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WSP Submission on the New Zealand Infrastructure Commission – Te Waihanga’s National Infrastructure Plan discussion document: Developing an enduring National Infrastructure Plan

About WSP

WSP provides strategic advisory, engineering, and design services to clients in the transportation, infrastructure, environment, building, energy, and water sectors. We work with our network of over 73,000 WSP experts across the world to bring global insights to our local challenges, creating what matters for future generations.

We have a history dating back over 150 years to the Public Works Department. At WSP, our planners, engineers, scientists and advisors are deeply familiar with infrastructure, asset management, and natural hazards challenges across New Zealand and have a strong interest in the country’s future.

Introduction

We welcome the opportunity to submit on the New Zealand Infrastructure Commission – Te Waihanga’s National Infrastructure Plan discussion document: Developing an enduring National Infrastructure Plan.

Overall, we support the development of the National Infrastructure Plan. The plan represents global best practice whereby countries have long-term infrastructure strategies and plans. It will help identify overall national objectives for infrastructure for New Zealand and create greater certainty around the pipeline of infrastructure projects.

A recent report commissioned by Infrastructure New Zealand in partnership with WSP found that greater pipeline certainty could unlock productivity benefits and improvements to enable between \$2.3 to \$4.7 billion more capital investment each year [Cost-of-delay-in-infrastructure-decisions-Principal-Economics-report-Oct-2022.pdf](#).

Section one: The need for a National Infrastructure Plan

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

The plan needs to address several critical infrastructure challenges over the next three decades. Affordability will be crucial, ensuring that infrastructure investments provide a strong economic return, while also considering the economic and social cost of failing to invest.

It’s important to note that investing in new infrastructure should not be the only solution; in many cases, retrofitting and repurposing existing assets can be effective alternatives to new investment.

A key challenge will be ensuring the capability to deliver. Developing a skilled workforce that can meet future infrastructure demands will require a sustained effort to maintain a strong pipeline of work - ensuring there's a steady flow of projects to occupy the workforce and train new people.



Fostering a competitive infrastructure build market will also be essential to avoid monopolies that could stifle innovation and inflate costs.

The plan must account for emerging trends, making sure that infrastructure is future-ready and adaptable to societal and technological shifts. This includes addressing the obsolescence of existing infrastructure, ensuring that outdated systems are modernised or replaced to remain functional and efficient.

Better understanding the social and economic impact of population trends will be especially crucial in addressing infrastructure challenges. These trends will influence demand, resource allocation, and long-term sustainability.

Population growth, ageing, or migration patterns, for instance, can determine where and what types of infrastructure are needed, such as housing, transportation, and healthcare facilities. Without this kind of insight, infrastructure planning may fail to meet future needs or be inefficient.

A long-term national population strategy is urgently needed to make sure we have the right infrastructure for the growing population of New Zealand. We have recently published a think-piece on this topic [Long term infrastructure planning needs population strategy | WSP](#).

Finally, investing more in research and evaluation will help ensure infrastructure projects serve the evolving needs of our communities. More research equals more evidence - allowing for better forecasting, plugging gaps in social inequality, and, ultimately, ensuring that infrastructure development aligns with the country's societal goals.

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

Te Ao Māori perspectives can strengthen the National Infrastructure Plan by offering a long-term, sustainable approach to development.

Māori thinking prioritises intergenerational equity, encouraging current generations to consider the legacy they leave, much like past generations did when investing in New Zealand's infrastructure. This contrasts with the often-short-term focus seen in Western economic models.

Te Ao Māori taps into centuries of indigenous wisdom and practices that emphasise working harmoniously with nature. For example, Māori knowledge of landforms and waterways can inform flood mitigation strategies. The concept of whakapapa, which recognises the interconnectedness of land, water, and people, offers a holistic approach to infrastructure planning.

Whanaungatanga, the principle of collective responsibility, encourages involving local communities in decision-making, ensuring that infrastructure is inclusive and responsive to local needs.

Te Ao Māori is a dynamic, evolving approach, which makes it particularly relevant for addressing future challenges like rising flood risks and ensuring sustainable, resilient infrastructure.

For more information, visit our recent think-piece on [Harnessing Mātauranga Māori](#).

Section two: Long-term expectations

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

Uncertainty in infrastructure planning comes from external and internal factors. External factors include trade dynamics, geopolitical tensions, and the priorities of neighbouring countries, which

can disrupt supply chains or shift resource availability. Internal factors such as immigration settings, emigration (particularly brain drain), investment in training and education, and legislative changes can also significantly impact the capacity to deliver infrastructure projects.

A key challenge is the lack of an agreed national vision, which often leads to shifting political priorities and uncertainty. While a unified vision may be politically difficult, developing reasoned scenarios for future planning would be useful. These scenarios should focus on the pacing of projects, ensuring that, while the timing may change, the projects themselves remain reasonably stable.

Addressing this mix of uncertainties will require flexibility in planning and a long-term commitment to consistent investment in both human capital and infrastructure.

Section three: Existing investment intentions

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

The plan could play a crucial role in supporting infrastructure planning and delivery by providing a comprehensive framework for resource planning, ensuring that projects are well-resourced and strategically prioritised, as long as it gains bi-partisan support and is enduring. The plan could also help position the market for competition, helping drive efficiency and innovation.

By aligning with central and local government budget provisioning, the plan can ensure that financial resources are allocated effectively to meet long-term infrastructure needs. It could also influence taxation and borrowing settings, creating a conducive environment for necessary infrastructure investments.

Importantly, the plan could offer greater certainty regarding the timing of secondary private sector infrastructure investments that often leverage primary public infrastructure, fostering wealth creation and maximising returns from these investments.

Section four: Changing the approach

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

One key area that seems underemphasised is leadership across the entire infrastructure system. Every organisation that relies on infrastructure should have a dedicated leader at the executive level, ensuring that infrastructure needs are prioritised at the highest decision-making levels.

Another crucial aspect is maintenance and renewal. Currently, many asset management systems operate reactively, but moving towards a more planned and ideally proactive model would better support long-term sustainability.

A strategic approach that takes a long-term view of asset management would help ensure that infrastructure remains reliable and capable of meeting future needs. A recent WSP think-piece - ['Reinvigorating asset maintenance and renewal in an age of build new now'](#) - covers the important issue of looking after existing assets in more detail.

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

Several changes would help. First, linking 'optimised depreciated replacement cost' (depreciation) to maintenance and renewal investments would provide a clearer framework for allocating funds effectively.



Having tighter rules around capitalisation would help ensure that renewals which sustain the original intent of an infrastructure investment are appropriately classified. This would avoid unnecessary debt for future generations.

Further, any link between depreciation and investment should be justifiable at both the system and project levels, with independent audits (at least every three years) and publicly available results, including league tables.

In addition, clear identification of capital investment used to replace maintenance and renewal funding is also essential to avoid misallocation.

Finally, a cultural shift is needed, especially among decision-makers, to prioritise delivering value from previous investments before committing to new projects. When new assets are required, decisions should be based on lifecycle costs, with committed future maintenance and operational costs reflected in long-term budgets.

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

A clear policy framework is essential to guide decision-making. At a national level, an infrastructure class hierarchy should be established, ranking projects from 'essential for life' to 'feel-good', helping to prioritise investments and support informed debate.

Key factors to consider include life-critical and safety needs, social and cultural benefits, emerging trends, economic returns, affordability, and the capacity to deliver.

It's important to avoid promoting individual projects in isolation. Instead, a system-based approach should be taken, recognising that many projects are interdependent. By applying agreed criteria to assess needs within the context of the entire system, a more holistic and sustainable investment strategy can be developed.

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?

Start by recognising that leadership roles exist and are essential. Leaders should be subject matter experts and have a proven ability to leverage the expertise of others. This will help ensure projects are well-planned and effectively delivered.

One of the biggest barriers to improving leadership is the lack of a consistent and stable pipeline for projects of varying sizes and complexities, which can cause delays and reduce project momentum.

There's also often a failure to celebrate successes, especially those of project leadership, which can undermine morale and motivation. Addressing these gaps will be essential in building stronger leadership and more successful infrastructure outcomes.

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

Start in schools by sparking interest in the importance of infrastructure and its role in sustaining a thriving society. Stimulate young minds by highlighting how crucial infrastructure is to daily life and its future potential.

Establishing a committed pipeline that demonstrates long-term career opportunities will show people that infrastructure is a viable and sustainable career path, where they remain in Aotearoa New Zealand and not have to go overseas to work on infrastructure projects.

It's also essential to celebrate success and recognise the often-overlooked contributions of those doing vital work behind the scenes. Highlight these roles to foster pride in the sector and inspire the next generation of talent from all backgrounds.

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

Several approaches could be used. First, ensuring investment stability to maintain long-term planning and confidence in infrastructure projects. Second, innovation risk-sharing to encourage new solutions while mitigating risks. Third, treating planning and design as essential steps to test scenarios and challenge value before construction begins will help prevent costly mistakes and optimise outcomes.

Barriers preventing these approaches include lack of the right capability in planning, procuring, managing, and designing - as these functions are often seen as costs rather than investments that reduce risks and optimise overall costs. Market monopolisation can limit competition, while the 'dumbing down' of clients may reduce their ability to effectively challenge and drive value in projects.

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?

Several strategies could be employed. As mentioned earlier, linking depreciation to asset management investment would ensure funds are allocated for ongoing maintenance and renewal rather than just new developments.

Having an executive-level person accountable for infrastructure, with equal representation at the executive table, would ensure infrastructure priorities are considered in broader decision-making.

A cultural shift is also necessary, moving away from the mindset that 'building new is good' to a focus on maintaining and optimising existing assets.

Introducing compulsory 'Introduction to Infrastructure' courses for local government elected members and 'Infrastructure Asset Management' modules for directors through the Institute of Directors would help build awareness and understanding of asset management principles.

While progress is being made through Āpōpō - the lead association for infrastructure asset management professionals - a major barrier is the need for broader cultural change among leadership, as well as a more strategic and long-term approach to planning and funding.

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

Organisations must prioritise resilience within their asset management strategies. By embedding resilience into the asset management system, maintenance and renewal work can either incorporate or lead with resilience, ensuring infrastructure remains adaptable to changing conditions.

A single source of truth for all climate impact data is also vital, enabling better-informed decisions across the board.



One of the main challenges in implementing these improvements is the perception of resilience as a 'nice to have' or an additional cost, rather than an essential part of long-term infrastructure planning.

Overcoming this mindset and integrating resilience more fully into planning and management processes is key to reducing risk and ensuring infrastructure remains robust. After all, designers and managers can often make adjustments to projects, incorporating resilience at little or no additional cost.

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

Lowering carbon emissions starts with infrastructure providers and clients. RFPs and procurement teams must actively request lower carbon design alternatives.

More often than not, procurement teams lack detailed data on low-carbon materials and designs necessary to make informed decisions. Because they're not technical carbon experts, they can't confidently set these requirements. If they don't specify low-carbon options clearly, suppliers may include pricing premiums to account for risk and uncertainty.

The key issue is on the demand side. Clients need to understand what they should be asking for, and suppliers must take responsibility for educating them. When clients aren't well-informed, they won't know what's feasible or practical, and that can create inefficiency and higher than necessary carbon emissions. Consultants are well-positioned to provide this guidance, but it needs to be part of the brief from the outset.

To improve the situation, clients must be clearer about their requirements, fewer stakeholders should be involved to reduce complexity, and pricing mechanisms should be introduced to control infrastructure consumption and mitigate any moral hazard.

Further comments re emissions and climate change

It's essential that the National Infrastructure Plan is not developed in isolation. It must build upon existing efforts and align with the Government's climate change policies, as well as national and regional assessments of risks and opportunities arising from climate change.

The principle of 'right infrastructure, right place' must be central to the plan. Considerations of climate change adaptation and natural hazards should be a priority. The plan should align with, and identify any gaps in, the Government's upcoming Climate Adaptation Framework, as well as the existing National Adaptation Plan.

Infrastructure must be designed to be resilient to a range of climate change scenarios. For this reason, the plan should ensure that infrastructure planning, construction, and maintenance adequately weigh the New Zealand Lifelines Council's National Vulnerability Assessment of Critical Infrastructure, the Climate Change Commission's National Climate Change Risk Assessment, and relevant regional and sector-level risk assessments.

The plan should also acknowledge the expected rise in 'insurance retreat' – both partial and full – for infrastructure in high-risk areas, such as those vulnerable to coastal erosion due to sea-level rise. Insurance premiums for local authorities and infrastructure providers are also expected to increase because of climate change. More information about this issue can be found in WSP and the Helen Clark Foundation's recent research report '[Premiums Under Pressure](#)'.

In addition, the plan should emphasise the role of infrastructure in New Zealand's commitment to the Paris Agreement and the Climate Change Response Act (CCRA) in reducing greenhouse gas emissions. The country's ability to meet its emissions reduction targets will depend on infrastructure changes, especially in sectors such as land transport and energy generation.

The plan must also consider the Government's Emissions Reduction Plan, which outlines a national strategy for transitioning to a lower-emissions economy.

Recognising the importance of financial stability and access to capital will be critical. Both will be impacted by the physical effects of climate change and the transition to a low-emissions, more resilient economy. Alignment with the Reserve Bank's climate change strategy is also crucial.

The plan should address the strengths and vulnerabilities in New Zealand's value chain, especially how supply chains are impacted by indirect and cascading risks from climate change and natural hazards.

Finally, the plan should highlight the opportunities for New Zealand to transition proactively into a low-emissions, more resilient economy, such as through increased investment in renewable energy and distributed generation.

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

For short-term improvements, focusing on stability in the pipeline and project supply will be crucial, along with gradual changes as needed. Early supplier engagement should be fostered, treating suppliers as partners to encourage innovation and efficiency.

Enhancing client capability and streamlining procurement processes without adopting a 'one size fits all' approach is also vital, given New Zealand's regional diversity.

Plus, as mentioned previously, ensuring a direct link between depreciation and investment for maintenance and renewal must be a priority for long-term sustainability.

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

It's more important than ever to maintain and build new infrastructure to ensure New Zealand remains a sustainable country where people want to live, work, and play. Long-term underinvestment has led to a shortfall in quantity and quality of infrastructure, and with the current infrastructure deficit at \$210 billion, relying solely on Crown support as a way forward is unfeasible.

Alternative funding and financing options, such as Public-Private Partnerships and tolling, are urgently needed. We support the use of network pricing and recently published a report with the Helen Clark Foundation on ['Bridging the Infrastructure Gap'](#), which explores these and a toolkit of other funding and financing options.

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

We agree that the regulatory system has become overly complex and slow. This needs to change if the country is to have any hope of effectively and efficiently building, replacing, and futureproofing needed infrastructure.

We support changes to the regulatory environment, which must be fit for purpose. Over the years, numerous amendments to legislation, including the Resource Management Act 1991, have led to a regulatory system that is now confusing and difficult to navigate. We welcome any reforms that



will speed up infrastructure development and reduce costs while balancing the environmental and economic impacts. We support reforms to the Public Works Act 1981, the Overseas Investment Act 2005, and the RMA 1991.

We also advocate for a more consistent approach to consenting across the country. There are currently significant variations in processes, systems, and outcomes depending on the council handling the consents.

Amendments to the Building Act 2004 and Building Code are also essential to ensure that councils interpret the legislation correctly. We welcome the current review of the RMA but believe it's important that past case law and jurisprudence, where relevant, are considered, especially where it helps achieve the goal of accelerating the delivery of critical infrastructure.

Another key change would be moving more agencies and infrastructure classes to a regulated model, which has proven effective in ensuring prioritisation and maintaining day-to-day operations within the entity. This has already happened with rail and the lines companies. Both central and local governments would focus on setting long-term policy goals, while an independent regulator audits adherence to those policies. Currently, the system suffers from too much overlap, where government entities may be "cutting their own lunch." By moving certain infrastructure classes to a regulated model would provide a high degree of transparency and audibility, and would provide greater clarity around how the investment is performing. It may be necessary for instance to move transport infrastructure into a regulated model especially if the Government introduces Road User Charging nationally.

Section five: What happens next?

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

We support the development of the NIP and believe it will provide greater pipeline certainty to the sector. However, we note that if the plan is going to endure it will require bi-partisan support.

We're grateful for the opportunity to submit on the NIP discussion document. With over 150 years' experience in helping shape New Zealand's built environment, we're uniquely positioned to assist with next steps and look forward to continuing to engage as the plan is drafted.

Yours sincerely,



Director of Public Policy and Government Relations