of technology to continuously monitor critical infrastructure – for example through the Internet of Things.

RECOMMENDATION

06

PUBLIC ASSET OWNERS SHOULD RING-FENCE FUNDING FOR RENEWALS, OR JUSTIFY WHY THEY ARE NOT DOING THIS

Central government agencies should be expected to:

- Break down and report on renewal spending, maintenance spending, and operational spending for all infrastructure they own or manage.
- Report on the extent to which they are renewing assets relative to the rate of depreciation. This could be required under the existing Cabinet Circular mechanism, or in the accompanying guidelines, for example.

All public asset owners should be expected to:

- Explain any mismatch between depreciation and forecast renewal funding, and explain this publicly. To provide the necessary incentives for action, depreciation and budgeting information should be gathered, synthesised, and proactively released to the public.

RECOMMENDATION

07

TO MINIMISE FUTURE COSTS, PROVIDE GREATER TRANSPARENCY ABOUT MAINTENANCE SPENDING TO ENSURE THE 'RIGHT' AMOUNT IS SPENT KEEPING ASSETS IN GOOD REPAIR

- Infrastructure owners should be required to separate out accounting for reactive and planned, preventative maintenance, renewals, and operational costs in annual reports.
- The Government should investigate methods of measuring expected reactive and preventative maintenance costs for each class of assets, and require agencies to justify how they allocate each type of maintenance funding. Where maintenance expenditure falls significantly below expected costs, or is weighted too heavily towards reactive versus preventative maintenance, relevant Ministers should be expected to explain to Parliament how they expect to make up the shortfall.



CHAPTER 1

ASSET MANAGEMENT - WHERE ARE WE GOING WRONG?

New Zealanders' future wellbeing relies heavily on the often-overlooked discipline of lifecycle asset management.

Infrastructure systems are the lifelines of social and economic activity (Larkin, 2013). But, over time, these lifelines will break down and deteriorate through use: the New Zealand Infrastructure Commission / Te Waihanga estimates that for every \$10 Aotearoa New Zealand invested in new infrastructure between 2013 and 2022, nearly \$6 of our existing infrastructure wore out (New Zealand Infrastructure Commission / Te Waihanga, 2024a).

It is commonly understood that roads, housing, pipes, transport networks, hospitals, and schools are costly to build in Aotearoa New Zealand compared to other countries. Less well understood is the fact that, once built, many of our assets are also not being maintained or renewed at the rates necessary to provide the expected level of service over the long term (Office of the Auditor-General New Zealand, 2024).

In practice, infrastructure investment relies on ongoing financial commitments, involving both:

- **Maintenance:** expenditure aimed at keeping existing infrastructure, equipment, or systems in good working condition and preventing failures or breakdowns, with investment coming from operational budgets. Activities like repairs and routine servicing ensure assets continue to function effectively over time. (Asset Management Council of Australia, n.d.).
- **Renewals:** the investments that replace, overhaul, or significantly upgrade or rehabilitate infrastructure systems, or parts thereof, that have reached the end of their useful life, bringing them back to an as-new condition. These investments are generally more costly than maintenance spend (but cost less than brand-new construction) and come from capital budgets (Asset Management Council of Australia, n.d.; City of Burnside, 2023).
- **Operational costs:** the ongoing expenses required to run and manage infrastructure on a day-to-day basis. Examples include staff salaries, utilities such as electricity, equipment, administrative costs, insurance, and compliance. How an asset is designed and built can significantly impact the level of operational costs throughout its lifecycle.

Despite the relative predictability of ongoing infrastructure costs and the importance of good design at the commissioning stage to reduce lifetime expenses, current system settings in Aotearoa New Zealand tend to encourage decision makers to prioritise upfront savings over long-term value. This tends to favour decisions at key investment points that reflect a mentality of ‘cheapest is best’.

Too often, this also means infrastructure investment is framed as a one-off, upfront cost, rather than a long-term commitment to fund and manage an asset throughout its life (New Zealand Infrastructure Commission / Te Waihangā, 2024a). A key risk is that the country’s infrastructure assets will degrade faster than expected. Persistent underinvestment in maintenance and renewals shortens assets’ valuable lifecycle and drives up the cost of servicing them as well as the eventual cost of their replacement (New Zealand

Infrastructure Commission / Te Waihangā, 2024a). The timing of maintenance and renewal investments are especially significant for realising value over the asset lifecycle. Evidence shows that reactive or irregular maintenance can be up to three times more expensive than planned, consistent upkeep (New Zealand Infrastructure Commission / Te Waihangā, 2024a). Conversely, early and consistent maintenance can reduce or even avoid costly future rehabilitation (see Figure 1 below). Poorly executed maintenance – whether timed poorly, or not adequately carried out – accelerates deterioration and can bring forward the need for renewals.

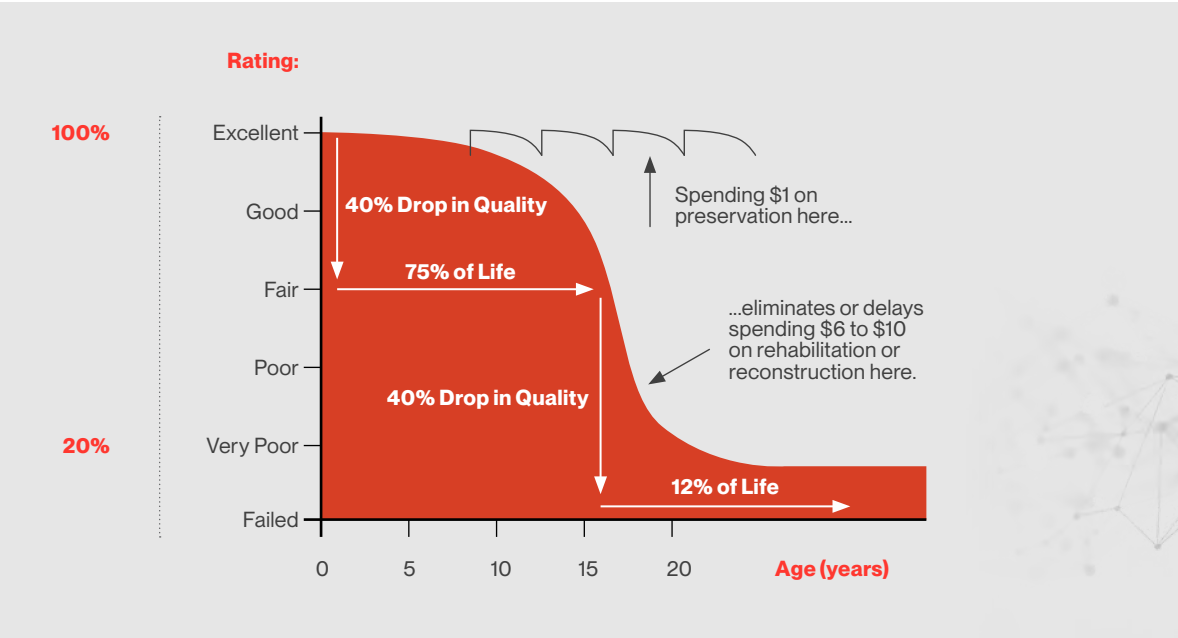


Figure 1:
Conceptual asset deterioration curve
for roading infrastructure (Canada
Infrastructure, 2019).

Navigating these dynamics across large asset portfolios requires more than reactive or ad hoc decision making; it calls for disciplined governance, robust processes, a capable and competent workforce, and reliable information on asset conditions to guide effective planning and oversight. Efforts to invest in a structured and strategic approach to asset care is known as asset management.

In practice, asset management means structuring decision making for value realisation across the full lifecycle of an asset, rather than defaulting to ‘build-and-forget-about-it’ approaches, which reflect common attitudes in the infrastructure sector (New Zealand Infrastructure Commission / Te Waihangā, 2024b). This is often because the future needs of operations and maintenance receive limited attention early in the design process of new infrastructure, as asset planning tends to focus on a broader set of immediate risks, such as permitting, financing, political and regulatory constraints, and workforce availability (Schwartz et al., 2014).

At its simplest, infrastructure asset management means the coordinated activity of an organisation to realise value from assets (ISO, 2024).

Asset management best practice is about investing the right amount, at the right time, to maximise value over the full lifecycle

This definition emphasises that asset management is not just about maintaining assets, but about coordinating activities – including planning, acquisition, operation, maintenance, and disposal – with the aim of maximising value. Realising value involves a careful balancing of costs, risks, opportunities, and performance benefits over the long term.

For example, an authority responsible for bringing clean drinking water to a city manages a network of underground pipelines, pumps, valves, and treatment facilities. Managing these assets involves more than maintaining leaky pipes. Instead, best practice asset management includes:

- **Planning:** including forecasting water demand, population growth, and aging infrastructure to determine where new pipes or upgrades will be needed over the next 30 years.
- **Acquisition:** when new pipelines or pump stations are built, this means selecting materials and designs that balance upfront cost, expected lifespan, and ease of maintenance.
- **Operation:** monitoring water quality and pressure to optimise performance, minimise energy use, and ensure reliable service.
- **Maintenance:** using condition assessments and data analytics to prioritise planned and preventative maintenance, thereby extending asset life and reducing emergency repair costs.

- **Disposal/Renewal:** replacing old pipes in a planned, budgeted way, avoiding service failures and aligning with roadworks to save money and disruption.

Through this coordinated, lifecycle-based approach, the water authority aims to minimise the total lifecycle cost, reducing service outages and the need for emergency repairs, ensuring safe, reliable water delivery and aligning spending with long-term goals and public expectations.

By approaching decision making with a long-term perspective of value, asset management practice aims to invest not just the least amount in operation and maintenance, but the right amount. The approach aims to ensure assets remain cost-effective and manageable throughout their entire lifecycle.

A formal approach to the management of infrastructure assets is essential to provide services in the most cost-effective manner, and to demonstrate this to customers, investors, and other stakeholders

Apōpō (2023) outlines the essential features of asset lifecycle management of infrastructure asset management as follows:

- Taking a lifecycle approach – the focus of this report.
- Developing cost-effective management strategies for the long term.
- Providing a defined level of service and monitoring performance.
- Understanding and meeting the impact of growth through demand management and infrastructure investment.

- Managing risks associated with asset failures.
- Sustainable use of physical resources.
- Continuous improvement in asset management practice.
- Delivering a clearly defined level of service that aligns with stakeholder expectations,
- Regularly tracking performance against these service levels.

To maximise value across the entire lifecycle, best practice is for asset managers to apply a comprehensive strategy that accounts for the long-term impacts of decisions made at every stage. Each stage of these presents unique challenges, opportunities, and potential for value creation. For instance:

- At **strategic asset planning** stages, early decisions, such as whether to purchase new equipment or upgrade existing assets, establish the foundation for future costs. Design should be guided by a clear understanding of initial costs, projected lifecycle costs, alignment with organisational objectives, and stakeholders needs and requirements (that is, both current and future users of the infrastructure). These choices have lasting consequences and should be evaluated through a long-term value lens.
- In the **Operations and Maintenance** phases, the focus shifts to sustaining and optimising asset performance. Effective strategies such as preventative maintenance then help extend asset life, minimise downtime, and prevent costly failures. Approaches enhance overall value by ensuring assets continue to deliver reliable service.



- Finally, as assets age, **Improvement and Renewal** decisions become increasingly important. These interventions should be informed by good data on current performance, future demand, and cost-benefit analyses. Whether upgrading infrastructure to meet growing needs or repurposing assets for new uses, the goal is to ensure continued value delivery in a changing environment.

Essential at each stage are good information and decision frameworks for interpreting this information, aligned with long-term strategic goals and backed up by funding. However, as Aotearoa New Zealand's infrastructure system has aged, significant strategic and practical gaps in the way the country manages its infrastructure assets have become evident. As the consequences of past underinvestment have become clearer, attention is therefore shifting to the importance of improving strategic asset management practice to align with best practice, particularly within the public infrastructure sector.

At present, many of the country's major infrastructure owners do not have clear renewal strategies for their assets, for example. Instead, asset owners are 'sweating' assets beyond their intended lifespan, pushing the burden of upkeep at an increased cost on to future generations. A clear example of this tendency is evident in the increasing strain on water infrastructure around the country. While councils collect rates each year to fund depreciation, the majority do not spend anywhere near that amount on repairing and replacing their water assets, and this underspend has been going on for years (Madow, 2021). Essential upgrades now need to be debt-financed in many places around the country, compounding long-term financial pressures.

How satisfied are New Zealanders with their infrastructure?

Aotearoa New Zealand ranked last in a recent global survey for its record of delivering national infrastructure. Only 17% of respondents said they believe Aotearoa New Zealand has a good record of delivering national infrastructure projects – tied for last place with Hungary – according to the Ipsos’ 2024 Global Infrastructure Index (Ipsos, 2024).

Over two thirds (67%) of New Zealanders feel that, as a country, we are not doing enough to meet our infrastructure needs (up from 55% in 2019). While they don’t rate the country’s infrastructure highly, New Zealanders are also not keen to spend more to improve it – only 40% of respondents to the poll agreed that spending on infrastructure should be increased, if it meant higher taxes or costs for consumers (Ipsos, 2024). The country’s general unwillingness to spend money to remedy infrastructure shortfalls is in line with global averages.

In the same survey, New Zealanders prioritised new housing, water supply and sewerage, motorways, flood defences, and the local road network as the top priorities for investment.

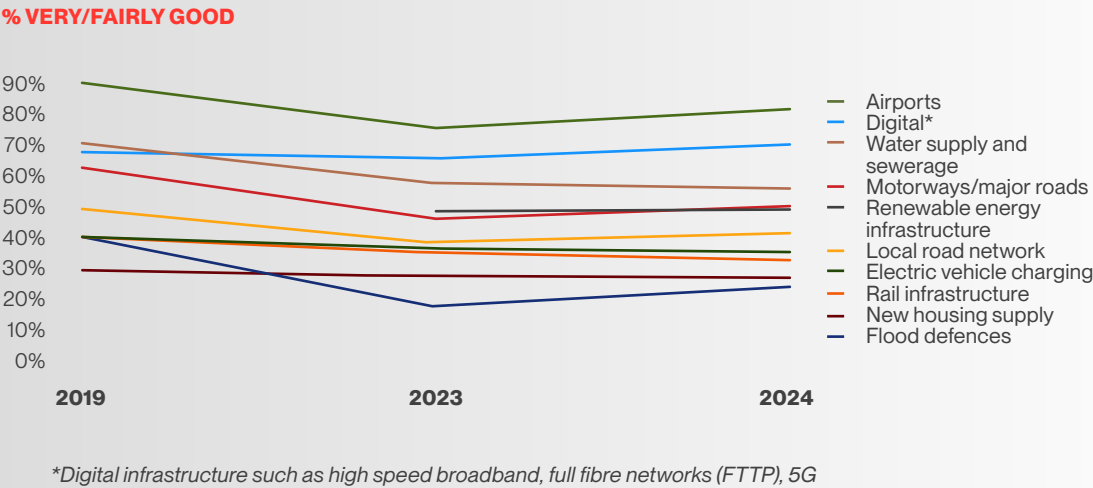


Figure 2: Public perception of quality of different types of infrastructure in Aotearoa New Zealand (Ipsos, 2024).

67%
OF NEW ZEALANDERS
FEEL WE ARE NOT
DOING ENOUGH
TO MEET OUR
INFRASTRUCTURE
NEEDS.
(Ipsos, 2024)

Future investment must reflect these long-term realities

As concerns about the sustainability of our built environment grow, maximising the value of existing infrastructure will not just be prudent, but essential. The New Zealand Infrastructure Commission / Te Waihanga (2024b) warns that “perhaps the biggest single challenge we face in the infrastructure sector may be the cost of repairing or replacing infrastructure that’s wearing out.” As much as 99% of the infrastructure we need to support the country’s future is actually already in existence, according to the New Zealand Infrastructure Commission / Te Waihanga (2024b). This suggests that looking after what we already have should be the priority. In fact, current estimates suggest that as much as 60 cents of every future infrastructure dollar will need to go towards maintaining and renewing our existing assets, as opposed to building new ones.

Addressing this challenge calls for a significant shift toward integrated strategic asset management practices that support long-term planning and proactive investment, and that balances performance, cost, opportunity and risk. This includes not only recognising the importance of timely maintenance and renewals, but ensuring decision makers are empowered and equipped with the resources they need to deliver on these responsibilities (Office of the Auditor-General New Zealand, 2024).

Progress in this area is currently hindered by broader structural barriers that require coordinated, system-wide responses. For example, squeezed budgets across the board in the public sector limit the flexibility of public asset owners to plan for and respond to long-term infrastructure needs. Additionally, the short three-year political cycle



often does not encourage a sustained planning horizon or establish the funding certainty required for effective asset management (New Zealand Infrastructure Commission / Te Waihangā, 2024b)

At the systems level, the New Zealand Infrastructure Commission / Te Waihangā (2024b) has identified four priority areas for improving asset management practice across Aotearoa New Zealand. These are strengthening governance and leadership, enhancing transparency around asset management and infrastructure performance, prioritising resilience investments over reactive recovery, and building capacity and capability across the sector.

Improving transparency across systems is particularly vital, as it can in turn enable these other goals, providing assurance of informed decision making and robust long-term planning. Several key challenges continue to limit transparency across the sector.

One is the **inconsistent use of depreciation**, which affects how asset information is understood and applied. Another significant challenge is the **limited application of systems thinking within existing asset management practices**, particularly in central government, which impedes the ability to assess alternative investments and establish appropriate management objectives across the asset portfolio. A third challenge is the **persistence of short-term thinking and political leadership**, where focus on minimising immediate costs tends to overshadow long-term value. This issue is becoming even more pressing as ageing populations pressure public finances (New Zealand Infrastructure Commission / Te Waihangā, 2024b). Finally, **a lack of robust assurance requirements and public reporting on performance** is also a major contributor to the lack of transparency. Without such systems in place, it is too easy for

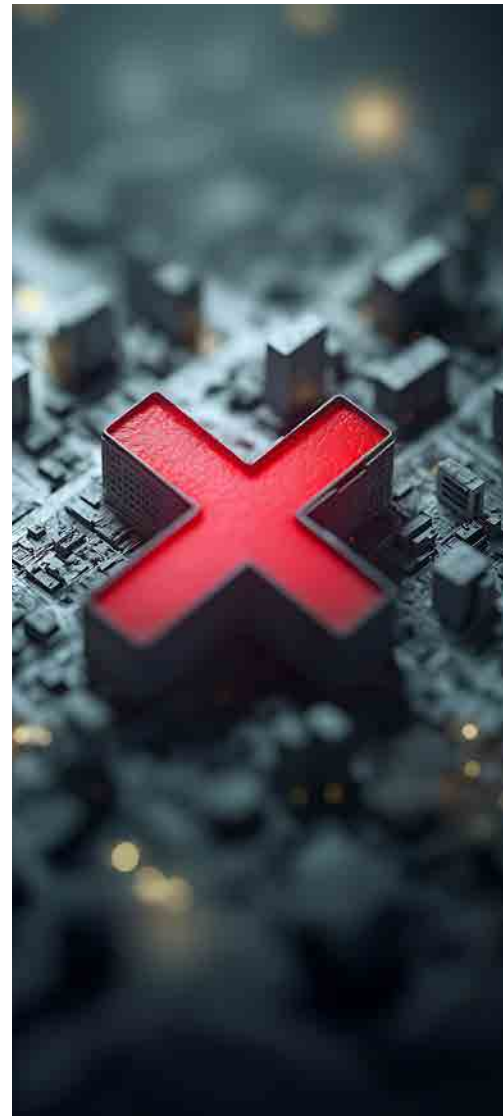
asset owners to deprioritise asset management when faced with other pressing demands on income.

Gaps in assurance and capability make it hard to evaluate long-term value of infrastructure

The New Zealand Infrastructure Commission / Te Waihangā's recent review (2024b) on asset management practice found current approaches are often too project-centred, with many people in the infrastructure sector describing asset management as a specific technical process (for example, organising maintenance), rather than cultivating strategic, cross-portfolio processes to achieve wellbeing benefits for whole populations.

The New Zealand Infrastructure Commission / Te Waihangā's report, *Taking care of tomorrow, today* (2024b), found that, for a small country, our infrastructure governance systems are relatively complex, with responsibility for asset planning, delivery, and maintenance often split across multiple agencies, levels of government, and ownership models. This fragmentation can result in inconsistent standards, duplication of effort, and a lack of long-term coordination, particularly for assets with long lifespans or shared use across jurisdictions.

A lack of system and rigour in how assets are managed is evident at the central government level. Chief executives of central government agencies submitted 'attestations' to the Treasury in 2023 about their infrastructure management practices, and this highlighted many gaps (The Treasury, 2024b). Many agencies (including Health NZ, Education, Defence, Corrections) did not have a comprehensive asset register identifying critical assets, for example, and nor did they develop asset management plans – yet these are essential best practice tools for asset management.



Asset management digital data screen

Many agencies (including Health NZ and Kāinga Ora) also do not follow a whole-of-lifecycle approach to making asset management decisions. This is clearly a missed opportunity to gain the best value from assets over the long term, and to plan and make provision for those investments in the future.

At the local government level, where information on asset conditions is generally most accessible, there is still significant inconsistency across councils. For instance,

although all councils are required to account for depreciation, each has a slightly different approach to reinvesting the balance in asset renewals. This inconsistency makes it difficult to get a clear picture of what the sector is doing in terms of planning for and funding future renewal investments.

Often, data on asset condition, performance, and risk is patchy, outdated, or siloed, making it difficult to support evidence-based planning and investment decisions (New Zealand Infrastructure Commission / Te Waihangā, 2024b). A related technical challenge is the underinvestment in the systems, data, and workforce capability required to support high-quality lifecycle asset management in Aotearoa New Zealand.

Moreover, because asset management is not consistently treated as a

strategic function, technical capability and institutional memory is at risk of being lost through restructures and short-term budgeting cycles. Aotearoa New Zealand faces growing challenges in holding onto experienced professionals, particularly as Australia tends to offer higher pay and more reliable infrastructure investment pipelines. Building this capability will require targeted investment in workforce development and stronger domestic incentives and policy stability (New Zealand Productivity Commission, 2021).

Depreciation should be funding renewals, but often is not

Depreciation is an accounting measure that represents the declining value, service potential, or economic benefit of an asset over time, usually calculated in a straight line across its expected lifespan. This depreciation should be allocated to fund future renewals if a consistent level of service is expected. However, projected reinvestment ratios are consistently below replacement levels.

Looking ahead, available information suggests that underinvestment is a persistent issue at both local and central government levels. For example, between 2016/17 and 2021/22, the NZ Transport Agency / Waka Kotahi accumulated approximately \$2.5 billion in depreciation expenses, but (in line with government investment policy) only around \$1 billion, or about 40 cents for every dollar of depreciation, was actually spent on roading renewals during that period (New Zealand Transport Agency / Waka Kotahi, 2021). Effective asset management practices would typically expect a similar amount to be spent on renewals as is gathered in depreciation when looked at over the long term, so there is clearly a mismatch here.

Ten-year central government investment forecasts also show a heavy concentration of funds on transport, which accounts for roughly half of all projected infrastructure spending (The Treasury, 2024). This concentration raises the risk that renewal costs in other sectors may remain unaddressed until they emerge unexpectedly, leading to difficult trade-offs between transport investments and the critical renewal needs of other infrastructure.

At the local government level, information on asset renewals is more accessible due to the Local



Government Act (Section 101B(3) (a)), which requires authorities to outline future renewal plans. However, forecasts indicate that underinvestment will continue, with approximately 76 cents forecast to be reinvested for every dollar of depreciation this decade (Office of the Auditor-General New Zealand, 2024). This results in a growing funding gap for infrastructure systems such as roads, stormwater, and drinking water networks. This conundrum is discussed in more length in Chapter 5.

While most local authorities address asset renewals in strategic planning, they often lack specific funding mechanisms to complement their internal budgeting strategies. In theory, value-capture mechanisms

(such as targeted rates, development contributions, or betterment levies) could be better utilised to capture a portion of the increased land or property value generated by public infrastructure investments and reinvest it into renewals. However, the politics of this is inescapable and requires leadership. As Terrill and Emslie (2017) note, while targeted mechanisms are “attractive enough in theory, there is nothing easy about capturing value”. This challenge extends to the politics of increasing rates to reflect true investment needs in the public realm, making it more likely depreciation will be diverted to fund other, more urgent investments.

Institutional settings favour individual projects over a systems approach

At present in Aotearoa New Zealand, infrastructure planning frameworks still focus heavily on individual projects rather than considering the infrastructure system as a whole. This limits our ability to understand how different assets interact and how investments in one area may impact others. As Dodson (2017) observes, international planning frameworks have shifted away from systemic thinking in favour of project-led approaches, with the result being a constraint on our ability to analyse the broader societal contributions made by infrastructure.

Each time a new asset is added to an infrastructure system, it introduces ongoing financial obligations, including upfront capital costs and the operational and renewal expenses needed to account for eventual asset replacement. And yet decisions about infrastructure investment (where, what, when) are often politically led rather than based on strategic needs assessments (Infrastructure New Zealand, 2023).

To address this, Aotearoa New Zealand needs to be clear what it is the country is trying to achieve with infrastructure – what value

is it bringing to people and to communities? Ideally, this means developing strong processes that engage communities on what matters to them, alongside improving the capacity of the country’s institutions to make the necessary investments with a long-term values framework in mind, supported by adequate funding. The OECD (2025) report, *Getting the public on side*, underscores the importance of the process of policymaking in shaping these value frameworks, especially as decision making becomes more complex.

The New Zealand Treasury (2024) has pushed the importance of strong values frameworks that consider equity, efficiency, and sustainability trade-offs, noting, “without clear parameters in long-term plans, we will continue to face ad hoc business cases and funding decisions without a clear sense of which to prioritise in a constrained fiscal environment”.

Bringing Mātauranga Māori (traditional Māori knowledge and governance) into decision making is likely to support this shift towards more holistic and long-term views of stewardship of assets for generations to come (Āpōpō, 2023). Te ao Māori (Māori worldview) perspectives emphasise interconnectedness, guiding asset managers to recognise the interdependence between people, environment, and culture when making critical decisions (Āpōpō, 2023). By adopting a systems view rooted in tikanga Māori (customs and protocols), asset managers are likely to better value the long-term impacts of their decisions as a process of forming land relations, ensuring infrastructure is not only sustainable but also aligned with the values of care and responsibility that extend across generations.

Expert insight from WSP

NELSON CITY COUNCIL'S GROUNDBREAKING APPROACH TO CULTURALLY INCLUSIVE ASSET MANAGEMENT



Nelson City Council, in collaboration with WSP, has developed a pioneering Kaupapa Māori Asset Management Framework that successfully integrates Māori worldviews and values into infrastructure planning and decision making. WSP Kaitohutohu Māori Nathan Capper explains.

The new framework represents a significant shift in asset management practices, providing a culturally responsive approach that incorporates iwi Māori perspectives at every stage of the asset management lifecycle.

The need for such a framework became apparent when Nelson City Council faced challenges in effectively engaging iwi in the asset management process. In 2020, iwi practitioners recommended the Council seek independent Māori cultural consultation to guide the integration of Māori perspectives. By 2023, with the support of Te Tauihu iwi, the Council enlisted WSP's Māori Business Advisory Services to help make this happen. The result was the creation of a framework that not only respects Māori cultural heritage but also ensures iwi participation in the planning, design, and management of infrastructure assets.

One of the core principles of the new Kaupapa Māori framework is the inclusion of Mātauranga Māori (Māori knowledge) into asset management decision making. This ensures cultural considerations, such as kaitiakitanga (guardianship) and rangatiratanga (self-determination), are embedded in the planning and development of infrastructure.

The framework facilitates meaningful iwi engagement from the outset, addressing cultural issues early in the design process. Nelson Mayor Nick Smith notes that this early engagement allows for engineering solutions that reflect distinctly Māori design features, ultimately leading to more culturally inclusive and sustainable infrastructure outcomes (WSP, 2024).

The Kaupapa Māori framework aligns with international asset management standards, making it adaptable for use by other councils across the country. It offers a valuable model for councils seeking to adopt a more inclusive approach to infrastructure management and ensures Māori voices are heard and respected in decisions that affect their communities.

The framework also plays a critical role in fostering stronger relationships between iwi and Nelson's local government.

By moving beyond transactional interactions and embracing a long-term, relationship-based approach, it helps build trust and ensures Māori communities are actively involved in the stewardship of local assets. This approach exemplifies the principles of Te Tiriti o Waitangi (the Treaty of Waitangi), promoting equitable partnerships between iwi and local authorities.

In recognition of its innovative and culturally significant contribution, the framework recently won the Supreme Asset Management Excellence Award at the Āpōpō Asset Management Awards – underscoring the value of integrating Māori perspectives

into asset management practices.

It not only sets a new standard for infrastructure management but also highlights the potential for councils across Aotearoa New Zealand to adopt similar approaches that foster inclusive, culturally aware decision making.

For councils looking to enhance their asset management processes, the success of Nelson's Kaupapa Māori framework offers a clear example of how the integration of Māori knowledge and values can lead to better, more sustainable infrastructure solutions. By considering Māori perspectives, councils can build more resilient communities, strengthen iwi partnerships, and create infrastructure that truly reflects the cultural landscape of Aotearoa New Zealand.



CHAPTER 2

MAKING TRADE-OFFS WITH THE FULL LIFECYCLE IN MIND



A 'cheapest is best' mindset often comes at the expense of long-term performance

When it comes to maintenance, renewals, and investment in new infrastructure, Aotearoa New Zealand asset decision makers often fall into a 'cheapest is best' mindset, often due to political pressure from tax and ratepayers to keep costs at a minimum. Such an approach may offer short-term savings but often undermines long-term performance of assets (Pennington, 2025a; Radio New Zealand, 2023).

Choosing the cheapest solution, rather than the 'best' option (while noting that sometimes – but not always – they are one and the same), may offer short-term savings but can undermine long-term performance, resilience, and, most importantly, overall cost-effectiveness.

Past decisions to favour lower-quality assets, coupled with insufficient maintenance funding, have necessitated the premature replacement of infrastructure in some prominent instances (New Zealand Infrastructure Commission / Te Waihanga, 2024b).

One example can be seen in Wellington Hospital, where copper water pipes, installed as part of the original 2009 construction, began leaking within a few years of installation. Despite early signs of deterioration, the decision was made to use cheaper materials rather than more durable options, and this contributed to ongoing issues. By 2016, the hospital was experiencing multiple leaks per week, resulting in costly repairs and operational disruptions that continue to affect the facility (Radio New Zealand, 2023).

In Auckland City Hospital, deferred maintenance dynamics have also meant that even five years after a stock take on the building's deteriorating water pipes and power cables, over 40% of the most critical cases still have had no work done on them (Pennington, 2025a). In January 2025, neglected issues culminated in a significant water outage that disrupted critical services, including the emergency department and operating theatres.

It is important to be clear about the trade-offs implicit in investment decision making

Part of the challenge here is that Aotearoa New Zealand does not have a clear sense of the purpose infrastructure should be achieving, and this can torpedo constructive conversation before it has even begun. There are no agreed processes for how to make the necessary trade-offs in deciding the level of investment that is worth making to achieve a certain level of service.

This is unfortunate because the amount invested upfront, and the quality of a build, has a significant impact on asset management costs down the line.

Several experts interviewed for this report felt that additional guidance could help decision makers determine what level of service is appropriate, what to consider in making the necessary trade-offs, and to achieve that in the most economical and ethical way without sacrificing long-term quality.

For example, to what extent should climate change be considered in investment decisions? Aotearoa New Zealand already experiences disproportionately high annual losses from natural catastrophes, amounting to 0.66% of GDP in 2018 – second only to Bangladesh. As climate change accelerates and becomes less predictable, infrastructure will face more frequent damage, necessitating costly repairs (Lloyd's, 2018; New Zealand Infrastructure Commission / Te Waihanga, 2021). This points to the need to factor in climate resilience when making long-term asset management decisions – but how much increased cost can, or should, this consideration justify? These are not simple questions to answer.

Other relevant questions concern how important it is to plan for future population growth, or for changes in technology. And how should the impact on future maintenance costs be calculated when deciding the best materials to use? While initial investment cost is of course one relevant factor, the impact of initial investment decisions on costs down the line are just as important. Spending money to avoid larger costs in the future is wise. The aim should be to be cost effective, rather than cheap at all costs (while noting that, sometimes, it is possible to hit both targets).

Questions about trade-offs relating to current and future cost and risk

inherently relate to values, affecting how and where we live, and who benefits from infrastructure. Accordingly, decision makers need to be clear about the criteria and processes they used to reach their decisions. They should ensure the public and other stakeholders are comfortable with any trade-offs that have been made, or that they at least understand the processes that have been undertaken to reach these decisions (OECD, 2025).

“International guidance and best practice highlight the importance of sound decision-making principles. A consistent, principled approach to infrastructure decision making ensures that the best projects are selected, funded and delivered. This provides the public with confidence and assurance that the investment of public funds will not only provide value for money, but also improve wellbeing”

(New Zealand Infrastructure Commission / Te Waihanga, 2022).



RECOMMENDATION

01

MAKE INVESTMENT DECISIONS ABOUT INFRASTRUCTURE ASSETS OVER THEIR FULL LIFECYCLE

- Initiate a nationwide dialogue on how New Zealanders would like the country to look in the future, and the critical role of infrastructure in that vision. The outcome of that conversation should provide a framework to inform future decisions on infrastructure investment.
- Develop guidance and criteria to help decision makers determine what level of service is appropriate for an asset or portfolio of assets, what to consider when making trade-offs about current and future cost, performance and risk, and how to calculate the impact of those decisions on long-term value.
- Rather than choosing the cheapest solution at each investment point, infrastructure owners should be incentivised to focus on long-term value throughout the lifecycle of assets, taking into account a range of factors, for example climate resilience, future population growth, and future potential changes in technology.

CHAPTER 3

GETTING BACK TO BASICS: TRACKING WHAT WE HAVE, AND WHAT WE'RE PLANNING TO DO WITH IT

Make asset management best practice widespread by improving understanding of the assets we already have

Common sense would dictate that best practice in asset management would be to ensure infrastructure owners have a good overview of what assets they have, what purpose they fulfil, and how well they are being managed (Institute of Public Works Engineering Australasia, 2024). Central government agencies in Aotearoa New Zealand appear to have very poor understanding of their assets across all three areas.

Recognising this gap, the New Zealand Treasury recently added a requirement under Cabinet Office Circular CO (23)9 (Cabinet Office, 2023), that Chief Executives of central government agencies must complete an “annual asset management maturity attestation”. This requirement aims to confirm whether each agency has appropriate systems, processes, and governance processes in place to manage its assets effectively, and is part of a broader push to improve accountability.

The principles the public sector must follow in the way they manage assets were informed by recent significant reforms in New South Wales (NSW), which were implemented to enhance public sector asset management. These initiatives aimed to improve accountability, performance, and capability across the public sector, ensuring better value from the state's infrastructure assets. Introduced in October 2019, the NSW Asset Management Policy (TPP19-07; New South Wales Treasury, 2019) mandates that all NSW Government agencies develop and implement:

- A Strategic Asset Management Plan (SAMP) – a policy setting out the agency's overall approach to asset management, aligning with strategic objectives and ensuring compliance with relevant standards.
- Agency-level Asset Management Plans (AMPs) – detailed plans for specific asset classes, outlining strategies for maintenance, renewal, and performance monitoring.
- An Asset Register – a comprehensive inventory of all assets, including details on condition, value, and lifecycle status.

The NSW policy (New South Wales Treasury, 2019) emphasises a whole-of-government approach, aligning with ISO 55001 standards, and requires agencies to attest to compliance with these core requirements. It also promotes the adoption of innovative technologies and quality data to support evidence-based decision making. The new policy was implemented alongside a package of other approaches, including an assurance framework, a capital planning process for 10-year asset planning, and a data management framework. Anecdotally, the reforms have helped to elevate asset management practices across the NSW public sector, with a strong focus on building capability across agencies.

Treasury guidance in this country similarly requires agencies to develop AMPs (but not SAMPS) and to maintain asset registers. It does not include the wider package of other approaches implemented in NSW, such as the development of an assurance framework and data management framework.

The first round of attestations under Treasury’s new guidance (The Treasury, 2024b) was submitted in June 2024, with findings published in the Quarterly Investment Report (QIR) released in November 2024. It is too soon to assess the extent to which this new requirement will impact asset management practice; however, the first round of attestations revealed a concerningly low level of asset management practice.

The attestation process revealed that only one out of six of the major asset-owning departments shown in Figure 3 maintains a comprehensive asset register: a fundamental tool for tracking what infrastructure exists, what condition it is in, and when it needs to be renewed. Similarly, just two of the same agencies are currently using detailed asset management plans to guide their strategic, tactical, and operational level decisions, including eventual disposal or sale of assets.



		HEALTH NZ	DEFENCE	CORRECTIONS	EDUCATION	WAKA KOTAHĪ	KĀINGA ORA
Select Circular Requirements:							
Adoption of Strategic Planning:							
1.1	The Agency 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).	✗	✓	✓	✓	✓	✓
1.3	The Agency maintains asset management plans to inform strategic, tactical and operational choices, including a plan for the eventual withdrawal or sale of the asset, using approved asset disposal process.	✗	✗	✗	✗	✓	✓
1.4	The Agency maintains an asset register in which the agency has identified their service critical assets and maintains details of the identity, condition, and risk exposure of these assets.	✗	✗	✗	✗	✗	✓
Adoption of Asset Management Principles:							
2.1	Assets exist to provide value by supporting government services. The Agency has considered asset and non-asset solutions , made asset management decisions (including acquisition and disposal), and has measured performance , based on the current and expected contribution the asset makes to the agency’s existing and planned service delivery needs.	✗	✗	✓	✓	✓	✓
2.4	Asset management must be integrated with other organisational functions , processes, activities, and data.	✗	✗	✓	✓	✓	✓
2.5	Asset management decisions must be made using a whole-of-lifecycle approach .	✗	✓	✓	✓	✓	✗

Figure 3:
Government department compliance with selected CO(23)9 guidelines.

Non-Compliant ✗ Compliant ✓

Two key issues arise from an examination of these attestations. The first is substantive: the information gathered demonstrates that significant gaps in asset management practice are widespread at central government level. This is concerning. If the country does not know what assets it has, which are critical, and what condition they are in, this will inevitably lead to waste of both time and resources. Without such basic information to hand, it is not possible to make efficient decisions led by a strategic vision for the future.

The second issue is procedural: while anecdotal reports are that this exercise has helped focus attention on the importance of strategic asset management, the template used for the attestations is very high level, agency responses are light on detail, and there are no substantive repercussions for agencies that do not comply. While the new guidelines and attestations represent a useful step in the right direction to increase accountability at central government level, the process has highlighted significant room for improvement.

One missing piece is an assurance process to ensure substantive requirements are met

A critical missing piece in achieving best practice infrastructure asset management in Aotearoa New Zealand is the lack of a robust, system-wide assurance framework. Currently, no single agency holds responsibility for ensuring the country’s public infrastructure assets are being properly maintained or managed.

As Taituarā (2024) notes, “One of the historic deficits in the way New Zealand ‘did’ infrastructure is that there was little national coordination to the development and particularly the regulation of infrastructure”,

but this fragmented approach has contributed to inconsistent asset management standards and variable outcomes across regions and sectors.

To address this gap, stronger mechanisms for oversight and accountability are required, particularly where entities are not meeting core asset management obligations. If councils or agencies are not undertaking adequate planning, there must be a consequence, whether that be increased oversight, greater reporting obligations, or potential intervention.

As this report touched on earlier, while local authorities must produce long-term plans and infrastructure



strategies, and submit themselves to an audit process, central government asset management has comparatively little supervision, and there are no repercussions for failing to meet best practice standards.

One possible solution would be for central agency Asset Management Plans to be required to be submitted to a ‘watchdog’ agency as part of a formal assurance process, to supplement the high-level attestation forms central government agencies must currently complete.

The New Zealand Infrastructure Commission / Te Waihanga, given its expertise and independence from central government, is a logical candidate for this role (Taituarā, 2024). A watchdog could also back up Treasury’s attestation process by publicly reporting on those agencies that have not met requirements, making recommendations to the relevant Ministers about the next steps required to improve compliance, and by tracking progress over time.

The public has a right to understand how well their elected representatives (and government officials) are looking after their assets

Benchmarking performance is important not just within government to promote best practice asset management, but also for the public to understand how well their elected representatives are performing. Currently, voters may be swayed by promises of shiny new projects, but may be unaware (often until it is too late), that water pipes or the roof of the local hospital have not been repaired or renewed in a timely way.

Aotearoa New Zealand could look to other countries, many of

which use a ‘scorecard’ system to increase transparency around asset management. For example:

- The Canadian Infrastructure Report Card (CIRC) offers an objective look at the state of core public infrastructure across Canada. The report allows users to benchmark the condition of different types of infrastructure in communities against similar municipalities across the country, rating the condition on a five-point scale from ‘unfit for sustained service’, through to ‘fit for the future, well maintained and in good condition’, as evaluated by a number of different organisations. This includes a body representing local government in Canada as well as survey responses by public infrastructure agencies (Canada Infrastructure, 2019).
- The United States of America also has a scorecard system, overseen by the American Society of Civil Engineers (2025). This gives each state a grade from A (exceptional) to F (failing/critical) for different classes of infrastructure.
- In Japan, the Society of Civil Engineers (JSCE) evaluates the country’s infrastructure every several years and grades it from A to E (Japan Society of Civil Engineers, 2021).

While these examples look primarily at the condition of infrastructure, such a system could be widened to include an assessment of the extent to which both central government agencies and local authorities comply with best practice in terms of the way they manage their assets, and how transparent they are in doing so. The purpose of such a system would be to enhance public scrutiny, as a further check and balance to ensure infrastructure owners remain motivated to prioritise best practice in asset management.

The importance of representation at the executive table

Treasury (2023) guidelines for agencies stress that decisions concerning asset management should not operate in isolation but be embedded within broader frameworks and functions of the organisation. To be successful, asset management must be integrated with organisational planning, and align with funding sources and available finance. This points to the importance of active senior leadership involvement in asset management.

This aligns with findings by New Zealand Infrastructure Commission / Te Waihanga (2024b) that organisations with more mature asset management practices consistently include asset management representation at the executive table. They identify that while asset management maturity is generally higher in critical sectors such as energy, transport, and water, other sectors such as health and justice, despite having substantial property assets, often lack the organisational focus and capability to manage infrastructure effectively. This is because these sectors prioritise service delivery over long-term asset planning, and frequently lack sufficient governance-level understanding or oversight of infrastructure needs. This disconnect leads to lower asset management maturity and, ultimately, poorer asset condition and service outcomes, according to New Zealand Infrastructure Commission / Te Waihanga (2024b).

In order to ensure infrastructure considerations are factored into strategic decision-making processes, New Zealand Infrastructure Commission / Te Waihanga recommends all major public infrastructure providers be required to have an identified and accountable governance body or executive lead for asset management.

RECOMMENDATION
02

CENTRAL GOVERNMENT SHOULD FOLLOW BEST PRACTICE IN ASSET MANAGEMENT, FOR EXAMPLE BY KEEPING ASSET REGISTERS AND DEVELOPING ASSET MANAGEMENT PLANS

- Continue and expand the attestation process set out in Cabinet Circular CO (23)9 (Cabinet Office, 2023) to improve transparency about the way central government agencies manage their infrastructure assets, including by:
 - Requiring more detail to be submitted as part of the asset management reporting process, which is currently very high level.
 - Lifting the level of reporting to help strengthen accountability, by requiring attestations to be presented to Ministers or a governance board, not just to Treasury.
 - Monitoring the impact of the reporting process over time to ensure the attestation process results in better practice at agency level.

RECOMMENDATION
03

INCREASE COMPLIANCE WITH BEST PRACTICE AT BOTH CENTRAL AND LOCAL GOVERNMENT LEVELS BY IMPROVING ASSURANCE PROCESSES AND INCREASING PUBLIC SCRUTINY

- Empower an agency - such as the New Zealand Infrastructure Commission / Te Waihanga - to become a 'watchdog' as part of a formal assurance process to ensure central government agencies and local authorities are following best practice processes in asset management, for example by maintaining an asset register and developing high-quality asset management plans.
- Develop a 'scorecard' system to increase transparency around asset management and make this easily understood by the public.
- Ensure decision making is embedded into the strategic thinking of all providers, for example by implementing the New Zealand Infrastructure Commission / Te Waihanga's recommendation (2024b) that public infrastructure providers be required to have an identified and accountable governance body or executive lead for asset management.



Building workforce and capability

With an estimated \$140 billion to be invested in infrastructure projects over the next 30 years, Aotearoa New Zealand requires a skilled asset management workforce to ensure value for money (New Zealand Infrastructure Commission / Te Waihanga, 2021). Despite this need, a long-standing imbalance between demand and supply in the asset management labour market continues to hamper the country's ability to achieve strong returns over the full asset lifecycle.

The supply of skilled asset managers has been weakened by sustained international competition and domestic underinvestment. At the same time, demand is growing for more comprehensive, complex asset management and for addressing a substantial backlog of repairs and renewals. Professional asset managers in Aotearoa New Zealand have long been considered a "scarce resource" (Audit New Zealand, 2010).

This shortage has often been filled by immigration. But while international talent plays a vital role in filling technical gaps, Aotearoa New Zealand faces intense competition for skilled professionals, particularly from Australia, where wages are higher and infrastructure markets are deeper and more stable. Without stronger domestic incentives and investment in the local workforce, and a more consistent approach to investment in infrastructure, the New Zealand Productivity Commission (2021) warns we will struggle to attract and retain the expertise needed to meet growing sector demands. Addressing these constraints requires a coordinated national strategy.

Central investment in standardised training and ongoing professional development could significantly improve productivity across the sector (New Zealand Infrastructure Commission / Te Waihanga, 2023). For instance, evidence from Canada's Municipal Asset Management Program (Federation of Canadian Municipalities, 2025; discussed on page 45) shows that targeting councils that have limited capacity with support for asset management can yield long-term benefits. The programme delivered tailored upskilling initiatives that improved capacity and capability, and helped municipalities deliver more value to their communities (Institute of Public Works Engineering Australasia, 2024). Making asset management a more visible and attractive career path is therefore one of the key things the country can do to strengthen our infrastructure asset management workforce capability (New Zealand Infrastructure Commission / Te Waihanga, 2022).

Work has been undertaken to fill this gap from within the industry sector. Āpōpō (2023) – Infrastructure Asset Management Professionals Inc. – accredits Asset Management Chartered Professionals to globally aligned standards, for example. However, this is voluntary and industry-led: there is as yet no formal statutory or



government-regulated certification for asset management practitioners.

Earlier this year, Engineering New Zealand (Registration Authority for Chartered Professional Engineers, 2025) released a consultation document proposing to establish asset management as a distinct field within engineering practice. Doing so would recognise that asset management engineering often diverges from traditional engineering disciplines such as civil, structural, and mechanical engineering, which primarily focus on the design and construction of new assets, rather than their long-term care (Registration Authority for Chartered Professional Engineers, 2025). Recognising asset management as a distinct field of practice would provide practitioners with professional recognition equivalent to their expertise, clear career pathways, and enhanced collaboration with other engineering disciplines.

In addition to the above, Aotearoa New Zealand has been hampered by stop and start investment in infrastructure over the past decades, which has made it harder to build the workforce in size and capability. A recent report by WSP and the Helen Clark Foundation, *Bridging the Infrastructure Gap* (Mercier, 2024) pointed to the need for multi-party agreement on a strategic long-term vision for the country's infrastructure needs, and consistent investment across terms of office, to break this boom-bust cycle. The New Zealand Infrastructure Commission / Te Waihanga is currently leading the creation of a National Infrastructure Plan, which seeks to establish a long-term consensus on infrastructure priorities. This will hopefully, in the longer term, smooth out the tendency towards 'lumpy' rather than consistent investment, thereby minimising the periodic flight of labour the country regularly endures.

RECOMMENDATION

04

INCREASE ASSET MANAGEMENT WORKFORCE CAPABILITY

Aotearoa New Zealand should:

- Recognise and resource established asset management professional credentials and qualifications (such as those of Apōpō), and support Engineering New Zealand's proposal to establish asset management as a distinct engineering discipline.
- Invest in standardised training and ongoing professional development for asset management professionals.
- Commit to a workforce planning and development strategy backed up by a commitment to steady strategic investment in infrastructure over the long term (via the National Infrastructure Plan, for example).

CHAPTER 4

IMPROVING INFORMATION AND TRANSPARENCY ON ASSET PERFORMANCE AND CONDITION

As discussed in Chapter 1, while some Aotearoa New Zealand asset owners do measure and report regularly on the performance and condition of their infrastructure (local councils, for example), this analysis and reporting is not consistent across the country, and often assessments are not undertaken frequently enough to support proactive, long-term decision making, undermining reliability and shortening the lifespan of critical assets.

While the New Zealand Infrastructure Commission / Te Waihanga does an impressive job compiling and analysing the information that does exist, there are significant information gaps: “there is little transparency of infrastructure and asset management performance and planning. This includes a lack of user-friendly access to information on how infrastructure is performing and what future funding intentions are” (The New Zealand Infrastructure Commission / Te Waihanga 2024b).

Many asset owners, especially smaller councils, rely heavily on estimates based on age or limited visual inspections, rather than using modern tools like sensors, digital records, or condition-based assessments. This leads to gaps in understanding how infrastructure is actually performing on the ground (Office of the Auditor-General New Zealand, 2022, Part 4). For example, buried assets like stormwater and wastewater pipes are often under-assessed due to cost or access issues, even though they are some of the most vulnerable and critical systems.

Nationally, there is no single, standardised view of the performance and condition of infrastructure (Office of the Auditor-General New Zealand, 2022). Different agencies use different systems, metrics, and reporting practices, which makes it hard to compare performance or identify risks at a national level. Without reliable, consistent data, it is difficult to plan effectively, prioritise investments, or justify further funding. Even with this information, it is not easy to secure appropriate investments (consider the Auckland hospital example earlier, where asset managers



have deferred urgent maintenance even after stocktakes highlighted the need for urgent repairs); but without it, it is altogether not possible to forecast the extent of systemic underinvestment.

A better understanding of the condition of their infrastructure portfolio would allow asset owners to improve protections for public safety, reduce long-term costs, and ensure every dollar spent delivers the most value (Office of the Auditor-General New Zealand, 2022, Part 3). Meanwhile, for tax and ratepayers, clearer assurance is needed that money is being well spent, and that elected officials are acting in the long-term interest of their communities.

Assessing the performance and condition of assets is not always straightforward

For those that track performance and condition, many councils and asset-owning agencies still rely heavily on age-based modelling or historical data, especially for underground or hard-to-access assets like stormwater pipes and buried cables. That means we are not always getting an accurate or timely picture of asset health (Office of the Auditor-General New Zealand, 2022).

Relying on the age of an asset as a proxy for its condition and the approximate date it will wear out is common in Aotearoa New Zealand, but can be misleading and lead to poor decision making (Office of the Auditor-General New Zealand, 2022). In reality, different materials, environments, and usage patterns affect how infrastructure wears over time. For example, a 60-year-old bridge that is well maintained and lightly used is likely to be in better shape than a 30-year-old bridge that was less well constructed and

has been exposed to heavy traffic or salt spray.

Checking the actual performance and condition of assets, through inspections, sensors, or digital monitoring, provides an essential understanding of how assets are degrading, and allows insight into actual structural performance. This enables asset managers to prioritise maintenance or replacement based on risk and need, not just assumptions, as well as to defer renewals in some cases. For example, condition assessments can detect early signs of corrosion, cracking, or mechanical stress that would not be evident from age alone.

Performance and condition-based data also supports more accurate asset valuation and lifecycle costing. Knowing the true state of infrastructure allows for smarter financial planning, better funding bids, and more targeted investment. It aligns maintenance budgets with real needs rather than arbitrary schedules.

Smaller councils in particular often lack the resources, tools, or skilled personnel to implement condition-based monitoring at scale. Some are still working off outdated or incomplete asset registers. In addition, the data that is collected is not always integrated into a broader asset management strategy, but rather it sits in silos, disconnected from long-term planning or predictive maintenance (Office of the Auditor-General New Zealand, 2022).

There are pockets of progress. In the transport sector, efforts are underway to standardise condition data collection. For example, the New Zealand Transport Agency / Waka Kotahi's (2025) Consistent Condition Data Collection (CCDC) project aims to develop national data standards and methodologies for condition data collection, processing, and management.



This initiative seeks to replace outdated and inconsistent practices with modern, automated systems to improve asset management and investment decision making.

Similarly, the government is also prioritising the development of a new performance reporting regime for water service providers, many of which have been criticised over the past several years for their non transparent and fragmented approach to asset condition data and reporting systems (Bellamy et al., 2023; Commerce Commission, 2025). The Local Government (Water Services) Bill (LGWS Bill), introduced to Parliament in December 2024, will establish enduring settings for the new water services system, including a new economic regulation and consumer protection regime for local government water service providers (including Watercare), to be implemented by the Commerce Commission (2025).

Even so, challenges remain across the country. Interviewees for this report nearly all emphasised the pressing need to invest to develop and implement consistent standards, methodologies, and technologies – not just for infrastructure condition assessment but more generally to provide a consistent language when speaking about infrastructure, to better inform management, planning and reporting. Consistent standards and reporting requirements would enable more accurate, reliable, and comparable data, leading to better-informed decision making and more efficient use of resources in managing the nation's infrastructure.

By improving the quality and visibility of data, Aotearoa New Zealand can enhance accountability and form a more accurate, unified view of how the country is tracking, planning, and delivering its infrastructure.

Better use of technology to improve data on asset performance and condition

The better use of modern digital tools will support Aotearoa New Zealand to face up to growing challenges in maintaining and upgrading its infrastructure.

By way of example, upgrades to support ‘the Internet of Things’ (IoT) offers a major opportunity to shift from reactive to planned, preventative asset maintenance. By embedding sensors in infrastructure such as pipes, roads, and bridges, real-time data can be collected on pressure, movement, and temperature (Institute of Public Works Engineering Australasia, 2021). More widespread use of IoT would allow asset owners to detect issues before they become failures, saving money and improving safety. Some local examples already exist, but deployment is still fragmented.

A more coordinated, national approach to IoT infrastructure would improve resilience and long-term planning – especially in vulnerable or remote areas. Possible technologies include widening use of Building Information Modelling (BIM): the management of information through the whole lifecycle of a built asset. BIM aims to provide a ‘single source of truth’ for asset data and information for all parties to share during design, construction, and throughout the operational phase of assets (Institute of Civil Engineers, 2015).

Especially when combined with Geographic Information Systems (GIS), which add spatial and environmental context, BIM offers a powerful foundation for integrated infrastructure management. For example, water utilities can use BIM to help manage treatment plants and GIS to visualise and track the condition of the connected pipe network in relation to terrain, land use, or flood risk.

Although BIM and GIS are now routinely used by most councils and several central government agencies (Jiang et al., 2022), there is considerable scope to improve and standardise the information gathered and the way it is shared between agencies and councils. Again, councils and government agencies need shared platforms and protocols to ensure BIM, GIS, and IoT systems can talk to each other and support long-term asset management strategies.



“The internet of things offers much potential as a tool for monitoring asset condition in real time and (in conjunction with data analytics) to generate insights as to how and when critical infrastructure is used. The pay-off in better ability to engage in strategies such as preventive maintenance and demand management techniques can both enhance resilience and make for better quality spend.”

(Taituarā, 2024).

Consider subsidising councils to collect better information on their assets and to raise asset management capability

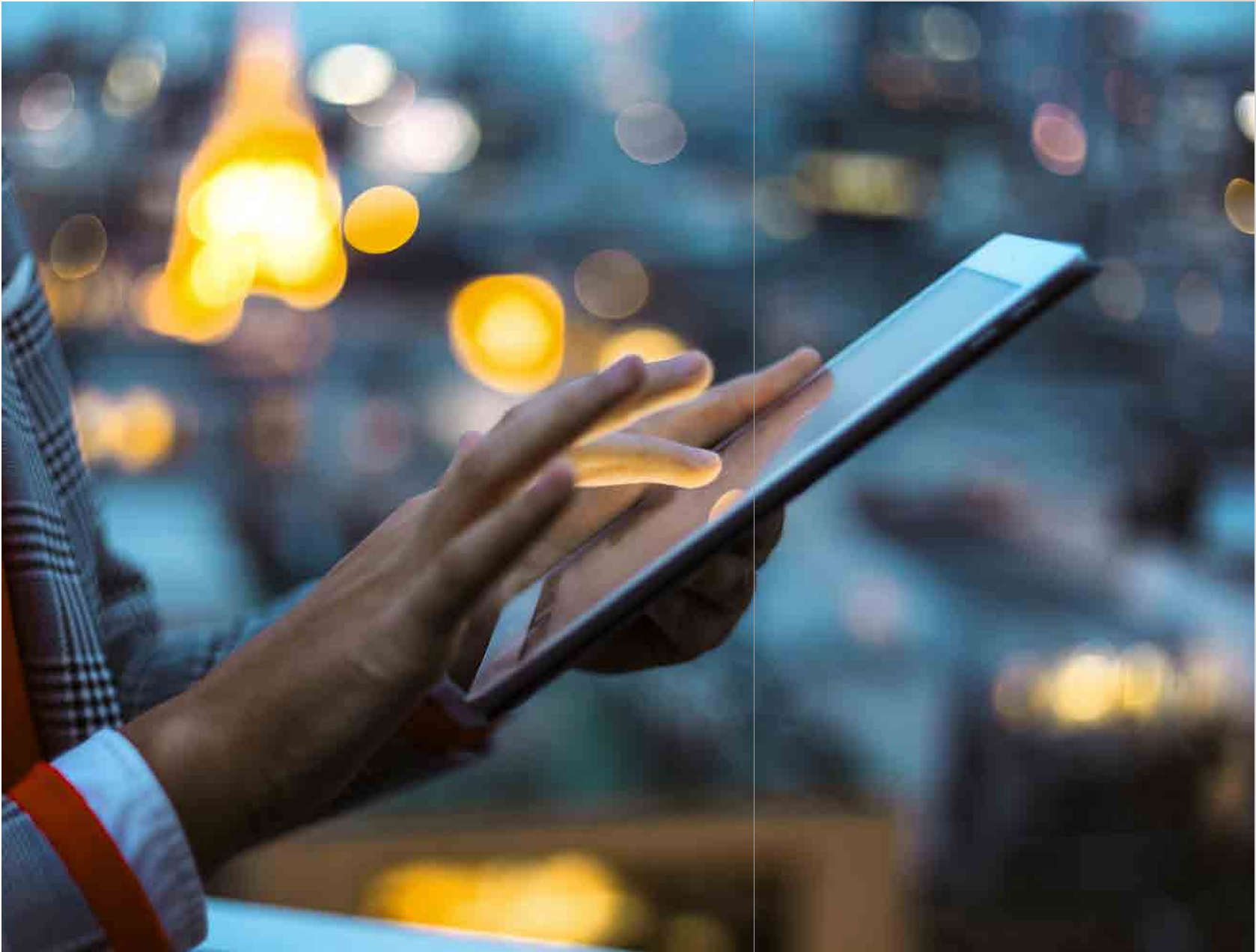
In Canada, asset management capacity was significantly enhanced through the Municipal Asset Management Program (MAMP), an eight-year programme that finished in 2024 (Federation of Canadian Municipalities, 2025). The programme was funded by Infrastructure Canada and delivered by the Federation of Canadian Municipalities (FCM), with a mandate to increase awareness of asset management and develop technical expertise at the local level.

From 2017 and 2024, MAMP supported 2,773 communities across the country in evolving their asset management competencies, skills, and knowledge, and improving service delivery to residents. By providing funding, resources, guides, and training, MAMP fostered significant advancements in municipal asset management practices.

A 2020 evaluation of the programme found that MAMP addressed small communities’ multiple needs in terms of building asset management capacity. The programme provided funding for data collection and reporting, the production of asset management plans, policy and strategy, asset management system assessments, and training and organisational development.

On a smaller scale, the Road Efficiency Group runs a similar programme in the transport sector in this country as part of the Consistent Condition Data Collection (CCDC) project mentioned above (New Zealand Transport Agency / Waka Kotahi, 2025). The initiative aims to help

roading managers understand government requirements so they can make the best investment decisions for their communities. It also undertakes condition data collection assessments on behalf of some road controlling authorities, and is developing the capability and capacity of the sector.



RECOMMENDATION
05

IMPROVE
UNDERSTANDING
OF PERFORMANCE
AND CONDITION OF
EXISTING ASSETS TO
IMPROVE STRATEGIC
DECISION MAKING

- Establish clear, consistent data collection and reporting standards across all infrastructure providers about infrastructure performance and condition, and make those metrics publicly available.
- Prioritise condition-based assessments over age-based assessments to inform a better understanding of asset performance and health.
- Subsidise improved assessments to assist smaller councils to increase their understanding of the performance and condition of their assets.
- Prioritise the use of technology to continuously monitor critical infrastructure – for example through the Internet of Things.

CHAPTER 5

DEPRECIATION SHOULD FUND RENEWALS – WHY IS THIS NOT HAPPENING?

Fixed assets such as hospitals, roads, and swimming pools decline in value due to wear and tear, accidental damage, or obsolescence. Depreciation acknowledges this physical and functional decline, helping stakeholders understand the remaining useful value from those assets. Importantly, depreciation helps plan for future capital expenditures. By recognising the cost of use, infrastructure owners can build up reserves to fund replacements or upgrades when assets reach the end of their useful lives.

'Depreciation', which measures how the cost of an asset is allocated over its useful life for tax or reporting purposes, provides a way to estimate the costs associated with renewing or replacing infrastructure to maintain current service levels as it ages.

As an example, if an asset costs \$10 million to build and is expected to last 20 years, it may be calculated as losing value, or depreciating, at a rate of around 5% per annum. In theory, each year, asset owners should be putting aside this 5%, or \$500,000, from any incoming funds (rates or taxes, for example), so that at the end of its lifecycle, the asset can be renewed or replaced using that money. In this way, the people who benefit from the asset are paying for its 'consumption' as they go along, rather than all at once when a new one must be built.

HOSPITAL
INFRASTRUCTURE
LASTS ON AVERAGE
45-65
YEARS

Figure 4 (New Zealand Infrastructure Commission / Te Waihanga, 2024a) shows Stats NZ’s estimated average depreciation rates for different infrastructure sectors for the years 1990 to 2022. Hospital infrastructure lasts on average 45–65 years, with a depreciation rate of 4.2%. Telecommunications assets have a comparatively short lifespan because technology changes so quickly – their assets depreciate at a rate of 9.5%. For transport infrastructure, annual consumption (depreciation) is only 2.4% of net capital stock. This reflects the fact that local government roads are assumed to last 58 years, and central government roading assets should last on average 110 years (New Zealand Infrastructure Commission / Te Waihanga, 2024a).

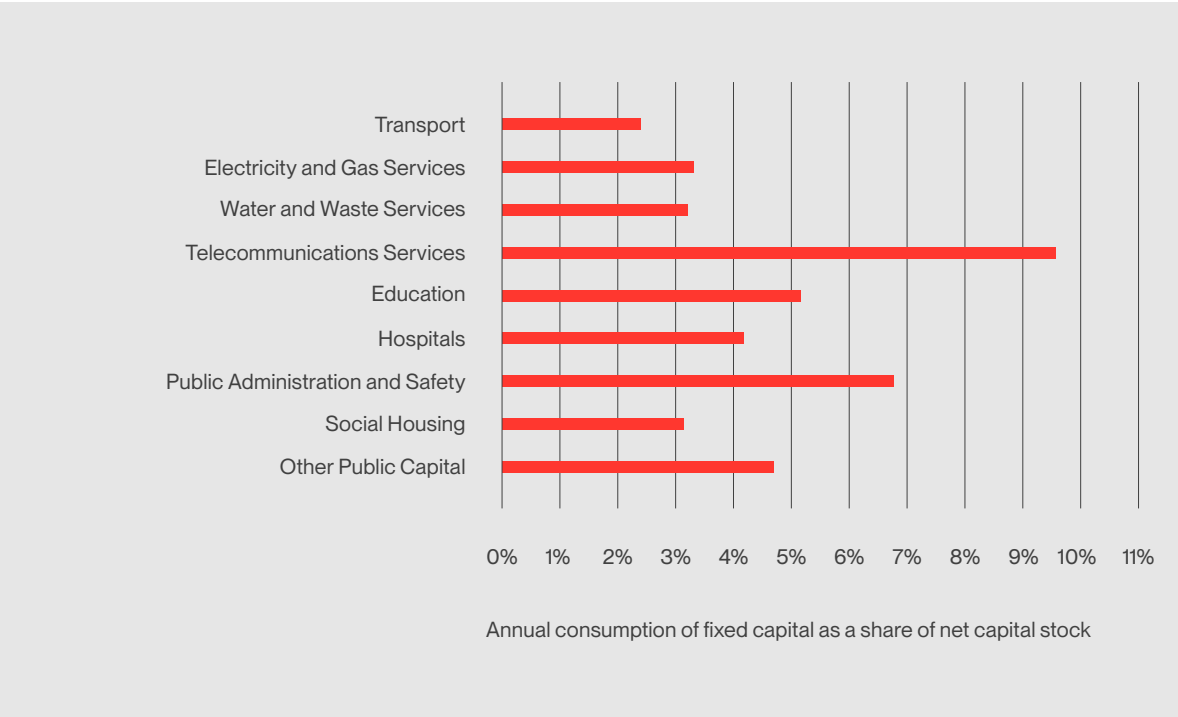


Figure 4:
Average depreciation rates for infrastructure sectors,
2013–2022 (New Zealand Infrastructure Commission /
Te Waihanga, 2024a).

For new investments, an asset manager would expect to spend less on renewals than is gathered in depreciation, with the amount spent increasing over time as the assets wear out. However, over the lifetime of the asset, or across a large portfolio of similar assets, agencies should optimally be spending roughly the amount they collect in depreciation, renewing those assets as they wear out. Spending significantly less than depreciation on renewals is likely to indicate that renewals are being pushed out to free up money for other purposes and that existing assets are being ‘sweated’ beyond the extent of their expected lifetime. The result would be assets that require increasingly high maintenance spending to remain serviceable, and/or assets that provide lower levels of service as they age (a road with more potholes, for example) – neither of which is efficient.

The depreciation to renewals ratio can be tracked for local authorities, which are required to collect depreciation and report on renewal funding, but central government agencies do not have to fund depreciation, or track it against renewal budgets. This is an issue for transparency.

Where figures are reported or can be extrapolated from available evidence, asset owners in Aotearoa New Zealand appear to be consistently falling short of the goal of matching depreciation with renewals spending across asset portfolios: dramatically, in some cases (see Figure 5). Just as concerning, the New Zealand Infrastructure Commission / Te Waihanga (2024a) has only been able to report the ratio of depreciation to renewals spending for a very limited number of sectors (transport for example), because relevant data is not collected and compiled for others (health and education for example).

While local government and some commercially run infrastructure assets have a certain level of regulatory or legislative disclosure requirements to help track the ratio of spending, this is not the case at central government level. For assets owned by central government, the New Zealand Infrastructure Commission / Te Waihanga (2024a) was only able to collect figures for road transport, which is far less than ideal from a transparency and asset management perspective.

Of the sectors where sufficient information was available to track renewal-to-depreciation ratios, the New Zealand Infrastructure Commission / Te Waihanga (2024a) identified just two infrastructure sectors with ratios that are close to or above one: electricity distribution (which is managed commercially and subject to regulation) and flood protection undertaken at regional government level (which has been spurred on by recent devastating flooding and a growing concern about climate change).

Other infrastructure sectors have renewal-to-depreciation ratios that are far below one: most notably, between 2012 and 2022, state highway renewal spending was estimated to be at least 12% lower than forecast depreciation and possibly as much as 63% lower (the range depends on factors such as how conservative estimates are and whether the maintenance budget is included in the calculations) (New Zealand Infrastructure Commission / Te Waihanga, 2024a).

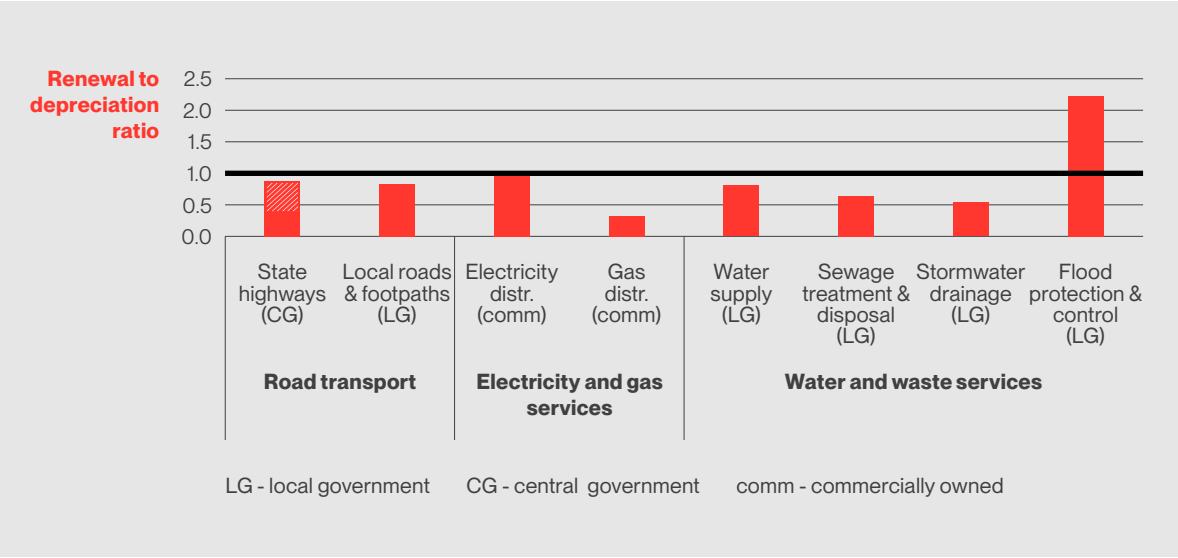


Figure 5: Renewal to depreciation ratios for selected infrastructure sectors (New Zealand Infrastructure Commission / Te Waihanga, 2024a).

Current rules around collecting depreciation and spending it on renewals

Both local authorities and central government agencies must follow the Public Benefit Entity (PBE) accounting requirements, which means they must depreciate their infrastructure assets over their useful lives and revalue them regularly.

Local authorities

The requirement for local authorities to record and report depreciation of their assets is set out primarily in the Local Government Act 2002 (LGA 2002) which governs how councils manage their finances and infrastructure assets. Under the Act, councils are required to manage their revenues, expenses, assets, liabilities, investments, and general financial dealings prudently and in a sustainable way, to account for asset consumption (i.e., depreciation) and to ensure operating revenues are set at a

level sufficient to meet operating expenses (which includes depreciation). Under the Local Government Act 2002, councils must also prepare a Long-Term Plan (LTP) every three years, covering at least the next 10 years, and this must include financial forecasting, which incorporates depreciation, and set out asset management information that shows how infrastructure will be maintained and replaced when needed. Councils must also set out information on depreciation and renewals in their Annual Reports, which are accessible to the public. In other words, the regulatory and legislative setting governing local authorities requires them to publicly link depreciation of their assets to specific renewal spending in a structured and transparent way. For example, the Christchurch Long Term Plan 2024–2034 forecasts renewals during that period will cover 86-96% of depreciation (Christchurch City Council, 2024).

Councils were not legally required to fund depreciation (that is, set aside money to replace the use of existing assets) until 1996. Not coincidentally, preceding this change there was a significant period of underinvestment in infrastructure from the late 1980s to the 1990s (Office of the Auditor-General New Zealand, 2025). Despite these funding requirements, councils also tend towards a renewal-to-depreciation ratio less than one. For example, in the 2022/23 financial year, Aotearoa New Zealand local authorities collectively spent approximately 76% of their depreciation on asset renewals (Office of the Auditor-General New Zealand, 2024). This indicates that, on average, councils were reinvesting about 76 cents for every dollar of asset depreciation, which almost certainly indicates

they are not investing fast enough to maintain levels of service over the long term. The impact for rate payers is that the cost of future renewals and replacements of essential infrastructure is being pushed out to future generations of rate payers. Forecast investment at the local government level has recently begun to increase as assets become more run down (Figure 6). Under local authorities' Long Term Plans for 2024–34, renewals expenditure is forecast to cover, on average, 85% of depreciation. However, as the Auditor-General's office points out, “although this is an improvement, councils still might not be planning to reinvest enough in their assets to maintain levels of service” (Office of the Auditor-General New Zealand, 2025, Part 2).

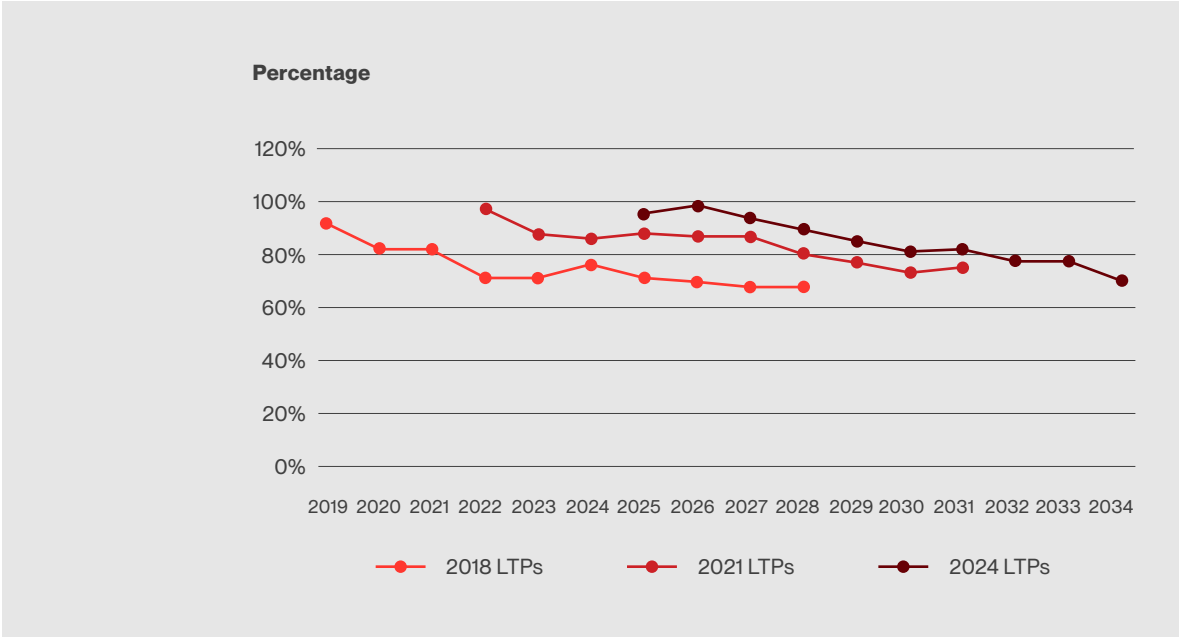


Figure 6: Average forecast renewals expenditure as a percentage of forecast depreciation in councils' last three long-term plans (Office of the Auditor-General New Zealand, 2025, Part 2).

When local government assets can no longer be sweated further and must be renewed or replaced, rates must rise steeply, the quality of infrastructure must fall, or funding must be found elsewhere. This has been a feature of the past few years, with rates rising an average of 9.8% in 2023, as much as 15% in 2024, and expected to grow still further. This is well above the average for the previous decade, which sat at a rise of 5.7% per annum (LGNZ, 2024).

Central government

The situation is less transparent but anecdotally much worse for assets held by central government agencies, where there are fewer reporting requirements to help understand their renewals-to-depreciation ratios.

The Public Finance Act 1989 (New Zealand Legislation, 2025b) sets out requirements for central government to report on how it manages its assets and liabilities. Each year, the Government must outline its asset management strategy for the next three years (which compares to the 10 years required for local authorities). Additionally, every four years, the Treasury must produce an Investment Statement that describes the overall state and value of the Crown’s major assets. Central government agencies also report the value and depreciation of their infrastructure assets in their annual reports and do capital planning and renewals as part of agency-specific strategies or sector investment plans.

These reporting requirements in theory should provide some transparency over the state of the infrastructure assets managed by central government, and whether they are being well looked after. However, the reporting requirements are very broad and, significantly, there is no legal requirement for central government



agencies to publish detailed financial data on how much they spend renewing assets as they age and deteriorate. Unlike local authorities, they are not required to explicitly link depreciation to asset renewal spending in their budgets or strategic documents. That is, they are not required to clearly set out the levels of depreciation recorded and their planned spending on renewals in response to that.

While many agencies do disclose the amount they spend on maintenance, this is not a reliable indicator of whether assets are being renewed in a timely way or whether spending on renewals matches depreciation (New Zealand Infrastructure Commission / Te Waihangā, 2024a). For example, while the New Zealand Transport Agency / Waka Kotahi records depreciation on its assets in its Annual Reports, and outlines

its planned capital expenditure, it does not separate out the renewals budget from the maintenance spending and link this explicitly to depreciation, as local authorities are required to do (Office of the Auditor General, 2024).

Historically, the New Zealand Transport Agency / Waka Kotahi has highlighted a funding gap between depreciation and renewal spending set by government: between 2018 and 2021, they reported an estimated \$1.08 billion shortfall, with annual renewal expenditure across the total asset stock being approximately half of the annual depreciation expense (Lewis, 2024). The agency has been allocated funds to renew assets at a rate significantly slower than their depreciation, likely leading to a deterioration in asset condition and performance. However, because there is limited transparency and detail provided, the actual renewal-to-depreciation ratio is difficult to determine. The situation is even less clear in other central agencies.

Topic	Local Government	Central Government
Record depreciation?	✔ Yes	✔ Yes
Link depreciation to renewals?	✔ Yes - Required by LGA	✘ Not explicitly required
Required to fund depreciation?	✔ Or explain why not	✘ No formal rule
Transparency of renewal funding	✔ High (via LTPs)	⚠ Variable (depends on agency)
Required to ring fence depreciation over renewals?	✘ Not required	✘ Not required

Figure 7: Differences in reporting requirements for local and central government.

What needs to change to bring spending on renewals closer to the level of depreciation?

While local authorities, as asset owners, are expected to collect revenue equivalent to the annual depreciation of their infrastructure through rates and other income streams, they are not currently required to allocate these depreciation funds into ring-fenced reserves for the future replacement of specific assets (Office of the Auditor General, 2022). Central government is not even required to collect revenue to match depreciation, much less spend it in a certain way.

One potential solution would be to legislate to require depreciation to be collected on each public asset and to then be ring-fenced for renewals and replacements, either on that specific asset or for the class or portfolio of assets held by an infrastructure owner. There is no doubt that regulation helps ensure some level of transparency.

For example, we saw earlier that the electricity industry, which is closely regulated, more closely matches depreciation spend with investment on renewals than other asset owners do. Between 2014 and 2021, electricity distributors' renewal spending was just 7% lower than depreciation costs (see Figure 5), whereas in the case of sewage treatment and disposal (managed by local government), renewal expenditure was forecast to be 35% below forecast depreciation.

However, there are reasons to be wary of strict and inflexible regulation of renewal spending at central government level. Agencies use funds to address a range of renewal and other priorities as they arise, and adhering to a strict one-to-one reinvestment model would prevent decision makers from responding to changing

circumstances, such as determining that an asset is no longer fit for purpose and choosing to phase it out, rather than replace it. Such discretion is important for ensuring infrastructure investments remain aligned with evolving community needs, technological advancements, and service delivery goals.

Nevertheless, all public asset owners should be strongly encouraged to ring-fence funding for renewals – whether this comes from depreciation (as in the case of local authorities), or from another source. As an important check and balance, whether or not they are doing this should be made more transparent. In particular, it is important that the public should be easily able to understand:

1. How much public assets are depreciating each year (this information is currently reported but not necessarily easy to find).
2. How much is being budgeted for and spent on renewals, compared to routine maintenance and other expenditure (this is currently reported by local government, but less so and inconsistently by central government agencies).
3. The ratio of renewal expenditure compared to depreciation – and if this ratio is less than one to one, why this is the case (this information is reported on by local authorities, but not central government agencies. Neither is required to justify an expenditure of less than one, or publicise this widely).

This information should be easily accessible to all, in a format that is understandable. In addition, there should be incentives or repercussions in place for those agencies that either do not provide the information, or that are falling short of what is required in terms of budgeting for ongoing investments.



RECOMMENDATION

06

PUBLIC ASSET OWNERS SHOULD RING-FENCE FUNDING FOR RENEWALS, OR JUSTIFY WHY THEY ARE NOT DOING THIS

Central government agencies should be expected to:

- Break down and report on renewal spending, maintenance spending, and operational spending for all infrastructure they own or manage.
- Report on the extent to which they are renewing assets relative to the rate of depreciation. This could be required under the existing Cabinet Circular mechanism, or in the accompanying guidelines, for example.

All public asset owners should be expected to:

- Explain any mismatch between depreciation and forecast renewal funding, and explain this publicly. To provide the necessary incentives for action, depreciation and budgeting information should be gathered, synthesised, and proactively released to the public.

What about maintenance spending?

Alongside the need for adequate renewals budgets, it is equally important to ensure adequate funds are allocated to asset maintenance. The Auditor-General (2024) finds that, for local authorities at least, sufficient amounts are generally spent on maintenance overall – though there is less clarity about how much of that spend is reactive compared to proactive maintenance. There is less transparency over whether central government agencies spend sufficiently on asset maintenance (New Zealand Infrastructure Commission / Te Waihangā 2024a).

The New Zealand Infrastructure Commission / Te Waihangā (2024a) recommends that infrastructure owners, including local authorities, should be allocating approximately 60% of their overall infrastructure investment to maintaining and renewing existing assets, rather than focusing predominantly on infrastructure construction. This recommendation stems from the finding that, between 2013 and 2022, depreciation costs for infrastructure were equal to 58% of new capital investment. In essence, for every \$10 spent on new infrastructure, nearly \$6 worth of existing infrastructure wore out, underscoring the need for a balanced investment approach to ensure the longevity and functionality of existing assets (New Zealand Infrastructure Commission / Te Waihangā, 2024a).

In interviews undertaken for this report, several experts raised the question as to whether there should be guidelines about how much an agency should be spending on maintenance each year compared to the value of existing assets. As with the question of ring-fencing renewal funding, there is the risk that requiring agencies and councils to spend a specific amount on one thing compared to another

could impinge on their democratic decision-making power and remove crucial flexibility. But it is an important question. Currently, as budgets are increasingly squeezed in the public sector, risks are likely to be increasing that maintenance budgets are sidelined towards urgent operation costs, such as staff costs, and taken away from routine maintenance.

The issue is that where adequate maintenance is not carried out, renewals must be undertaken sooner, costing the public more. The opposite is also true – when renewals are not undertaken in a timely way, serviceability can only be maintained by spending more and more on maintenance as the asset wears down.

There is also an important distinction to be made between money spent on planned, preventative maintenance – which helps to extend the lives of assets – and reactive maintenance – where repairs are performed after a failure. Planned, preventative maintenance is typically cheaper than repairing infrastructure after it has started to fail. For instance, reactive road maintenance, which often involves costly rehabilitation, is estimated to cost between 1.5 and 3 times as much as well-planned road maintenance (Engel et al., 2020; New Zealand Infrastructure Commission / Te Waihangā 2024a).

While it would be difficult to assess the amount of preventative or reactive maintenance that should be spent on a single asset (because costs vary so much each year), it should in theory be possible to give indicative estimates of realistic costs for a class of assets. For example, with a portfolio of 2,500 schools (Education Counts, 2024), funding requirements for maintenance for the Ministry of Education should be reasonably constant and predictable.



Currently, it is hard to assess exactly how much is being spent on preventative maintenance for those assets, let alone how much reasonably should be spent to keep the existing assets in a good state of repair. This is clearly less than ideal. It is notable that the government is currently working towards a greater focus on better management of school property after an enquiry panel found the current system for delivering school property to be 'not fit for purpose' (Beehive.govt.nz, 2024; Stanford, 2025).

RECOMMENDATION

07

TO MINIMISE FUTURE COSTS, PROVIDE GREATER TRANSPARENCY ABOUT MAINTENANCE SPENDING TO ENSURE THE 'RIGHT' AMOUNT IS SPENT KEEPING ASSETS IN GOOD REPAIR

- Infrastructure owners should be required to separate out accounting for reactive and planned, preventative maintenance, renewals, and operational costs in annual reports.
- The Government should investigate methods of measuring expected reactive and preventative maintenance costs for each class of assets, and require agencies to justify how they allocate each type of maintenance funding. Where maintenance expenditure falls significantly below expected costs, or is weighted too heavily towards reactive versus preventative maintenance, relevant Ministers should be expected to explain to Parliament how they expect to make up the shortfall.



Expert insight from WSP

REBALANCING THE INFRASTRUCTURE EQUATION



Elke Beca



Wayne Hatcher



Crumbling roads, decades-old water networks, and tired buildings are symptoms of a deeper issue – our financial model for sustaining our built environment is out of step with reality. WSP technical directors for asset management Elke Beca and Wayne Hatcher explain.

While flashy new builds dominate the headlines, the crucial task of maintaining what we already have is often overlooked. The challenge isn't just about funding – it's about how we fund, finance, and prioritise sustaining overall infrastructure asset value.

The way forward starts with a mindset shift and a recommitment to the fundamentals of depreciation funding.

Depreciation represents the declining value, service potential, or economic benefit of an asset over time, usually calculated in a straight line across its expected lifespan. It's not just an accounting exercise – it's a signal of the investment needed to sustain infrastructure for the people it

serves. When infrastructure is built, depreciation maps out the financial pathway to maintain or eventually renew it.

The principle is simple: if we recognise an asset is devaluing by, for example, \$100,000 each year, then we should be putting aside \$100,000 a year to look after it – either now or for the future.

And yet, we're not. In many cases, depreciation funding is collected – through rates or user charges – but not ring-fenced. That money is swept into general budgets and used for other priorities. The result is a growing mismatch between what's being saved for infrastructure upkeep and what's being invested. Over time, this erodes value, reduces service levels, and accelerates the need for costly renewals (Office of the Auditor-General New Zealand, 2024).

The solution is to continue with depreciation funding but ring-fence it. Make sure the money raised on the premise of sustaining infrastructure is used for that purpose. This one act of financial discipline would significantly improve the resilience and performance of our existing networks – delivering better value for users and future generations alike.

However, even with full ring-fencing, the reality is we're already playing catch-up. Years of underinvestment mean that our current renewal needs outstrip the available funds. One option to bridge this gap is private financing mechanisms – such as Public Private Partnerships (PPPs), Special Purpose Vehicles (SPVs), or blended finance models. These bring capital to the table without borrowing on the public balance sheet; although they can come with trade-offs such as higher interest rates, profit margins for investors, and shared decision making.

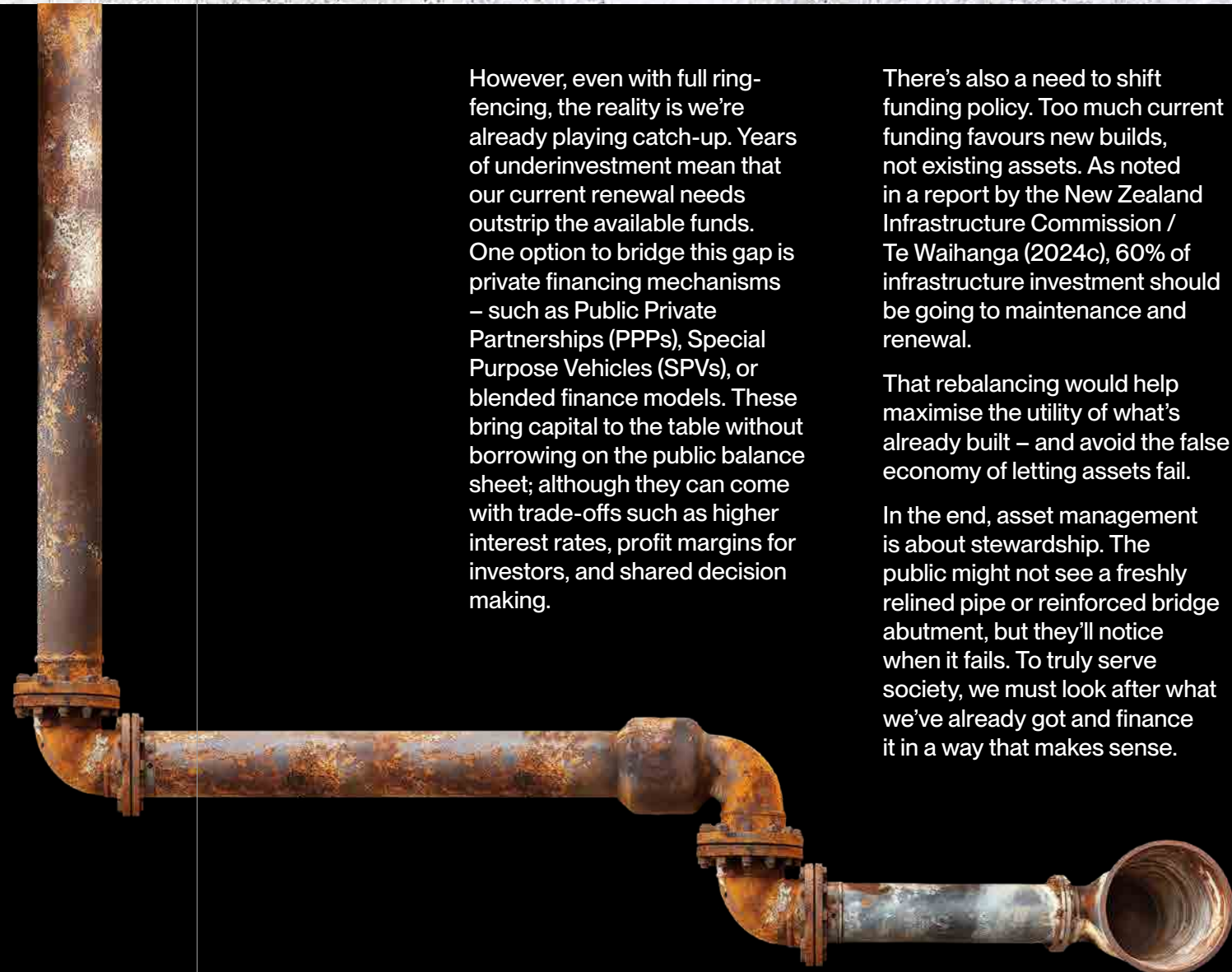
These tools are vital because we don't (and should never) borrow for routine maintenance – that would lead to a financial spiral. But we can explore working with private partners to finance specific catch-up investments.

There's also a need to shift funding policy. Too much current funding favours new builds, not existing assets. As noted in a report by the New Zealand Infrastructure Commission / Te Waihanga (2024c), 60% of infrastructure investment should be going to maintenance and renewal.

That rebalancing would help maximise the utility of what's already built – and avoid the false economy of letting assets fail.

In the end, asset management is about stewardship. The public might not see a freshly relined pipe or reinforced bridge abutment, but they'll notice when it fails. To truly serve society, we must look after what we've already got and finance it in a way that makes sense.

Depreciation funding, properly protected and complemented by smart private finance, is a way towards securing the bedrock of that future.



wsp

THE
Helen
Clark
FOUNDATION

CONCLUSION CONCLUSION CONCLUSION CONCLUSION CONCLUSION



This report found significant room for improvement in the management of existing infrastructure assets in Aotearoa New Zealand. Asset management in this country is often driven by short-term political incentives and hampered by a lack of consistent, evidence-based oversight. Too often, infrastructure decisions are made without a clear understanding of asset condition, purpose, or long-term value, resulting in inefficient spending and avoidable degradation. The prevailing focus on new capital projects over the maintenance and optimisation of existing infrastructure has contributed to a growing backlog of underperforming assets.

However, this challenge also presents a significant opportunity. By shifting our focus toward robust, lifecycle-based asset management practices, New Zealand stands to achieve substantial cost savings and improved service delivery. The tools, frameworks, and knowledge required to make this shift already exist; what is needed now is the commitment to apply them consistently and systemically. This means building and maintaining accurate asset data, establishing clear performance expectations, and ensuring that public agencies are held to account for the stewardship of the infrastructure they manage.

Ultimately, the path to better infrastructure outcomes does not lie in innovation or grand gestures, but in the consistent application of good practice. Asset management may not be politically glamorous, but it is a foundational responsibility of government and a critical enabler of economic and social wellbeing. By prioritising the 'boring'

but essential work of maintaining what we already have, New Zealand can not only safeguard the value of its public infrastructure but also lay the groundwork for more sustainable and equitable investment in the future.



REFERENCES REFERENCES REFERENCES REFERENCES REFERENCES

American Society of Civil Engineers. (2025). *2025 report card for America's infrastructure*. <https://infrastructurereportcard.org/>

Āpōpō. (2023). *The Āpōpō guide*. <https://apopo.co.nz/apopo-guide/>

Asset Management Council of Australia. (n.d.). Glossary. https://web.amcouncil.com.au/AMBoK_glossary.aspx

Audit New Zealand. (2010). *Asset management for public entities: Learning from local government examples*. <https://auditnz.parliament.nz/resources/asset-management/asset-management-for-public-entities>

Beehive.govt.nz. (2024). *Report of the Ministerial Inquiry into School Property*. <https://www.beehive.govt.nz/sites/default/files/2024-10/Report%20of%20the%20Ministerial%20Inquiry%20into%20School%20Property.pdf>

Bellamy, L. A., Henning, T. F. P., Amor, R., Jones, D., Pancholy, P., Preston, G., van Zyl, J. E. (2023). Data strategies for improving infrastructure value and performance in New Zealand. *Smart Infrastructure and Construction*, 176(3), 98–107, <https://doi.org/10.1680/jsmic.22.00008>

Cabinet Office. (2023). *CO (23) 9: Investment management and asset performance in departments and other entities* [Cabinet Office circular]. New Zealand Government. <https://www.dpmc.govt.nz/publications/co-23-9-investment-management-and-asset-performance-departments-and-other-entities>

Canada Infrastructure. (2019). *Canadian Infrastructure Report Card 2019. Monitoring the state of Canada's core public infrastructure*. <http://canadianinfrastructure.ca/en/>

Christchurch City Council. (2024). *Te Mahere Rautaki Kaurera | Our Long Term Plan 2024–2034, Volume 2: Strategies, Policies and Financial Information underpinning the Long Term Plan*. <https://ccc.govt.nz/assets/Documents/The-Council/Plans-Strategies-Policies-Bylaws/Plans/Long-Term-Plan/LTP2024/LTP-2024-34-document-VOL-2.pdf>

City of Burnside. (2023). *Buildings asset management plan 2024–2033*. <https://www.burnside.sa.gov.au/files/assets/public/v/5/about-council/policies-plans-amp-reports/asset-management-plans/amp-2023-buildings-final-comp.pdf>

Clements, R., Alizadeh, T., Kamruzzaman, L., Searle, G., & Legacy, C. (2022). A systematic literature review of infrastructure governance: Cross-sectoral lessons for transformative governance approaches. *Journal of Planning Literature*, 38(1), 70–87. <https://doi.org/10.1177/08854122221112317>

Commerce Commission New Zealand. (2025). *Economic regulation of water services – Information disclosure* [Discussion Paper]. https://comcom.govt.nz/_data/assets/pdf_file/0023/364415/Economic-Regulation-of-Water-Services-Information-Disclosure-Discussion-Paper-February-2025.pdf

Dodson, J. (2017). The global infrastructure turn and urban practice. *Urban Policy and Research*, 35(1), 87–92. <https://doi.org/10.1080/08111146.2017.1284036>

Education Counts. (2024). *Number of schools*. <https://www.educationcounts.govt.nz/statistics/number-of-schools>

Engel, E., Fischer, R. D., & Galetovic, A. (2020). When and How to Use Public-Private Partnerships in Infrastructure: Lessons from the International Experience. In *Economic Analysis and Infrastructure Investment* (pp. 333–364). University of Chicago Press. <https://www.nber.org/books-and-chapters/economic-analysis-andinfrastructure-investment/when-and-how-use-public-private-partnershipsinfrastructure-lessons-international-experience>

Federation of Canadian Municipalities. (2025). *Municipal Asset Management Program (2017–2024)*. <https://fcm.ca/en/programs/municipal-asset-management-program>

Infrastructure New Zealand. (2023). *23 Recommendations for the next government*. <https://infrastructurenews.co.nz/23-recommendations-next-government/>

Institute of Civil Engineers. (2015). *BIM and Asset Management*. ICE Asset Management Group 2015. <https://theiam.org/media/1488/bim-and-asset-management.pdf>.

Institute of Public Works Engineering Australasia. (2021). *Business case for asset tracking & monitoring*. <http://www.ipwea.org/aotearoa/ipweacommunities/emergingtechnology/asset-tracking>

Institute of Public Works Engineering Australasia. (2024). *Best practice asset management of essential public infrastructure*. <https://www.ipwea.org/ipwea-communities/assetmanagement/amwhitepaper>

IPSOS. (2024). *Global infrastructure index 2024: New Zealand Edition*. <https://www.ipsos.com/en-nz/2024-global-infrastructure-index-nz-edition>

ISO. (2024). *ISO 55000: 2024: Asset management – Vocabulary, overview and principles*. <https://www.iso.org/standard/83053.html>

Japan Society of Civil Engineers. (2021). *Japan's infrastructure grades 2020 & introduction of maintenance technologies*. https://www.jsce-int.org/system/files/Infreport_Japan_2021.pdf

Jiang, J., Henning, T., & Zou, Y. (2022). Multiple system integration in local government asset management: A New Zealand case study. IOP Conference Series: Earth and Environmental Science, 1101(9), 092039. https://www.researchgate.net/publication/366115467_Multiple_system_integration_in_local_government_asset_management_A_New_Zealand_case_study

Larkin, B. (2013). The politics and poetics of infrastructure. *Annual Review of Anthropology*, 42(1), 327–343. <http://dx.doi.org/10.1146/annurev-anthro-092412-155522>

Lewis, Oliver. (2024). NZTA highlights funding gap for state highway renewals. https://businessdesk.co.nz/article/infrastructure/nzta-highlights-funding-gap-for-state-highway-renewals?utm_source=chatgpt.com

LGNZ. (2024). <https://www.lgnz.co.nz/news/media-releases/drivers-behind-rates-rises-across-the-country-laid-bare/>

Lloyd's. (2018). *The world at risk: Closing the insurance gap*. <https://www.lloyds.com/worldatrisk>.

Mandow, N. (2021). Wellington tip of iceberg for country's water woes. *Newsroom*. https://newsroom.co.nz/2021/02/28/under-the-surface-of-our-ageing-water-infrastructure/?utm_source=chatgpt.com

Mercier, K. (2024). *Bridging the infrastructure gap*. The Helen Clark Foundation.

New South Wales Treasury. (2019). *TPP 19-07 Asset Management Policy for the NSW Public Sector*. https://arp.nsw.gov.au/assets/ars/attachments/TTIP19-07-NSW-Asset-Management-Policy-Master-Approved_31-October-2019.pdf

New Zealand Infrastructure Commission / Te Waihanga. (2021). *Investment gap or efficiency gap? Benchmarking New Zealand's investment in infrastructure*. <https://tewaihanga.govt.nz/our-work/research-insights/investment-gap-or-efficiency-gap-benchmarking-new-zealand-s-investment-in-infrastructure>

New Zealand Infrastructure Commission / Te Waihanga. (2022). *Rautaki Hangananga o Aotearoa 2022–2052 New Zealand Infrastructure Strategy*. <https://media.umbraco.io/te-waihanga-30-year-strategy/mmahiykn/rautaki-hangananga-o-aotearoa-new-zealand-infrastructure-strategy.pdf>

New Zealand Infrastructure Commission / Te Waihanga. (2023). *Who's working in infrastructure? A baseline study*. <https://tewaihanga.govt.nz/our-work/research-insights/who-s-working-in-infrastructure>

New Zealand Infrastructure Commission / Te Waihanga. (2024a). *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 / Te Waihanga. (2024b). *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 / Te Waihanga (2024c). *How is our infrastructure tracking? Monitoring progress against New Zealand's first Infrastructure Strategy*. <https://tewaihanga.govt.nz/our-work/research-insights/how-is-our-infrastructure-tracking>

New Zealand Legislation. (2025a). *Local Government Act 2002*. <https://www.legislation.govt.nz/act/public/2002/0084/latest/DLM170873.html>

New Zealand Legislation. (2025b). *Public Finance Act 1989*. <https://www.legislation.govt.nz/act/public/1989/0044/latest/DLM160809.html>

New Zealand Productivity Commission. (2021). *Impacts of immigration on the labour market and productivity*. [NZPC Working paper No. 2021/05]. <https://www.treasury.govt.nz/sites/default/files/2024-05/pc-wp-impacts-of-immigration-on-the-labour-market-and-productivity.pdf>

New Zealand Transport Agency / Waka Kotahi. (2021). *Review of the investment in operating and maintaining New Zealand's state highways*. <https://www.transport.govt.nz/assets/Uploads/Review-of-the-Investment-in-Operating-and-Maintaining-New-Zealands-State-Highways-Part-1-Summary-Report-Final.pdf>

New Zealand Transport Agency / Waka Kotahi. (2025). *Consistent condition data collection*. https://www.nzta.govt.nz/planning-and-investment/planning/road-efficiency-group/consistent-condition-data-collection/?utm_source=chatgpt.com

OECD. (2025). *Getting the public on side: How to make reforms acceptable by design*. <https://doi.org/10.1787/262255fd-en>

Office of the Auditor-General New Zealand. (2019). *Matters arising from our audits of the 2018–2028 long-term plans*. (B.29[19a]). <https://oag.parliament.nz/2019/ltps/docs/ltps.pdf>

Office of the Auditor-General New Zealand. (2022). *Matters arising from our audits of the 2021–2031 long-term plans*. B.29[22f]. <https://oag.parliament.nz/2022/ltps>

Office of the Auditor-General New Zealand. (2024). *Insights into local government: 2023*. (B.29[24f]). <https://oag.parliament.nz/2024/local-govt>

Office of the Auditor-General New Zealand. (2025). *Observations from our audits of councils' 2024–34 long-term plans*. <https://oag.parliament.nz/2025/long-term-plans>

Olsen, B. (2024.) *Analysing increases in local government costs for Local Government New Zealand*. Infometrics. https://d1pepq1a2249p5.cloudfront.net/media/documents/Analysing_increases_in_local_government_costs_LI2BVKU.pdf

Pennington, P. (2024). *Business cases for large roading projects 'disconnected' from reality – ministry*. RNZ. <https://www.rnz.co.nz/news/business/528940/business-cases-for-large-roading-projects-disconnected-from-reality-ministry>

Pennington, P. (2025a). *40 percent of most urgent hospital repairs aren't being worked on*. RNZ. <https://www.rnz.co.nz/news/national/557004/40-percent-of-most-urgent-hospital-repairs-aren-t-being-worked-on>

Pennington, P. (2025b). *Infrastructure failures: Govt makes little headway on fixing weaknesses*. RNZ. <https://www.rnz.co.nz/news/political/558850/infrastructure-failures-govt-makes-little-headway-on-fixing-weaknesses>

Poole, E., Toohey, C., & Harris, P. (2014). Public infrastructure: A framework for decision-making. In A. Heath & M. Read (Eds.), *Financial flows and infrastructure financing (RBA Annual Conference Volume)*. Reserve Bank of Australia. <https://www.rba.gov.au/publications/confs/2014/pdf/poole-toohey-harris.pdf>

Project Steering Committee. (2016). *Informing the future: The Canadian infrastructure report card*. Federation of Canadian Municipalities. https://canurb.org/wp-content/uploads/Canadian_Infrastructure_Report_2016-1.pdf

Radio New Zealand. (2023). *Wellington Hospital at least three years away from fixing faulty water pipes*. <https://www.rnz.co.nz/news/national/492935/wellington-hospital-at-least-three-years-away-from-fixing-faulty-water-pipes>

Registration Authority for Chartered Professional Engineers. (2025). *Asset management engineering consultation*. https://d2rjvl4n5h2b61.cloudfront.net/media/documents/Asset-Management-Engineering_Consultation.pdf

Robertson, F. (2023). *Reimagining infrastructure investment: A turning point for New Zealand's future*. RCP. <https://rcp.co.nz/insights/reimagining-infrastructure-investment-a-turning-point-for-new-zealand-s-future>

Schwartz, J. Z., Ruiz-Núñez, F., & Chelsky, J. (2014). *Closing the infrastructure finance gap: Addressing risk* (Policy Research Working Paper No. 6781). World Bank. <https://doi.org/10.1596/1813-9450-6781>

Stanford, E. (2025). *School property back on track*. <https://www.beehive.govt.nz/release/school-property-back-track>

Taituarā. (2024). Local Government Professionals Aotearoa. *Submission to DPMC regarding strengthening the resilience of New Zealand's critical infrastructure*. <https://consultation.dPMC.govt.nz/national-security-group/critical-infrastructure-phase-1-public-consultation/results/taituara-localgovernmentprofessional-saotearoa.pdf>

Terrill, M., & Emslie, O. (2017). *What price value capture?* Grattan Institute. <https://grattan.edu.au/wp-content/uploads/2017/03/888-What-price-value-capture.pdf>

The Treasury. (2023). *Asset management guidance for agencies. 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>

The Treasury. (2024). *Cabinet paper: EXP-24-SUB-0050: Quarterly investment report for quarter ending June 2024*. Office of the Associate Minister of Finance. <https://www.treasury.govt.nz/publications/information-release/quarterly-investment-report-april-june-2024-quarter>

The Treasury. (2024b). Chief Executive Annual Attestations. <https://www.treasury.govt.nz/information-and-services/state-sector-leadership/investment-management/investment-management-system-reporting/chief-executive-annual-attestations>

Watercare. (2025). *Business plan 2025–2034*. <https://www.watercare.co.nz/home/about-us/latest-news-and-media/we-unveil-a-13-8-billion-plan-to-ensure-reliable-water-services>

World Economic Forum. (2019). *The global competitiveness report 2019: Insight report*. https://www3.weforum.org/docs/WEF_TheGlobalCompetitiveness-Report2019.pdf

WSP. (2024). *Nelson Council and WSP take top honours at Āpōpō Asset Management Awards*. <https://www.wsp.com/en-nz/news/2024/nelson-council-and-wsp-take-top-honours>





wsp



THE
**Helen
Clark**
FOUNDATION
