ace new zealand

association of consulting and engineering

Infrastructure for the long haul

A need for transparency and durability

SUMMARY REPORT

about ACE New Zealand

The Association of Consulting and Engineering New Zealand (ACE New Zealand) provides leadership, support and advocacy for the consulting and engineering sectors in Aotearoa. Founded in 1959, we represent over 200 consulting and engineering firms employing more than 13,000 staff. Our members range from large global firms to employee-owned SMEs. They are on the front lines of delivering critical technology, construction and infrastructure and represent the essential expertise that Aotearoa will need as we look to the future.

this summary

ACE New Zealand commissioned a report from Sense Partners to understand the broad themes affecting the infrastructure sector in New Zealand, and chart a path that, in the wake of the COVID-19 pandemic, would both boost the economy and make the industry more resilient.

This document is a high-level summary of Sense Partners' report. We recommend that you read the full report, which provides significant additional information, as well as detailed references. You can **read the report here**.

key points

INFRASTRUCTURE INVESTMENT SUPPORTS SEVEN JOBS FOR EVERY $1M OF SPEND, WHILE ALSO PERMANENTLY INCREASING OUR ECONOMIC OUTPUT

OUR CURRENT INFRASTRUCTURE DEFICIT MAY BE AS HIGH AS $75B, OR 25% OF GDP

INCREASED INFRASTRUCTURE CONSTRUCTION COSTS DUE TO LOST CAPACITY AND CAPABILITY HAVE COST US $2.7B OVER THE PAST DECADE

LOCAL GOVERNMENT IS RUNNING OUT OF FISCAL HEADROOM AND DEMOCRATIC SUPPORT FOR INFRASTRUCTURE INVESTMENT

CLIMATE CHANGE IS LIKELY TO REQUIRE SIGNIFICANT INVESTMENT IN REPAIRING OR REPLICATING AT-RISK INFRASTRUCTURE

CENTRAL GOVERNMENT MUST FURTHER SUPPORT AND EMPOWER THE NEW ZEALAND INFRASTRUCTURE COMMISSION - TE WAIHANGA

contents

introduction

The COVID-19 pandemic has led to one of the biggest economic shocks in modern history. Our government is unleashing massive fiscal stimulus to soften the blow, which will lead to significant additional borrowing.

Investing in high-quality infrastructure will boost economic growth now, ensure we increase our future economic growth by removing current infrastructure constraints, and add to the productive capacity of the economy. Infrastructure is the go-to for governments delivering fiscal stimulus. Why? Because it is job-rich!

Infrastructure investment supports seven jobs for every $1m of spend

Plus, it creates long term economic growth.

For every $100m of public capital created, it increases economic output by $10m per year, permanently.

This is particularly relevant when starting from a position of infrastructure deficit.

Our current infrastructure deficit may be as high as $75b

This is before we even begin to consider the additional needs for future adaptations, such as urbanisation and climate change.

delays are costly

However, short-term job and economic gains are impacted by delays from decision making to implementation. So rapid decision making, transparency on process and projects, and prioritising more straightforward projects in the sequence of the investment programme are critical.

echoing the last recession

There is a risk that local government, which accounts for a third of public investment, will reduce investment through this recession – amplifying a sharp reduction in private sector investment. As a result, the recession will be deeper and long-term economic gains deferred – a pattern that played out in the last recession, a decade ago.

The infrastructure sector lost around 8% of jobs and business in the last recession. Once capacity is lost, it is slow to return. But as demand for infrastructure investment returned, the sector faced high costs to regain capacity and capability. And the purchaser, mostly local and central government, end up paying more ($2.7b over the past decade) for the same infrastructure while suppliers did not see improved profits.

> **Increased costs due to lost capacity and capability have cost us $2.7b over the past decade**

we do not have to repeat history

To sustain capacity and capability in the infrastructure sector, which would be required to deliver a massive fiscal boost, we need transparency and certainty of projects and their sequencing.

To maximise the economic and social impacts, projects must:

be consistent with broader public policy objectives,

prioritise high-quality projects (supported by cost-benefit analyses that take into account fiscal, economic and social factors),

remove obstacles (fast-tracking), and

ensure high-quality procurement that is not just a race to the lowest cost

New Zealand already has the ingredients to do this successfully. We recommend the New Zealand Infrastructure Commission – Te Waihanga is given additional resources, authority and accountability to:

deliver a national infrastructure strategy and pipeline

ensure value for money and appropriate monitoring (project and whole-of-life)

influence investment in capacity and capability within the public service.

We recommend the New Zealand Infrastructure Commission – Te Waihanga is given additional resources, authority and accountability.

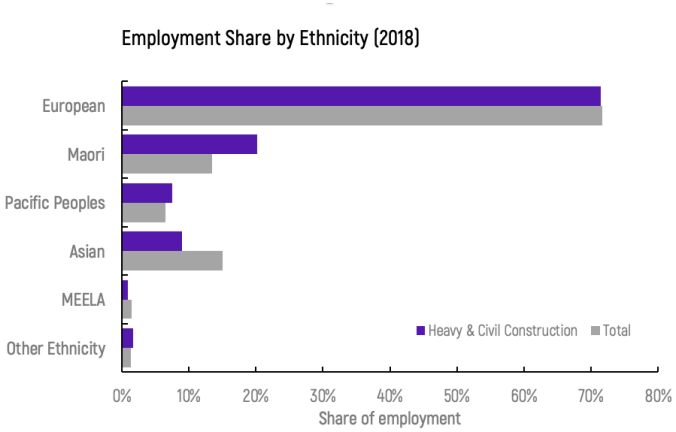
infrastructure's contribution

The infrastructure sector is a significant employer, accounting for 40,100 jobs in the year to March 2020. The jobs on average, are well paid. In 2019, the average income for workers in the infrastructure sector was $85,900, compared to $79,500 in residential, $82,500 in non-residential and $71,200 in construction services (which include a broad range including plumbers and electricians). This compares to an average of $47,600 for all industries.

The infrastructure industry is also more likely to employ Māori and Pacific peoples. This means that booms and busts in the industry tend to affect Māori and Pacific people disproportionately.

The delivery of infrastructure investment requires a range of related industries, which support an additional 30,900 jobs. These are supplying industries such as those selling cement, aggregates, manufactured metals, and construction services. And some industries generate demand for infrastructure development, such as non-residential building construction.

For this report, we have focused on the heavy and civil engineering construction industry, because of its discrete nature and our ability to analyse the data over time and the amount of detail available. However, some of the residential and non-residential building construction activity can be classified as infrastructure as well, for example, social housing, schools, hospitals, and prisons. Investment in public buildings totalled $1.2b in 2020, with a GDP contribution of $198m and the creation of 1,703 direct jobs (and 4,554 indirect jobs).



the economic impact of infrastructure investment

short-term economic impact

Our analysis shows that infrastructure spending is job-rich. For every $1m of spending, infrastructure investment supports around four jobs for a year, and a further three jobs indirectly in other parts of the economy.

Infrastructure investment has the highest short-term economic returns within the types of investment that the government has significant direct control over, behind only education and health.

These impacts can be considered as short-term economic gains. Once the infrastructure is built, it is an enabler of private capital and effort, which leads to sustained additional economic growth.

long-term economic impact

Economic studies on the long-term economic effects of investment in public capital found that a 1% increase in the public capital stock increases economic activity by 0.1% a year on average. That is, the creation of $100m in public capital increases economic output by $10m a year permanently.

Furthermore, these studies demonstrated that investments by regional and local authorities and investments in core infrastructure (roads, railways, airports, and utilities) had a much larger impact. Nearly twice as big!

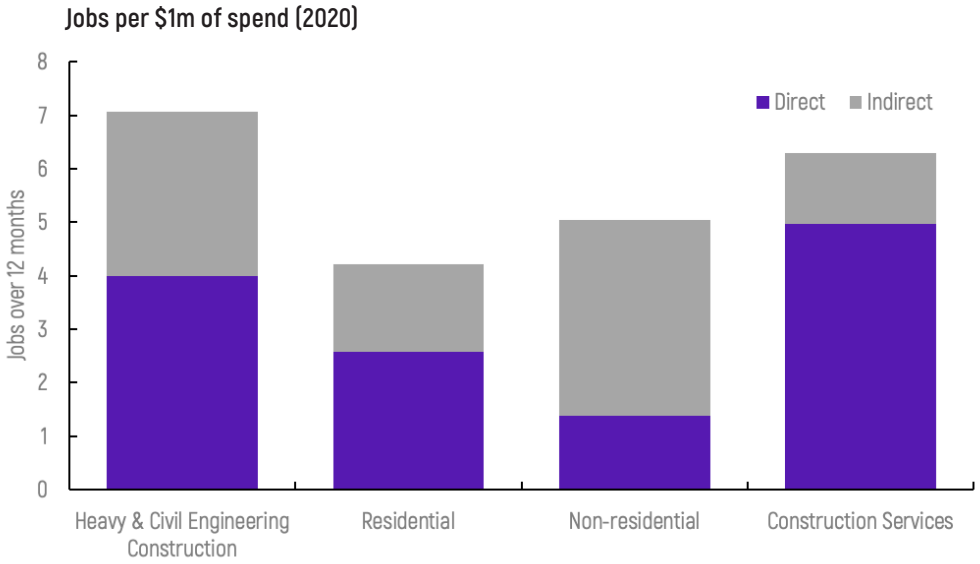
These studies have important implications.

First, the long-term gains can be substantial. Increasing infrastructure investment, particularly where there is a deficit or shortage, can lead to sustained improvement in economic performance in the long-term.

Second, short-term gains can be blunted by delays from decision making to implementation. Rapid decision making, transparency on process and projects, and prioritising more straightforward projects in the sequence of the investment programme is critical.

Third, local government investment tends to boost economic returns more than other types of public investment. In New Zealand, around a third of our public investment is by local government, but after growing strongly for many years, many are finding it increasingly difficult to increase rates or borrow more. In the wake of COVID-19, which has affected local government revenue streams, many councils are likely to reduce their capital investment programmes, which would both reduce activity in infrastructure and could be a drag on long-term future economic growth.

Fourth, central government will get the best bang for its buck by focussing on areas that are currently in deficit and core infrastructure assets.



infrastructure challenges

The challenges in respect of investment in infrastructure in New Zealand and internationally are well known – although the solutions remain a work in progress.

A 2018 report for Infrastructure New Zealand 'Creating value through procurement', identified 12 key challenges, which included:

Pipeline uncertainty – undermining firms' confidence and investment in capability (people, knowledge, and capital)

Policy U-turns – creating the risk that firms' investment in capability does not pay off

Public agency silos – feeding the boom/bust cycle through a lack of coordination, and missing opportunities by agencies just focusing on solutions in their sector rather than broader economic, social, and environmental outcomes

Incentive issues – a funding and procurement environment that rewards least cost offers and risk-shifting that ends up exposing all parties to higher whole-of-life cost.

Also, infrastructure maintenance and investments are an obvious candidate for deferral to manage fiscal pressures. This may have short-term cash and management benefits (as the immediate impact is often not so visible and deferral is an easier option than finding permanent savings elsewhere) but can accumulate to become a more significant issue in the future.

In New Zealand, approaches such as the Construction Sector Accord and institutional solutions such as the New Zealand Infrastructure Commission – Te Waihanga, have been put in place to address these issues. The latter has a mandate to publish a 30-year infrastructure strategy, a pipeline of projects and ten-year investment intentions, and best practice guidance and support for procurement and delivery.

These institutional solutions are useful, essential features that will require constant monitoring and reinforcement by Ministers and Cabinet who must insist on high-quality business cases and overcome the temptation for agencies to ignore or bypass these strategies and plans and focus on solutions for their own sector.

lessons from history

We mapped New Zealand's key infrastructure over the last century to tease out key themes affecting the infrastructure sector. Because the assets are long-lived, a sweeping historical perspective is useful in being able to see meaningful patterns. We found that:

There is an infrastructure deficit, equivalent to around 25% of GDP or nearly $75b. Low investment is not unique to New Zealand, but we seem to have been tracking at a low level of investment for many decades.

Local government had been taking a more significant share of public investment but is running out of fiscal headroom and democratic support.

Volatility can lead to a lack of investment and capacity loss in the sector and cost inflation.

Ideology can drive big swings in investment, for example, from rail to road. Once we swing away from one asset type, it can be difficult to recover if desired in the future.

Recent experience of failing water assets shows how some deficits are not well known, and delays are costing us billions.

Ports and electricity appear to keep pace with demand. Ownership, funding, and regulatory structures seem to have a bearing on understanding customer demand, and the ability to invest in capacity.

The electricity sector highlights how a changing economy can affect demand or need for infrastructure.

The internet has been an exception in terms of its rapid rollout and adoption. The model requires greater analysis to replicate the best parts to the rollout of other types of infrastructure where appropriate.

Ideology can drive big swings in investment, for example, from rail to road.

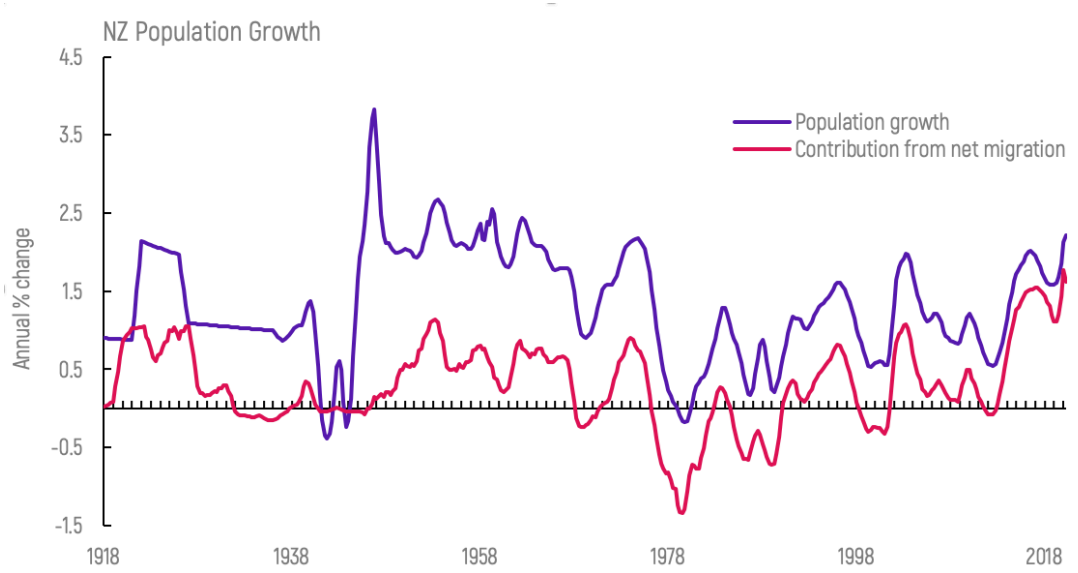
deficit worth nearly $75b!

A long-term perspective on investment in New Zealand shows a substantial reduction in public investment from the mid-1980s which didn't rebound until the 2000s.

In the 1960s to the mid-1980s growth in investment was constrained. A command and control economy meant that capital was difficult to access. However, public investment was relatively high. While 'Think Big' projects loom large in the minds of the public, government investment was across a broad range of assets.

However, economic reforms and necessary fiscal constraints led to a sustained reduction in public investment from the mid-1980s to late 1990s, alongside deep cuts in welfare and other spending.

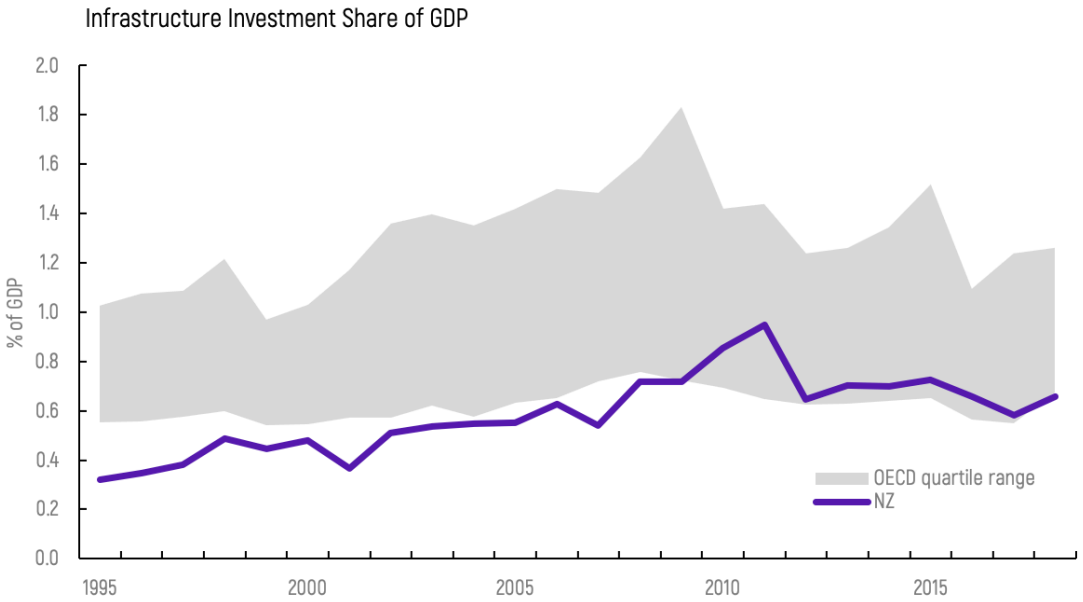
Initially, the reduction in investment did not lead to material issues with traffic congestion or other deficits, mainly because population and economic growth were relatively low until the economy rebounded strongly in 1993. Population growth also accelerated. But public investment did not accelerate until the late 1990s. By that time, we estimate a significant public infrastructure deficit had opened up.



If we assume that private sector capital is complemented by public infrastructure, the infrastructure shortfall may be as high as $75b in 2019 or worth around 25% of GDP.

We can see the impact of under-investment in growing traffic congestion in many parts of New Zealand, for example (Auckland, Hamilton, Tauranga, and Wellington), as well as significant upgrades that are required to water infrastructure around New Zealand. Whether we take a historical approach or contemplate the size of the pipeline of work, there is a considerable task over the decades ahead.

Our experience of low public investment (all investment, not just infrastructure) in the 1980s and 1990s is not isolated. Our neighbours Australia followed a similar pattern. There have been larger economic and political forces at play. However, when we compare our inland (road and rail) infrastructure investment as a share of the economy over the past decade, we significantly lag Australia and come out in the lower half of the OECD range. When we take a longer perspective, we find that New Zealand appears to be consistently in the lower quartile of investment.



local government is tapped out

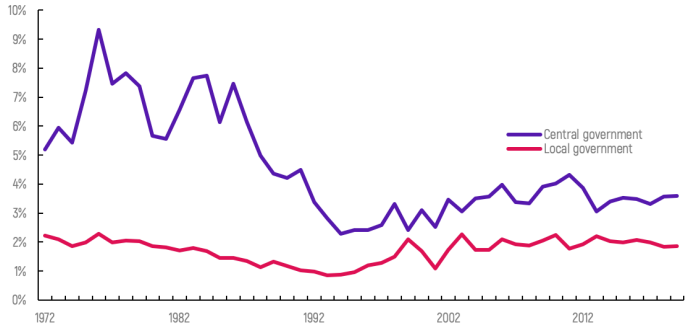
Our analysis shows that local government investment in infrastructure has increased and has remained at a sustained high level. In contrast, central government investment has not maintained the highs of the 1970s and 1980s.

While local government investment has been relatively steady, investments are not keeping up with plans. Most councils spent less than 80% of their budgeted capital expenditure in the mid-2010s. There are numerous challenges to delivering on planned capital expenditure, including a lack of capacity and capability to deliver large and complex projects, as well as political unwillingness to increase rates and borrow.

Rates have increased by an average of 4.7% a year over the last decade, compared to overall consumer prices at 1.6% a year, and median household incomes at 4.0% a year. In many council areas, there is little appetite for further large rate increases, and many high growth councils now have a lot of debt.

There is a risk that councils will reduce their investment in the current pandemic-induced recession. This would be counterproductive. Rates reductions have only a modest impact on the economy, but the deferred investment has an enormous effect on short- and long-term jobs. But current decision making at many councils shows that local government may be tapped out. For fast-growing localities, the cost of keeping up with infrastructure is outstripping the social license to increase rates and borrowing.

Public Investment Share of GDP



volatility is costing us massively

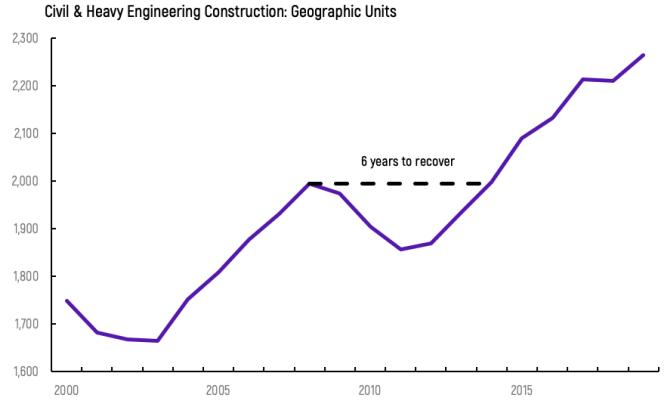
Volatility in infrastructure investment is damaging for capacity and capability building in the industry. Volatility is caused by public investment being inherently lumpy, because of often large projects and the uncertainty around start and end times. However, our analysis shows that public investment in New Zealand tends to be more volatile than in Australia. Over the last decade volatility has reduced, but so has the rate of growth in public investment.

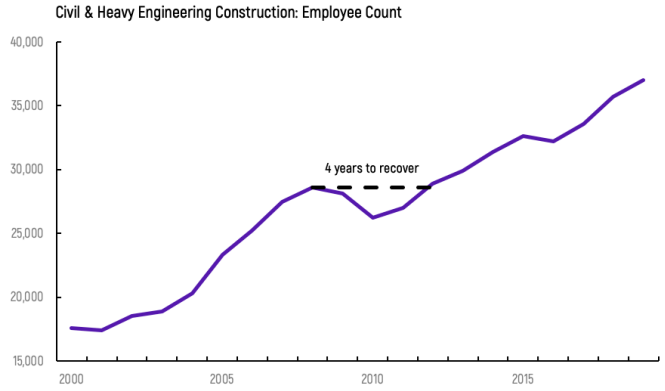
The last Global Financial Crisis (GFC) recession of 2008-09 is a good case study. There were significant job losses in civil and heavy engineering construction that took four years to recover to the pre-recession level. Once capacity is lost, it is slow to return. The number of businesses did not recover to the pre-recession levels for six years. This meant there were fewer providers and less capacity and capability available in the marketplace.

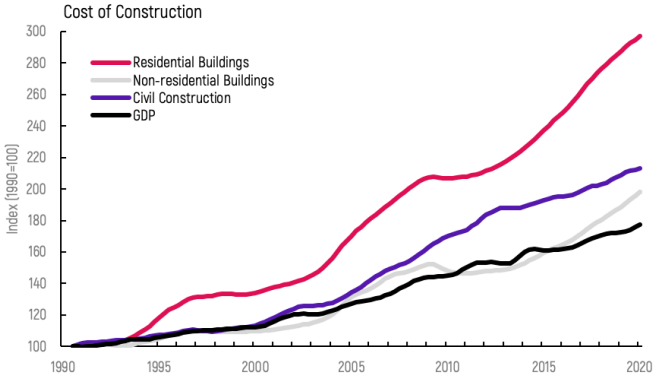
Unsurprisingly, therefore, during the decade following the GFC, there was a sustained increase in infrastructure construction costs as investment picked up. There was little increase in profit margins as prices rose – suggesting that the rise in construction costs was not about a lack of competition, rather a high cost of recouping lost capacity.

We estimate the excess infrastructure cost inflation over the past decade has cost the country $2.7b.

With a looming debt mountain, it can be tempting to cut back on maintenance and new investments in infrastructure. But such decisions risk losing the benefits of investing in infrastructure, as well as losing capacity and capability in the sector, and end up costing us more for the same infrastructure.







climate change

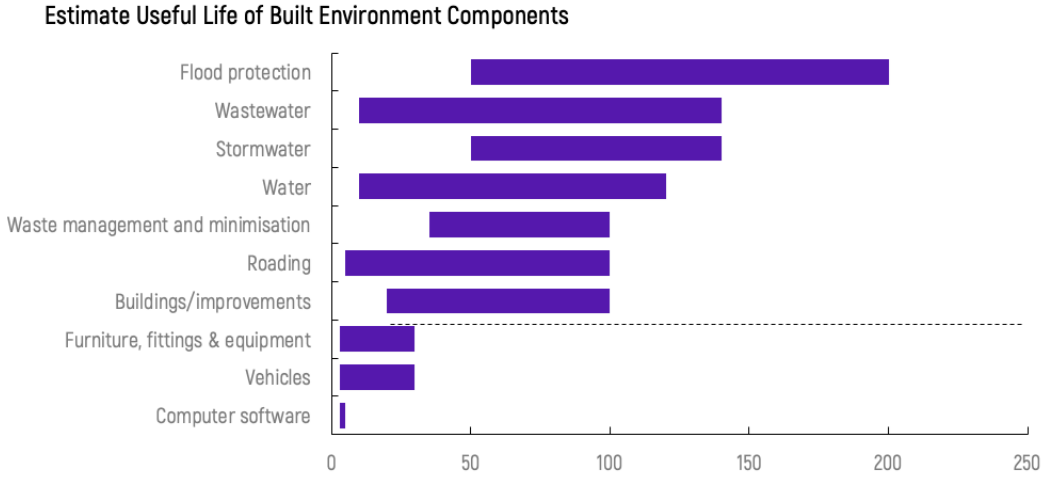
The built environment was considered as a specific domain risk in the 2020 National Climate Change Risk Assessment. The report found that climate change, rising sea levels and increasing adverse weather conditions will have extremely damaging effects on various elements of the built environment: housing, public amenity, water, wastewater, stormwater, energy, transport, communications, waste and coastal defences.

The challenges are extreme and relatively well-identified. The capacity to adapt is low because at-risk infrastructure is fixed, large, complex, and centralised. Coastal areas are at particular risk.

Local government assets alone worth $5.1b would be at risk from a one-metre rise in sea level.

Climate change is likely to require significant investment in repairing or replicating at-risk infrastructure.

It also means that, when we are choosing investment projects, we need to make sure they are consistent not just with our economic and financial objectives, but also our climate regulations and commitments. Locking in long-lived assets can trap us into old ways of doing things, or risk creating stranded assets that have low economic value in the future.



implications for the future

Countries around the world are pursuing significant fiscal stimulus to nurse their economies from the COVID-19 pandemic induced recession. Infrastructure investment is a crucial component. However, the issues we have canvassed are not unique. A UK Parliamentary Select Committee report on delivering infrastructure commitments through major projects reflected many of the problems we face and recommended the following solutions:

1

Provide a national infrastructure strategy, which will provide clarity to all stakeholders and better coordination.

a New Zealand has made various attempts at this, for example, the National Infrastructure Unit in the Treasury, the Infrastructure Commission, and the newly created Infrastructure Industry Reference Group to oversee 'Shovel Ready' projects for delivery of fiscal stimulus.

b The Infrastructure Commission is well placed to build on previous work (for example The Thirty-Year New Zealand Infrastructure Plan in 2015 and 2016, and various efforts at collating investment pipelines) with a cohesive national infrastructure strategy.

c There should be clearly articulated principles guiding the investments–for example, short term jobs, long term prosperity and consistency with climate regulations and commitments.

d The Strategy should be subject to inquiry in Parliament.

2

Ensure there is value for money and appropriate monitoring.

a New Zealand has good processes to test if infrastructure projects are value for money, which includes broader benefits as identified by the Infrastructure Commission. They should be scrutinised and published by the Infrastructure Commission.

b Returning to the discipline of good quality cost-benefit analyses (CBA and Regulatory Impact Statements) – which have been suspended during the unprecedented COVID-19 pandemic period – will ensure projects are prioritised on their merit.

c Monitoring should not just be about being on time and budget, but also whether the stated benefits materialised through better reporting throughout the life of the project and proper follow-up after completion (including of original business case to improve in the future).

3

Invest in capacity and capability within the public service to better manage procurement and monitoring, as well as training for ministers to ensure they understand the oversight of large and complex projects.

in closing

Infrastructure is an enabler of long-term economic growth, especially when coming from a position of deficit. International research shows that increases in public investment lead to sustained long-term economic gains.

Our analysis also shows that New Zealand has underinvested in its infrastructure through the 1980s and 1990s. We have not made up for the deficit accumulated in those two decades, nor are we well prepared for the significant demand on our infrastructure due to climate change, ongoing population growth, and economic challenges.

We have good reason to believe that investing in infrastructure will deliver long-term economic gains in the sector through the cycle, and good visibility of projects and spending over time. This means that at least some of the investment pipeline, once approved, needs to be secure from political and other interference. This independence could be delivered by a more powerful Infrastructure Commission, which would need to have the authority and influence to ensure good projects are chosen, and once selected, there is a high certainty of those projects proceeding. In its absence, public investment is volatile and uncertain.

We can and must do better for New Zealand. For our people, for our communities, for our sector, and our economy.

ace association of consulting and engineering
Level 11, 79 Boulcott Street, Wellington 6011
PO Box 10247, Wellington 6143
acenz.org.nz