



# Advice on challenges and opportunities in the transport system

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## Challenges and opportunities in the transport system

**Date:** 30 January 2025

**Report No:** TW-2025-528

To	Action sought	Deadline
Hon Chris Bishop, Minister for Infrastructure	Note the contents of this aide memoire	N/A

### Attachments

- Attachment 1: Challenges and opportunities in the transport system

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### Purpose

- This aide memoire provides you with an outline of significant transport sector infrastructure issues to help inform the interface of your priorities for the Infrastructure Portfolio and new Transport portfolio. It also identifies opportunities where the Commission may be able to assist you.

### Background

- The attached paper highlights some of the key challenges that may impact across the infrastructure system, particularly for land transport.
- As the Government's independent advisor on infrastructure, we have expertise in your other portfolios and their interactions with transport infrastructure. We are uniquely placed to help you understand the linkages between transport and your other portfolios and how decisions within any one of these portfolios will interact with each other.
- Our research products can also help advise you on a number of different transport matters, and the National Infrastructure Plan which we are leading will provide you with a system-wide view of investment needs and current intentions.



# Challenges and opportunities in the transport system

New Zealand Infrastructure Commission

| Te Waihanga

January 2025

# Introduction

As the Government’s independent advisor on infrastructure, we have significant expertise across all your portfolios: housing, transport, resource management, and infrastructure. Our system level view of infrastructure allows us to understand how decisions within any one of these portfolios will interact with each other. The purpose of this briefing is to highlight some key challenges that may impact across the infrastructure system and identify opportunities where the Commission may be able to assist you.

## Transport is our largest infrastructure network

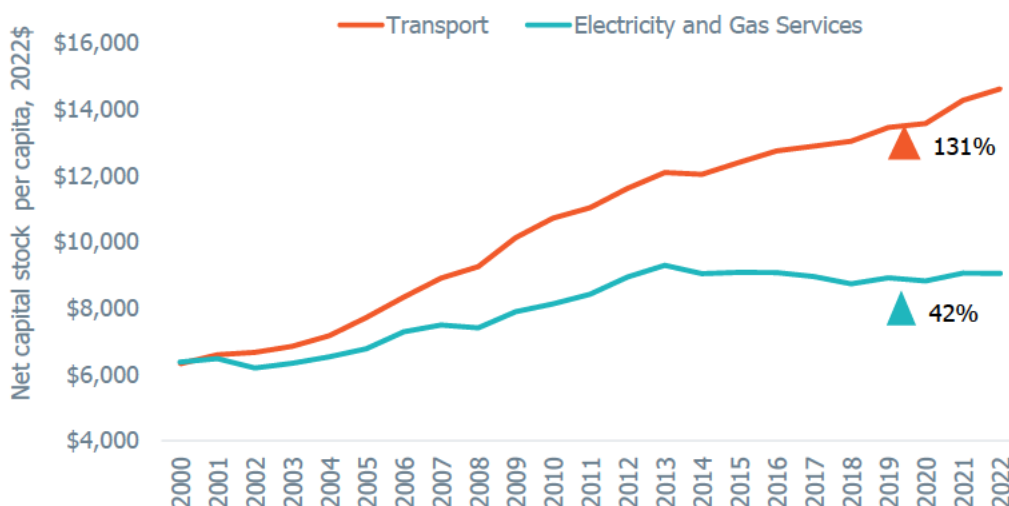
Transport is the largest infrastructure network we have. It is composed of roads, rail, airports, ports, and other types of transport infrastructure. As of 2022, our total land transport networks (excluding airports and ports) were worth over \$75 billion, 60% larger than the next largest sector (electricity and gas).

We invest more in land transport than any other network. Since 2000, capital investment in land transport has averaged 1.15% of GDP. Over that period, nearly 1 out of every 5 dollars we invested in all types of infrastructure has gone towards transport.

The per-capita value of transport assets have risen over time. In 2000, we had about \$6,300 worth of transport infrastructure per person in New Zealand. By 2022, this figure was \$14,600, an increase of over 130% in inflation-adjusted terms. By comparison, electricity and gas assets only grew by 42% (Figure 1).

### Our transport networks have grown significantly over the past 25 years

Figure 1: Real capital stock per person, 2000-2022, in 2022 dollars

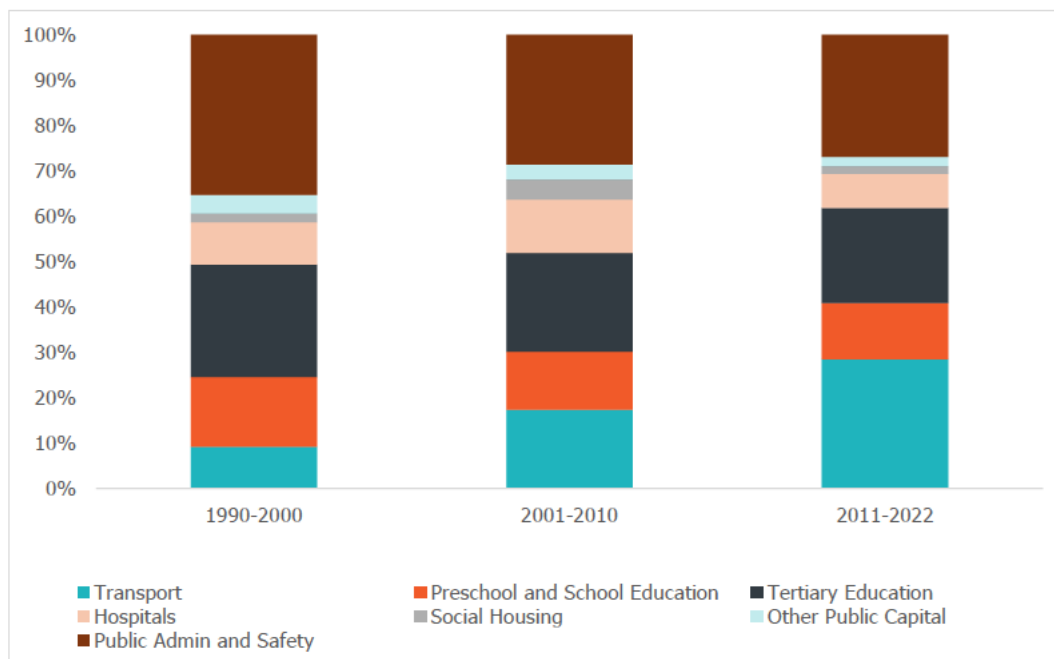


Source: Infrastructure Commission. 2024. *Build or Maintain? New Zealand’s infrastructure asset value, investment, and depreciation, 1990–2022.*

Spending on transport comprises a growing proportion of central government’s infrastructure budgets. From 1990 through 2000, land transport investment accounted for about 9% of total central government investment in infrastructure. In 2022, that number was nearly 30% (Figure 2).

## Transport accounts for a growing share of central government's infrastructure budgets

Figure 2: Transport's share of total central government infrastructure investment



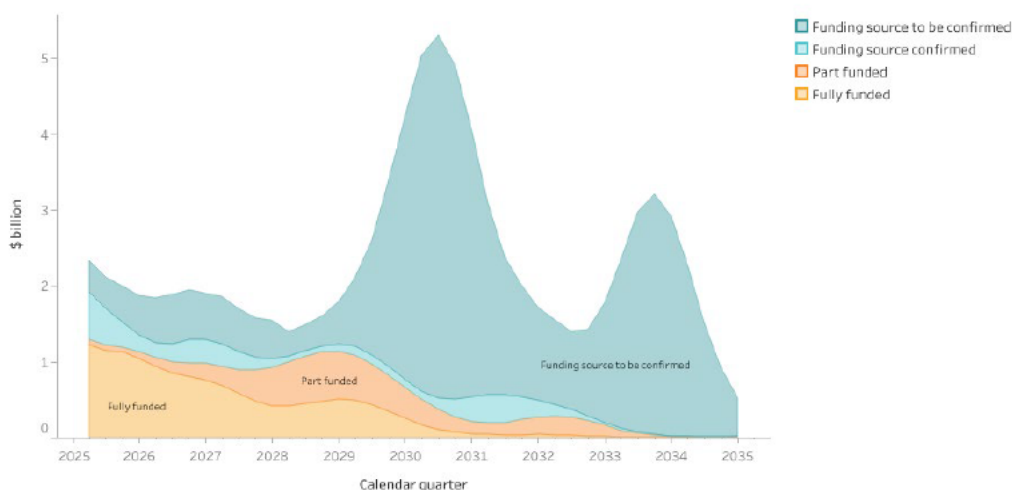
Source: Infrastructure Commission. 2024. *Build or Maintain? New Zealand's infrastructure asset value, investment, and depreciation, 1990–2022.*

Future spending plans for the sector are also significant. The December 2024 update to the National Infrastructure Pipeline shows a projected total of \$92.4 billion worth of central government, local government and private sector transport sector spending over the next 10 years. Nearly 67% (\$61.9 billion) of this value is for initiatives that are reported as requiring a funding source to be confirmed.

There are many large transport projects in planning or delivery. The December 2024 Pipeline update includes 25 projects in progress or in planning with whole of life costs of over \$1 billion. 23 of these were land transport investments.

### Future spending on transport is projected to be significant, although a large share is unfunded

Figure 3: Projected transport sector spend for National Infrastructure Pipeline projects (December 2024)



Source: National Infrastructure Pipeline, New Zealand Infrastructure Commission. Spending is projected on a quarterly rather than annual basis.

# Challenges facing land transport

The Commission takes a system-level view of challenges and opportunities for the land transport sector, relative to other networks.

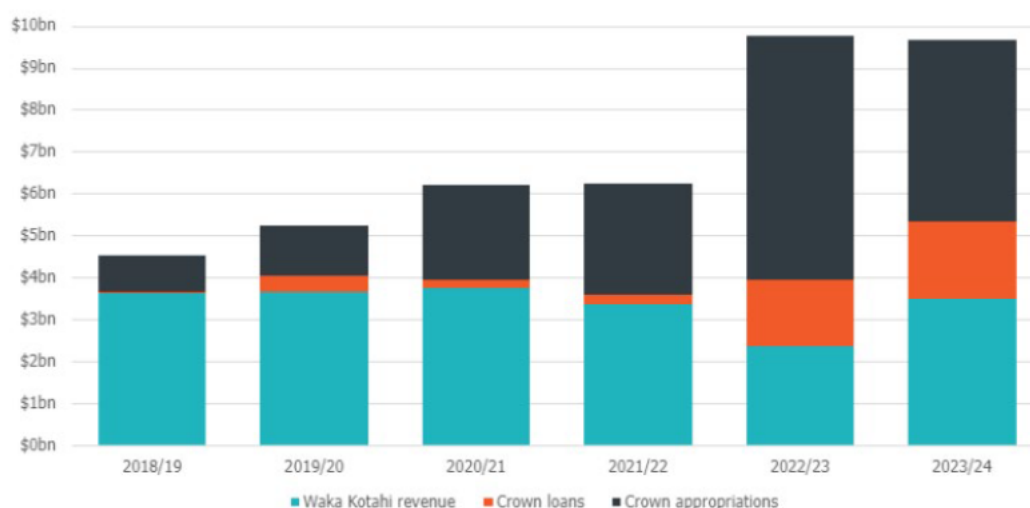
## The traditional user-pays funding system for transport is under strain

In the land transport sector, there is currently a misalignment between investment plans or expectations, and available revenues to fund them. This is particularly the case in central government road investment.

Our 2023 Briefing to the Incoming Minister highlighted the National Land Transport Fund (NLTF), the hypothecated fund for land transport investment, has increasingly relied upon infusions of outside funding from the Crown.<sup>1</sup> From 2019 through 2023, Crown contributions to the National Land Transport Programme (NLTP) have accounted for over 35% of total land transport spending (Figure 4).<sup>2,3</sup>

## General Crown finances are bearing a growing share of land transport costs

Figure 4: National land transport funding by source, 2018/19 - 2023/24



Source: New Zealand Infrastructure Commission

The latest 3-year NLTP continues this pattern. Crown financing or grants account for almost 40% of funding over the next three years. An additional \$1 billion in funding is required to meet minimum expenditure requirements in the 2024 GPS. Beyond fiscal year 2028, the NLTP projects a significant gap between planned investment and revenue, growing to \$6 billion per year starting in fiscal year 2030.<sup>4</sup>

## Deferred renewals and maintenance are increasing pressure on funding

The land transport sector, like many other areas of public infrastructure, faces a need to catch up on deferred renewal and maintenance. Absent a significant change in land transport revenues, this may limit the resources available for improvements to the network.

<sup>1</sup> See Figure 3: <https://media.umbraco.io/te-waihanga-30-year-strategy/ozwc1t01/briefing-to-the-incoming-minister-2024.pdf>

<sup>2</sup> <https://budget.govt.nz/budget/pdfs/estimates/v1/est24-v1-trans.pdf>

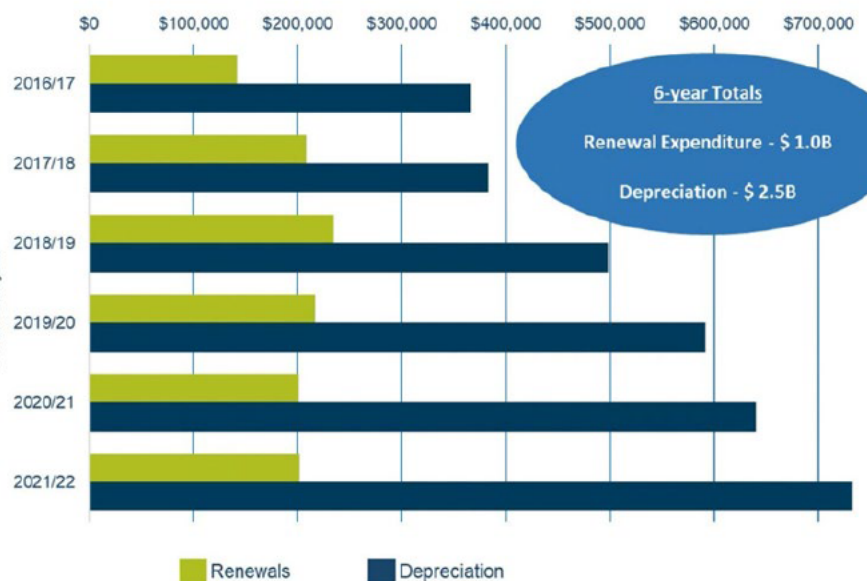
<sup>3</sup> <https://media.umbraco.io/te-waihanga-30-year-strategy/ozwc1t01/briefing-to-the-incoming-minister-2024.pdf>

<sup>4</sup> See page 35 of the 2024-2027 NLTP, <https://www.nzta.govt.nz/assets/planning-and-investment/nltp/2024/docs/2024-27-national-land-transport-programme.pdf>

Our research found that sector depreciation to renewal ratios for state highway networks were below one for the 2012–2022 period.<sup>5</sup> Depreciation, which is a minimum approximation for renewal requirements, for NZTA’s assets were 2.5 times the amount it spent on renewals from 2016 through 2022 (Figure 7). Starting around 2014, low renewal investment has led to a modest but noticeable trend towards declining pavement quality that is most noticeable on lower-traffic roads.

**The land transport network has significant deferred and future renewal needs**

Figure 5: NZTA depreciation to renewal expense from 2016 through 2022



Source: NZTA

Natural hazards will also increase the cost to provide transport networks

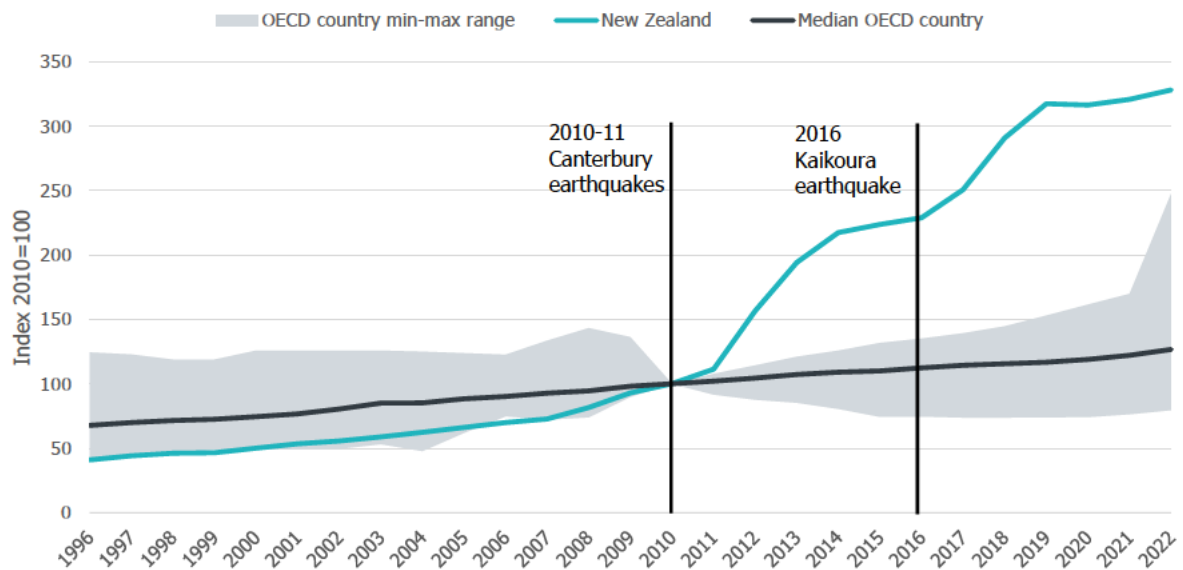
Natural hazard risks to our infrastructure assets are changing. In addition to existing earthquake risks, climate change is expected to make weather events more severe and frequent. Rising awareness of risks, and increases to these risks, are flowing through to increasing insurance premiums (Figure 9).

Risk management strategies for public infrastructure are varied. Many assets are self-insured, which could result in under-insurance for some assets. The most recent review, undertaken in 2013 by the Office of the Auditor-General, found that less than half of public assets had insurance cover. Regardless of whether assets are insured or not, adequate provision needs to be made for natural hazard risks.

<sup>5</sup> See figure 37: <https://media.umbraco.io/te-waihanga-30-year-strategy/djkmw4/build-or-maintain.pdf>

**The cost of insurance has increased substantially over the past 5 years.**

Figure 6: Dwelling cost insurance price indices, New Zealand and the OECD, 1996-2022



Source: Infrastructure Commission analysis of country-level data from Eurostat, US Federal Reserve, Statistics Canada, Australian Bureau of Statistics, Japan’s e-stat, and StatsNZ

Central government land transport providers take varying approaches to insuring or self-insuring their networks. KiwiRail has insurance coverage in place for loss and damage <sup>s9(2)(j)</sup>

NZTA has chosen a ‘pay as you go’ approach to managing its risk from natural hazards and does not hold insurance for its assets for a variety of reasons, including the cost and availability of insurance.<sup>6</sup> In its current programme, it has allocated \$140 million per year for emergency works to rebuild state highways after damage occurs, equivalent to 0.4% of the total value of its assets.

The cost of individual events, even localised ones, can be large relative to these funding allocations. For instance, the cost to repair local roads in the Marlborough Sounds following a 2022 storm is estimated to be \$230 million, exceeding the annual national allocation for state highway emergency works.<sup>7</sup>

**Improvement is needed in the sector’s project planning, evaluation, and selection processes**

The Commission’s advice, including the *Infrastructure Strategy*, highlights the value of good infrastructure decision-making practices, supported by long-term asset management planning and rigorous evaluation of new projects through the business case process prior to making decisions. These approaches can help ensure that constrained funding is allocated to the highest value investments.

This focus on the highest value investments is important in the transport sector, which can involve complex projects with significant costs and network-wide outcomes. Insufficient planning can contribute to cost and schedule overruns that worsen funding challenges. For instance, a study from Australia found that transport projects that were announced prior to a business case accounted for almost 75% of costs overruns.

<sup>6</sup> NZTA does carry insurance on assets in the construction phase.

<sup>7</sup> <https://www.nz.co.nz/news/ldr/527463/nzta-agrees-to-cover-100m-of-marlborough-sounds-roads-recovery>

A recent trend towards high cost overruns for New Zealand’s large transport projects suggests challenges in this area.<sup>8</sup> Of the infrastructure bids we reviewed for Budget 2024, 50% of NZTA bids did not have a business case<sup>9</sup>. Only 30% of KiwiRail bids had a business case.

### Most transport bids in Budget 2024 did not submit a business case

Figure 7: Proportion of infrastructure bids in Budget 2024 without a business case, by agency



Source: New Zealand Infrastructure Commission. Data is drawn from our 2023/24 Annual Report outcome measures.<sup>10</sup>

The influence of cost benefit analysis on transport project selection has declined over time. Starting with the 2008 Government Policy Statement on Land Transport (GPS-LT), additional factors have guided investment prioritisation, such as strategic fit with government policy objectives or directions to prioritise specific projects. This coincided with a reduction in value for money (as proxied by cost benefit analysis) from land transport projects from 2008/09 through 2012, suggesting that scarce funding was shifted to lower value-for-money projects (Figure 6). Gathering information on post-2012 BCR trends would be challenging, as business cases for transport projects are often not proactively released.<sup>11</sup>

The decline of benefit cost ratios for transport projects has happened despite the fact that since 2010, updates to our evaluation frameworks for transport have significantly increased parameters for valuing non-monetary benefits like travel time savings and user comfort, and enabled the inclusion of more non-monetary benefits such as noise, mental health, and resilience.<sup>12</sup>

<sup>8</sup> See BusinessDesk’s *Business of Blowouts* series: <https://businessdesk.co.nz/business-of-blowouts>

<sup>9</sup> Some of these bids were related to the emergency works for assets affected by the North Island Weather Events, where full business casing may not have been possible.

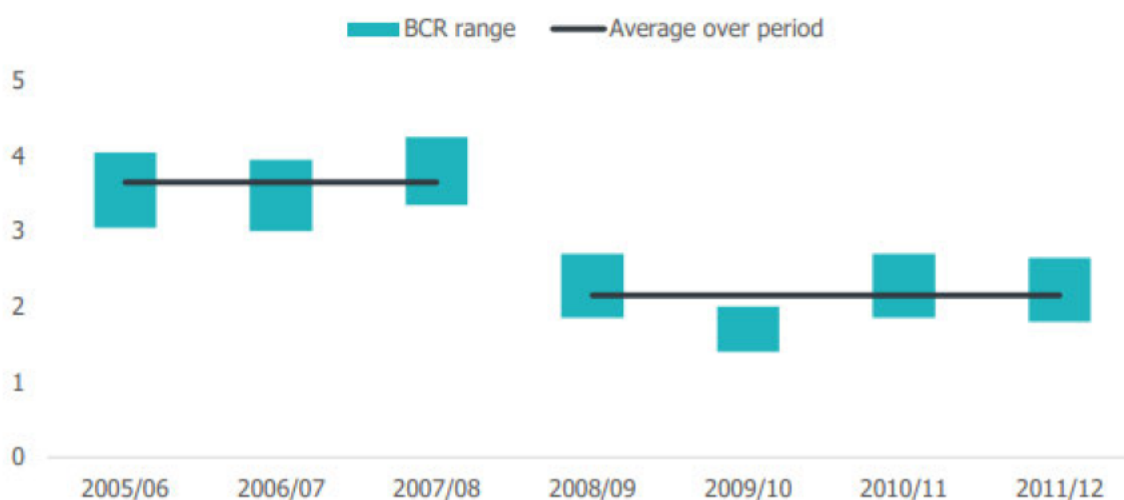
<sup>10</sup> See page 34: <https://media.umbraco.io/te-waihanga-30-year-strategy/dlnpg2qg/annual-report-1-july-2023-30-june-2024.pdf>

<sup>11</sup> See Infrastructure Commission, “Transparency within large publicly funded New Zealand infrastructure projects.” <https://media.umbraco.io/te-waihanga-30-year-strategy/ofobgfav/transparency-within-large-publicly-funded-new-zealand-infrastructure-projects.pdf>

<sup>12</sup> <https://www.nzta.govt.nz/resources/monetised-benefits-and-costs-manual>

**Value for money in transport projects has declined over time.**

Figure 8: Benefit cost ratios for transport projects from 2006 through 2012



Source: Ministry of Transport (2014).

In addition to help guide project selection, cost benefit analysis can also support selection of the most cost-effective options for projects. This is especially important for large, complex projects where seemingly small design choices can cause large budget impacts. For example, a 2013 review by the European Court of Auditors found that four-lane road projects that were built for high design speeds were 76% more expensive than roads that served similar traffic volumes with lower design speeds (eg 110km/hr rather than 130km/hr).<sup>13</sup> This is because higher-speed roads required new alignments and more expensive structures and earthworks. Cost benefit analysis can help to test whether these types of scope choices are warranted.

**Housing and land-use policies have a significant impact on transport**

We can maximise the benefits from new transport infrastructure if we build it in places where it can serve high levels of demand and ‘upzoning’ these areas to allow more housing and commercial development in response to new infrastructure.

In some cases, existing zoning constrains development, limiting the value from new infrastructure. This can be an issue even for our largest investments, such as the City Rail Link. Land values near Auckland rail stations rose significantly after the announcement of the City Rail Link (Figure 10), but low-density zoning (or zoning which may appear permissive remains highly stringent because of the extremely high land values it covers) near inner-suburban stations like Kingsland and Mount Eden has limited the development response (Figure 11).

<sup>13</sup> See Figure 13 on page 31: <https://tewaihanga.govt.nz/our-work/research-insights/the-lay-of-the-land-benchmarking-new-zealand-infrastructure-delivery-costs>

**New transport infrastructure lifts land values, but zoning can limit development.**

Figure 9: Increases in land values after the announcement of the CRL

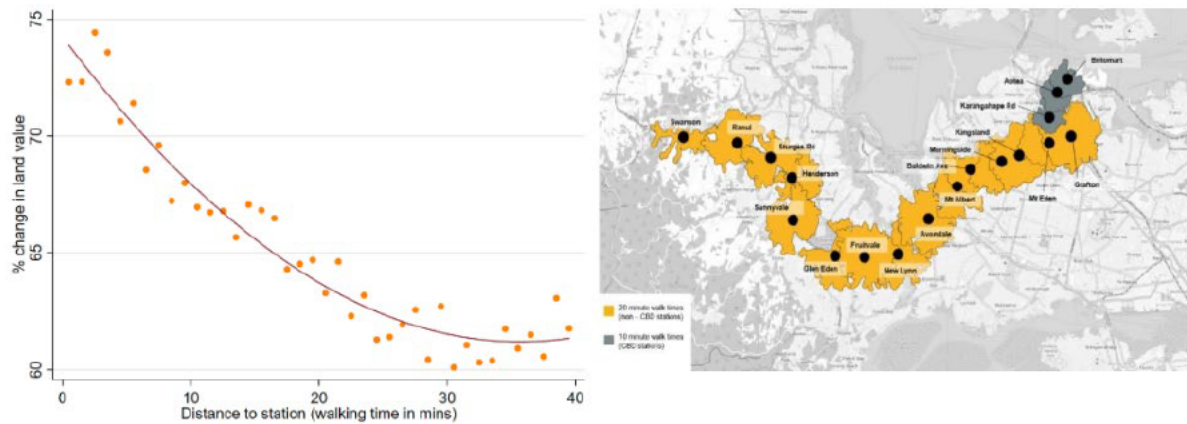
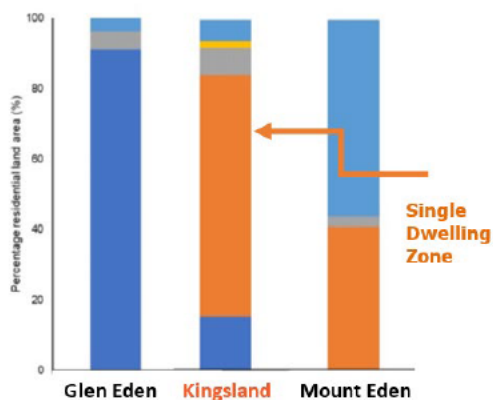


Figure 10: Zoning within 800-metre catchments of Western line rail stations

**Zoning type by Western Line station**



**Kingsland**

- 40-minute daily travel time saving to Aotea
- 15,374 new build homes (five-year annual average)
- ... Kingsland accounts for 22
- Population declined by 4.7% between 2019-2023

Source: PwC. 2020. *Cost-benefit analysis for a National Policy Statement on Urban Development*. Report for the Ministry for the Environment.<sup>14</sup> Plus supplementary analysis by Infrastructure Commission.

When it is not possible to build more in areas like this, more overall transport investment may be needed to enable growth at a higher overall cost.

For example, to enable development in Drury, almost 40 kilometres south of Auckland’s central business district, Auckland Council is planning over \$2 billion worth of transport infrastructure to meet population growth in the area<sup>15</sup>, in addition \$2.4 billion committed by central government through the New Zealand Upgrade Programme.<sup>16</sup> For an area expected to grow by approximately 55,000 over the next 40 years, this translates to transport investments of almost \$90,000 per person.

<sup>14</sup> <https://environment.govt.nz/assets/Publications/Files/NPS-UD-CBA-final.pdf>

<sup>15</sup> See Auckland Council “Drury, How we Set DCs” Table 3.2: [https://hdp-au-prod-app-ak-haveyoursay-files.s3.ap-southeast-2.amazonaws.com/7917/3026/5884/34ddde8d15fc2522076093ba4529131d\\_2\\_Methodology\\_for\\_Calculating\\_DCs\\_for\\_Drury\\_Final.pdf](https://hdp-au-prod-app-ak-haveyoursay-files.s3.ap-southeast-2.amazonaws.com/7917/3026/5884/34ddde8d15fc2522076093ba4529131d_2_Methodology_for_Calculating_DCs_for_Drury_Final.pdf) Minor amendments to update this wording have been made since this paper was sent to the Minister.

<sup>16</sup> <https://www.beehive.govt.nz/release/transport-investment-future-drury-town>

Footnote 16 refers to project cost estimates from 2020 and may have been updated since then.

## How the Commission can assist you

With a view of the entire infrastructure system, we are uniquely placed to help you understand the linkages between transport and your other portfolios. We have expertise and research that can be leveraged to inform you on the challenges facing the sector.

### We have expertise in your other portfolios and their interactions with transport infrastructure

Transport infrastructure investment and decisions sit within a wider policy environment. We are well placed to highlight how a given transport infrastructure decision might affect, or be affected by, other policy work programs. These areas include but are not limited to:

- Resource management reform and consenting for infrastructure.
- Land protection for infrastructure and spatial planning.
- Housing, including the Going for Housing Growth work programme.
- Improvements to infrastructure funding and financing, such as road tolling.
- Demand management measures, such as time-of-use charging.
- Asset management planning and natural hazard risk management.
- Local government issues, including funding and financing, water services reform, and land-use planning.

Across all of these areas, we are able to provide system-level advice based on our research and evidence base.

### Our work products can help advise you on a number of different transport matters

We can provide you with information and advice on projects and investment programmes through several channels:

- The **National Infrastructure Pipeline**, which gives a forward view of projects in progress and in planning. This tool can give you visibility over the scale of investments in transport but also put those into context in the wider infrastructure system. As we continue to build out the Pipeline, there will be opportunities to leverage its information to improve cost management by establishing reference forecasting and understand future workforce requirements.
- **Independent project reviews**, such as those we did for the Transmission Gully motorway and the City Rail Link, can be used to identify best practices in transport infrastructure governance and delivery, particularly for large projects.
- As a member of the Treasury's annual **Budget Investment Panel**, we can provide advice on transport investment proposals coming through Budget. Our outside view can be used to generate questions to follow up with agencies about their proposals. For instance, as part of Budget 2024, for projects that were requesting additional funding for cost escalation, we provided an independent view of whether the request could be explained by normal input cost growth or was more likely related to scope or design changes that were not planned for.
- To supplement our budget advice, the **Infrastructure Priorities Programme (IPP)** has been designed to improve project planning and assurance for infrastructure proposals. The IPP

includes an assessment of value-for-money for projects at all stages of development, examines whether cost estimates are reasonable, and projects are deliverable. The IPP reinforces existing Investment Management System and CO 23 (9) rules around business case requirements and value for money tests. The IPP recently closed its first round of applications. We received a total of 44 applications, 27 of which were triaged in for assessment including 10 that were transport-related from both central and local government.

## The National Infrastructure Plan will provide you with a system-wide view of investment needs and current intentions

A key role for the Commission across all your ministerial portfolios is to give you confidence in sector investment plans and funding requests. In areas that are facing significant funding challenges, it is important to ask key questions, such as:

- Are the scale of investment plans proportional to the needs of the sector?
- Are the cost estimates realistic for the proposed projects?
- Will these projects deliver the purported benefits?
- Do agencies have the appropriate expertise to deliver these projects?
- What are the trade-offs with other infrastructure priorities that New Zealanders may have?

At a system level, components of the **National Infrastructure Plan (NIP)** will be particularly useful for helping you to assess capital investment plans in transport. The NIP will include a long-run infrastructure needs analysis across all sectors and regions, taking into account expected funding and affordability constraints. It will also include a comparison of agency investment intentions to this assessment of need and recommendations around funding paths to meet needs in each portfolio.

We have briefed you on some of the emerging findings from this analysis, and expect to continue to brief you on progress prior to publication of the draft NIP in June. We are available to advise you on how outputs from the NIP might be used to inform decisions in your transport portfolio.

## We can advise you on interactions between key government strategies and transport

Two of the Government's key priorities, economic growth and fiscal sustainability, have clear interactions with your transport and infrastructure portfolios.

As part of the NIP, the long-term needs analysis will provide you with a view of what budgets for new and improved infrastructure investment might look like over the next 30 years. This work could inform how the government develops its near- and longer-term fiscal strategy.

In addition to this, the needs analysis will also investigate opportunities and provide advice on infrastructure investment to enable economic growth and fiscal return for the government. If we can identify infrastructure investments that grow our economy and enhance productivity over the long-term, it will improve the well-being of New Zealanders and the fiscal outlook for the government.