

## Testing our thinking - Developing an enduring National Infrastructure Plan

**Submission:** [REDACTED] Associate Director Infrastructure Advisory on behalf of Aurecon

### Section one: Why we need 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?
  - a. Lumpy funding, uncertain pipeline. Stating the obvious, but inconsistency and uncertainty over our pipeline is one of the biggest challenges we face. It prevents development of an enduring, capable and effective industry equipped to deliver the high-quality, efficient and cost-effective services we require at all levels – within agencies and across the market. It also results in the significant social and economic opportunity cost of undelivered work and rising cost to deliver projects in the future.
  - b. Improving public perception, value and trust in our approach – public trust and confidence is critical to enabling decision-making and investment. The NIP has a pivotal role to play in enabling development and promotion of a coherent strategy that galvanises communities and gives them confidence that there is a vision, a stable plan, that investment will be made, and that investment focuses on projects that will deliver real value to them and their communities.
  - c. Supporting shared agreement on how we catch up after recent cuts and pauses. Rebuilding trust and confidence in the industry and inevitable capacity and capability gaps.
  - d. Improving pace and quality of decision-making – an agreed plan can help accelerate decisions.
  - e. Unlocking economic growth, establishing a bi-partisan agreed social / economic benefit model – it's crucial that we develop a mature view on which projects move New Zealand forward and the social and economic value we extract from critical projects, in particular 'mega projects' which are consistently challenging to gain agreement on.
2. How can te ao Māori perspectives and principles be used to strengthen the National Infrastructure Plan's approach to long-term infrastructure planning?
  - a. Intergenerational perspective, partnership, shared and/or private investment
  - b. Principles that endure political cycles can be utilised to underpin the plan

### 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?
  - a. Funding certainty across multiple political cycles, investment commitment – the jointly agreed plan seeks to resolve this – a process that enables bi-partisan or independent evaluation and decision-making could also be considered. i.e., independent body with joint representation, further reducing risk of investment decisions becoming political footballs.
  - b. Technology and innovation, balancing long-term decisions, growth and renewal recognising that what we invest in today may be outdated by the time it's delivered and/or that our decisions may be constrained by standards and regulation that become redundant over time. Some of the ways we can address this:
    - i. Adaptive regulation, encourage innovation through policy settings that allow for regulatory adjustment as new technologies emerge



- ii. Increased collaboration with private sector to ensure investment aligns with leading edge technology
  - iii. Avoiding getting tied into closed system software that reduces/prevents future integration and adaptation
  - iv. Increase modular delivery projects are more easily and reliably delivered in smaller phases, increasing modular / staged delivery enables faster delivery and greater flexibility of design choice for future stages
- c. Growth uncertainty, significant variation between lowest/highest growth potential – agencies are currently navigating this in relative siloes, modelling demand and considering their own levers for demand management, cost, risk balancing. This includes navigating lower and upper ends of population growth, advances in technology, and other demand management such as where people go to work, school and play, how they get there, and how they use energy and water resources:
  - v. jointly agreed regional objectives and focus areas can resolve this, providing centralised demand management and growth strategies that reduce risk and increase return in target areas
  - vi. support aligned and enduring investment in these through formalised arrangements such as city deals, and support devolution of key initiatives to local level
  - vii. incorporate resilience – most projects do attempt this, but ensure projects retain 'optionality' where future growth or technology changes may lead to increased capacity requirement or alternative solutions e.g. more/long trains, autonomous vehicles
  - viii. immigration strategy and targets will also play a role – however this is likely outside of NIP scope.
- d. Impact of climate change and the potential cost of retreat – it is crucial need to get real about this and move beyond the current head in the sand approach. Supporting joint agreement on where we will not invest is key, and planning for gradual shift away from high-risk locations – point c above, demand management and jointly agreed growth strategies are key here.

### Section three: Existing investment intentions

- 4. How can the National Infrastructure Pipeline be used to better support infrastructure planning and delivery across New Zealand?
  - a. Leverage the process to gain alignment between agencies, provide the foundation/anchor for integrated planning and sequencing
  - b. Ideally de-politicise significant decisions, leverage the process to gain collective agreement on where we grow, how we grow, and support improved demand management proactive growth planning to reduce uncertainty and drive a coherent and cost-effective integrated infrastructure system.
  - c. It is also fundamental that we spatialise the pipeline. We have cost-effective geospatial tools available to all agencies that should be utilised to map all planned investment and projects in delivery. Spatialising this information will enable integrated planning, prioritisation, scheduling and delivery, remove inefficiencies and high-cost rework caused by siloed programmes. It also ensures clarity between all agencies on location-based resilience planning and risk management, so that location-based decisions are transparent and aligned and risks and opportunities identified early while there is still time to act.

### Section four: Changing the approach



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

#### Theme one: Capability to plan and build

##### Investment management: Stability, consistency and future focus

6. What changes would enable better infrastructure investment decisions by central and local government?
  - a. Improved inter-agency consistency re needs and priorities, cost benefit, contribution to benefits
  - b. Support inter-agency regional plans with inter-connected benefits and joint decision-making
7. How should we think about balancing competing investment needs when there is not enough money to build everything?
  - a. Consider alternative funding mechanisms, revenue generation, where we may be able to see private capital to deliver. These options are likely to be limited given our small country, small population and associated economics, but they're not unachievable. Aurecon explores this in our Asset Recycling paper [Insights | Unlocking value with asset recycling in New Zealand](#), which we are happy to discuss in more detail if useful.
  - b. Take a whole of country / region approach to needs assessment and prioritisation, as noted above use the NIP process to gain collective agreement on where we grow, how we grow, and support improved demand management proactive growth planning to reduce uncertainty and drive a coherent and cost-effective integrated infrastructure system that also supports prioritisation and allows us to focus on maximum return in key areas. Expanding use of spatial planning tools and regional growth frameworks could be an easy win.
  - c. Utilise the most mature needs assessment available, bring key organisations together to share their insights and co-develop an agreed approach – many have highly developed and sophisticated models, but they are not all the same. i.e. Kainga Ora strategy unit has a more nuanced model than the Ministry of Housing and Urban Development, which is different again from local agency models, and other national agencies such as MoE and Te Whatu Ora. Creating a cross-agency 'infrastructure analytics hub' could support aligning and harmonising needs assessments, ensure data consistency and allow dynamic updates as data becomes available. Leverage generative technologies for faster, more sophisticated data capture, integration, analysis and insight.
  - d. Within the above, look for the biggest return, highest impact, alongside least negotiable (e.g., safety critical investments, disaster resilience). Joint agreement on priority locations, systems and networks and the outcomes we seek to achieve could provide a more integrated and consistent overarching framework that projects align to so that we get the best return on investment. Could be overly optimistic, but looking at the country as a giant programme driving for a series of cumulative benefits feels realistic if we take a spatial view, supported by mature needs assessment and prioritisation.
  - e. Reconsider our economic models and how we engage the public in them. Review how we define 'success' and the cumulative benefit of delivering high-impact high-cost projects such as hospital rebuilds, rapid transport and associated transit oriented urban development and intensification; alongside the opportunity cost of not doing something, or doing it too slowly – including the increased cost of deferred investment. Benefit modelling for these significant investments is highly academic, inconsistently applied and frequently either over complicated or over simplified. It is often also poorly communicated. This can lead to poor public understanding and lack of buy-in e.g., Auckland Light Rail which presented wide-spread and enduring benefits that exceeded the high cost to deliver, but where the community did not yet understand all outcomes.



- f. Support innovation and improve support for organisations seeking to invest in optimisation initiatives – many of our clients are in reactive decision-making mode, and may not require all the capital identified, but do not have capacity or capability to review their programmes at a whole of system level. There is a nexus here between asset management capability, strategic planning and systems thinking that could be leveraged to make significant shifts in investment approach and reduce the load on forward plans.
- g. Funded innovation could also de-risk experimentation and accelerate uptake of more modern methods and tools at all ends of the asset lifecycle, from asset management planning and prioritisation, through to enhanced delivery, operations and end of life management.

### **Workforce and project leadership: Building capability is essential**

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?

- a. As identified in the discussion doc, developing an agreed pipeline that endures political cycles will enable us to build depth of expertise and capability, avoid 'first time every time' project and programme teams that carry high risk of failure and almost certain time, cost overrun, lost opportunity
- b. Our politicised pipeline encourages, or even requires, intentional poor scoping and low-ball cost and time estimates to get projects approved within political cycles. Reducing this pressure and incentivising accuracy can help ensure project planning is more accurate from the start.
- c. Strengthen leadership capability – including at ministerial level – utilise deep expertise from across the sector, local and international to help leaders understand the skills required to enable success, assess their own limitations and seek to close them, ensuring they take informed decisions with the best advice.
- d. Leverage agencies such as Āpōpō to provide industry standard training at scale and as a requirement for key roles.
- e. Ensure we embed standardised asset management performance KPIs in agency leadership expectations (for those managing public assets).

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

- a. Consistent pipeline, certainty of investment, reduce stop-start decision-making, supporting apprenticeships will help build capability.
- b. I don't have a silver bullet for diversity, but deepening opportunities for exposure at school, technology institutions and universities is one good step. Continued encouragement of inclusive work practices and such, along with collaboration with community organisations that can help introduce young people to opportunities they hadn't considered, and help place them in appropriate apprenticeships and provide pastoral support while they settle in. This can be effective with those seeking to reorient their careers, which will be increasingly common as modern technologies change our workforce needs.
- c. We must also stop off shoring procurement, e.g., hospital design to Australia – seeking to deliver at 'lowest cost to buy' undermines our local economy, and in this instance limits suitability of design, sacrifices valuable Te Ao Māori skillsets in achieving positive outcomes for Māori through delivery.

### **Project costs: Escalation means less infrastructure services**

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



- a. Our scale inhibits highest cost efficiency, we're a spread-out nation with relatively low population, so perhaps not be too hard on ourselves with it.
- b. Equally – our start, stop approach must be having a massive impact on cost – both from the high spend on planning that is then cancelled, and the inefficiencies involved in establishing, disestablishing capability and capacity. All points above should help resolve this – in particular:
  - i. developing an agreed pipeline that endures political cycles will enable us to build depth of expertise and capability, avoid 'first time every time' project and programme teams that carry high risk of failure and almost certain time, cost overrun, lost opportunity
  - ii. improving ministerial capability to understand the impact of their decisions, improve uptake of industry advice to prevent issues such as:
    - directing Kainga Ora to ramp up housing delivery well ahead of market capacity resulting in unrealistic targets, and as identified in the recent review, numerous negative downstream impacts including rushed processes, lost trust with communities, poor cost-efficiency in housing delivery
    - wholesale cancellation rather than redirection or refinement of programme and project activities as governments change, causing significant capacity and capability loss, expense, wastage and aggravating New Zealand's recession
- c. Historically we have been conservative re public and private collaboration, revenue generation, and innovation – we can lean into more innovative solutions here, and are seeing increased public appetite, so we believe this is increasingly viable

## Theme 2: Taking care of what we've got

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

#### 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?

- a. Politicised decision-making is a huge barrier, combined with community perception of cost versus value and our modes of engaging in the conversation. Many organisations do attempt to take a longer-term view, but the pressure to keep cost low in the short term and meet short-term political objectives holds them back from success. This combined with ongoing undermining of the value in strategic planning and business optimisation functions as 'back office' and associated under funding of operational spend prevents real investment in this area.
- b. This appears to be particularly pronounced in the water industry, where interlinked funding and pricing models prevent operational improvement spend. Whatever regulation is put in place there needs to allow for the time and cost of planning well over a long-term horizon.
- c. Our public narrative needs to support this, with wide-spread straight-forward communication campaigns that celebrate the value of this for our future generations. Far too much public narrative emphasises spending restraint. People are much more willing to invest when they understand the value. Working with our communities can help bring accessible messaging to hard-to-reach audiences – example 2019 rangatahi engagement in Tāmaki Makaurau water strategy [Video | Facebook](#).
- d. On the technical side, it's around consistency of good quality industry standard practice, working with the likes of Āpōpō to embed training at a national level and support it being consistently applied, alongside enabling innovation. E.g.,



- i. Incentivise and publicise good asset management practice e.g., NZTA published AMDS uptake results and accelerated progress
  - ii. Consider linking funding to performance – allocate additional funding to organisations that meet or exceed standards
  - iii. Promote and support asset management benchmarking – require public reporting, and embed outcomes into leadership KPIs
  - iv. Consider options for increasing access to training such as centralised training that enables under-resourced agencies to participate and encourages inter-agency networking and collaboration
  - v. Consider options for supporting modernisation such as grants for implementation of modern systems, or collaboration with not-for-profit entities such as IDS to provide low-cost syndicated options
  - vi. Showcase savings achieved through investing the time in refreshing and optimising processes – consulting firms can help with this.
  - vii. Encourage innovation and optimisation through funded pilots that allow and encourage risk-taking and experimentation.
- e. Maximise use of cost-effective universal tools such as geospatial systems to support holistic planning and prioritisation, including inter-agency information sharing and shared decision-making where activities overlap – taking an integrated long-term view will help reduce risk and uncertainty – adopting industry standards for centralised asset data can create a national ‘digital twin’.

### Resilience: Preparing for greater disruption

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

- a. As evidenced in recent events such as the Auckland and East Coast flooding, and Wellington earthquakes – agencies struggle with information sharing, with members of the public navigating respective geospatial datasets and sharing them on the fly while agencies were bogged down in approvals and system integration issues. Without shared and commonly accessible information we cannot plan for or effectively mitigate risk. We have the technology to overcome this, many affected areas are now taking steps to address this. We should continue to encourage this, ideally with a centralised framework to guide agencies on what to include and how it should be classified. This will provide the foundation for better planning.
- b. Equally, in many cases agencies and/or research entities are aware of risks but are not supported to address them. For example, they are not funded to manage the cost of retreat and/or other mitigation approaches. Development of a national approach to climate risk and agreeing how we navigate cost-effective mitigation over time should be a focus area for the NIP.

### Decarbonisation: A different kind of challenge

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

- a. Encourage/require consistent standardised whole of life cost and carbon modelling.
- b. Improve incentives for good performance and publicise progress.

### Theme 3: Getting the settings right

#### Institutions: Setting the rules of the game

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

- a. Support formalised integration and alignment. Current siloed funding and planning processes exacerbate inter-agency disconnect and increase inefficiency and waste. Take steps to reduce this inter-agency competition and encourage collaboration through establishing joint planning and funding arrangements such as city deals in prioritised locations, with governance structures and shared delivery linked to shared objectives and a common vision.
- b. Consider changes to organisation permissions that prevent them achieving desired outcomes, e.g., Kainga Ora constraints on utilisation of public housing capital for delivery of 'outside the gate' outcomes prevent them from resolving significant challenges in many urban neighbourhoods. Allowing higher volume of sale for reinvestment, alongside spend on necessary roading, underground services and street reconfiguration would enable projects that are otherwise stalled. Likewise housing delivery target constraints prevent them delivering much needed homes – combining a relaxing of 'land optimisation' constraints with relaxing of housing volume could enable:
  - i. regeneration of run down neighbourhoods such as Redhill and parts of Avondale, resolving CPTED and housing quality issues that cause expensive knock-on cost across many other agencies, health, education, law enforcement etc
  - ii. infrastructure upgrades and intensification supporting more affordable housing and transit-oriented development – allowing sale of public land to invest in these outcomes is a key enabler

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

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

**Regulation: Charting a more enabling path**

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

- a. See above re Kainga Ora housing and urban development investment permissions
- b. Water regulation, currently underway

**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?**