Title: **Testing our thinking - Developing an enduring National Infrastructure Plan**

Reference: **NIPC24-0003039** | Submitted: **09/12/2024 02:26 pm** | Submitted by:

Summary of information submitted

Page 1 - Introduction

NIPC24-0003039

We're seeking feedback

Our Discussion Document, Testing our thinking: Developing an enduring National Infrastructure Plan, sets out our thinking as we begin work to develop a National Infrastructure Plan. The Discussion Document sets out what we expect the Plan will cover and the problem it's trying to solve, as well as the approach we're proposing to take to develop it.

We're sharing this now to test our thinking and give you the chance to share your thoughts. Let us know if we've got it right or if there are issues you think we've missed.

We'll use your feedback as we develop the Plan. We'll be sharing our thinking by presenting at events around the country, hosting workshops and webinars, and sharing updates through our website, newsletter, and social media. We'll also seek feedback on a draft Plan before publishing the final Plan in December 2025.

Submission overview

You'll find 17 main questions that cover the topics found in the Discussion Document. You can answer as many questions as you like and can provide links to material within your responses. On the final page (6. Next steps) you can provide any other comments or suggestions that you would like us to consider as we develop the National Infrastructure Plan. Submissions are welcomed from both individuals and organisations.

A few things to note:

- You can save progress using the button at the top right of this form.
- A red asterisk (*) denotes a mandatory field that must be completed before the form can be submitted.
- We expect organisations to provide a single submission reflecting the views of their organisation. Collaboration within your organisation and internal review of your submission (before final submission), is supported through our Information Supply Platform. You'll need to be registered with an Infrastructure Hub account, and be affiliated with your organisation to utilise these advanced features. Many organisations will already have a '*Principal respondent*' who can manage submissions and assign users at your organisation with access to the draft responses.
- Submissions will be published on our website after the closing date. The names and details of organisations that submit will be published, but all personal and any commercial sensitive information will be removed.

Further assistance

Each submission that is started is provided a unique reference identifier. These identifiers are shown in the top right of each application page. Use this identifier when seeking further assistance or communicating with us about this submission by using one of the following methods.

- Use info@tewaihanga.govt.nz to contact us with any questions relating to our Discussion Document and consultation.
- Use inform@tewaihanga.govt.nz for help managing roles and permissions of user accounts affiliated with your organisation in the Information Supply Platform (ISP).

Submission method

Our preferred method is to receive responses through this form. However, we anticipate some submitters will wish to upload a pdf document, especially where their submission is complex or long. If this submission method is necessary, please use this word template and save as a pdf. We ask that you retain the structure and headings provided in the template as this will support our processing of responses.

Select a submission method

To continue, select the method you will be using.

Online form

Page 2 - Context for the Plan

NIPC24-0003039

Testing our thinking

The Discussion Document includes five sections. Below we're seeking feedback on why we need a National Infrastructure Plan. We also want to test our thinking on our long-term needs and make sure we have a clear view of what investment is already planned.

Section one: Why we need a National Infrastructure Plan

A National Infrastructure Plan can provide information that can help improve certainty, while retaining enough flexibility to cancel or amend projects as circumstances or priorities change.

1. What are the most critical infrastructure challenges that the National Infrastructure Plan needs to address over the next 30 years?

1 A major challenge is Balancing affordability with increasing service demands while adhering to borrowing limits. Prioritising high-value projects is essential for financial sustainability. Innovative funding options and a strong prioritisation framework can maintain fiscal discipline without sacrificing service delivery.

2 The resilience of ageing infrastructure is a critical challenge, as older assets are often not designed to withstand modern demands or the impacts of climate change and natural disasters. Strengthening the resilience of these assets will require investments in tailored maintenance programmes, retrofitting, and strategic replacements to ensure they can continue to meet community needs while withstanding future risks.

3 Population growth and demographic shifts, particularly the needs of an ageing population, demand adaptable infrastructure. Planning inclusive, multi-functional spaces will address diverse community needs while supporting sustainable development.

4 Compliance with tightening environmental regulations presents both challenges and opportunities. Emphasising green infrastructure, energy efficiency, and sustainable practices will ensure alignment with these standards while contributing to environmental resilience.

5 Modernising outdated systems is vital to improving operational efficiency and service delivery. Accelerating digital systems upgrades and adopting smart technologies will streamline processes and enhance data-driven decision-making.

2. How can te ao Māori perspectives and principles be used to strengthen the National Infrastructure Plan's approach to long-term infrastructure planning?

The two principles that would truly improve long-term infrastructure planning are Kaitiakitanga (Guardianship of the Environment) and Whakapapa (Intergenerational Thinking).

Kaitiakitanga prioritises environmental sustainability, focusing on protecting and restoring natural resources essential for resilience and ecological balance. Whakapapa reflects Māori's commitment to intergenerational responsibility, ensuring that infrastructure decisions honour past achievements while safeguarding resources and opportunities for

future generations. Together, these principles create a holistic approach that balances immediate needs with enduring sustainability, fostering infrastructure that respects both the natural world and the legacy left for those to come.

Section two: Our long-term needs

The National Infrastructure Plan will reflect on what New Zealanders value and expect from infrastructure. To do this, the Plan needs to consider New Zealanders' long-term aspirations and how these could be impacted over the next 30 years.

3. What are the main sources of uncertainty in infrastructure planning, and how could they be addressed when considering new capital investments?

Uncertainties and ways of addressing them

1 Climate Change and Natural Disasters

Incorporate climate modelling and resilience assessments into planning, prioritise adaptable designs, and invest in mitigation strategies to reduce vulnerabilities.

2 Population Growth and Urban-Rural Shifts

Implement scenario-based planning to align infrastructure with growth corridors and urban intensification. Design adaptable systems to meet the needs of diverse and shifting populations.

3 Economic Conditions and Funding Constraints

Prioritise high-impact programmes, explore innovative funding options and maintain contingency funds to navigate economic volatility.

4 Technological disruption and demand shift

Focus on integrated, centralised solutions where feasible, supported by modular and adaptable designs that can incorporate emerging technologies. For example, digital twins and IoT-enabled infrastructure can improve real-time monitoring and future-proof systems.

5 Asset Condition and Knowledge Gaps

Invest in integrated asset management and financial systems, improve data collection, and apply predictive analytics to enhance decision-making and optimise maintenance strategies.

Section three: What investment is already planned

We already gather and share data on current or planned infrastructure projects through the National Infrastructure Pipeline. This data, alongside other information gathered by the Treasury or published by infrastructure providers, helps to paint a picture of investment intentions.

4. How can the National Infrastructure Pipeline be used to better support infrastructure planning and delivery across New Zealand?

The National Infrastructure Pipeline can align planned programmes with evolving national needs by providing a centralised, transparent view of priorities. Regular updates incorporating input from Councils, Iwi, and industries ensure they reflect changing demands. Diversifying between planned initiatives and urgent needs - such as resilience upgrades or emerging industries - enables adaptive planning. By highlighting gaps and using data-driven forecasting, the pipeline supports responsive, sustainable infrastructure delivery that balances current demands with future challenges.

Section four: Changing the approach

We have used our research and publicly available information on infrastructure investment challenges to identify key areas for change. The next question and the following three pages seek further detail on the three themes in section four of our paper. Within each of the three themes, we explore some topics in more detail, outlining the evidence, discussing the current 'state of play', and asking questions about where more work is needed.

5. Are we focusing on the right problems, and are there others we should consider?

Yes, and at the same time, broader considerations could strengthen long-term planning:
1 Greater emphasis on the interconnectedness of infrastructure networks, ensuring efficiency and reducing siloed approaches.
2 Accelerating investment in digital systems to support smart cities and improve real-time planning and asset management.
3 Enhanced flexibility in infrastructure design to accommodate technological advancements and unexpected shifts in demand.

Changing the approach — Capability to plan and build

Section four looks at changes that we can make to our infrastructure system to get us better results. We've broken these changes down into three themes: capability to plan and build, taking care of what we have, and getting the settings right.

For the first theme, we look at three key areas:

- Investment management: Stability, consistency, and future focus
- Workforce and project leadership: Building capability is essential

- Project costs: Escalation means less infrastructure services.

Investment management: Stability, consistency, and future focus

We're interested in your views on how we can address the challenges with government infrastructure planning and decision-making.

6. What changes would enable better infrastructure investment decisions by central and local government?

Central and local governments could focus on targeted, impactful changes rather than broad, frequent adjustments to improve infrastructure investment decisions. The current reactive and fast-paced environment is leading to fragmented planning and inefficiencies. A deliberate focus on long-term planning, rather than aligning decisions with three-year election cycles, would foster more sustainable and strategic outcomes.
Key enablers could be:
1 Mechanisms for identifying and securing funding for critical infrastructure projects, shielding them from rapid shifts and ensuring consistent progress regardless of political cycles.
2 Ensure predictable, long-term funding streams for prioritised initiatives.
3 Implement unified systems across the local government sector to streamline data collection, improve consistency, and enable better collaboration. Centralised platforms for asset management, funding allocation, and performance monitoring can reduce inefficiencies and duplication.

7. How should we think about balancing competing investment needs when there is not enough money to build everything?

With limited resources, prioritisation should focus on lifeline infrastructure, such as water supply, transport, and utilities, which are critical for public safety and resilience. Projects should be assessed using a framework that evaluates their criticality, potential to reduce inequities, and long-term social benefits, including climate resilience. For instance, improving stormwater networks to minimise urban flooding or flood-resilient transport corridors may take precedence. Tools like multi-criteria analysis can help objectively compare competing needs, ensuring decisions are transparent and focused on maximising impact.

Workforce and project leadership: Building capability is essential

We're interested in your views on how we can build capability in the infrastructure workforce.

8. How can we improve leadership in public infrastructure projects to make sure they're well planned and delivered? What's stopping us from doing this?

Addressing challenges such as staff turnover and high resource demands can strengthen leadership in public infrastructure projects while also investing in the development of future leaders. Frequent leadership changes disrupt continuity, weaken institutional knowledge, and slow decision-making. Similarly, high workloads and limited capacity hinder leaders' ability to focus on strategic planning and delivery.

At the same time, there is a pressing need to cultivate a new generation of leaders to rebuild and modernise infrastructure for future generations. The current leadership gap, exacerbated by an ageing workforce and evolving demands, highlights the importance of long-term investment in talent development.

Key Steps:

1 Create programmes to identify and mentor emerging leaders, focusing on skills for managing complex, future-oriented projects.

2 Develop pathways to attract diverse talent into the sector, such as apprenticeships, scholarships, and partnerships with educational institutions.

3 Provide leaders with the resources and support to manage projects effectively without burnout.

9. How can we build a more capable and diverse infrastructure workforce that draws on all of New Zealand's talent?

Building a more capable and diverse infrastructure workforce requires a strong emphasis on growing talent, expanding capability, and increasing the number of skilled professionals. This includes engaging underrepresented groups, such as women, Māori, Pasifika, and youth, through scholarships, internships, and career pathways. Clear professional standards and career pathways can guide upskilling and attract more people into the sector. Partnering with industry, iwi, and educational institutions ensures training meets future demands, including emerging technologies. By expanding opportunities and fostering inclusivity, we can grow a workforce ready to deliver New Zealand's infrastructure needs.

Project costs: Escalation means less infrastructure services

We're interested in your views on further opportunities to improve our ability to deliver good infrastructure at an affordable cost.

10. What approaches could be used to get better value from our infrastructure dollar? What's stopping us from doing this?

To ensure infrastructure spending delivers maximum value, it is essential to prioritise initiatives that address key challenges, particularly the need for resilient and reliable design. These three focus areas are critical for long-term success:

1 Designing resilient and reliable infrastructure is paramount where natural disasters and climate change pose significant risks. Projects must incorporate flexibility to adapt to

evolving demands and withstand future challenges like extreme weather events or population growth. Resilient design reduces long-term costs by minimising disruptions, protecting critical services, and extending asset lifespans. Reliable infrastructure ensures communities can depend on essential services despite uncertainty, building public trust and safeguarding well-being.
2. Evaluating projects based on total lifecycle costs - beyond construction expenses - ensures sustainable investments. Long-term maintenance, operation, and renewal costs improve financial and environmental outcomes. Additionally, aligning projects with clear objectives and measuring success through tangible outcomes, such as enhanced equity or environmental benefits, ensures that investments deliver meaningful value over time.
3. Investing in modern asset management practices and technologies such as digital twins and predictive analytics enhances infrastructure reliability and efficiency. These tools allow for proactive maintenance, better-informed decision-making, optimised asset performance, and costly failure prevention. Integrating smart technologies into infrastructure systems ensures they are robust, adaptable, and aligned with future demands.

Page 4 - Taking care of what we've got

NIPC24-0003039

Changing the approach — Taking care of what we've got

The second theme in section four looks at how we can get better at taking care of what we have. It looks at three areas:

- Asset management: Managing what we already have is the biggest task
- Resilience: Preparing for greater disruption
- Decarbonisation: A different kind of challenge.

Asset management: Managing what we already have is the biggest task

Asset management means looking after our infrastructure. We are interested in your views on how we can improve planning for this.

11. What strategies would encourage a better long-term view of asset management and how could asset management planning be improved? What's stopping us from doing this?

To encourage a better long-term approach, asset management with continuous improvements should be integrated into business-as-usual operations, supported by modern systems, and underpinned by skilled people.
1 Treat asset management as an ongoing, core activity rather than an occasional or siloed task.
2 Replace old, fragmented systems with centralised, efficient platforms to enable better data-driven planning and reporting.

3 Address the stigma of complexity with targeted training and practical tools that align workforce skills with demand.
Barriers: Legacy systems, capability gaps, and cultural resistance to change hinder progress.

Resilience: Preparing for greater disruption

We are interested in your views on how we can better understand the risks that natural hazards pose for our infrastructure.

12. How can we improve the way we understand and manage risks to infrastructure? What's stopping us from doing this?

To better understand and manage risks, infrastructure planning must prioritise proactive measures and mechanisms that address vulnerabilities without expecting to eliminate risks entirely.
1 Develop robust risk assessments incorporating climate change, natural hazards, and asset degradation. Use tools like scenario planning and stress testing to identify and mitigate vulnerabilities early.
2 Design infrastructure with adaptability and redundancy to ensure continuity of critical services during disruptions.
3 Use predictive analytics, digital twins, and real-time monitoring to identify risks and respond dynamically.
Barriers: Limited resources, outdated systems, and a reactive planning culture hinder the ability to manage risks effectively. To build a resilient infrastructure network, addressing these challenges requires cultural shifts, targeted investments, and collaborative governance.

Decarbonisation: A different kind of challenge

We're interested in your views on how we can improve understanding of the decarbonisation challenge facing infrastructure.

13. How can we lower carbon emissions from providing and using infrastructure? What's stopping us from doing this?

Reducing carbon emissions from infrastructure provision and use starts with designing and building assets that are reliable, resilient, and built to last. This minimises the need for frequent repairs and replacements, significantly lowering emissions over the asset lifecycle.
Key potential actions:
1 Build infrastructure that withstands environmental challenges, reducing the carbon footprint of ongoing maintenance and repairs.
2 Incorporate energy-efficient systems, such as renewable energy integration and smart

technologies, to reduce emissions during use.

Page 5 - Getting the settings right

NIPC24-0003039

Changing the approach — Getting the settings right

The third theme in section four looks at how we can get our settings right to get better results from our infrastructure system. It looks at three areas:

- Institutions: Setting the rules of the game
- Network pricing: How we price infrastructure services impacts what we think we need
- Regulation: Charting a more enabling path.

Institutions: Setting the rules of the game

We're interested in your views on what changes to our infrastructure institutions would make the biggest difference in giving us the infrastructure we need at an affordable cost.

14. Are any changes needed to our infrastructure institutions and systems and if so, what would make the biggest difference?

1 Establish unified asset and financial management systems, data collection, and reporting to ensure consistency and better coordination across regions and organisations.
2 Introduce flexible funding mechanisms that align with long-term needs and allow for adjustments as priorities and challenges evolve.
3 Strengthen institutions by building workforce capability and ensuring governance structures prioritise transparency, accountability, and long-term outcomes.

Network pricing: How we price infrastructure services impacts what we think we need

We're interested in your views on further opportunities to improve network infrastructure pricing.

15. How can best practice network pricing be used to provide better infrastructure outcomes?

Good practice network pricing can help improve infrastructure outcomes by gradually introducing fair and efficient pricing mechanisms that reflect actual usage and encourage better resource management. Starting with achievable, practical measures ensures the system adapts to local conditions without overwhelming users or organisations.
Firstly, pricing models that account for usage levels and maintenance costs should be introduced. These models should be simple to understand and implement.
Then, begin with small steps, such as modest peak pricing or seasonal adjustments, to encourage a more balanced use of infrastructure without creating barriers for essential services.

Regulation: Charting a more enabling path

We're interested in your views on further opportunities to improve regulation affecting infrastructure delivery.

16. What regulatory settings need to change to enable better infrastructure outcomes?

Align regulations across central and local governments to promote cohesive planning and investment. A unified framework would ensure infrastructure decisions consider long-term needs and cross-regional priorities.
Strengthen requirements for resilience and sustainability in design and delivery, ensuring infrastructure can withstand climate impacts and meet emissions reduction targets.

Page 6 - What happens next?

NIPC24-0003039

Additional information to support our development of the Plan

Section five in the Discussion Document is on the next steps. In this section, we're asking you for any additional comments, suggestions, or supporting documentation that we should consider in our development of the National Infrastructure Plan.

17. Do you have any additional comments or suggestions that you would like us to consider as we develop the National Infrastructure Plan?

Click 'Add another' to add multiple suggestions or comments.

Item 1

The National Infrastructure Plan should prioritise building reliable and adaptable systems that reduce future maintenance costs and withstand challenges such as climate change, natural disasters, and population growth.
Include a framework for measuring success across financial, environmental, social, and

cultural dimensions. Transparency in setting priorities and outcomes will build public trust and accountability.

18. Attach any documents that support your submission

Click 'Add another' to add multiple attachments in PDF format.

Document 1

No attachment

Thank you for your response

Thank you for providing feedback on our Discussion Document. We'll use your comments as we continue to develop the Plan. This will not be the only opportunity for you to provide feedback, but it is an important way to test our emerging thinking on the development of an enduring National Infrastructure Plan.

If you have prepared a submission on behalf of an organisation, you'll need to be an authorised *respondent* to make the final submission. If you entered a new organisation during sign-up, or your organisation does not already have a *Principal respondent* assigned, you will have been asked to nominate yourself or someone else for this role as you started this submission. Our team will have worked to verify these accounts allowing *Principal respondents* to manage access and assignment of requests for information to people within your organisation.

If you require any assistance please reach out to our team at inform@tewaihanga.govt.nz.