GPS 2018 AND 2021 EVALUATION

Walking and cycling improvements

Tauākī Tikanga Here
Kāwanatanga mō te arotake
waka whenua (GPS) 2018-21

June 2025

MINISTRY OF TRANSPORT
TE MANATŪ WAKA

dovetail | Schiff Consulting | MACKIE RESEARCH | JK&A

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For more information

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1 Executive Summary

1.1 Introduction

This report details the findings of a comprehensive evaluation of the outcomes and learning from the Walking and Cycling Improvements activity class. The period covered included the three years that the 2018 Government Policy Statement on Land Transport (GPS) was in effect, and for the first year that the 2021 GPS was in effect. The evaluation explores the contribution of the GPS to walking and cycling improvements projects, to deliver the broader transport outcomes sought, including value for money, and to inform future GPS iterations. This is a companion report to the *GPS 2018 and 2021 Evaluation: Local Road Maintenance*.

1.2 Methods

1.2.1 Value for Money Assessment Model

Value for Money (VfM) was a key priority for GPS 2018 and became an embedded principle of GPS 2021. Delivering VfM is important for ensuring good use of limited resources and achieving the best outcomes from investment. VfM assessment is not just about the end point but also about the process leading to successful delivery of outcomes. Accordingly, the Ministry of Transport's VfM Assessment Model and associated VfM Framework are tools to support the embedding of this principle, and provided a key foundation for this evaluation. The VfM Assessment Model shaped the underlying analysis for this evaluation, based around the model's five dimensions: Impacts and Outcomes, Business Requirements, Value Indicators, Benefits Gap Factor, and Capacity and Capability.

1.3 Data collection

The evaluation relied on quantitative data sourced from MoT, New Zealand Transport Agency Waka Kotahi (NZTA), Road Efficiency Group Te Ringa Maimoa (REG), and Stats NZ. The analysis focused on identifying patterns and trends aligned with the evaluation objectives and criteria, involving comparisons with pre-evaluation period data when feasible.

Qualitative data collection involved seven interviews with 18 representatives from large urban, mid size urban and rural councils, and from NZTA. Within these, a case study interview featured insights from four council representatives. Discussions explored how the GPS guided investment planning and decision making and how the key principles of the VfM Assessment Model are present from investment to delivery.

1.4 Findings: Walking and cycling improvements

1.4.1 GPS impacts and outcomes

There is a consistent commitment to walking and cycling across GPS 2018 and 2021, and this gave councils confidence to put forward investment proposals for walking and cycling and develop longer term walking and cycling network planning. There was a steady increase in nominal approved NLTF funding for walking and cycling improvements from 2014/15, with a sizeable increase over 2020/21 and 2021/22 compared to previous years. Overall, in the evaluation period, approved funding ($460 million) was within the GPS target range ($330 to $540 million). Most funding in the activity class ($384 million) was for cycleways. However, infrastructure delivery costs also increased significantly in the evaluation period and offset some of the nominal increase in funding.

In 2021/22 a ‘low cost low risk’ work category was introduced for the Walking and Cycling Improvements activity class to enable faster implementation of small projects via Asset Management Plans. This category was allocated $32.5 million of approved funding in that year.

GPS 2018 fostered a change in thinking about transport objectives and alternative modes, and increased investments to support mode shift. This is alongside other investment sources, such as Crown Infrastructure Partners, the Urban Cycleways Programme, local and central government partnerships, and Crown funding outside of the GPS. Several participants recognised that GPS 2018 signalled a new investment focus on regional and rural areas for walking and cycling. There was a general view that the primary objectives of walking and cycling investment were increased travel choices, network development and connectivity. These objectives were critical levers to ensuring uptake at scale.

Analysis of key quantifiable outcomes aligned with the GPS include the following:

- There were more walking and cycling facilities established, partly as urban areas grew, with a 30% increase in total length of cycleways nationally over 2017/18 to 2021/22. However, during the evaluation period from 2018/19 to 2021/22, comparatively, the length of cycleways in urban areas grew only slightly faster than the length of urban local roads.
- On average around 70km of new cycling facilities per year were delivered with NLTF funding during the evaluation period. This was slightly lower than the 72 km average per year between 2015/16 and 2017/18. It appeared that increased funding for walking and cycling investments had not translated into increased delivery of facilities. However, this may reflect lead times for new projects.
- The number of people using active modes on a weekly basis increased from 64% in June 2018 to 72% in 2021. However, the overall mode share of walking and cycling for all trips did not substantially change during the evaluation period. There was an increase over time in share of shorter trips (under 2km) by active modes.
- Deaths and serious injuries declined for pedestrians and cyclists over the evaluation period, but these were affected by factors beyond the GPS. There were general improvements in personal safety perceptions for cycling, but less so for walking.

1.4.2 Business requirements

By 2021, there was an increase in the number of city-wide network plans developed and an increase in walking and cycling programme business case development. The number of programme-level business cases post-2018 also increased, notably for cycling initiatives. This was in response to investment priorities and preferences for sophisticated and integrated solutions. Councils with comprehensive city-wide bike network plans often used them as the guiding framework for all decisions.

There was evidence of growing sophistication in walking and cycling planning, including multi-criteria assessment tools for prioritisation, route prioritisation within network plans for optimal returns, integration with spatial and growth planning, and considerations for equity and geographical spread in larger cities. These all signal a drive to ensuring good value for the resources invested.

Interviewees felt that a good programme business case should enable undertaking detailed employment, and require minimal further business case development. This would reduce costs, speed up delivery and minimise over engineered solutions. Interviewees emphasised coordinated approaches across transport and utilities to deliver greater efficiencies, alongside implementing behaviour interventions, supported by sustained investment.

1.4.3 Value indicators

Evaluative assessment of efficiency – how investments in walking and cycling improvements have met their intended goals and associated costs – are detailed below and discussed in section 3 (p 11).

- Alignment between funding intent and allocation is acceptable, with overall approved funding within the intended range during the evaluation period. However, significant variation in annual approved funding occurred due to COVID-19 and there were delays in some large projects.
- Delivery against investment is adequate, evidenced by increased funding claims in line with funding approvals, but data gaps meant that actual delivery during the evaluation period cannot be compared to what was expected. Some interviewees noted a need to reduce scope as costs increased.
- Data quality falls short of expectations, showing immaturity and numerous areas needing improvements. These areas include asset inventory snapshots, unit costs/cost indexes, and levels of service achieved, to better understand outcomes and value for money.

Evaluative judgements for effectiveness, the extent to which intended outcomes are apparent from NLTF investment using available data, are detailed below.

- Adequate achievement is seen in the delivery of walking and cycling facilities, with an increase in the number of facilities, noting as above that actual delivery against expectations could not be assessed.
- Uptake of walking and cycling facilities is acceptable, with an overall increase and some evidence of a connectivity effect on the completion of network connections.
- Safety outcomes and perceptions for cyclists and pedestrians are adequate, with slightly reduced rates of DSI, ACC claims, and road crash hospitalisations. However, these changes can be attributed to factors beyond the GPS.

BCR calculations facilitated mode comparisons, giving decision makers confidence in the value for money from walking and cycling project portfolios. A shift toward calculating BCR at a network or area wide scale (GPS 2021), although methodologically challenging, signalled that full benefits only emerge with connectivity. It recognised that individual routes might exhibit lower BCRs if analysed in isolation.

More broadly, performance indicators had pragmatic value. They ensured progress alignment, validated ongoing investment, and guided planning efforts. However, notable gaps in walking and cycling data require addressing to further drive performance improvement.

1.4.4 Benefits gap factors

Calculation and application of a 'benefits gap factor' in walking and cycling decision making was scarce. Instead, the risk was incorporated within usual risk and contingency planning.
A challenge was noted integrating different streams of work (such as maintenance, public transport lanes and walking and cycling improvements) to contain costs and maximise system benefits. Cost expectations created tensions, especially for larger urban projects.

1.4.5 Capacity and capability

There was variability in the delivery capacity and capability of walking and cycling investment decision making, particularly among smaller councils. Walking and cycling initiatives are less established than other areas of transport planning and delivery, and best practice guidance has only emerged in recent years. While the GPS sets strategic directions for investments, community understanding often lags. Changing attitudes and values, crucial for community support, relies on councils, and consultation and engagement demand significant resources.

1.5 Conclusions

This review has shown that GPS 2018 and 2021 were important for signalling priorities and channelling those priorities through investment activity. However, it takes time for investment priorities to translate into changes in inputs, outputs and ultimately outcomes.

Key areas of improvement noted in this evaluation include better embedding the VfM Framework and Assessment Model into planning and delivery, improved management of risk, and areas where capability and data collection need to be improved.

The translation of funding inputs to delivered outputs to realised outcomes during the evaluation period was affected by several issues. These included the challenging task of prioritising against multiple needs, external economic factors that significantly influenced costs, community responsiveness and demands, and the disruptions imposed by shocks such as COVID-19 and severe weather events.

The VfM Assessment Model, and its associated framework, provided a useful structure for discussion and overall findings. This enabled an exploration of the drivers and disruptors to achieving value for money. However, discussions also revealed that the model has low visibility. For its aims to have traction in the long term, the VfM Assessment Model requires substantial acculturation and awareness building. It may need integration within GPS priority setting and implementation before it becomes a readily recognisable frame of reference for the sector.

2 Introduction

2.1 Purpose and objectives

The overall evaluation explores outcomes and learning from the 2018 Government Policy Statement on Land Transport (GPS), and the first year of the 2021 GPS, with specific reference to the Local Road Maintenance, and Walking and Cycling Improvements activity classes. This evaluation follows one undertaken in 2022 exploring the 2018 GPS more generally, regarding its impacts on transport investment and decision making.

This evaluation report reviews how the GPS contributes to the development and implementation of walking and cycling improvements projects to deliver the wider transport outcomes sought, including value for money.

The general objectives for this evaluation and specific objectives for the two evaluation topics were as follows:

- General objectives
    - Objective 1: Test the link between how investment is directed (inputs), what is delivered (outputs) and how this link contributes to outcomes by applying the Ministry's Value for Money (VfM) Assessment Model. Identify the key factors that affect the efficiency and effectiveness of converting inputs to outputs and outcomes.
    - Objective 2: Identify opportunities for the Ministry and New Zealand Transport Agency Waka Kotahi (NZTA) to improve and supplement existing data collection and management practices related to developing, implementing, monitoring, and evaluating current and future iterations of the GPS.
    - Objective 3: Offer considerations for how the Ministry and NZTA could improve the implementation of these activity classes.
- Local Road Maintenance
    - Objective 4: Assess how the previous and current levels of funding to operate, maintain and renew local roads were established and what they intended to deliver in GPS 2018 and GPS 2021.
    - Objective 5: Examine to what extent the impact of GPS 2018 and 2021 investment into the Local Road Maintenance activity class has achieved outputs and intended impacts and outcomes (including VfM delivered via outputs/outcomes). This may include using case studies.
    - Objective 6: Understand how practical implementation and the operational environment affects delivery of outputs, outcomes and impacts.
- Walking and Cycling Improvements
    - Objective 7: Assess the impact of GPS 2018 and 2021 investment into walking and cycling improvements on increasing the use of walking and cycling networks and the intended outcomes. This may include the use of case studies.
    - Objective 8: Understand how practical implementation and operational environment for GPS 2018 and 2021 (first year) affects delivery of outputs, outcomes and impacts.

This report focuses on findings about walking and cycling improvements. A companion report explores findings about local road maintenance. This report is in part evaluative, where we are assessing delivery and outcomes against some clear criteria and standards for efficiency and effectiveness. This report also serves as a landscape scan, exploring the context, practices, and

challenges facing walking and cycling improvements, as well as the visibility of the VfM Assessment Model.

Overall findings are detailed in section 3, and recommendations for improvement in the activity classes, and data collection, are detailed in sections 4 and 5. Appendices provide further detail on evaluation findings and methods.

2.2 GPS 2018 and 2021

The GPS sets the operational environment for the National Land Transport Programme (NLTP) and its investments through the National Land Transport Fund (NLTF) and other funding sources.

GPS 2018 sets four clear priorities that guide the NLTP and the NLTF and other funding sources:

- Safety (a safe system free of death and serious injury)
- Access (including access to economic and social opportunities, enabling transport choice and access, and resilience)
- Environment (including reduced greenhouse gas emissions)
- Value for money (delivering the right infrastructure and services to the right level, at the right cost).

GPS 2021 continued the direction of GPS 2018, while adding specificity to four priority areas:

- Safety (developing a transport system where no one is killed or injured)
- Better travel options (providing people with better travel options to access social and economic opportunities)
- Climate change (developing a low carbon transport system)
- Improving freight connections to support economic development.

The 2021 GPS also established a purpose for the transport system to improve people's wellbeing, and the liveability of places, by contributing to five key outcomes: healthy and safe people; inclusive access; environmental sustainability; economic prosperity; and resilience and security.

In GPS 2018, funding was increased for the Local Road Maintenance activity class. This covered costs associated with increased heavy traffic, severe weather, and an increase in scope to include footpath maintenance, to support active modes. GPS 2021 increases included new work categories for footpath and cycleway renewals.

In GPS 2018, funding for the Walking and Cycling Improvements activity class was increased to support expanded walking and cycling infrastructure. This is also against a context of the activity class operating below planned expenditure for previous GPS periods. GPS 2021 allowed for significant investment increases aligned to emissions reduction goals.

2.3 Applying the Value for Money Assessment Model

The Ministry of Transport's VfM Assessment Model, within the associated VfM Framework[1], is a key foundation of this evaluation (pictured below). The VfM Framework review was published in

[1] Ministry of Transport. 2022. Value for Money Framework Review. Wellington: Ministry of Transport, Beca

September 2021, complementing GPS 2021's revision of VfM from a strategic priority to an embedded principle.

The final model was published in late 2021 and was not set as a requirement in GPS 2018 and 2021. This evaluation provides a useful opportunity to explore how it features in transport investment, and the issues to consider for future embedding of the model.

Figure 1 Value for Money Assessment Model

The VfM Assessment Model comprises the following key dimensions:

- **Impacts and outcomes – Are we focusing on the right things?** This involves assessing how the intervention's expected impacts and outcomes align with the national strategic objectives. These objectives are set out in policy frameworks such as the GPS, the VfM framework, and other relevant government strategies. Interviews explored how the priorities and outcomes of the GPS guide decision making.
- **Business requirements – Can we deliver this?** This involves assessing the business requirements and ensuring that delivery organisations have the systems and processes to efficiently deliver the intended impacts and outcomes. This requires applying appropriate processes across all aspects of development, delivery, operations, and maintenance stages. Standards and departures from standards are a key element for business requirements. Interviews explored the tools and frameworks used in planning and decision making under the GPS.
- **Value indicators – Is this a good use of funds?** This involves conducting a value assessment to indicate how efficiently each action delivers desired outcomes and impacts. Traditional cost benefit analysis (CBA) metrics such as benefit to cost ratios (BCR) are commonly used; however, non-monetised impacts are also expected to be undertaken. Interviews explored the extent to which value indicators are established and built into planning and decision making and the elements of value that are considered.
- **Benefits gap factor – Can we achieve the outcomes?** This involves assessing the extent to which an intervention realises the outcomes and benefits intended. Interviews explored how and to what extent the gap between benefits expected and realised are factored into investment and planning decision-making.
- **Capacity and capability – Do we have the right people?** This acknowledges the need for sufficient resources and skills to deliver the outputs intended. This is at the heart of the model as having the right capacity and capability is relevant across all model

elements. Interviews explored how and to what extent consideration of capability and capacity informs investment planning and decision making.

The VfM Assessment Model also explores dimensions of efficiency and effectiveness, which have informed criteria selection and assessment for this evaluation. Efficiency is defined as delivering optimal outputs with minimal wasted effort or expense, and effectiveness is defined as successfully delivering outcomes.

Methods for the evaluation are detailed in Appendix 3 (pp 52-54).

2.4 Contextual factors affecting GPS influence

This project evaluates the contribution of the GPS to walking and cycling improvements, and there are a broad range of contextual factors that should be considered. These factors can limit the influence of the GPS in any one period that it is operating. A range of factors that drive costs and delivery were noted by stakeholders in this review, including the following:[2]

- Road quality has deteriorated due to factors outside of the NLTF, such as severe weather events, damage to roads from increased road freight and population growth.
- Growth of the roading network and maintaining an ageing network means that costs become larger and more complex to manage.
- Construction of new roads and related infrastructure for government programmes or new housing areas are extending the land transport asset.
- Changing levels of service are raising costs to deliver maintenance and improvements.

The timing of GPS development and publication makes it challenging to develop programmes that deliver effectively, efficiently and in line with the GPS every three years. To do so requires the NLTP and Regional Land Transport Programmes (RLTPs), and the GPS, to be published in line with statutory timelines. Furthermore, the timeframe for councils to ensure their RLTPs are aligned with the GPS can be significantly constrained depending on the overall timeline for GPS development, which is aligned to local council and national elections. Delays in GPS development mean that councils often have a matter of weeks to ensure their RLTPs are aligned with the GPS, are efficient and effective and deliver for their communities.

[2] We acknowledge NZTA for communicating these points to inform the evaluation.

3 Overall findings for walking and cycling improvements

Objective: Test the link between how investment is directed (inputs), what is delivered (outputs) and how this contributes to outcomes by applying the Ministry's VfM Assessment Model. Identify the key factors that affect the efficiency and effectiveness of converting inputs to outputs and outcomes.

In this section, we reflect overall on the learning and outcomes of GPS 2018 and the first year of GPS 2021. This section synthesises findings from across the evaluation report and makes evaluative judgements against a selection of indicators that address the underlying criteria for this evaluation. The following sections address the principles of the Ministry's VfM model for walking and cycling improvements.

3.1 Key findings

Investment increased substantially: There was a steady increase in nominal approved funding for walking and cycling improvements from 2014/15, with a sizeable increase over 2020/21 and 2021/22 compared to previous years. Overall, in the evaluation period, investment ($460 million) was within the GPS target range ($330 to $540 million). Most funding in the activity class ($384 million) was for cycleways. However, costs also grew significantly and offset some of the funding increase.

… and there were more facilities established; partly as urban areas similarly grew: There was a 30% increase in total length of cycleways nationally over 2017/18 to 2021/22. However, the growth of cycleways in urban areas was only slightly faster than the length of urban local road kilometres grew during the evaluation period. On average around 70 km of new cycling facilities per year were delivered with NLTF funding during the evaluation period; this was slightly lower than the 72 km average per year between 2015/16 and 2017/18.

However, the data available for this evaluation gives a mixed picture on uptake of active modes: Nationally, mode share of walking and cycling did not change. Using active modes on a weekly basis increased from 64% in June 2018 to 72% in 2021. There was an increase over time in shorter trips (under 2km) by active modes.

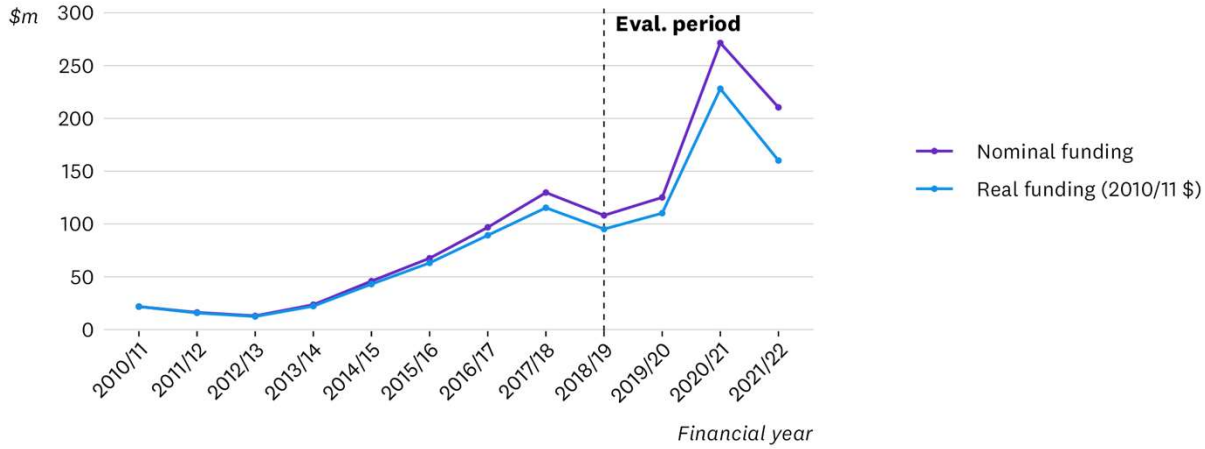
Deaths and serious injuries decreased over the evaluation period: Overall, deaths and serious injuries declined for pedestrians and cyclists over the evaluation period, but this was affected by a range of factors beyond the GPS.

…and safety perceptions are mixed: There were general improvements in personal safety perceptions for cycling, but less so for walking.

3.2 GPS impacts and outcomes

The GPS sets clear investment signals for walking and cycling improvements, which have supported councils in advancing walking and cycling planning. There was a steady increase in walking and cycling improvements investment from 2014/15; with a sizeable increase over 2020/21 and 2021/22 compared to previous years (Figure 2).

Figure 2 Nominal and real funding from all sources for walking and cycling improvements in the NLTP. Inflation adjustment uses NZTA's network outcomes cost index.



Source: Calculated from NZTA NLTP and cost index data

There was agreement that GPS 2018 helped to shift thinking about transport objectives and the need for alternative modes and greater investment in mode shift. This was consistent with the 2018 GPS evaluation, which noted that a different frame of thinking emerged through that GPS. The relatively consistent commitment to walking and cycling across GPS 2018-2021 provided a mandate and gave confidence to councils to put forward investment proposals based on locally determined priorities and outcomes.

There was a general view that the primary objectives of cycling investment were increased travel choices, network development and connectivity, which were critical levers to ensuring uptake at scale.

Interviewees found it difficult to isolate the more specific influence of GPS 2018 and 2021 on walking and cycling in the context of multiple factors, including the enhanced focus on walking and cycling since 2015, the influence of other walking and cycling initiatives, previous central government investments (such as the Urban Cycleway Programme), timing issues, and established local commitments to walking and cycling. Moreover, some walking and cycling improvements were not always recorded as such. Instead, they were carried out as part of wider road maintenance and other infrastructure enhancements.[3] This blending of initiatives and investment presents a challenge to isolating the outputs and outcomes achieved through GPS investment in walking and cycling

Several participants recognised that 2018 signalled a new investment focus on regional and rural areas. For smaller councils, this signalled that walking and cycling was also important outside of the main urban areas.

A noted challenge was achieving the larger programme investments needed in large urban areas, where more immediate and scaled uptake/change has the greatest potential. At the same time as continuing to support appropriate investment and more incremental change in smaller regional areas.

The signals sent in the 2018 and 2021 GPS related to walking and cycling have increased investment in, and commitment to, developing walking and cycling infrastructure. This investment is much less established compared to other transport investment areas and direct

[3] This was explored in more detail in the mode shift evaluation, published in 2023: https://www.transport.govt.nz/assets/Uploads/20232701-GPS-Eval-Mode-Shift-Report-Final-formatted pdf ref p.32

links to GPS outputs and outcomes are difficult to establish at this time. As maturity increases, it is expected that these relationships will become clearer.

3.3 Business requirements

Participants noted an increase in the submission of programme level business cases after 2018 (particularly for cycling), responding to the level of investment and behaviour change required, and the need for more sophisticated solutions and integrated strategy (e.g. separated lanes, land use planning). Network development and connectivity are key drivers to local decision making. Where city or area wide bike network plans exist, these are generally referred to as the principal frameworks driving decision making.

There is evidence of increasing sophistication in integrated cycling planning, with a range of planning tools noted, including multi criteria assessment tools for determining priorities, prioritising routes within a network plan to maximise investment return, integration with spatial/land use planning, integration with growth and development planning and projections, and consideration of geographical spread and equity in larger cities. There appears to be less need and opportunity for a strategic planning approach for walking. Much of the investment comprised relatively small components of funding without needing a business case, which often occurred through renewals, local road maintenance, and road safety enhancements. To some extent, these reduced the need for large-scale business cases.

Achieving the level of service needed to deliver cycling benefits at an affordable and acceptable price, remains a key challenge. Several participants described tensions related to cost expectations. Larger urban projects were typically multi modal and had to address a range of level of service issues in the corridor (such as upgraded drainage, kerbs, and traffic signals). These were acknowledged as a tension and driver to cost increases. This also makes it difficult to see whether outputs and outcomes are being achieved cost effectively as the costs are bundled up.

Some participants spoke generally of the need to further develop system level planning that spans different activity classes, where efficiencies can be leveraged. There was a view that some larger urban centres were developing better practice in this arena, with routine coordination with local road maintenance/renewals, compared to smaller councils.

3.4 Value indicators

3.4.1 Effectiveness and efficiency analyses

We have evaluated the efficiency and effectiveness of walking and cycling improvements using a range of available quantitative criteria. These indicators were discussed and agreed through a series of meetings with the evaluation Steering Group, and were drawn from datasets considered reliable and indicative of the outcomes sought from local road maintenance and walking and cycling improvements.

Full analysis of the quantitative findings is found in Appendix 1 (pp 24 - 41), where there is substantially more data presented. The selection of criteria was informed by the available quantitative indicators, and the assessment also draws from qualitative evidence.

The standards used to evaluate the criteria are detailed below in Table 1. They are drawn from standards established in the State Highway Maintenance Review, and refined to reflect the

evaluation approach and the extent of evaluative judgement that can be applied from the qualitative and quantitative data available.[4]

Table 1: Standards for evaluative judgement

Level	Definition
Inadequate/ unacceptable	Evidence shows large deficiencies in meeting key requirements/targets. Significant improvement required of systems, processes and procedures which are not understood or performed.
Below expectations / improvement required	Evidence shows performance below expectation/target, with minimum targets inconsistently achieved. Process and procedures documentation and systems are not fully fit for purpose, are incomplete or require significant improvement.
Adequate / some improvement required	There is sufficient evidence observed to confirm expectations are generally sufficiently met. Suitable systems and processes are in place and generally applied appropriately with only minor shortcomings, which do not compromise the ability to achieve performance.
Acceptable	Most processes, procedures, systems, and data are robust, and the identified deficiencies do not have a material impact on overall integrity of performance. Documented policies, processes, practices, and procedures are embedded, fully understood, and implemented well.
Robust / advanced	Evidence confirms that requirements are being met above and beyond expectations. No further improvements are required

Efficiency is defined in the VfM framework as delivering optimal outputs with minimal wasted effort or expense.[1] Table 2 below details the evaluative judgements for how walking and cycling improvements have delivered on the intended investment regarding efficiency.[5]

[4] Ministry of Transport. 2021. Review of the Investment in Operating and Maintaining New Zealand's State Highways. Part 1: Summary Report | Pūrongo Whakarāpopoto. Wellington: Ministry of Transport.

[5] The 'unit costs and cost indexes' criterion is not reported for walking and cycling improvements, as there is no available data on unit costs (e.g. cost per km delivered) for walking and cycling improvements.

Table 2: Assessment of efficiency criteria – walking and cycling improvements

Criteria	Key indicators (see section 6)	Rating	Commentary
Alignment between funding intent and allocated funding	Approved nominal NLTF funding for walking and cycling improvements activities and GPS funding ranges	Acceptable	Substantial variation in the evaluation period, likely affected by COVID-19 lockdowns. In some cases protracted engagement periods when responding to community opposition. Overall, approved funding was within the intended range over the evaluation period.
Delivery against investment	Approved walking and cycling improvements nominal funding by work category Approved nominal funding for walking and cycling improvements by primary activity type	Adequate	Limited data available indicates some evidence of increased approvals for shared paths, and suggests that funding claims matched approvals in each year. Data not yet fit for purpose; attention needed on efficiency of delivery and level of service delivered to capture outcomes achieved.
Data quality	General observation	Below expectations	Maturity of walking and cycling data some distance behind other activity classes. Many areas of improvement noted (see section 4).

Effectiveness is defined in the VfM framework as successfully delivering outcomes. Table 3 below details the evaluative judgements for the extent to which delivery of intended outcomes is apparent from NLTF investment in walking and cycling improvements, using available data.[6]

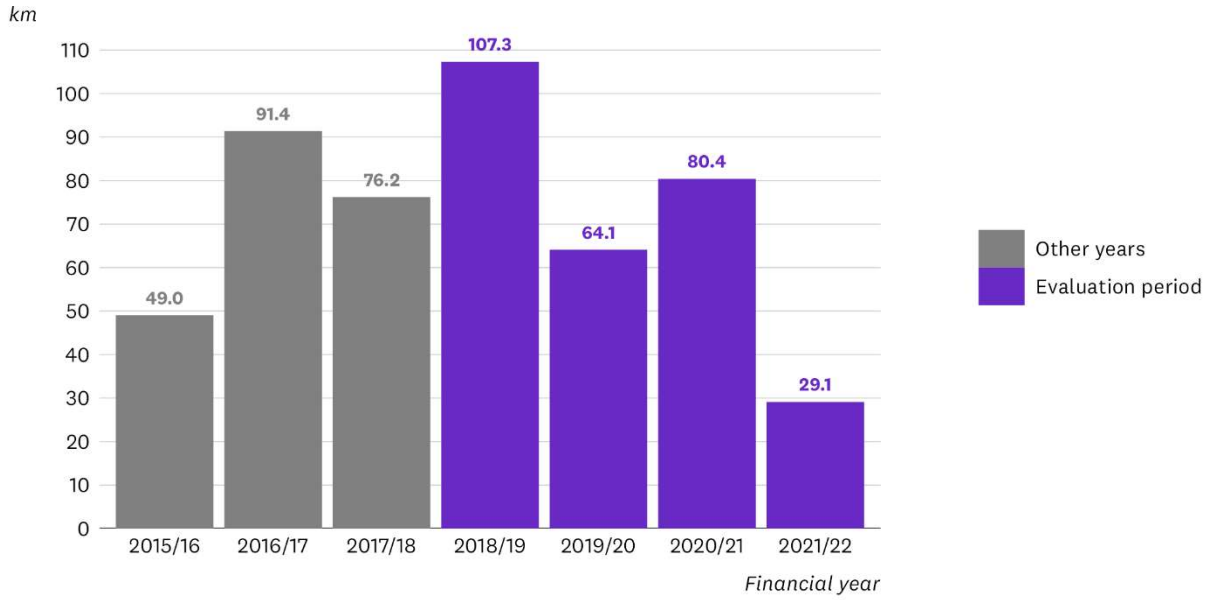
[6] The 'activity management' criterion is not reported for walking and cycling improvements. There are no systematic assessments of activity management quality of local authorities focused specifically on walking and cycling activities.

Table 3: Assessment of effectiveness criteria – Walking and cycling improvements

Criteria	Key indicators (see section 6)	Rating	Commentary
Walking and cycling facilities constructed	Network kilometres of new and improved walking and cycling facilities delivered under the activity class Proportion of people with jobs, and education, health and shopping facilities by mode Qualitative feedback	Adequate	Growth in facilities (Figure 3) constructed but mixed results regarding accessibility to jobs and services (likely to be also a function of urban growth patterns). Latency of funding and implementation means completion will often occur post-GPS period. Lack of information about expected physical delivery during the evaluation period to measure actual outcomes against.
Uptake of walking and cycling facilities	Walking and cycling mode share Annual number of users by selected active mode counters Qualitative feedback	Acceptable	Overall increase in walking and cycling over the evaluation period and some strong growth in using some facilities; some evidence of a connectivity effect when network connections are completed.
Safety outcomes and perceptions for cyclists and pedestrians	Road crash deaths and serious injuries Rates of ACC injury claims and road crash hospitalisations for pedestrians and cyclists Safety perceptions of walking and cycling	Adequate	Slightly reduced rates of DSI (Figure 4), ACC claims, and road crash hospitalisations for pedestrians and cyclists over the evaluation period (attributed to many potential factors beyond GPS). General improvements in personal safety perceptions for cycling, but less so for walking.

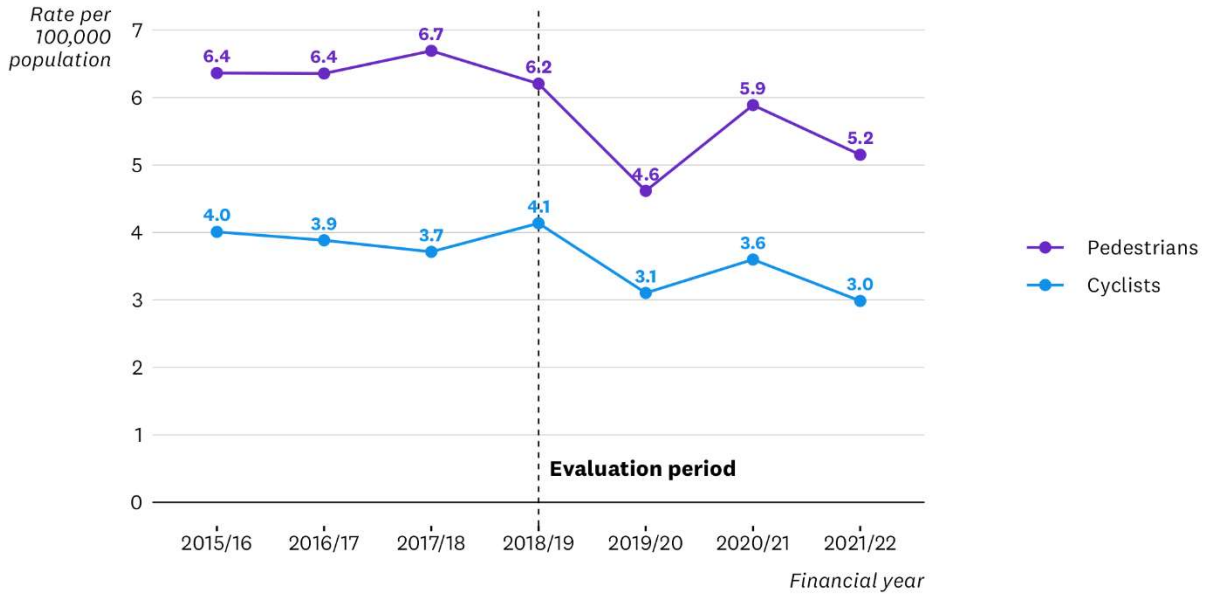
It should be noted that walking and cycling quantitative data collection is less mature than for other activity classes, and the availability of consistent and reliable data is constrained for this activity class. This is discussed further in section 4.

Figure 3 Network kilometres of new and improved cycling facilities delivered with NLTF funding under the Walking and Cycling Improvements Activity Class.



Source: Ministry of Transport annual GPS reporting.

Figure 4 Road crash deaths and serious injuries per capita.



Source: Ministry of Transport annual GPS reporting.

3.4.2 Use of benefit-cost ratios

Calculation of BCRs allowed comparison across modes, and gave confidence and assurance to decision makers regarding value for money and the overall work programme. BCRs were particularly important for determining the level of service required to achieve desired uptake, rather than unnecessary scoping and overdesign. It was noted that many walking and cycling projects delivered multiple outcomes.

A trend (2021-24 GPS) to calculate BCRs at a network or area wide level was noted. This practice acknowledged that full benefits are not seen until a sufficient level of connectivity has been achieved, and that individual routes within the whole could deliver a low BCR based on

short term outcomes. NZTA considered delivery capability and track record as increasingly important ‘value’ criteria given that network development is a long term project requiring ongoing commitment, capacity, and capability. Identified dimensions included kilometres successfully delivered, timing and readiness, delivery efficiency, required governance and management capability, political commitment, and long term commitment.

Walking and cycling investments were described as requiring trade offs with other local share investment pressures. While a BCR could fully justify a cycling investment, other inputs such as internal prioritising, political support, and financial pressures, ultimately determined investment decisions.

In a case study of walking and cycling implementation (see section 8.6), a shift from outputs to outcomes was seen as an important part of measuring non monetised benefits and demonstrating the outcomes of complex, multimodal, and integrated packages of work.

3.5 Benefits gap factors

In general, participants understood that the risk of a benefit gap was pragmatically accounted for within usual risk and contingency planning practice. There was little evidence that a ‘benefits gap factor’ was explicitly calculated and applied in planning and decision making. Applying a benefits gap factor at a given time was particularly difficult for planners given that a level of network completion and connectivity are critical to delivering cycling benefits and identifying when ‘full’ benefits are realised. The primary use of performance and progress indicators was considered more practically beneficial.

Participants noted that cycling network development is a long-term project (20-30 years) and a level of connectivity is required before full benefits are delivered. They argued that a system approach is needed, supported by a commitment to long term investment so that other enablers and behaviour change interventions can also contribute.

Performance and progress indicators (e.g. users, perceived safety, community satisfaction, walking and cycling attitudes and beliefs, crash data) had pragmatic value to ensure results were tracking in the right direction, to validate continued investment, and to inform overall planning.

3.6 Capacity and capability

There was limited evidence that an assessment of delivery capacity and capability was explicitly built into walking and cycling investment planning and decision making. Walking and cycling is a less established area of activity than other areas of transport planning and delivery, and there were variations in the level of capacity and capability among councils. Some thought that this undermined how programme investments were considered necessary. This suggests a role for capacity development, as well as for internal leadership and advocacy to support the activity class. Operationally, planners were mostly focused on developing required capacity and capability and managing planning and service delivery as best they could with available resources.

While the GPS mandated and gave strategic direction to walking and cycling investments, interviewees observed they were often not well understood by the community. Programmes to change attitudes and values are essential to community support and behaviour change. That responsibility lay with councils and considerable resourcing is required for consultation and engagement. One large council described building ‘soft’ infrastructure and public acceptability of active modes as a major challenge, which added to budget pressures.

3.7 Visibility of the VfM Assessment Model and framework

The VfM Assessment Model provided a useful structure for exploring the progress and outcomes concerning each GPS. However, it was clear from the interviews that the framework itself currently has little visibility in the sector. Many indicated awareness of it, but none had engaged with the framework in a tangible way. A few were simply unaware it existed, with one going so far as to say that the only application of VfM they were aware of was section 25 of the Land Transport Management Act, which refers to ensuring value for money from procurement activities.

These findings suggest that MoT will need to actively build awareness and acculturation of the VfM framework with the wider sector, and integrate the framework within GPS priority setting and implementation, if its aims are to have traction in the long-term.

4 Considerations for improvement

Objective: Offer considerations how the Ministry and NZTA could improve the implementation of the Walking and Cycling Improvements activity class.

In this section, we draw on interviewee and Steering Group reflections to suggest potential directions for the GPS framework, regarding walking and cycling. Generally, we see the following opportunities for improvement:

1. MoT and NZTA could consider embedding the VfM Framework and Assessment Model in the sector, through building awareness, developing good practice examples of its application and, if feasible, integrating with GPS development.
2. While the GPS provides useful guidance around funding availability and prioritisation for the strategic period, a common concern was that its short term funding focus means that each can vary considerably. There may be value in building consensus on a longer term strategy that sets out what a connected transport network should look like in 30 to 50 years. This approach would mean that each GPS would give each government an opportunity to prioritise and advance specific objectives under the overall strategy while remaining on a clear path toward a unified vision for the future network.

The GPS plays a role in growing walking and cycling over time. Potential directions for the GPS regarding walking and cycling improvements could focus on the following:

3. NZTA and councils could explore opportunities to provide further planning/design support to ensure levels of service provided are fit for purpose and make the best use of available resources.
4. MoT could work with councils to ensure that additional (non NLTF) investments in walking and cycling are aligned with existing strategic/long term plans.
5. Explore opportunities to provide further support to enhance integrated planning and investment across activity classes when multi modal solutions are required.
6. NZTA could review barriers and enablers to implementing best or emerging practice in walking and cycling improvements.
7. NZTA could work with councils to explore emerging practice in walking and cycling benefits gap analysis, to support enhanced practice in this area, and inform future investment and business cases.
8. Resourcing to enable NZTA and councils to address the significant walking and cycling data gaps that currently exist.

5 Opportunities to improve and supplement data collection practices and options for further analysis

Objective: Identify opportunities for the Ministry and NZTA to improve and supplement existing data collection and management practices related to developing, implementing, monitoring, and evaluating current and future iterations of the GPS.

Data to support evaluating the impacts of GPS 2018 and 2021 on walking and cycling improvements investments was limited and revealed some key information gaps.

Potential improvements are listed below. These improvements may be useful for evaluation and monitoring of the GPS concerning these activities (cf, this evaluation). It is likely that broader data improvements are possible, particularly for walking and cycling. Identifying those opportunities would require a fuller analysis of data gaps than is possible within the scope of this evaluation.

In addition to the specific points below, some of the high level GPS monitoring indicators used to inform this evaluation were unavailable before 2017/18. This means we couldn't compare changes during the evaluation period with an earlier baseline. If possible, back filling these indicators to include earlier years would enable such comparisons in the future.

The following recommendations are directed at the most significant data gaps encountered when evaluating the impacts of GPS 2018 and 2021 on walking and cycling investments made under the Walking and Cycling Improvements activity class. We note that the extent of these gaps reflects that walking and cycling is less established compared to other transport modes and activity classes.

We also note that implementing these suggestions would require ongoing support and resourcing, including greater data capture and standardisation. Some of this work has been underway since GPS 2018, including development of a national cycling count database, implementing the One Network Framework, and asset management data standards.

- **Level of service categories:** There is a significant data gap in information about the level of service provided by existing walking and cycling infrastructure, and infrastructure that is built over time. We suggest defining a set of standardised level of service categories that distinguish different types of walking and cycling infrastructure based on characteristics perceived by users (e.g. convenience, safety, ride quality). This can then be applied to the walking and cycling asset inventory, progress tracking, and outcomes measurement (see below). Understanding level of service is critical to assessing outcomes for transport users and for evaluating VfM.
- **Alignment of work categories with outcomes:** Current work categories in the Walking and Cycling Improvements activity class separate cycling facilities and walking facilities. In practice, active mode infrastructure may not fall clearly into these two categories (e.g. shared paths used for walking and cycling). Walking and cycling work categories could be reviewed to ensure they are fit for purpose and used to provide information about funding allocation.
- **Asset inventory snapshots:** We suggest creating a centralised dataset of walking and cycling assets within each local road area, including those attached to the state highway network. This should include details of physical assets by level of service category (as above), relevant GIS data, asset condition and age, and funding source. Annual snapshots should be retained to track the evolution of walking and cycling assets over time. This should include assets funded by the NLTF as well as those fully funded by local authorities and those built by private property developers.

- **Data quality assessments:** Assessments like those done by the REG for local roads could be done for the walking and cycling data held by local authorities and by NZTA. This would enable identifying gaps and creating a basis for measuring improvement in data quality over time. Key attributes for assessment include the quality of information about walking and cycling asset inventories, asset conditions, maintenance activities, and physical attributes of the networks.
- **Recording planned deliverables of walking and cycling investment projects:** At present there does not seem to be any systematic recording of key characteristics of the physical infrastructure planned for delivery by walking and cycling investment projects.[7] This makes it difficult to track physical delivery relative to what was planned for individual projects and at an aggregate level and has led to limitations reporting on GPS outcomes. We recommend that key data about planned delivery be recorded for walking and cycling improvements projects (e.g. the length of cycleways or shared paths in each year under each project). These plans could be saved as snapshots so that the original plan and amendments can be compared.
- **Tracking and summary reporting on progress of investment delivery:** Information about delivery progress of walking and cycling investment projects funded from the NLTF could be surfaced and summarised regularly. We recommend that this includes information for each individual investment project about:
    - what was planned for delivery, by year and by level of service category.
    - what was delivered, by year and by level of service category.
    - funding committed in each GPS period.
    - actual cost vs the original budget, plus any budget amendments.
- **Identify mixed mode investments delivered from activity classes:** The activity class framework is mainly based on transport modes used for NLTF funding. This makes it difficult to identify investment contributions made under an activity class to other transport modes. For example, pedestrian facilities are commonly delivered as part of local road improvements and do not receive separate walking and cycling improvements funding. Similarly, some walking and cycling improvements provide infrastructure that supports other transport modes (e.g. drainage or resilience improvements). It is not easy to assess these inter mode investments with existing information sources. One consideration is to explicitly capture information about mixed mode investments that describes how the investment benefits modes outside the primary activity class. At a minimum, projects that have impacts outside their activity class should be systematically identified and classified.
- **Capture information about investment impacts across modes:** Investments in other transport modes such as state highways and local roads can make it attractive to use active modes, even if such investments do not include walking and cycling facilities. Similarly, some of the costs of walking and cycling investments may mitigate impacts on other modes, such as increasing the size of intersections to enable cycle lanes without delaying other traffic. Currently this information is not systematically captured and this makes it difficult to optimise investment across transport modes. We suggest identifying the main types of inter modal impacts of investments and establishing a process to capture these as part of investment planning.
- **Unit costs and cost indexes:** We recommend that cost indexes specific to walking and cycling infrastructure improvements be developed, like those that are available for road construction and maintenance. This would assist understanding the reasons for changes in these costs over time. In addition, we suggest developing measures of unit costs (e.g. costs per km) for walking and cycling improvements. This would likely need to

[7] We understand that the facility to capture information about planned walking and cycling infrastructure delivery exists in NZTA's Transport Investment Online system. However, it may not be consistently recorded or reported on.

account for differences in service levels (as above) and would be useful in assessing value for money. Unit cost measures would enable comparisons across time and local authorities and may help to identify opportunities for cost efficiencies.

- **Exposure measures for safety analysis:** Analysis of safety outcomes is more meaningful if it is adjusted for changes in exposure to risk levels. Given that participation in active transport modes is growing, we suggest developing suitable aggregate exposure measures for walking and cycling, such as person hours or person km per year (like using VKT as an exposure measure for vehicle travel). This will likely need to account for differences in walking and cycling behaviour across regions.
- **Benefits realisation reviews**: Calculating a BCR for a walking/cycle investment involves assumptions about demand and costs that could be incorrect. This can be mitigated by systematically by doing post-implementation reviews of benefits and costs realised relative to expected benefits and costs. Such reviews will assist with assessing the actual outcomes of walking and cycling investments, and the information generated can be used to improve the BCR analysis process over time.

6 Conclusions

Priority setting for the transport operational environment

This review has shown that the GPS can have an important role in signalling priorities and channelling those priorities through investment activity classes, to foster a change in transport system mindsets. However, it takes time for investment priorities to translate into changes in inputs, outputs and ultimately outcomes. GPS 2018 was a substantial shift in priority that required system adjustments in personnel, planning, resources and communications nationally. While GPS 2021 to some degree maintained the momentum, it also required further recalibration.

Walking and cycling improvements

For walking and cycling improvements, the GPS had a substantive and strategic presence by giving mandate and confidence to longer term local planning and investment. However, relatively broad walking and cycling priorities and outcomes in the GPS, the scale of need, and level of investment required, made it difficult for interviewees to specifically identify how GPS priorities and outcomes impacted decisions. Most active mode investment proposals were aligned with and relevant to each GPS. However, achieving the service level needed to deliver cycling benefits at an affordable and acceptable price, remains a key challenge.

The GPS is one of many inputs that mandate and support walking and cycling improvements, and there is evidence of increasing alignment between national and established regional and local commitments to walking and cycling. However, changing attitudes, values and beliefs about walking and cycling as a transport mode is a significant task. It is essential to support physical infrastructure use, and ultimately GPS outcomes – but the burden of doing this locally largely falls on councils. Nevertheless, the case study for walking and cycling improvements reveals that community attitudes to such initiatives can shift and support can grow when aided by clear council prioritisation and a coherent strategy.

Capability development

A key area of development noted in this evaluation is capacity and capability building across a range of areas. These include procurement and contract management, inter district collaboration, incorporating whole of life costs, and benefits gap analysis.

Improving data systems to better understand performance and progress

Without data and evidence, the story of progress and delivery against investment can be opaque. Walking and cycling improvements data is disparate and has significant gaps, including in the service level provided, recording planned deliverables and progress of investment delivery, and adequately capturing mixed mode investments.

Interface across activity classes

Although Local Road Maintenance and Walking and Cycling Improvements are separate and distinct activity classes, the two have an uneasy relationship at times, particularly where capital investments in walking and cycling add to the ongoing maintenance needs of councils, along with other investments, and the long term funding needs this creates. Yet, the need for a shift to a low emissions transport system means that co existence and collaboration between the two can solidify the gains that are slowly occurring in shifts to active transport modes.

Transport resilience

The findings show that the translation of funding inputs to delivered outputs to realised outcomes is affected by a range of issues. These include the challenging task of prioritising against multiple needs, external economic factors that have significantly influenced prices, community responsiveness and demands, and the disruptions imposed by shocks such as COVID-19 and severe weather events – the latter will likely continue to exert a disruptive influence.

Embedding Value for Money

In this context, the VfM Assessment Model, and its associated framework, provided a useful structure for discussion and overall findings, and enabled an exploration of both the drivers and disruptors to achieving value for money. However, discussions also revealed that the model itself has a low level of visibility. The VfM Assessment Model requires substantial acculturation and awareness building, and potentially integration within GPS priority setting and implementation, before it becomes a readily recognisable frame of reference for the sector and for its aims to have traction in the long term.

7 Appendix 1: Impact of 2018 and 2021 GPS investment on walking and cycling improvements and outcomes

Objective: Assess the impact of GPS 2018 and 2021 investment into walking and cycling improvements on increasing the use of walking and cycling networks and the intended outcomes.

7.1 Context of walking and cycling improvements investment

7.1.1 Funding for walking and cycling improvements

Total approved nominal funding for walking and cycling improvements activities in the NLTP increased steadily from 2014/15 and was substantially greater in 2020/21 and 2021/22 than in prior years (Figure 5).[8] The majority of funding came from the NLTF and as local share contributions from local authorities. Around $100 million of external funding during this period was associated with the Urban Cycleways Programme (UCP) and a further $39 million of external funding came from other government initiatives.[9]

The scope of this evaluation is activities in the Walking and Cycling Improvements activity class of the NLTP that received NLTF funding (and corresponding local authority contributions). Walking and cycling improvements activities that only received external funding from outside the NLTF are excluded from further analysis to the extent that these can be identified. Also excluded is any walking and cycling infrastructure fully funded by local authorities and not included in the NLTP, and infrastructure built by private land developers, for example in new subdivisions.

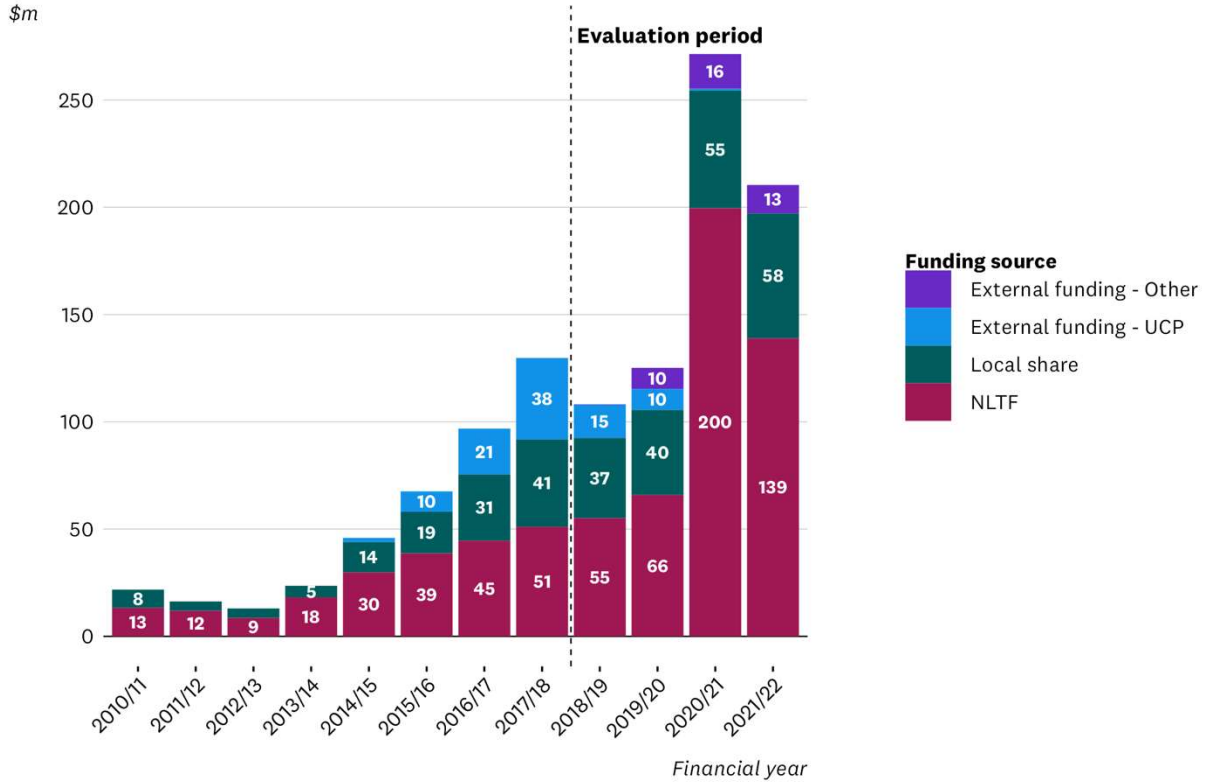
Walking and cycling facilities that are delivered as part of roading, safety, or maintenance activities are not funded from the Walking and Cycling Improvements activity class. Instead, these are funded via state highway, local road or safety related activity classes. For example, on road cycle lanes are typically delivered alongside other improvements to local roads, and these are funded via the Local Road Improvements Activity Class.

The proportion of approved NLTF funding for walking and cycling improvements activities was also substantially greater in 2020/21 and 2021/22 than in prior years (Figure 6). This funding shift spans both the last year of when GPS 2018 was in effect and the first year of when GPS 2021 was in effect. This shift reflects the increase in funding for the Walking and Cycling Improvements activity class enabled in GPS 2018 and continued in GPS 2021. In addition, approved funding for walking and cycling improvements was below the lower end of the GPS range in 2018/19 and 2019/20, due to delays in some large projects, which pushed funding into 2020/21 (see Figure 11, p 29).

[8] Amounts shown in Figure 5 are taken from the NLTP and are for the current 'walking and cycling improvements' activity class and the 'walking and cycling' activity class that was used before 2015/16, plus activities in the 'external funding' activity class for 'cycling facilities' and 'walking facilities' work categories.

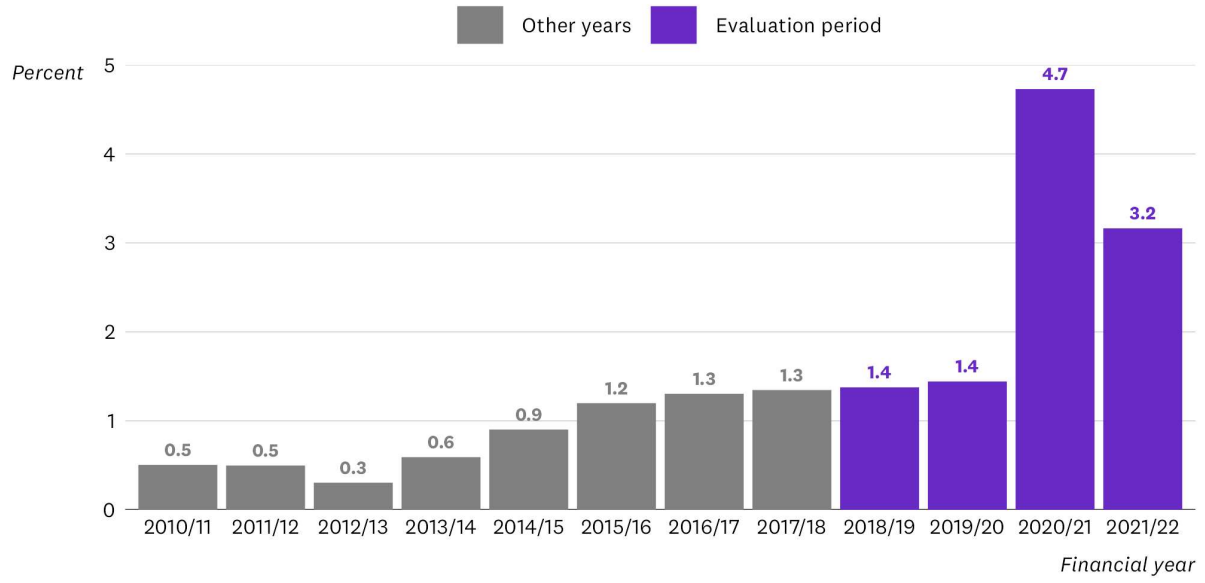
[9] The primary source of other external funding for walking and cycling improvements is labelled as 'Infrastructure Fund (Capital Investment Package)'. Small amounts of external funding (less than $1m) during this period also came from the Provincial Growth Fund and COVID-19 related funding.

Figure 5 Approved nominal funding for walking & cycling improvements activities by funding source.



Source: Calculated from NZTA NLTP data

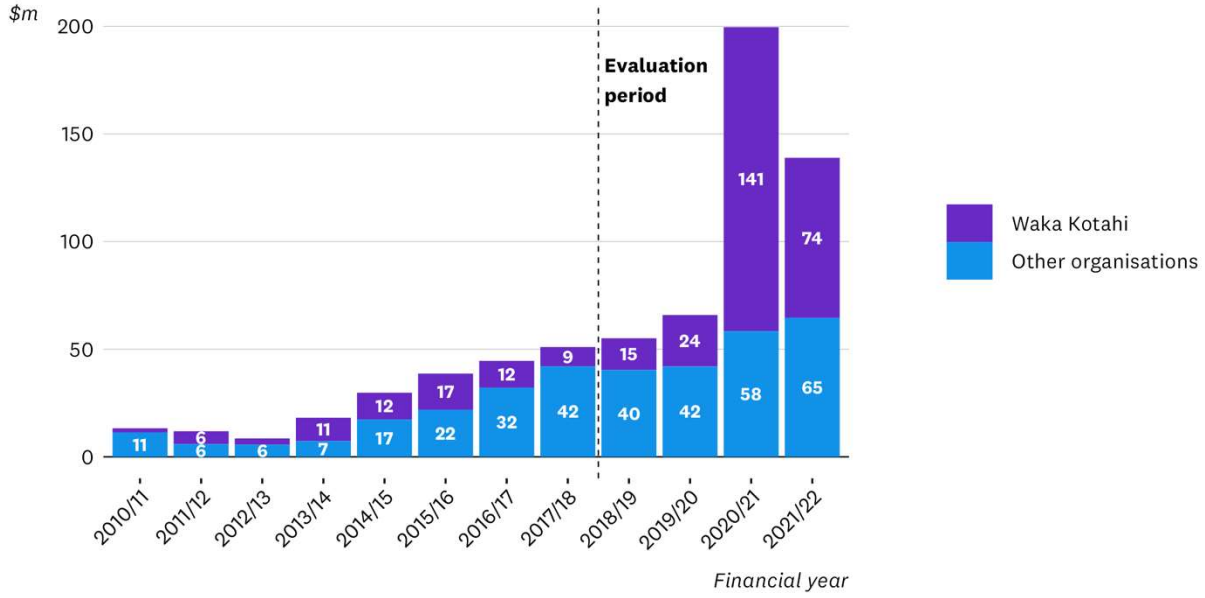
Figure 6 Approved nominal walking and cycling improvements funding (NLTF only) as a proportion of total approved NLTF funding.



Source: Calculated from NZTA NLTP data

Figure 7 shows how approved NLTF funding for walking and cycling improvements activities was split between activities delivered by NZTA and by other organisations (primarily local authorities). This shows that most of the increase in approved funding in the last two years of the evaluation period was attributable to projects delivered by NZTA.

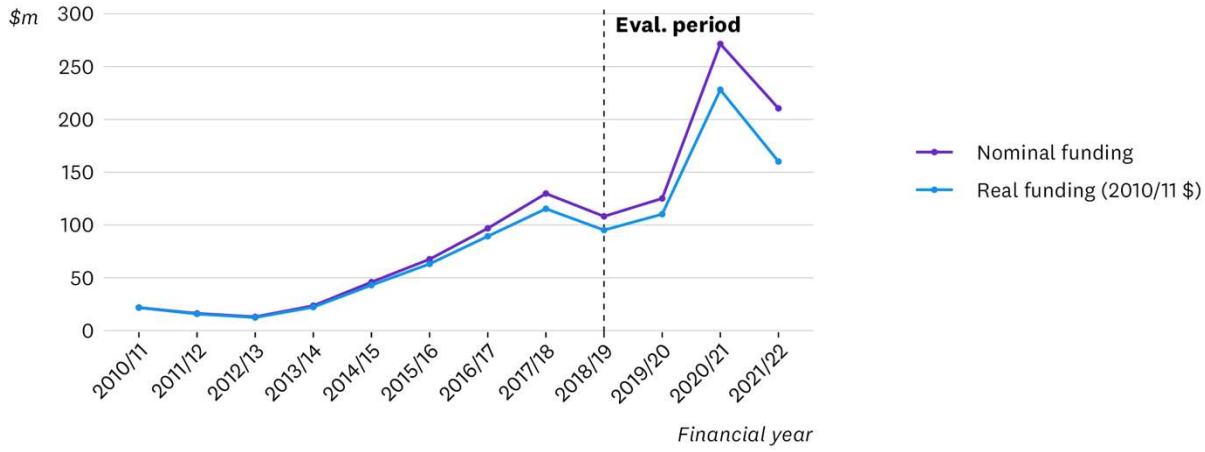
Figure 7 Approved nominal NLTF funding for walking and cycling improvements activities by delivery organisation.



Source: Calculated from NZTA NLTP data

Delivery of walking and cycling investments was affected by substantial cost increases during the evaluation period. NZTA's 'network outcomes' cost index increased by 17% between 2017/18 and 2021/22, and this offset some of the funding increases incurred.[10] This means that while nominal funding (from all sources) for walking and cycling improvements in the NLTP was 82% higher in 2021/22 than in 2017/18, after adjusting for cost increases, real funding was only 39% higher (Figure 8).

Figure 8 Nominal and real funding from all sources for walking and cycling improvements in the NLTP. Inflation adjustment uses NZTA's network outcomes cost index.



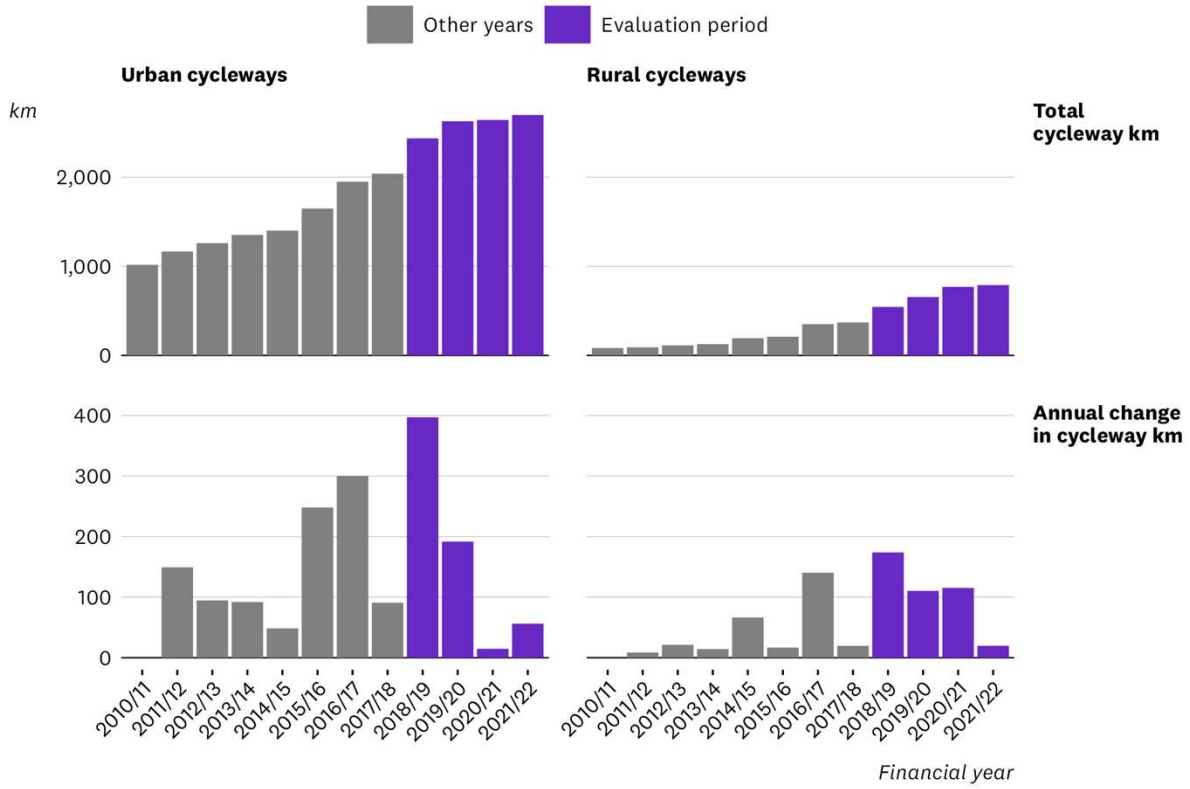
Source: Calculated from NZTA NLTP and cost index data

[10] In the absence of a specific cost index for walking and cycling investments, the 'network outcomes' index is used as a proxy. This is a weighted average of capital, labour, and material costs indexes for transport projects, and is calculated by NZTA based on price index data from Stats NZ.

7.1.2 Reported length of cycleways

Figure 9 shows the total length of cycleways reported annually by NZTA, and annual changes in reported cycleway length.[11] There was a substantial increase in the length of cycleways reported in 2018/19 compared to previous years, but the rate of growth slowed in subsequent years. At the end of the evaluation period in 2021/22, a total of 3,489 km of cycleways was reported, an increase of 1,079km compared to 2017/18. This provides evidence that the Walking and Cycling Improvements activity class was successful in delivering additional infrastructure during this period, noting that not all the change in cycleway length during this period could be attributed to NLTF funding.

Figure 9 Total cycleway length and change in cycleway length per year.

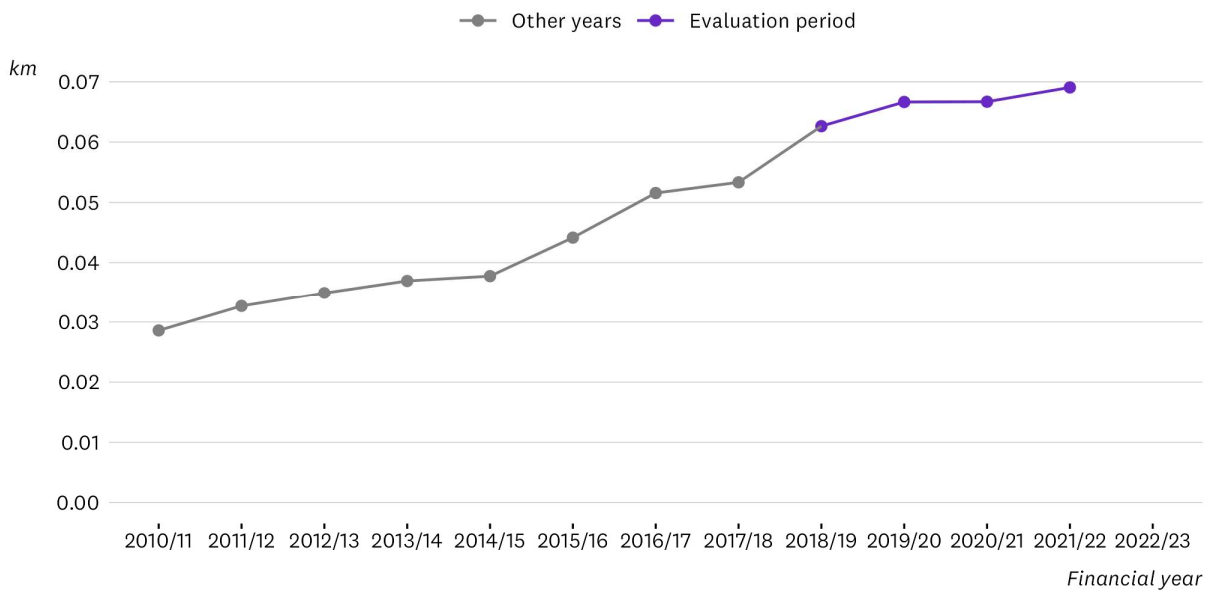


Source: NZTA physical statistics

Figure 10 shows how the ratio of urban cycleways to lane kilometres of urban roads has changed over time. Compared to the prior period, the rate of growth of this indicator in the evaluation period was substantially lower, implying that growth in the total report length of cycleways was only slightly faster than growth in the reported length of local road lane kilometres.

[11] In this reporting, cycleways are defined as "*A longitudinal strip within a roadway reserved by a marking or sign designed for the passage of cycles*." This appears to capture a variety of levels of service from simple painted cycle lanes through to fully separated cycleways and shared paths. A breakdown of cycling infrastructure by level of service is not available due to data limitations.

Figure 10 Total kilometres of urban cycleways per lane kilometre of urban roads.



Source: Calculated from NZTA physical statistics

7.2 Efficiency and effectiveness indicators of progress

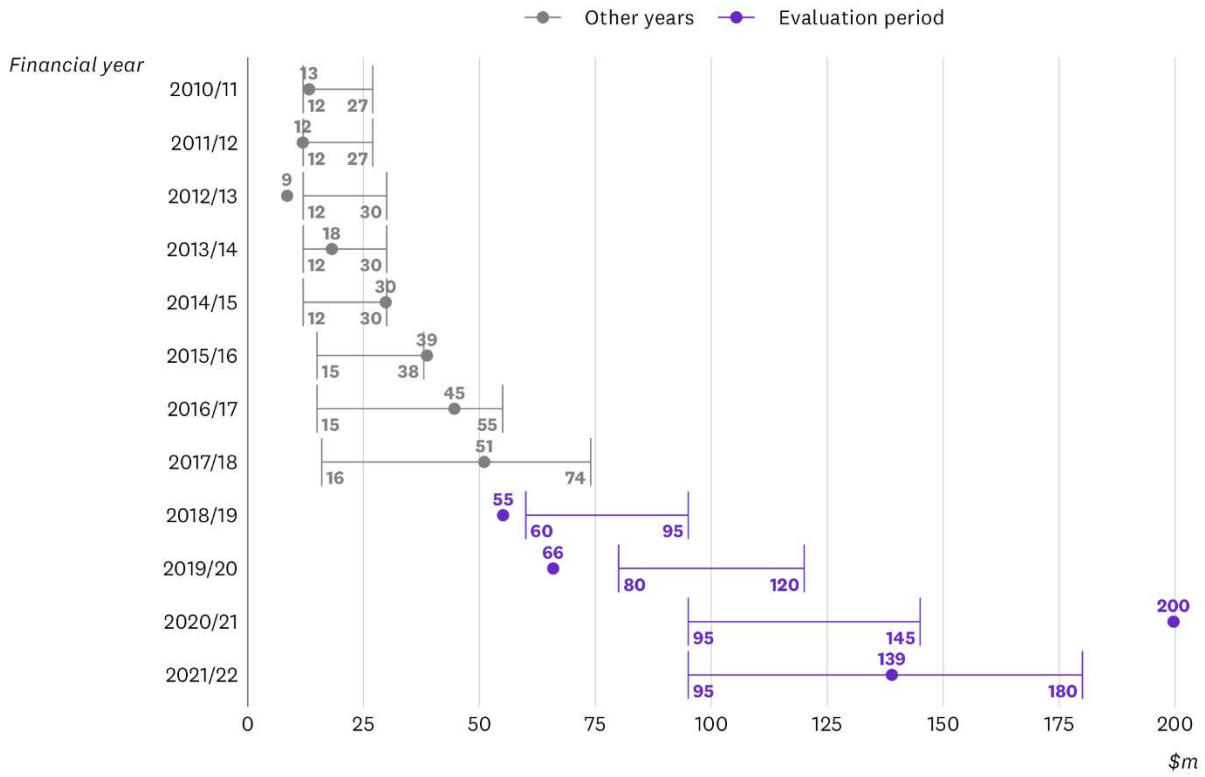
7.2.1 Efficiency indicators

7.2.1.1 Approved funding vs GPS target funding ranges

Figure 11 compares the approved funding from the NLTF for walking and cycling improvements with the annual lower and upper funding ranges set out in the GPS documents.[12] During the four-year evaluation period, approved funding for walking and cycling improvements was below the lower end of the GPS target range in 2018/19 and 2019/20 but above the top end of the range in 2020/21, and in the middle of the range for 2021/22. For context, we note that NZTA manages NLTF funding as a three-year programme and annual approved funding is not always expected to lie within the GPS funding range for that year. Overall for the four year evaluation period, $460 million of funding was approved, which is around the middle of the GPS target range of $330 million to $540 million for that period.

[12] As in Figure 5 above, the approved funding is for the 'walking and cycling improvements' activity class from 2015/16 onwards and the 'walking and cycling' activity class before that year. Approved funding figures include NLTF funding only and external funding is excluded. The GPS funding ranges shown in Figure 11 for the three-year GPS 2015 period reflect the adjustments to the ranges for walking and cycling made in 2017.

Figure 11 Approved nominal NLTF funding for walking and cycling improvements activities, and GPS funding ranges.

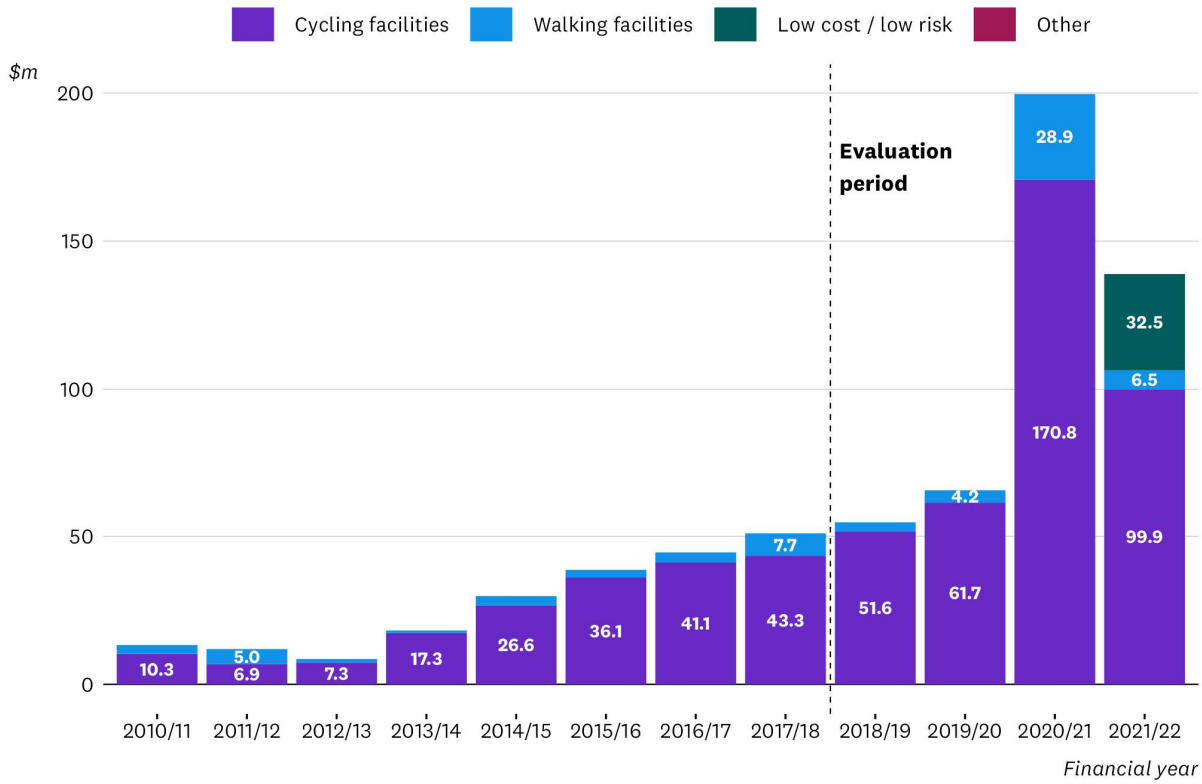


Source: Annual approved funding calculated from NLTP data provided by NZTA. GPS funding ranges from published GPS documents.

7.2.1.2 Delivery against investment

Figure 12 shows a breakdown of the approved NLTF funding for walking and cycling improvements by work category within the activity class. Most funding in this activity class is for cycling facilities, with $384 million (84%) of the approved funding during the evaluation period from 2018/19 to 2021/22 being for this work category, though we note that shared pedestrian and cycling paths are included in this category. In 2021/22 a low cost low risk work category was introduced for the Walking and Cycling Improvements Activity Class to enable faster implementation of small projects via Asset Management Plans, and this was allocated $32.5 million of approved funding in that year.

Figure 12 Approved walking and cycling improvements nominal funding (NLTF only) by work category.

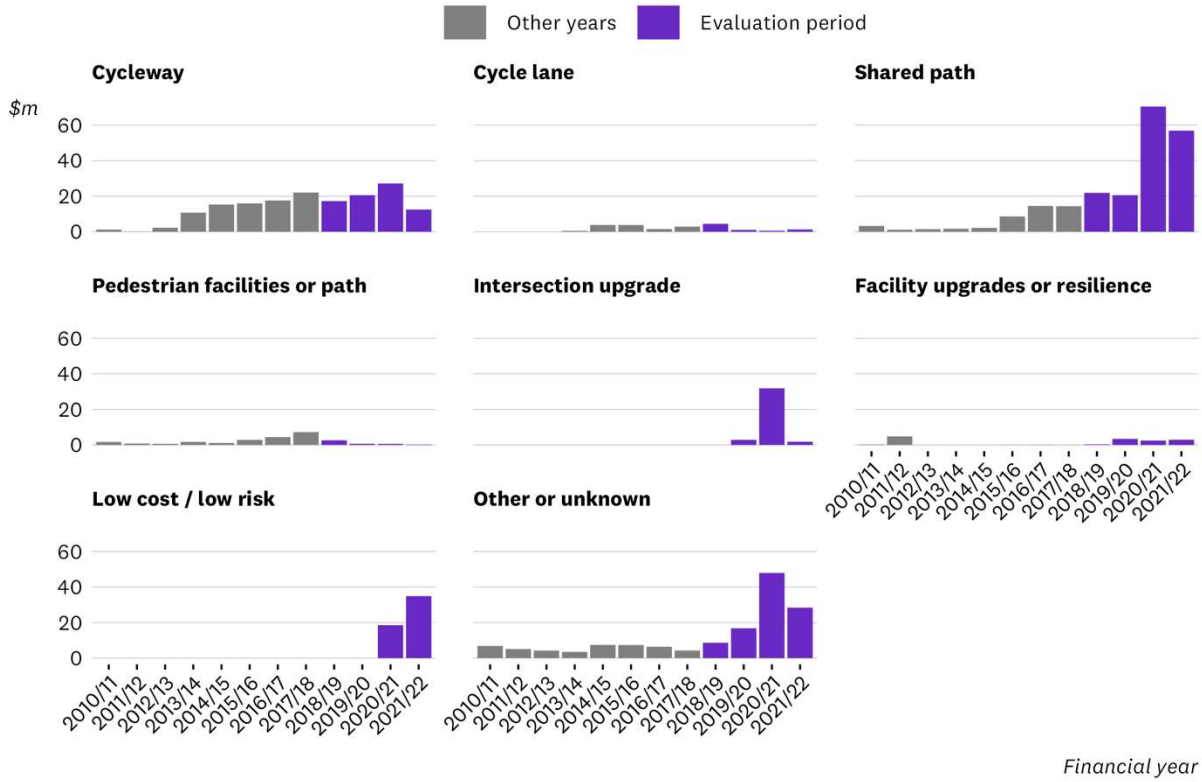


Source: Calculated from NZTA NLTP data

Aside from the broad work categories shown in Figure 12, there is no systematic classification of walking and cycling improvements activities by the type of infrastructure or level of service provided. Based on high level descriptions for walking and cycling improvements activities obtained from NZTA's Transport Investment Online (TIO) system, Figure 13 shows a breakdown of approved funding by the primary type of infrastructure or output delivered by the activity.[13] Based on this analysis, during the evaluation period, there was a substantial increase in approved funding for shared (pedestrian + cycling) paths. There was also comparatively little funding approved from the Walking and Cycling Improvements activity class for on road cycle lanes (though we note these may have been delivered under other activity classes as part of multi modal investments) and pedestrian facilities. However, a significant proportion of funding could not be classified based on the high-level descriptive information available in TIO.

[13] Some activities appear to fit in more than one of the categories shown in Figure 13. Based on the information available, we attempted to identify the primary type of infrastructure or output for each activity.

Figure 13 Approved nominal funding for walking and cycling improvements activities by primary activity type.



Source: Dovetail analysis of NZTA TIO data

Information about delivery of walking and cycling infrastructure during the evaluation period compared to what was planned to be delivered is not available. In its 2022/23 annual report, NZTA notes that "*more work is needed to ensure our delivery partners accurately record the improvements they plan to deliver and what they actually deliver*", so that actual delivery can be compared with planned delivery. Given this limitation, Figure 14 evaluates delivery of walking and cycling improvements projects by local authorities by comparing NLTF funding approvals in each year with funding claims lodged in the same year.[14] While there are some timing differences, in general the amount of funding claimed closely matches the amount approved across all regions.[15]

[14] Walking and cycling improvements delivered by NZTA are excluded from Figure 14 as there is no funding claims data. Over the four-year evaluation period, $254.1m of $459.5m (55%) of approved funding for walking and cycling improvements was for activities delivered by NZTA. See Figure 7 above.

[15] Funding claims were assigned to financial years based on the date the claim was submitted to NZTA, according to claims data provided.

Figure 14 Funding approvals vs claims for walking and cycling improvements activities delivered by local authorities.

Source: Dovetail analysis of NZTA TIO data

7.2.2 Effectiveness indicators

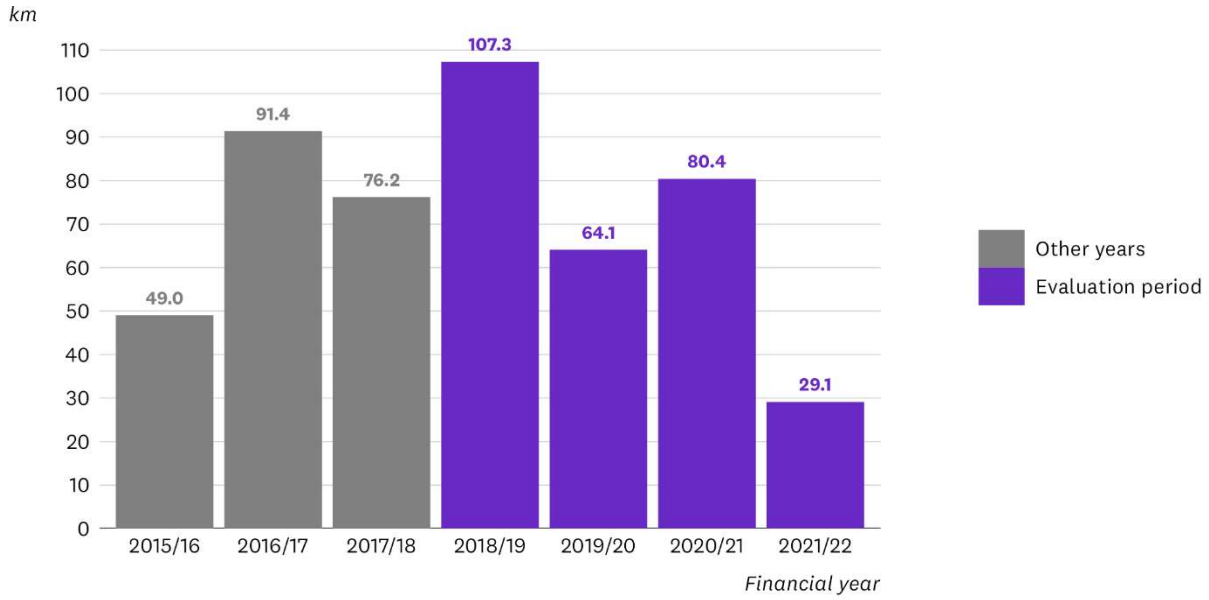
7.2.2.1 Walking & cycling facilities constructed

Figure 15 shows the annual network kilometres of facilities delivered via activities funded under the Walking and Cycling Improvements activity class (only a limited history to 2015/16 is available). These figures include new facilities as well as existing facilities where improvements were made. On average during the four year evaluation period, about 70 km of cycling facilities was delivered per year with NLTF funding. This was slightly less than the annual average between 2015/16 and 2017/18 of 72 km.

The 281 km of cycling facilities delivered between 2018/19 and 2021/22 was substantially less than the change in the total length of cycleways reported by NZTA over the same period of 1,079 km (see Figure 9 above). Some of this difference is due to cycleways being delivered outside the Walking and Cycling Improvements activity class, such as those funded under other activity classes, directly funded by the Crown, fully funded by local authorities, or built by private developers.[16] It is also possible that different definitions of cycling facilities are used in the two measures and the numbers may not be directly comparable.

[16] It is noted that similar issues arise with accommodating other types of multi modal activities within the activity class funding framework, such as some public transport investments.

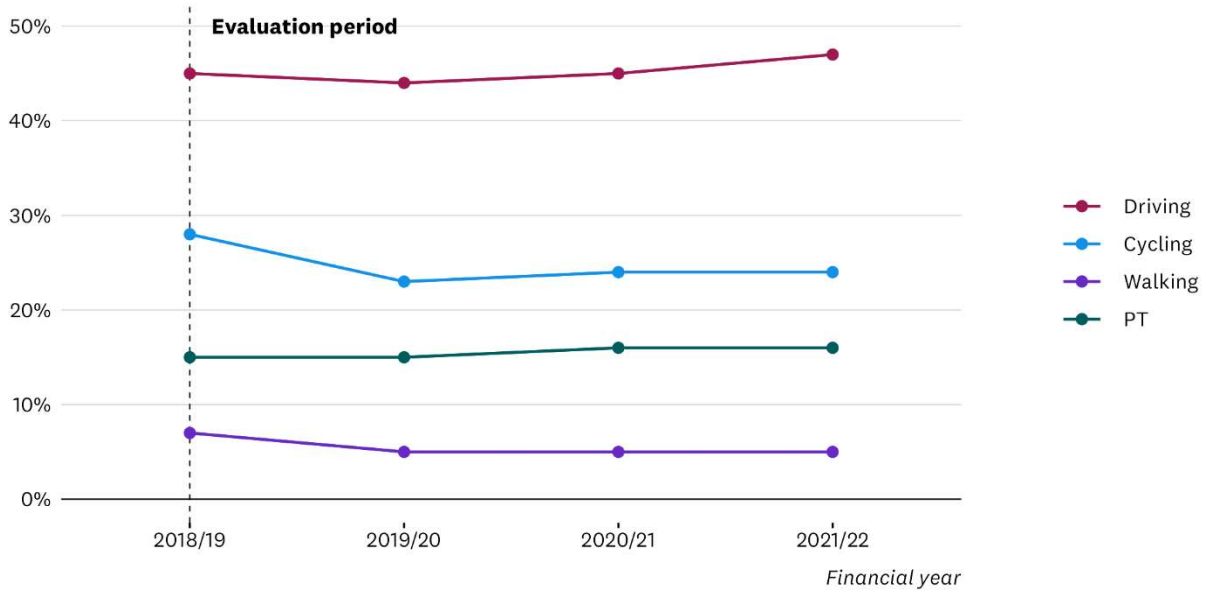
Figure 15 Network kilometres of new and improved cycling facilities delivered with NLTF funding under the Walking and Cycling Improvements Activity Class.



Source: Ministry of Transport annual GPS reporting.

An indirect measure of the effectiveness of walking and cycling investment is change in the proportion of jobs that can be accessed within a given timeframe by mode (Figure 16). This shows whether each mode could theoretically be used to access employment, although actual mode choices may be very different. Data is not available before the evaluation period, but during that time, the proportion of jobs accessible within 45 minutes by walking and cycling slightly decreased. In comparison, the proportion of jobs accessible by driving slightly increased during the same period. The reasons for this are unclear but are likely to reflect relative changes in employment and residential locations in urban areas. The observed changes are relatively small and these indicators are affected by a complex mix of factors including transport investment, urban planning, and people's preferences. At this stage it is not clear whether these changes are long term trends or are temporary fluctuations.

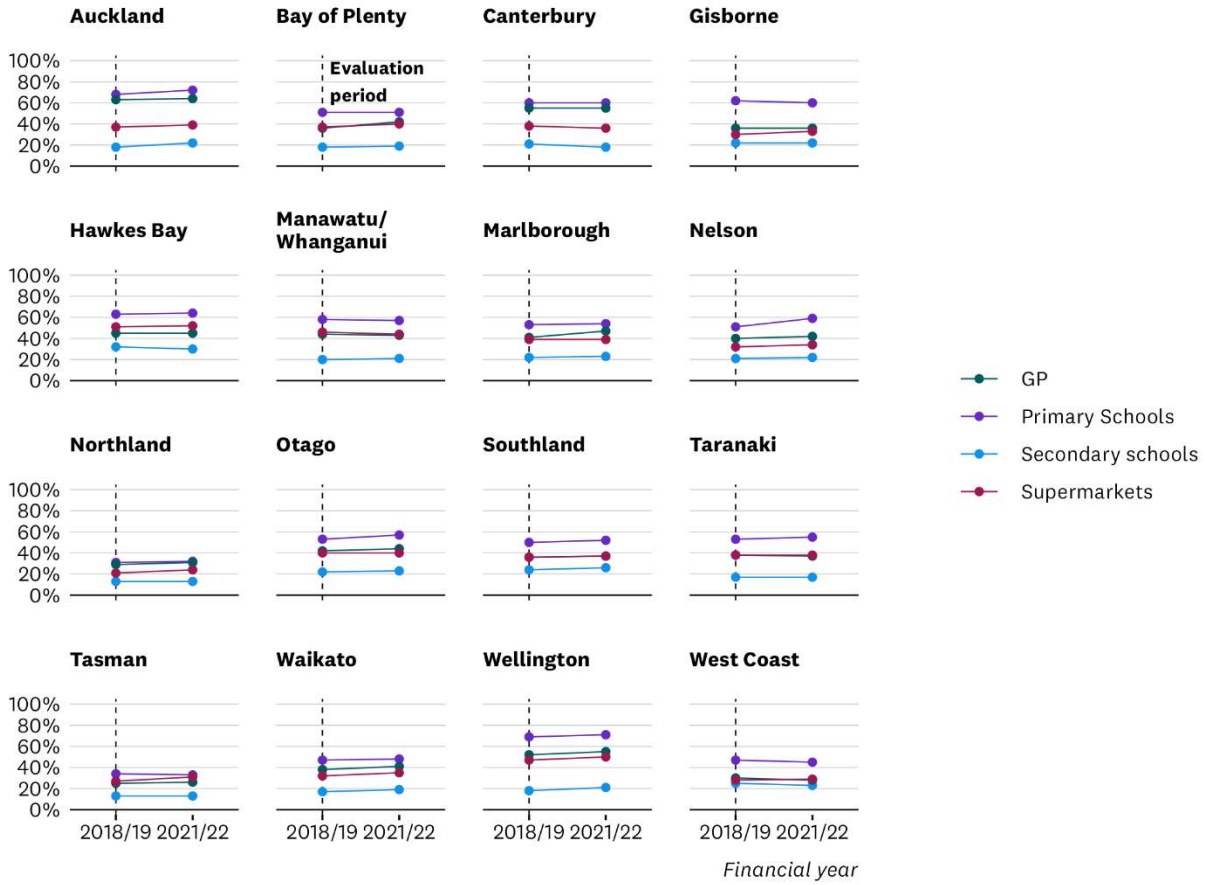
Figure 16 Proportion of jobs accessible within 45 minutes by mode.



Source: Ministry of Transport annual GPS reporting.

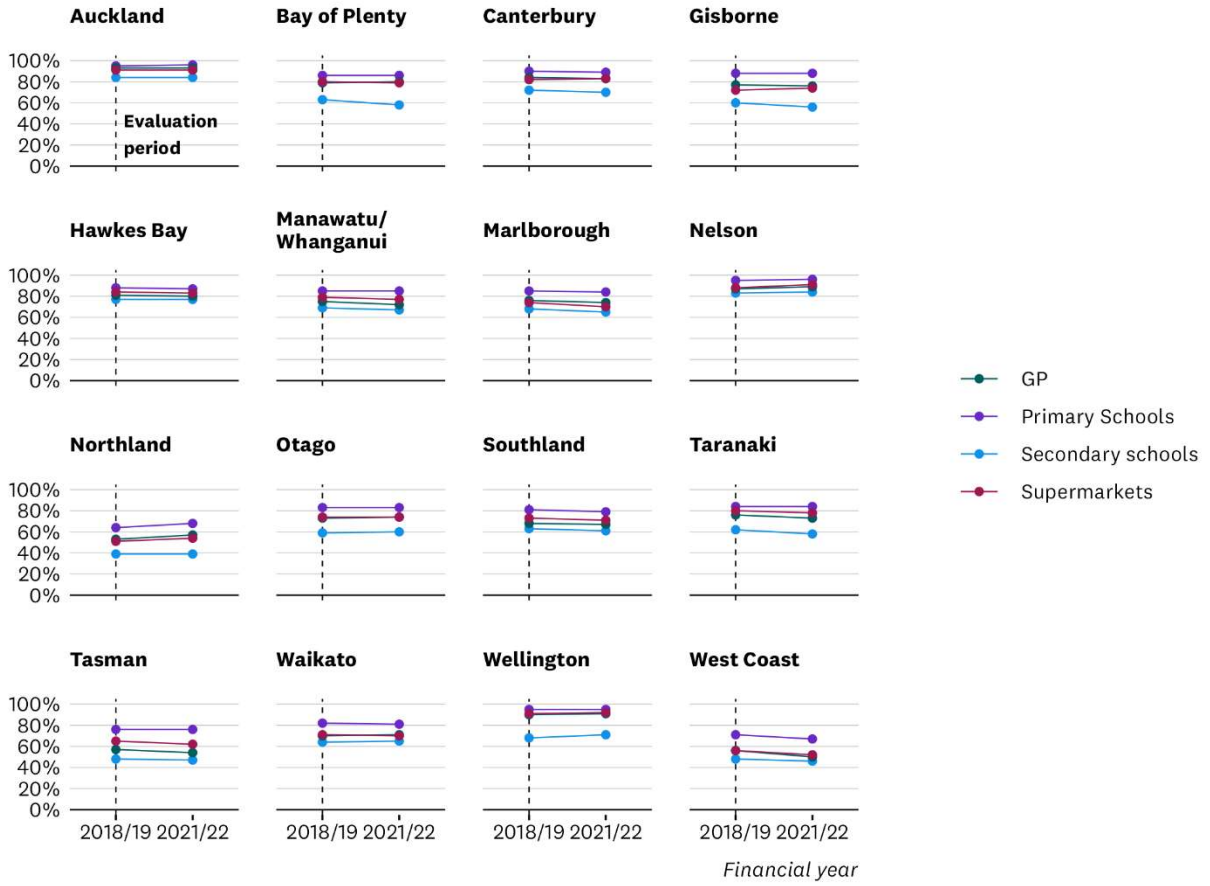
Similarly, Figure 17 and Figure 18 show the change in the proportion of people with access to education, health and shopping facilities within 15 minutes by walking and cycling respectively, by region, between 2018/19 and 2021/22. This shows a mix of small changes in accessibility across regions, with some regions seeing a slight improvement in accessibility by walking and cycling, while accessibility slightly worsened in other regions.

Figure 17 Proportion of people with access to education, health and shopping facilities within 15 minutes by walking.



Source: Ministry of Transport annual GPS reporting.

Figure 18 Proportion of people with access to education, health and shopping facilities within 15 minutes by cycling.



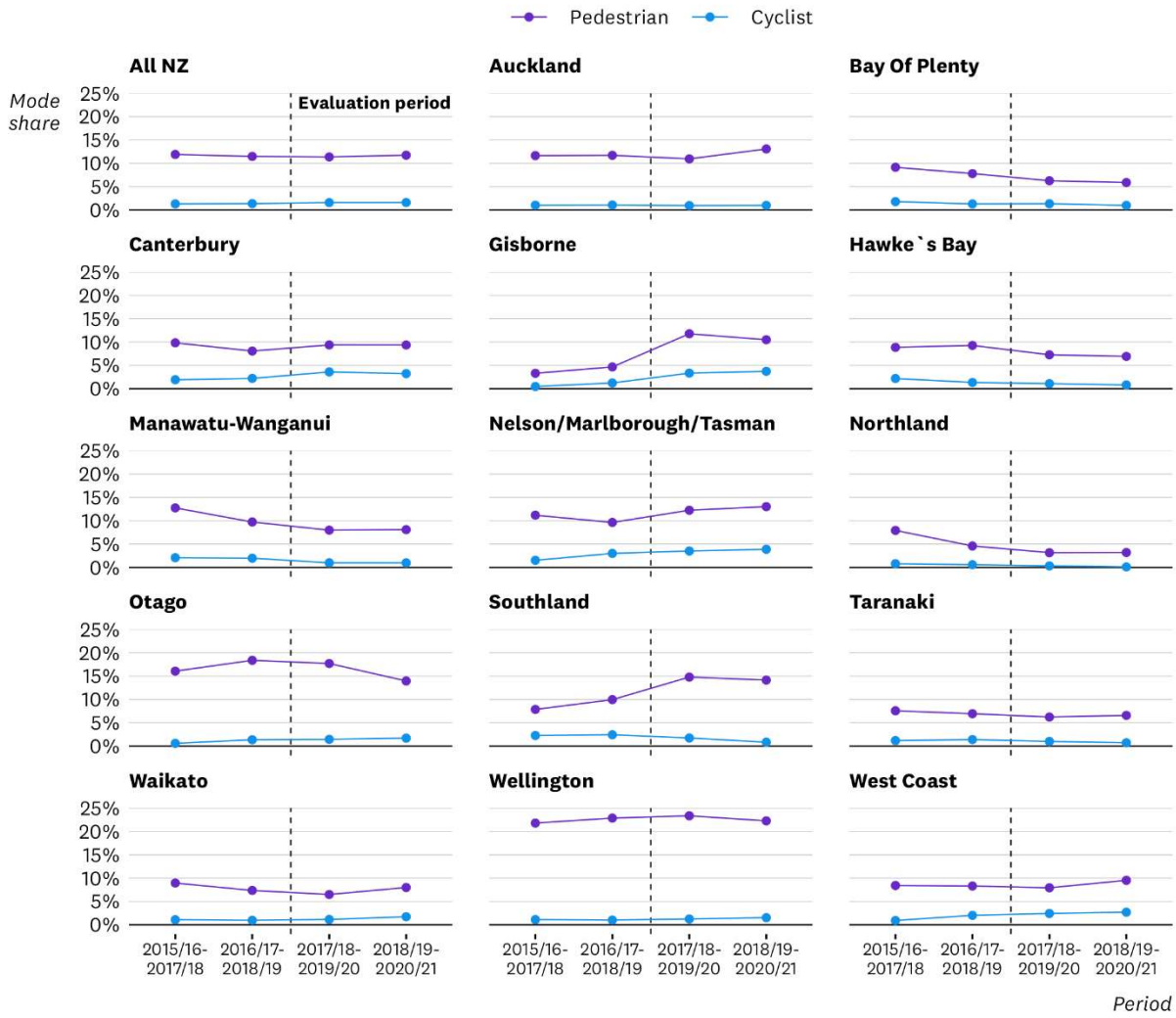
Source: Ministry of Transport annual GPS reporting.

7.2.2.2 Uptake of walking & cycling facilities

Nationally, the mode share of walking and cycling did not change substantially during the evaluation period, but there are larger differences across regions (Figure 19). Again the picture is mixed with some regions seeing increases in mode share of walking and cycling but other regions seeing decreases. For shorter trips (under 2km), the overall shares of walking and cycling have increased over time, with a more substantial change for walking than for cycling (Figure 20). Survey research for NZTA found that the proportion of people using active modes at least once per week increased from 64% in June 2018 to 72% in calendar 2021, although some of this increase was attributed to COVID-19 lockdowns in 2020 and 2021.[17]

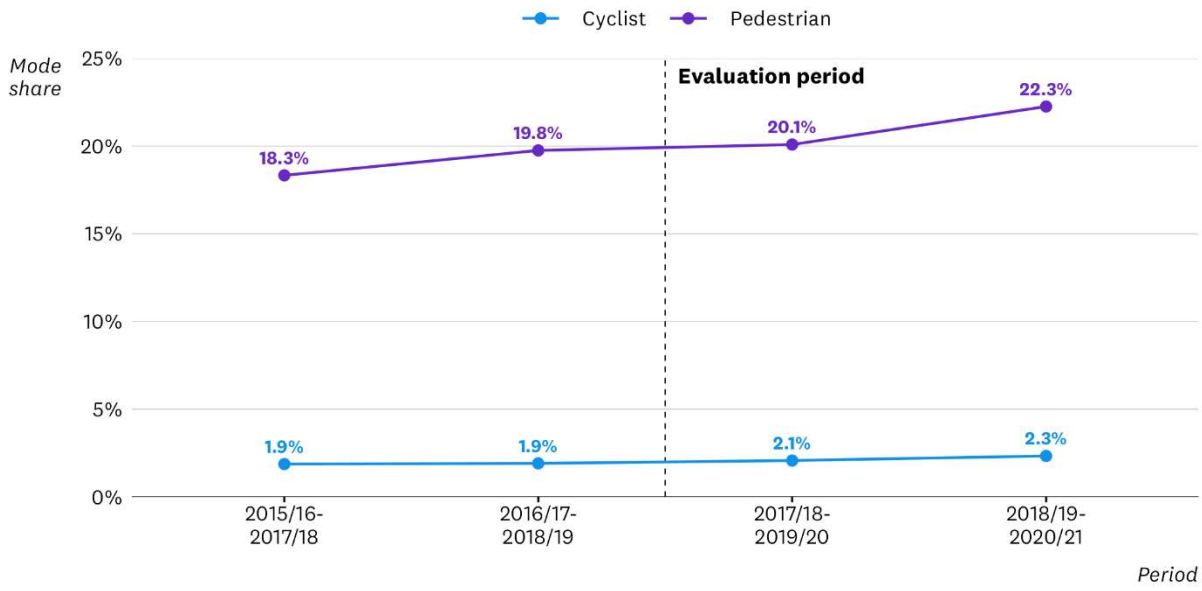
[17] *2022 Understanding attitudes and perceptions of cycling & walking*, TRA report for NZTA, April 2023.

Figure 19 Walking and cycling mode share (by trip legs) by region.



Source: Ministry of Transport annual GPS reporting.

Figure 20 Mode share of trips under 2km.



Source: Ministry of Transport annual GPS reporting.

Direct measurement of use of dedicated walking and cycling facilities use is complicated by changes to measurement over time, such as changes to the locations or methods used to count pedestrians and cyclists on shared paths and cycleways. NZTA advise that there are significant issues with the reliability of data from active mode counters, and work is ongoing to improve this. Noting this, Figure 21 shows the total annual number of users recorded by selected active mode counters associated with dedicated walking and cycling infrastructure.[18] The counters shown were selected as ones that have been relatively reliable over time and for which trends over time should be meaningful. Noting that many of these counters do not have historic data available before the evaluation period, this shows strong growth during the evaluation period for some counters such as Auckland's Northwestern cycleway, Upper Queen Street, and Waterview Unitec shared path, and Canterbury's Southern motorway path. Other results are more mixed, showing generally static usage counts with more variability from year to year.

Figure 21 Annual number of users counted by selected active mode counters (pedestrians and cyclists combined). Note differing y-axis scales.

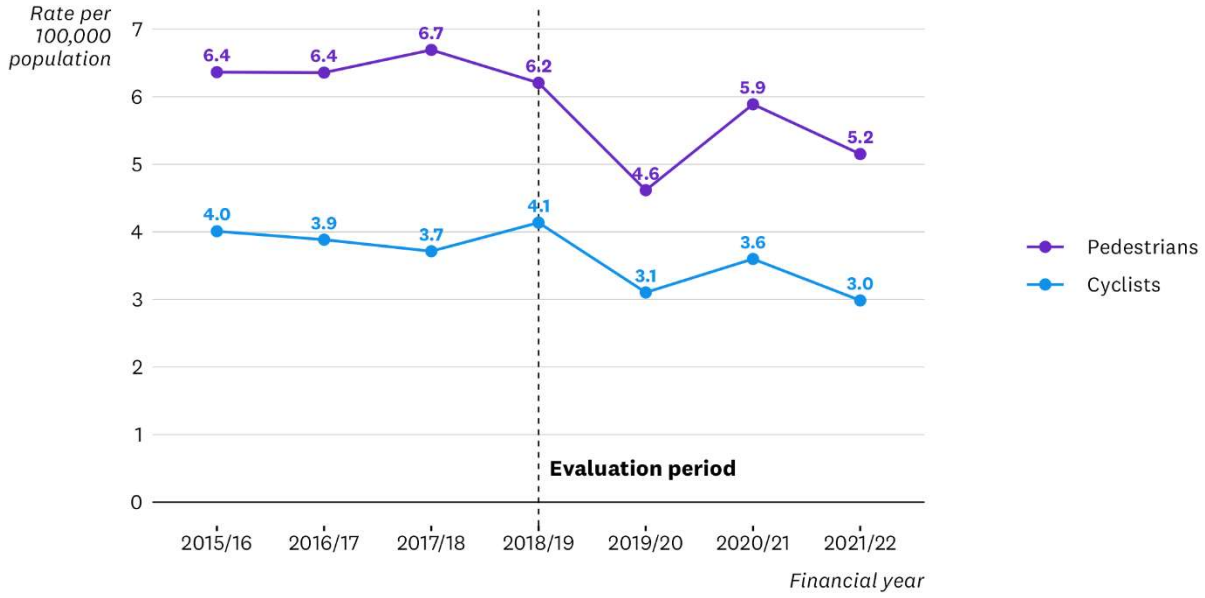
Source: Dovetail analysis of NZTA active mode counter data.

7.2.2.3 Safety outcomes and perceptions for cyclists and pedestrians

High level safety outcomes in terms of rates of road crash deaths and serious injuries (DSI) for pedestrians and cyclists are shown in Figure 22. Noting that the evaluation period includes times of COVID-19 lockdowns which reduced transport activity, the overall trend appears to be of slightly reduced rates of DSI for these types of road user.

[18] Only years where counts were available for at least 360 days are shown. We note that active mode counters are not able to distinguish users of walking and cycling routes that are new to this mode of transport versus existing users of active modes who have shifted from other routes.

Figure 22 Road crash deaths and serious injuries per capita.



Source: Ministry of Transport annual GPS reporting.

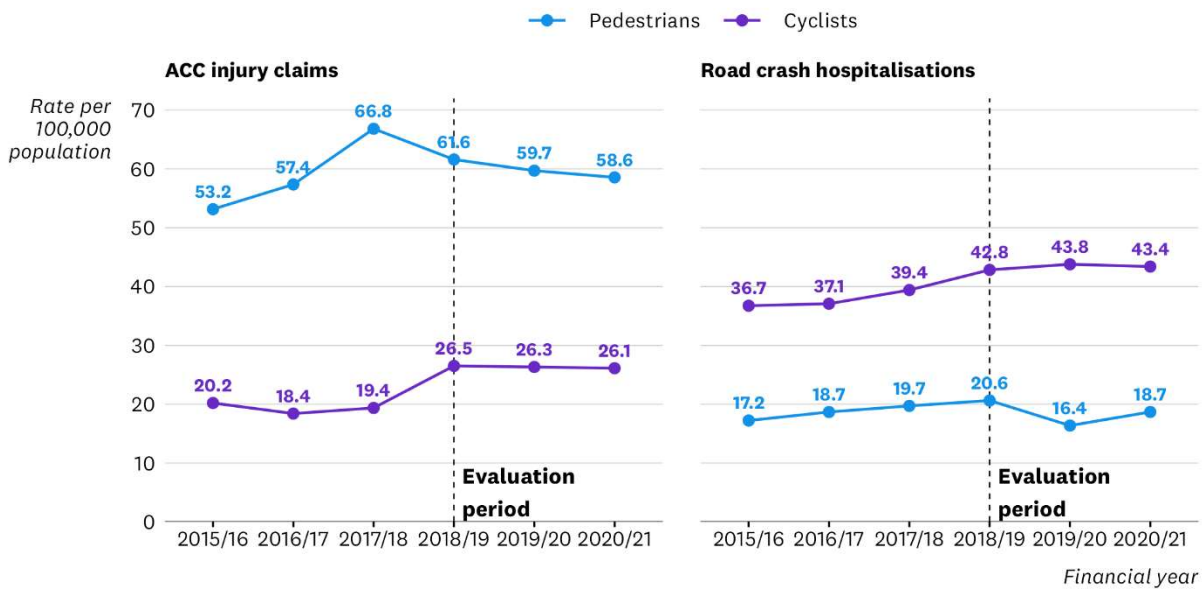
Road crash DSI may not fully reflect safety outcomes for pedestrians and cyclists as minor incidents and those not involving a vehicle or where a police officer did not attend are not recorded. We understand that this results in a significant under count of adverse safety events for pedestrians and cyclists. As alternative measures of safety outcomes for pedestrians and cyclists, Figure 23 shows rates of ACC injury claims and road crash hospitalisations (data for 2021/22 is not yet available). This shows decreases in the rate of ACC claims and hospitalisations for pedestrians during the evaluation period but increases for cyclists compared to beforehand.

The overall evidence on safety outcomes for pedestrians and cyclists during the evaluation period is therefore mixed, with some indicators improving and others worsening, particularly for cyclists. It is also important to note that these indicators are only adjusted for changes in population and have not been adjusted for changes in risk exposure, as this is not measured in a suitable way. It is possible that cycling became safer on a per exposure basis (e.g. per trip) but this was offset by an increase in exposure to cycling risks, which led to the observed increases in ACC claims and hospitalisations in the evaluation period compared to earlier years.

More recent research on hospitalisations for pedestrians and cyclists has found no significant change in the total number of pedestrian or cyclist hospitalisations between mid-2017 and mid-2021.[19] During this period, participation in cycling has increased and thus after adjusting for risk exposure, safety outcomes for cyclists have likely improved.

[19] Personal communication with Siobhan Isles, November 2022.

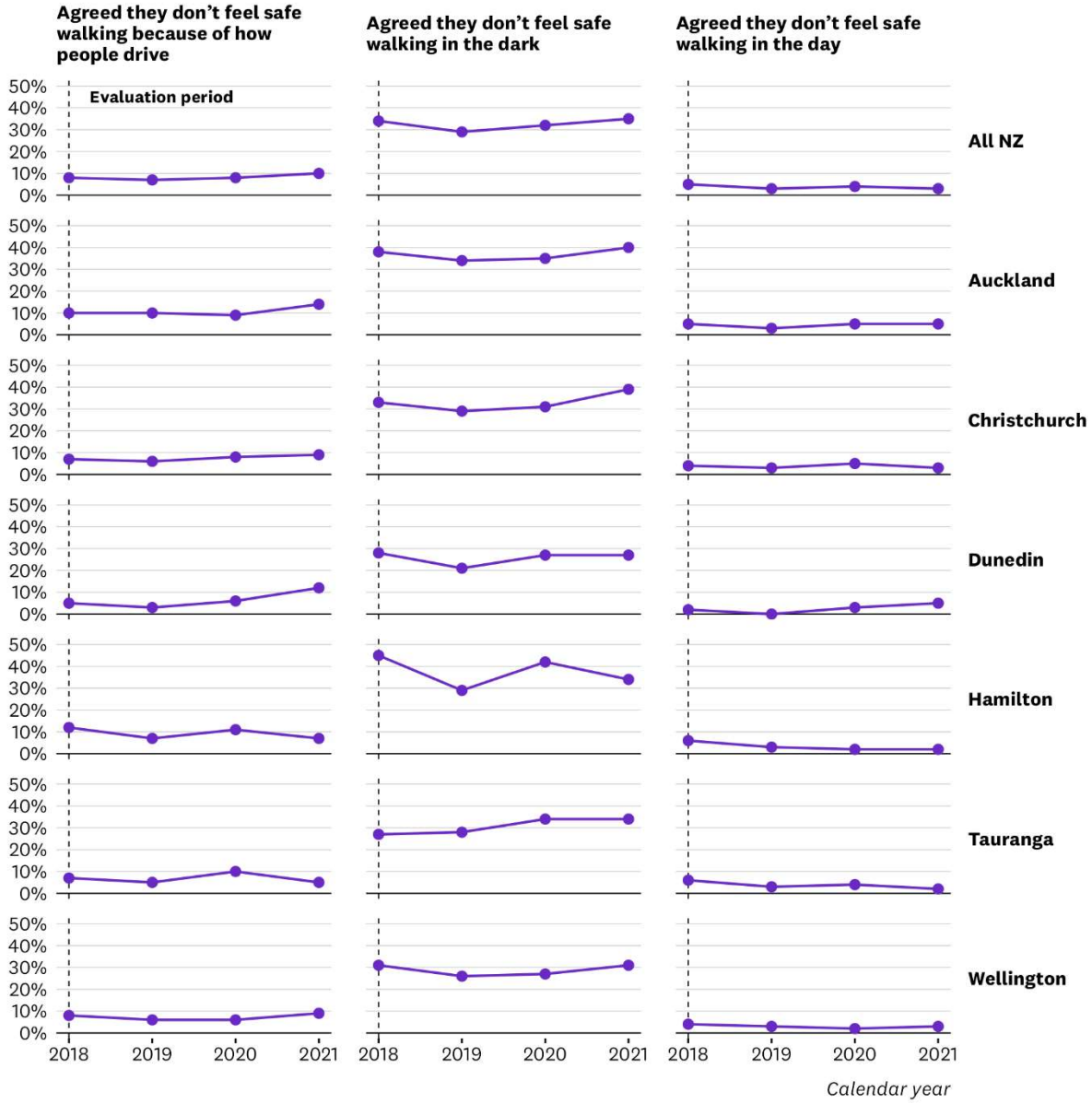
Figure 23 Rates of ACC injury claims and road crash hospitalisations for pedestrians and cyclists.



Source: Ministry of Transport annual GPS reporting.

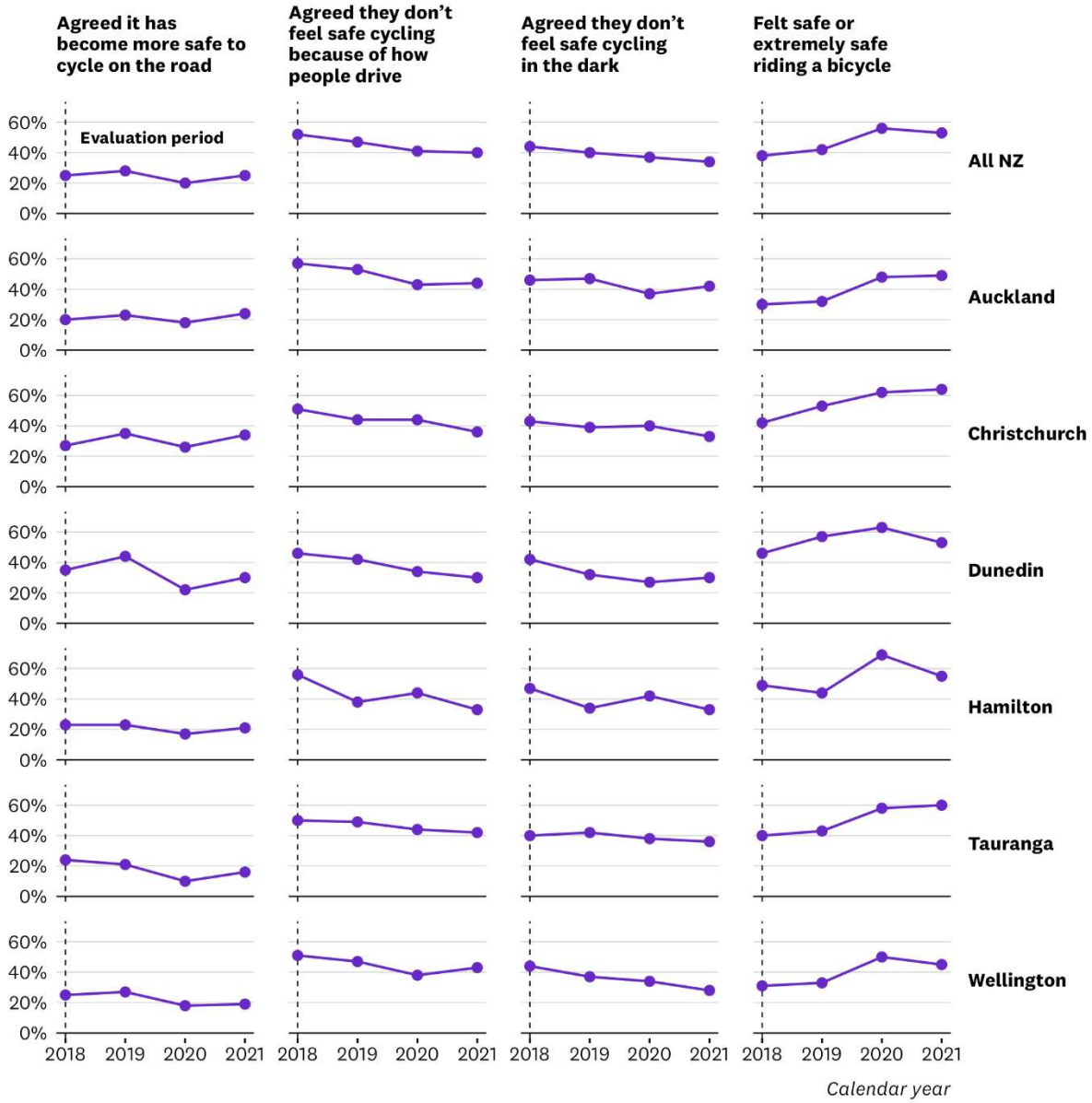
Information about people's perceptions of the safety of walking and cycling is also collected from surveys. During the evaluation period, perceptions of walking safety have not substantially changed on a national basis, with mixed results across regions (Figure 24). Perceptions of cycling safety have generally improved, with the number of people reporting that they felt safe or extremely safe riding a bike increasing nationally and across all regions (Figure 25). However, in most regions fewer people reported agreeing that it had become safer riding a bike on the road, suggesting that improvements to the perceived safety of cycling have come from improved off-road cycling infrastructure such as separated cycleways.

Figure 24 Safety perceptions of walking.



Source: Ministry of Transport annual GPS reporting.

Figure 25 Safety perceptions of cycling.



Source: Ministry of Transport annual GPS reporting.

8 Appendix 2: Practical implementation and the operational environment for walking and cycling improvements and outcomes

Objective: Understand the roles of practical implementation and operational environment for GPS 2018 and 2021 (first year) in delivering outputs, outcomes, and impacts.

8.1 Impacts and outcomes

8.1.1 Overall impact of GPS

Participants agreed the GPS is important for detailing government priorities, and at a high level, councils were more confident putting forward investment proposals for walking and cycling. However, for a range of reasons, participants found it difficult to isolate the more specific influence of GPS 2018 and 2021 on walking and cycling. These reasons included:

- Generally, a greater focus on walking and cycling in every GPS since 2015.
- The influence of a raft of other walking and cycling initiatives (e.g. Transport Outcomes Framework, Auckland Transport Alignment Project, Climate Emergency Response Fund, ongoing impact from the Urban Cycleway Programme, climate change).
- Timing issues, as local planning is generally well underway before each GPS is released.
- Established local commitments to walking and cycling (regardless of the GPS).
- The proportion of each GPS already allocated reducing specific impact from each GPS, respectively.

The process of making walking and cycling improvements is a significant task because it requires making changes to a network that isn't designed for walking and cycling. New Zealand cities and towns are generally designed for motor vehicles, not for cyclists, pedestrians or other active mode users. This means that providing for walking and cycling facilities often requires building entirely new networks or taking and relocating parts of existing networks, often with similar standards required to build roads.

Several participants described increasing alignment between the GPS, local walking and cycling commitments, and other signals (e.g. climate change, need to increase transport choices). This alignment strengthened mandate and supported discussion with senior leaders and politicians.

> *"… Having that investment in walking and cycling signalled and I guess the climate signals fed into that mode shift … public transport as well as walking and cycling, meant that we were fairly well aligned …"*

There was agreement that GPS 2018 helped to shift thinking about transport objectives and the need for alternative modes and greater investment in mode shift. An increased Funding Assistance Rate at the time also increased local investment confidence.

Several participants described challenges associated with the investment allocation to specific activity classes ('funding buckets'). This could have the effect of compartmentalising the spend in each class when most solutions had some element of multi modal requirement. The current model could make longer term planning and a more integrated investment approach challenging.

> *… if you didn't have a walking and cycling activity class then it would be funded out of say local roads or state highway improvements … everything should be multimodal … if we're investing in a new asset, it should provide for … walking and cycling …"*

NZTA participants spoke generally of the need to further develop system-level planning, rather than independent planning under different activity classes. There was a view that some larger

urban centres were developing better practice here, with smaller main urbans still requiring development. Reflecting this, one large council described successful, routine coordination with local road maintenance/renewals:

> *"… we work closely with Road to Zero engineers … you're going to do this intersection here; we've got our biking network that's coming through … we would like you to include decent cycling and walking facilities … [it] becomes a [more holistic] transport project at an intersection. We do that all the time now"*

8.1.2 Growth in scale of walking and cycling improvements

By 2021, there was an increase in the number of city wide network plans developed. This period was also marked by an increase in walking and cycling programme business case development, providing a new scale of ambition, longer term goals and investment commitments. While this was an important development, NZTA participants identified some associated tensions: writing business cases was a factor in project delays because of the time and process involved in writing; business cases potentially leading to over specification and a loss of flexibility; the increasing cost of retrofitting fit for purpose cycleways in urban centres.

Several participants recognised that 2018 signalled a new investment focus on regional and rural areas. For smaller councils, this showed that walking and cycling was also important outside of the main urban areas. Participants read this as an opportunity for complementary government investment to build upon existing local commitments.

However, for one council, GPS 2021 funding received was lower than expected, with investment prioritising models thought to favour projects delivering greater scale and uptake. Others commented on this, observing a trend towards larger programmes (e.g. separated cycle lanes in main urbans), at the expense of smaller street space reallocation projects and a subsequent loss of 'incremental' shifts and momentum in smaller centres.

> *… when… it's separated and therefore all user types can do it, that's absolutely great … flipside is that areas with really wide roads, like [smaller cities]; we're not seeing the visible shift because they can't afford it and they don't prioritise … they don't want to fight the parking battle … we're not getting some of the visible cycling kind of presence in that sort of incremental way"*

This impact was evident from a smaller council interviewed; while attempts were made to secure some programme elements through the low cost low risk category, limited funding had delayed network development and ultimately delayed progress towards outcomes.

When investments aligned with existing plans, participants described an enabling impact, However, the potential for a disruptive impact was also noted, through unrealistic timeframes, diverting resources from existing projects, and investment in projects that would not otherwise have been prioritised under existing plans. To optimise value, investments needed to support rather than hinder existing long term plans.

8.1.3 Mandate for walking and cycling improvements

The GPS provided mandate and confidence to continue with locally determined priorities and outcomes. There was a general view that the primary objectives of cycling investment are relatively simple: network development, travel options and connectivity. One large council had clearly established that safe, city wide connected cycling was the priority, with walking clearly performing better on key metrics such as level of service and community satisfaction.

Given the breadth of the walking and cycling priorities and outcomes, relative immaturity of cycling investment, and scale of 'catchup' required, most proposals were considered to easily align with the GPS. GPS 2018 had signalled walking and cycling improvements as a standalone activity class and had provided broad scope, potentially to the point that core goals were

undermined (e.g. through including recreation investments not recognised as solving a transport problem).

8.1.4 Integrating and prioritising walking and cycling improvements

While participants acknowledged business as usual should be a more integrated approach that better supported walking and cycling outcomes, specific obstacles were identified. For example, maintenance works tended to be very site specific, whereas cycle routes were more aligned with corridors. While best efforts could be made to integrate works, funding availability under different classes did not always line up.

Another view was that increasing the impact of the GPS on the true scale of walking and cycling development needed would require the GPS to prioritise the walking and cycling activity class over other classes.

> *"… I think that the only way to get better outcomes for walking and cycling is if the GPS understands the priority it wants to place on walking and cycling compared to the other priorities and then potentially funded appropriately or comes up with other… kickstart sort of schemes …if they keep it high level with just a small amount in the activity class, then they're only ever going to achieve limited outcomes …"*

Barriers or constraints to faster delivery timeframes for cycling projects were not examined in depth during the interviews. A larger council did discuss several contributing factors: the complexity of working within a large urban context, shifts in political support, a lack of in house expertise and specialist knowledge (requiring ongoing advisory inputs from available subject matter experts), and that much organisational knowledge was held by consultants, meaning learning was not necessarily retained by councils and previous mistakes could be repeated.

8.2 Business requirements

When asked about the investment planning and decision-making tools used, participants broadly described the development of RLTPs and their applications to the NLTF. There was an increase in the submission of programme level business cases from 2018 (particularly for cycling), responding to the level of investment and behavioural change required, and to the need for more sophisticated solutions and integrated strategy (e.g. separated lanes, land use planning).

For participants with city or area wide bike network plans, these plans were generally referred to as the principal framework driving all decisions. A smaller council's plan had been informed by extensive stakeholder and public consultation; it provided the blueprint for route planning, determining deliverables, and upskilling staff and consultants to deliver the service level needed to achieve intended outcomes by site and location.

Participants described a variety of planning tools used to identify delivery priorities at the local level (and within programme business cases where applicable). These included:

- multi-criteria assessment tools for determining prioritises (e.g. level of service, level of public interest, access, safety, deliverability, cost per kms, uptake, expected outcomes)
- prioritising routes within a network plan to maximise investment return (e.g. population densities taking greatest number of short trips, connections to schools and public transport amenity)
- integration with spatial/land use planning
- integration with growth and development planning and projections (e.g. housing intensification, business development plans, asset planning, public transport strategic planning), and
- in larger cities, consideration of geographical spread and equity regarding whole of city investment.

Participants generally described less need and opportunity for a strategic planning approach to walking. Much of the investment comprised relatively small components of funding under the low cost low risk category, and was already embedded in the system through renewals, local road maintenance, and road safety enhancements. Planning tools described included developing investment logic papers and using multi criteria for determining walking priorities.

8.3 Value indicators

8.3.1 Use of benefit-cost analyses

The breadth of walking and cycling outcomes signalled in GPS 2018 and 2021 clearly indicated needing broader measures of value assessment than traditionally used in transport. However, all participants stressed the importance of cost benefit analysis (CBA) and comparing benefit cost ratios (BCRs) at programme and project levels. General improvements in BCR methodology were reported, although some participants still questioned reliability (e.g. different consultants could produce different results).

Calculation of BCR is often sought by decision makers to allow comparison across modes. Programme level BCR gave confidence and assurance regarding value for money and the overall programme of work and informed planning (e.g. evidence based prioritisation based on population growth and land use changes). A key role involved determining the service level required to achieve a desired uptake, rather than in undergoing unnecessary scoping and overdesign. The BCR calculation was also important when communicating with stakeholders and defending cost.

> *"… Councillors will ask about this sort of thing or more often now, "what's the cost per kilometre?", the way we justify it is by saying yes, it is expensive per kilometre, but this is the BCR … it gives them comfort they are getting value …"*

A trend (2021-24 GPS) to calculate BCR at a network or area wide level was noted. This acknowledged that full benefits are not seen until a sufficient level of connectivity has been achieved; individual routes within the whole could deliver a low BCR.

> *"… [large city] is experiencing this right now where they're trying to develop a business case that connects local routes into their major cycleways…local routes are really hard to get to stack up but if you do that as a full network at once, you recognise how important the interconnectedness is"*

At a route level, BCR were used to prioritise route planning and delivery, although eventual investment decisions were never as simple as working from top to bottom. Walking and cycling investments were described as requiring trade offs with other local share investment pressures. Some noted that while a proposal could have a defensible BCR, a range of factors ultimately determined investment decisions (e.g. internal prioritisation, political review, public consultation, and local share constraints).

One participant described the programme business case BCR as a tick the box requirement for overall mandate. They saw as much value in ensuring a coherent intervention logic required in a business case (e.g. clearly identified need, solution, and outcomes). As most cycling projects were under $15million (a NZTA investment decision making framework operational investment policy requirement), they did not trigger a full business case requirement and proxy benefit measures could be applied. Assuming a BCR of at least +1, this enabled greater account of wider benefits (e.g. health, placemaking) and allowed business cases to tell the wider investment logic story.

8.3.2 Other value criteria

Other criteria of 'value' identified for local planning and prioritisation included:

- Uptake and use. There was a suggestion that the number of users needed for a return on investment should be the predominant measure of value used for benefit realisation in cycling.
- Principles of network design (e.g. connectivity, safety, comfort, directness). To ensure the investments deliver the service level needed to continue building the social license to continue investment.
- Community demand and the political responses to this.
- Alignment with 'value' increasingly defined by local stakeholders (business, community, politicians). In one large city, a significant proportion of project budgets were directed at understanding what was 'valued' by the community. The community became more engaged once it had a stronger voice in decision making.

Community satisfaction, sentiment, and support for delivery was also seen as an important value indicator.

> *"… people now coming into Council meetings in the public forum championing what we're doing … really passionate … please do more …"*

Delivery capability and track record were considered increasingly important criteria. These measures included dimensions such as kilometres delivered, timing and readiness, delivery efficiency, necessary governance and management capability, and political commitment.

> *"… walking and cycling investment is about creating a network… therefore if you don't have that broader system commitment and the ability to deliver on that, you're not going to get the benefits that we're seeking."*

Cost efficiency was identified as criteria warranting greater attention. There was value to ensuring solutions were fit for purpose and incorporated defensible intervention logics. However, trade offs were evident. Transport projects were arguably better for delivering other benefits (e.g. incorporating social, cultural, placemaking value); however, they were also more expensive.

> *"… there is a question as to whether we are giving sufficient priority to cost effectiveness and efficiency … [rather than saying] go out and deliver the best project you ca n… [should we be saying] deliver the most cost-effective project …*

Several participants noted the difficulty of generating a positive BCR for walking projects specifically, with benefits that were broader than transport alone. A large council explored a healthy streets/placemaking approach to their walking programme and was concerned that current BCR was not well suited (e.g. most benefits related to road safety and access). This same council also valued greater attention to more appropriate measures of equity, as an important dimension of value.

> *"… there's not a single way within the industry to measure equity. We've kind of looked at it in the cycling programme as geographic equity, in the walking programmes they use … socioeconomics … socio-demographics … the flipside [is] we've got this emissions reduction target, and we want the most trips as quickly as possible … we would [only invest in large urban CBD] if we were going to do that."*

8.3.3 Cost containment

Several participants described tensions related to cost expectations. While larger urban projects were typically multi modal and had to address other requirements in the corridor (such as upgraded drainage), there was a common expectation that projects should be cheaper (even

though being cheaper does not necessarily provide value). The pressure for urban projects to address other level of service issues within a corridor, was acknowledged as a tension and driver to cost increases.

> *"… you're retrofitting into an existing road environment and calling them walking and cycling projects is really a misnomer … usually bus priority is in there … parking, loading, bus stops … traffic signal changes … you're moving the curbs … same traffic management costs but there is a kind of underlying assumption … this is cycling and walking, it's got to be cheap …"*

Participants described funding constraints leading to pressure to reduce scope, be it level of service, design (e.g. untreated intersections), and other dimensions often regarded as 'add-ons' (e.g. way finding, end of journey facilities). This could undermine benefits delivered, for example, a route that is under used because of inadequate wayfinding and signage. Some councils pushed back, reinforcing that such dimensions were core to scope:

> *"… it is around really settling on your levels of service and staying true to them because if you don't build to the level of service that you want, then cyclists just won't use it"*

One council described a circular process where there was pressure to reduce cost per kms only for those elements to be reinstated through internal review (e.g. the need for multi modal solutions), leading to cost increases again. For this council, the 'middle'[20] size typical of many cycling projects meant projects were generally positioned within a 'programme' and therefore vulnerable to funding cuts (e.g. loss of delivery funding). Within the programme context, these cuts could have low visibility yet could significantly undermine progress and benefits delivered.

Walking and cycling was described by interviewees as the 'sacrificial' activity class in the event of councils facing emergencies or emerging priorities. For this reason, the class was always over approved, assuming an eventual underspend (as happened for the GPS 2018).

8.4 Benefits gap factors

8.4.1 Business-as-usual risk and contingency planning practice

There was little evidence that a 'benefits gap factor' was explicitly calculated and applied in planning and decision making, beyond normal monitoring and evaluation of use and uptake of walking and cycling facilities. It is therefore not clear the extent to which learning from past activity is informing future activity, and there was little intentional use indicated by interviewees of a benefits gap factor incorporated in future planning.

> *"… there's not enough time in the day to spend too much energy on playing with … hypothetical unknowns … you're planning based on a lot of assumptions and optimisms and biases but until you are at the outcome end looking back, you have no clue actually what's likely to happen going forward … from a practical sense, it is impossible to really take that into account at the front end of a relatively once over lightly planning process …"*

While risks were identified and contingency applied, it was difficult to accurately predict what risks would eventuate. Some were about the challenge of allocating, managing, and aligning the internal resources needed for delivery; multiple factors and competing demands could ultimately determine this (e.g. local shifts in investment priorities).

[20] Not requiring a specific line item in the RLTP but still needing a business case.

8.4.2 Connectivity as a key component of value

Cycling network development is a long-term project (20-30 years) and a level of connectively is required before full benefits are delivered. A system approach is needed across a range of infrastructure and behaviour change interventions (including but not limited to network plans), along with a commitment to long term investment. There is rationale for modelling and measuring benefits at the network level (e.g. users of the network overall), rather than by individual part. One participant from a large council described the difficulty of defining cause and effect. In a region-wide strategy, it was challenging to isolate the individual impact of specific projects. This council was starting to see the connectivity effect, observing increasing use as each section of the network was completed.

Given these issues, participants struggled pragmatically with the concept of accurately measuring benefits delivered at a point in time. It was accepted that a benefits gap would always exist until sufficient network connectivity was achieved. A common question was, "when was the 'right' time to measure benefits?"

> *"… there will always be a benefit gap in the short to medium term and we have to be realistic about that … you've got to educate the users, you've got to change people's behaviours, you've got to build the network out and money will be a limiting factor for quite some time… it's about realising if you've got a good overall plan and you're taking steps to build it in a logical sequence, then everybody, both the community and NZTA as funders and governance, need to be realistic about that."*

The primary use of performance and progress indicators (e.g. users, perceived safety, community satisfaction, walking and cycling attitudes and beliefs, crash data) made more sense pragmatically, to ensure results were in the right direction, to demonstrate that continued investment was warranted, and to inform coherent overall planning.

With current levels of service and community satisfaction for cycling at very low levels in several cities/towns, it was also difficult for participants to apply a benefits gap factor to their planning.

> *"…crash numbers…dissatisfaction with cycling level of service, lack of strategic cycling network…all those indicators clearly pointing to the need to keep going…generations to catch up on"*

Other measurement challenges identified included:

- measuring benefits that were often not cost effective or economic given the smaller scale and more fragmented nature of walking investments.
- measuring mode transfer and the implications of this for measuring the benefits gap (e.g. is highest value/benefit delivered when mode transfer is from vehicle to walking and cycling, rather than from public transport to walking and cycling).
- measuring kilometres of infrastructure delivered (e.g. when walking and cycling infrastructure is delivered under other investment classes).

8.4.3 Community support

While the GPS mandated and gave strategic direction to walking and cycling investments, council interviewees observed they were not aimed at nor generally understood by the community. Changing attitudes and values, essential to community support and behaviour change, lay with councils. NZTA participants described GPS 2018 as a period of considerable learning about consultation and engagement, community attitudes, and how community opposition could significantly impact progress.

Several councils described the considerable resourcing required for consultation and engagement. One large council described building 'soft' infrastructure and publicly acceptable active modes as their biggest challenge. As they sought to invest equitably into 'harder to reach'

non cycling areas, even greater investment in engagement, ‘soft infrastructure’ and activation was required, adding further budget pressures.

> *“… [its] getting communities to value road safety and value street space differently … you've got to have hard conversations about slowing down traffic with speed tables and removing parking … you need people to see the value … you're taking away some benefits they enjoy”*

8.5 Capacity and capability

There was limited evidence that assessing delivery capacity and capability was explicitly built into investment planning and decision making (notwithstanding increased attention to deliverability and delivery efficiency as value criteria, noted earlier). Given the more recent development within many councils of walking and cycling specific capacity and capability, a key concern for several participants was the ongoing development of required internal and external capacity and capability, given the scale of development and behaviour change needed.

Participants reported different levels of satisfaction regarding whether existing capacity and capability was sufficient. One large council had been building organisational capability since UCP investments, but given organisational restructuring and financial constraints, was currently only delivering baseline services. The smaller scale of cycling investments against other modes was thought to undermine the extent to which investments in the programme were seen as necessary. However, given the catchup required, the reverse was true.

> *“… we get told “the cycling programme, it's lower value so it doesn't need a programme director, it needs a programme manager… It's such a small amount so we don't need to resource it as much,” but the energy involved in trying to get it off the ground is a lot more complex … cycling may not have huge dollars attached to it but it's a complex space to be in and so we just don't resource it appropriately…”*

Another larger council described the planning challenge of aligning the multiple disciplines required for successful delivery (e.g. governance, management, engineering, political, engagement). This required significant investment in organisational capability and was a long-term project. Hence, it was difficult for operational planning and generally, issues didn’t filter down to day to day planning.

For a smaller council facing limited walking and cycling investment via the NLTF, the focus on building capability and capacity was also about being ready to take advantage of additional funding opportunities when they arose, for instance through Streets for People and the Urban Cycleway Programme. This council had good understanding of consultant and contractor capability, were working hard to build and maintain trusted working relationships and attempted to allocate work in line with existing consultant and contractor capacity.

> *“… you've got to train your staff, train your consultants, train your contractors on how to build these things … if you dabble around the edges, you will waste money because you will build some stuff that doesn't provide the level of service, doesn't get used …”*

8.6 Case study: Christchurch Walking and Cycling Programme

8.6.1 Background and significance

Nationally, Christchurch has been referred to as New Zealand's cycling city with the number of people cycling continuing to grow year on year.[21] Post quake public consultation on rebuilding the city expressed a strong desire for a more sustainable transport system, particularly cycling.

The original strategic business case for the Christchurch City Council (CCC) Cycleway Programme was submitted in 2014 and included thirteen major cycle routes, seven of which have now been completed. The cycleway programme has focused on major cycleways through arterial networks with future work to focus on connections between these major routes.

CCC Walking and Cycling activities are guided by the original business case as well as the current *Te Haumako; Te Whitingia: Strengthening Communities Together Strategy*, which sets out the vision of creating "*active and connected communities owning their own future."* The strategy has four Pou (People, Place, Participation and Preparedness) that steer planning and priorities across all council activities, including walking and cycling.

The CCC Cycleway Programme provides an example of a walking and cycling infrastructure work programme that has successfully generated outcomes and benefits for communities. This is supported in part by the 2018/21 GPS in driving walking and cycling outcomes through investment prioritisation.

8.6.2 Mixed influence of the GPS on planning and prioritisation

The GPS is seen to have a fundamental influence on the CCC Cycleway Programme because it has set out specific activity classes for walking and cycling projects. However, the GPS influence is limited by its cycle dates and their alignment with local government planning cycles.

Historically, the GPS has been published after the CCC activity planning has concluded, which means that it is too late to directly influence decision making. This often results in CCC having to predict likely directions in funding and activity classes to setup strategic planning for success when the GPS is subsequently released. CCC have found that their efforts to deliver better outcomes for communities have generally aligned with government policy, in part because the four Pou set out in the Te Haumako; Te Whitingia strategy closely align with evolving GPS priorities.

> *"Usually, the GPS is too late to directly influence the programme. What it has done and what we've tried to do is read the tea leaves so that we can set ourselves up to be in the best spot we can when the GPS comes out."*

The gap between dates for LTP submissions and the subsequent release of the GPS has a significant impact on CCC and regional councils when funding availability requires significant local share for activation. Capitalising on the GPS aligned funds is only possible if there is strong alignment between the activity planning that has already been carried out.

8.6.3 Business requirements processes

A question was raised about whether the current business case approach is delivering value for money and making the most of available resources, specifically regarding the need to revisit lapsed business cases and demonstrate their ongoing alignment with strategic priorities.

There was a view that business cases were being used as blunt instruments across the project lifetime, when their designed purpose during project planning is to set out what needs to be done and within what timeframes. The question of best use of resources was also raised with the

[21] For example, in the 12 months from May 22-23 there were 3,612,094 cycle counts recorded (a 6% increase on the previous year).

need for multiple business cases rather than a single business case for a programme of works. Ultimately, this process was seen to create additional work that delivers little benefit to communities and undermines the delivery of outcomes set out in the GPS.

> *"We are haemorrhaging cash, filling in paperwork for something that's blindingly obvious and we should just get on with. But we also don't have the tools and the systems within the NLTF system to give some certainty of support and that then puts doubt over the programme."*

8.6.4 Shift in community attitudes

There was a shift in community expectations and openness to walking and cycling projects in the nine years from "complete vitriol" to "please just get on with it, get them built". This was considered a result of being two thirds of the way through the original programme of work and seeing the benefits of built cycleways, used as intended.

> *"The problem with any transport project is a lot of the tools that you've got are very blunt instruments and you don't realise the benefits for such a long time. You've got to have the vision and what our Council had was that vision after the earthquake of a city that we could cycle around safely, and people could feel safe. The strategic case fundamentally hasn't changed."*

8.6.5 Looking beyond traditional economic measures to demonstrate benefits and outcomes

Following the earthquakes, CCC invested in trying to understand the broader economic benefits of work on non monetised outcomes through transport planning. At the time, there was a GPS driving traditional transport metrics, but the council wanted to understand the wider economic benefits such as the impact of economic growth and prosperity, placemaking, and the delivery of a city that "*people wanted to live and work in*".

While subsequent GPSs have moved onto prioritising these broader benefits, there is still a gap regarding tools and systems to support measuring outcomes beyond the traditional economic assessment models. International examples of measuring broader outcomes were considered important examples of areas for future exploration:

> *"We looked at Copenhagen and how they do the biannual bicycle audit. They value the benefit of what you're doing in cycleways, not in terms of the numbers of cyclists that they get on the facilities each day. They measure every couple of years why people like living in Copenhagen and why they move their businesses there and so on and they are all about wider economic quality of life benefits with very little emphasis on the metrics around transport. The numbers of cyclists, that's just the noise, that's not what we're about, that's the outputs. It's not the outcomes we're looking for."*

To measure benefits, CCC have looked to some of the indicators that they capture through their extensive community satisfaction survey results and service requests generated. A shift from outputs to outcomes was seen as an important part of measuring non monetised benefits and demonstrates the outcomes of complex, multimodal, integrated packages of work. Current business case processes tend to view packages of work in isolation from each other. Such scheme-by-scheme business cases for transport projects fail to deliver value for money and resources in context of complex interconnected transport schemes that rely on network connectivity to deliver benefits.

> *"[We have concerns around the] emphasis towards monetising benefits and it's been a continual tension for us […] if everything returns to it's only any good if you can monetise it, we worry about how that can actually deliver a genuinely integrated system that takes account of all benefits across the board and doesn't unwittingly step into the things that hit the priority list are the things that give you the most easily measurable monetised benefits, which is going to be about journey time savings and things like that."*

9 Appendix 3: Methods

9.1 Evaluation design

The evaluation applied the Value for Investment (VfI) evaluation system to structure the design and implementation of this project. The VfI approach is designed to answer questions about how well resources are used, and whether the resource use is justified. This provided a structured process and guiding principles for the evaluation, through which the Ministry's VfM Assessment Model is systematically applied.

In applying VfI, a mixed methods approach of quantitative and qualitative data gathering and analysis was used to explore patterns of efficiency and effectiveness in local road maintenance and walking and cycling improvements, and the underlying factors and challenges that drive the issues surfaced by the quantitative data.

Through a collaborative design process with the evaluation Steering Group, and other stakeholders from Ministry of Transport and NZTA, the following elements were developed:

- Analysis of the GPS 2018-2021 context, including a GPS theory of change (Appendix 2).
- Criteria for the evaluation aligned with the Ministry's VfM Assessment Model and the evaluation objectives, while also being shaped by the indicator data available to support the evaluation.
- A standards framework for assessing performance on key criteria, drawing on the framework used for the State Highway Review 2021.
- Key indicators for quantitative data collection and analysis.
- Areas of exploration and detailed interview guides for qualitative data collection.
- Interviewees for qualitative interviews and case studies.

Regular Steering Group meetings enabled discussion and refinement of key indicators and data sources, updates on progress, and reporting of emerging findings from quantitative and qualitative data collection and analysis.

9.2 Quantitative data sources

The quantitative data used in this evaluation was limited to existing datasets that were readily available from MoT, NZTA, REG, and Stats NZ:

- GPS 2018 and 2021 monitoring indicators collated by MoT
- NZTA's organisational annual report and NLTF annual reports
- NLTP extracts provided by NZTA
- NZTA road cost indexes
- Business cost index data from Stats NZ
- NZTA NLTP programme monitor reports for 2018-21 and 2021-24
- Results from NZTA surveys about public attitudes to road safety and attitudes and behaviours relating to walking and cycling
- Annual summary data from NZTA about approved funding for walking and cycling improvements and local road maintenance and improvements
- NZTA physical statistics (km and lane-km) for roads and cycleways
- NZTA annual road VKT data from regional traffic monitoring
- Detailed extracts from NZTA's Transport Investment Online (TIO) system about walking and cycling improvements projects
- Activity data from selected active modes counters provided by NZTA
- Data from the Transport Insights portal of the REG with detailed information about local road maintenance activities of local road authorities, including:
    - Local road pavement and surface condition, and smooth travel exposure
    - Local road maintenance works completed
    - Activity management quality assessments

- Data quality assessments
- Local road network physical characteristics
- Safety outcomes on local roads.

Quantitative data was cleaned, analysed, and visualised in R. Analysis focussed on identifying patterns and trends in the data relevant to evaluation objectives and criteria. Where possible, comparisons were made against data before the four-year evaluation period.

9.3 Qualitative data collection and analysis

In total, 14 key informant interviews were undertaken with 30 people from across New Zealand, with expertise in local road maintenance, and walking and cycling improvements. These included:

- (for local road maintenance), five interviews with ten people from a mixture of large urban, mid-size urban and rural council representatives, and a national NZTA representative.
- (for walking and cycling), six interviews with 13 people from a similar mixture of large urban, mid-size urban and rural council representatives, and leads within NZTA.
- three case study interviews with seven council representatives from Hastings, South Wairarapa (local road maintenance), and Christchurch (walking and cycling improvements). These cases were chosen as they offered different valuable learning opportunities: local road maintenance emergency responses (Hastings); alliancing and collaboration in local road maintenance (South Wairarapa); and effective implementation of a walking and cycling programme (Christchurch).

All interviews were structured around the VfM Assessment Model, and with specific reference to the GPS and the factors that supported or challenged achieving GPS outcomes and priorities.

A feature of this key informant interview approach is the participation of selected individuals based on their knowledge and expertise in a particular area, in this case transport planning. This approach is intended to draw on knowledge and expertise to deliver insight, rather than provide a representative sample, and is often described as purposive sampling.[22]

Qualitative findings were explored using thematic analysis approaches. Thematic analysis methods are used to comprehensively and systematically explore and map out emerging themes from the range of qualitative data.

9.4 Evaluative synthesis and judgements

This report addresses evaluative questions by assessing delivery and outcomes against explicit criteria (aspects of performance) and standards (levels of performance), co defined and agreed in advance with the evaluation Steering Group. The criteria and standards provide a framework to reach evaluative conclusions based on evidence and transparent reasoning. This core component of sound evaluation practice underpins the VfI approach.[23,24]

Preliminary judgements were presented to the Steering Group and NZTA stakeholders for validation, providing stakeholders with an opportunity to challenge conclusions or offer additional context. Nonetheless, the conclusions presented in this report represent the independent assessment of the evaluation team. Note that some sections of the report are not evaluative but explore the context, practices, and challenges facing local road maintenance and walking and cycling improvements.

[22] Denzin NK, Lincoln, YS. 1998. *Strategies of Qualitative Inquiry*. London: Sage.

[23] ANZEA & Superu (2015) Evaluation standards for Aotearoa New Zealand. Wellington, NZ: Aotearoa New Zealand Evaluation Association and Social Policy Evaluation and Research Unit

[24] King J (2017) Using Economic Methods Evaluatively. *American Journal of Evaluation 38*(1), 101-113

9.5 Limitations and scope

The quantitative data analysis is subject to the following limitations and caveats:

- Data obtained from the sources listed above is assumed to be correct, and the evaluation team has not verified its accuracy.
- Some quantitative indicators were only available for a limited period, and comparisons of outcomes in the evaluation period with prior years were not possible. Some indicators were also missing data for the last year of the evaluation period (FY2021/22).
- When analysing trends in high level indicators over time, we have not attempted to distinguish the impacts of other factors aside from GPS 2018 and 2021 on the observed outcomes. In general, it is difficult to distinguish the impacts on observed outcomes of a GPS from the many other external factors and trends that also affect transport outcomes and activity, due to the broad nature of the GPS, time lags between changes in the GPS and changes in outcomes, and small sample sizes in indicator datasets. The evaluation period includes the COVID-19 pandemic and responses such as nationwide and regional lockdowns implemented in calendar 2020 and 2021 that affected transport activity, investment and maintenance.
- The four-year evaluation period specified for this evaluation includes the full period for which GPS 2018 was in effect and the first year GPS 2021 was in effect. There are some differences in these two GPS policy objectives, but we have not attempted to analyse them separately.
- Our evaluation of walking and cycling was constrained by the limited availability of data. We make recommendations for improvements in section 4.

The qualitative data analysis is subject to the following limitations:

- Interviewees were not intended to be a representative sample of transport planners, but were chosen purposively for their expertise and knowledge from various perspectives.
- While every effort was made to explore in depth the dimensions of the VfM Assessment Model through interviews, all interviewees were challenged by time and availability, and in some cases not all areas could be covered comprehensively with all interviewees.
- The interviews were not to explore the use of the VfM Assessment Model but to use the model dimensions as a lens for understanding the role and utility of the GPS and broader contextual considerations for local road maintenance and walking and cycling.
- Councils around the country have different experiences, capabilities and goals, and reflect the needs of their communities. The viewpoints of different councils in this report are not intended to reflect all councils, rather to provide insight on the GPS operational environment.

10 Appendix 4: GPS Theory of Change

In planning for the 2018 GPS evaluation, we developed a theory of change to describe how change and outcomes from GPS 2018 were expected to occur.[25] Figure 26 on the following page sets out the theorised process, adapted to include both the 2018 and 2021 GPS, summarised below.

- MoT, working with the Minister of Transport and Associate Minister(s) of Transport, develop the GPS and the key outcomes agreed by government through investment strategy, strategic priorities and objectives, and activity classes. The GPS then guides investment decision making by NZTA and regional councils.
- NZTA prioritises the activities and programmes in RLTPs, which are developed by Regional Transport Committees and include the activities of NZTA. The board sets an investment target within the funding range for each activity class set in the GPS. The NLTP must give effect to the GPS and consider regional priorities. The Regional Transport Committees prioritise regional programmes in the RLTPs and can deliver the prioritised programme included in the NLTP with NLTF funding assistance. A council can choose to fully fund activities not included in the NLTP.
- Regional councils decide the investment mix for their regions, working with NZTA.
- NZTA, along with regional councils, territorial authorities and council-controlled organisations (CCOs) deliver on transport investments through planning, procurement processes, and contracting.
- These same organisations, and their contracted providers, then implement the GPS direction through design, consultation processes, construction, and service delivery.

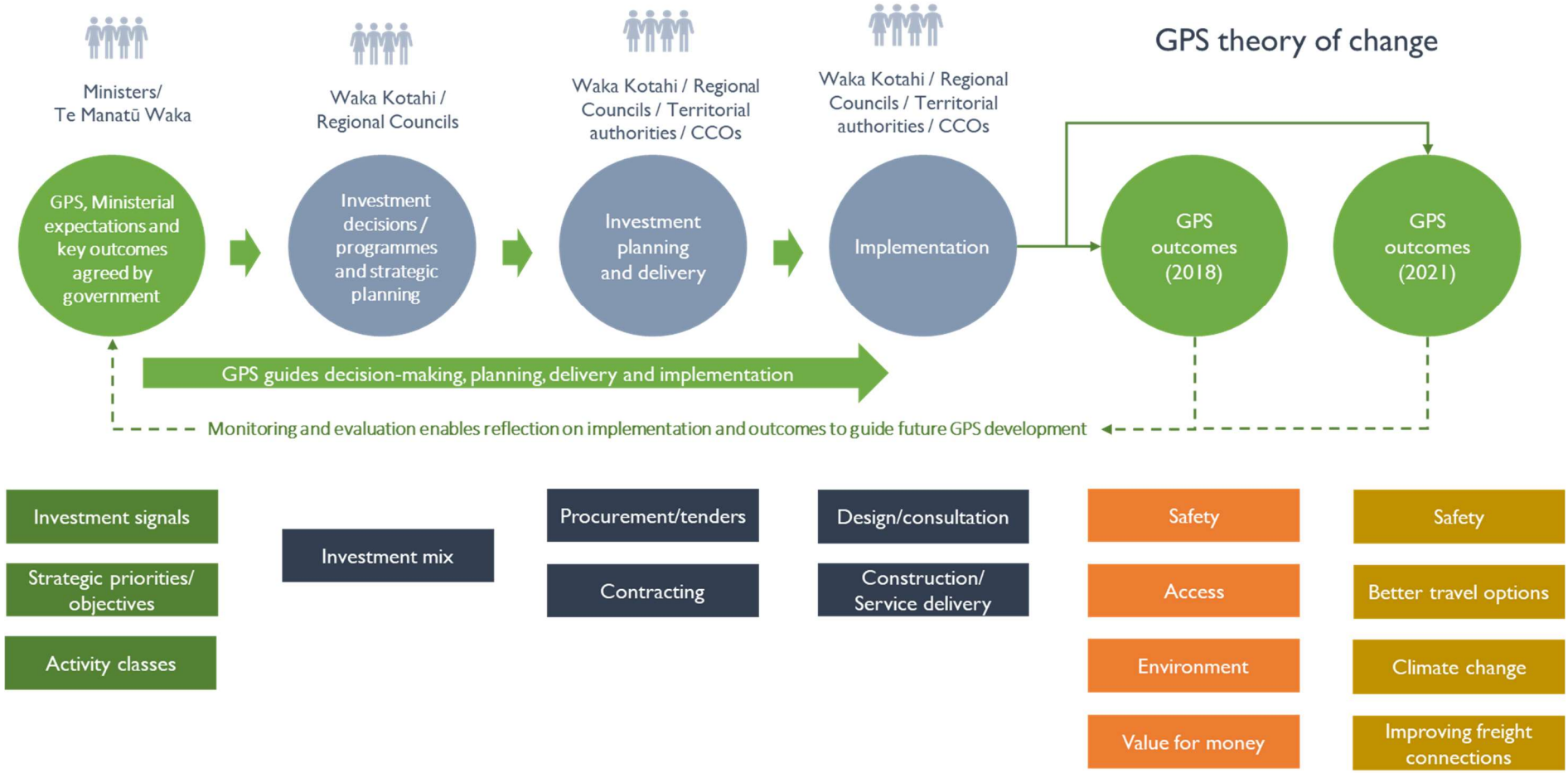
However, it is important to note the limitations of any individual GPS. These include:

- The legacy effects of previous investment decisions that are fully completed and which can be some years in the making (e.g. the Roads of National Significance programme). This typically means that a substantial amount of transport investment expenditure may have been pre committed by earlier investment decisions from prior GPSs.
- Proposals/business cases that were stopped due to changing priorities or circumstances.
- Investments that commence in the three years when GPS 2018 is in effect, but which are not concluded in that period.
- Other transport related policy and investment areas independent of the GPS, or regional land transport plans (RLTPs) that can be influenced by the GPS, but which also determine local priorities. Together these can consume a significant amount of funding.

Accordingly, in the short term, the range of investments that are influenced by any one GPS period may be quite limited, with substantial transport expenditure (historically around three quarters of the transport investment in any year) pre committed or allocated to ‘baseline’ activities such as ongoing maintenance. The GPS can, however, provide a degree of certainty, by setting important long-term signals that are realised beyond the immediate three year NLTP. This can produce changes over a decade and are gradually reflected in transport investment decisions made by NZTA, territorial authorities, and regional councils. However, the pace of change is clearly an issue in the face of urgent strategic imperatives such as climate change and the road safety burden.

[25] Funnel, S.C., Rogers P.J. (2011). *Purposeful Program Theory: Effective use of theories of change and logic models*. Hoboken: Wiley.

Figure 26 GPS Theory of Change



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