

Summary of GPS 2018 analysis

6 March 2017

1. Purpose

1. This document contains analysis undertaken by the Ministry of Transport as part of the development of the draft Government Policy Statement on land transport (GPS) 2018.
2. The purpose of this document is to:
 - show the main analysis the Ministry considered in drafting GPS 2018
 - provide additional information to assist deliberation and submissions on GPS 2018.
3. This document contains material that was used for developing the draft GPS 2018 as at December 2016.

2. Structure

4. This document consists of five main chapters:
 - A. Background on the GPS, its current and past policy settings, and the NZ Transport Agency's prioritisation process.
 - B. Notes about transport policy and interventions outside of the GPS that affect the transport system.
 - C. Data-driven analysis of outcomes across activity classes such as roads and public transport. This includes analysis where outcomes can be compared between activity classes or where multiple activity classes contribute to particular outcomes.
 - D. Data-driven analysis of outcomes by activity class, ie where outcomes are particular to individual activity classes.
 - E. Initial feedback from selected stakeholders from GPS 2018 listening sessions.

A. Background

1. What is the GPS

5. The Government Policy Statement on land transport (the GPS) outlines the Government's strategy to guide land transport investment over the next ten years. It also provides guidance to decision-makers about where the Government will focus resources. The GPS operates under the Land Transport Management Act 2003 (the Act), which sets out the scope, and elements that are required to be present in a GPS.
6. The GPS influences decisions on how money from the National Land Transport Fund (the Fund) will be invested across activity classes, such as State highways and public transport. It also guides the NZ Transport Agency (NZTA) and local government on the type of activities that should be included in Regional Land Transport Plans and the National Land Transport Programme.
7. Under the Act, the Minister of Transport must, at least once in every period of three financial years, review the Crown's land transport investment strategy (i.e. the GPS). When preparing the review, the Minister:
 - must be satisfied that the GPS on land transport contributes to the purpose of the Land Transport Management Act 2003; and
 - take into account any national energy efficiency and conservation strategy and any relevant national policy statement that is in force under the Resource Management Act 1991; and
 - have regard to the views of Local Government New Zealand and representative groups of land transport users and providers.
8. Before issuing a GPS on land transport, the Minister must consult the NZTA about the proposed GPS on land transport.
9. Related to the GPS are:
 - funding and revenue processes including:
 - revenue raised through the petrol excise duty, road user charges and the motor vehicle registration fee at rates that are set periodically through legislation and regulation. This revenue is dedicated to the National Land Transport Fund (NLTF) for expenditure on the land transport system¹
 - local funding raised through rates or from other sources of local government revenue. This funding is used to fund the local share of land transport projects
 - planning processes that are influenced by the GPS:
 - regional transport committees (RTCs) established by regional councils create regional land transport plans that reflect the GPS and the regions' own priorities. Proposed regional transport activities are submitted to the NZTA who then assess regions' proposals and the NZTA's own proposals against the Government's objectives in the GPS
 - NZTA's preparation of a National Land Transport Programme (NLTP), which includes planned spending on transport activities.

¹ Some projects are also funded from Crown funding outside of the National Land Transport Fund.

1.1. Previous GPS documents

10. The GPS sets out the Government's objectives for land transport, and sets the budget for transport activities through funding ranges to activity classes.
11. There have been four GPSs since they were established under the Land Transport Management Act:
 - [Government Policy Statement on Land Transport Funding 2009/10 – 2018/19](#) published by the Government in August 2008 (called 'GPS 2008' for the purposes of this document)
 - [Government Policy Statement on Land Transport Funding 2009/10 – 2018/19](#) published in May 2009 and amended in November 2010 (called 'GPS 2009')
 - [Government Policy Statement on Land Transport Funding 2012/13 – 2021/22](#) published in July 2011 ('GPS 2012')
 - [Government Policy Statement on Land Transport Funding 2015/16 – 2024/25](#) published in December 2014 ('GPS 2015')

1.2. GPS content

1.2.1. Strategic priorities

12. There are currently three strategic priorities in GPS 2015. These are:
 - economic growth and productivity
 - safety
 - value for money.
13. These are the same strategic priorities as for GPS 2012.
14. As part of the analysis we reviewed how the focus for these priorities has changed between GPS 2012 and GPS 2015. Safety has remained the same but the relative focus within the other two priorities has changed. We also used the listening sessions with stakeholders to refine the focus for these priorities. As a result, the emphasis in GPS 2018 for these priorities has changed.
15. Another issue is how the three strategic priorities work with each other. For example, a new road that bypasses a town will improve the productivity of freight companies and generate economic growth in industries served by that freight. However, if it is low value for money once the costs of building that road are considered (that is, the benefit-cost ratio – BCR - is low), then, because of opportunity costs, there will be projects with greater net benefits that could have proceeded instead. This could result in a net cost to New Zealand in terms of productivity.
16. The tensions in these areas are not easy to resolve but can be clarified in the GPS. For example maximising value for money will automatically advance economic growth and productivity. However, there will be times when projects with low BCRs are necessary to advance Government priorities. For this approach to work, there needs to be a strong policy alignment with the GPS expression of government priorities and transparency as to the reason for the decision to advance the project.

1.2.2. Results

17. GPS 2015 introduced an objectives and results framework that was enabled through amendments to the Act in 2013.

18. There are six national land transport objectives contained in GPS 2015. These aim for a land transport system that:

- addresses current and future demand for access to economic and social opportunities [GPS 2015 priority]
- provides appropriate transport choices
- is resilient
- is a safe system, increasingly free of death and serious injury [GPS 2015 priority]
- mitigates the effects of land transport on the environment
- delivers the right infrastructure and services to the right level at the best cost [GPS 2015 priority].

19. These objectives were mapped to ten long term results². Short and medium term results are included within the GPS 2015 activity classes. However, this mapping is not always consistent and NZTA's investment assessment may also be inconsistent. For example:

- All the long-term results – economic growth and productivity, resilience, safety, mitigation of adverse environmental impacts – are primary long-term results for State highway improvements. However, the only primary long-term result for local roads is economic growth and productivity (the others are secondary).
- The relationship between long term and short to medium term results is confusing. While resilience, safety and mitigating environmental impacts are primary long-term results, the associated short to medium term results are not primary for State highway improvements. This might suggest that NZTA and RTCs can give resilience, safety and mitigating environmental impacts less emphasis in the short to medium term, but enough focus to achieve them over the longer-term. However, resilience, safety and mitigating environmental impacts are primary short to medium term results for the multi-class reporting lines.

This could mean either that achieving results in the short- to medium-term is not a priority for State highway improvements and local road improvements so long as it is achieved in other activity classes; or that they are a priority for roads, but also for other activities and, so, reporting happens in the multi-class reporting lines.

- Reporting on safety expenditure appears to be a higher priority result than actual improvements in safety. While information is essential to making robust investment decisions, there may be a question about the emphasis on information over actual improvements in safety.
- Resilience in GPS 2015 is about economically and socially critical points. While the long-term and short- to medium-term results only mention 'most critical points' without regard to whether they're economic or social, the reporting requirements specifies 'most economically and socially critical points'. The objective that relates to resilience states that 'priority needs to be given to improving the system's resistance to disruptions that pose the highest economic and social costs'³. However, NZTA's current strategic fit criteria provide a high rating for resilience only where the resilience is for economic reasons. However, there is work underway within NZTA to incorporate social reasons into the assessment.

20. As part of developing GPS 2018, the structure of the GPS was rearranged to get better alignment between priorities, objectives and results. This process also highlighted some inconsistencies of signals within the GPS. Providing a structure that speaks largely to

² See Table 1 in GPS 2015, page 16.

³ GPS 2015, page 21.

results, and not necessarily to the area of investment, should provide clearer investment signals to NZTA and RTCs, and signals for incorporation in the NZTA investment assessment framework. However, it is important to continue to review the link between the GPS, the investment assessment framework and what is actually happening in practice to ensure further necessary refinements are made both in the GPS and the associated planning processes.

1.2.3. Activity classes

21. Given the role of activity classes in GPS 2015 in delivering the short and medium terms results, the following analysis follows the GPS 2015 activity class structure.
22. Funding ranges for GPS investment are set in activity classes. The 10 activity classes in GPS 2015 are:
 - state highway improvements
 - local road improvements
 - state highway maintenance
 - local road maintenance
 - regional improvements
 - public transport
 - walking and cycling improvements
 - road policing
 - road safety promotion
 - investment management.
23. Details of what is covered by each activity class can be found at <https://www.pikb.co.nz/activity-classes>. These activity classes have changed since the first GPS was issued in 2008. These changes are relevant to the extent that some GPS analysis covers periods where the activity classes may have had a different structure or content. Table 1 outlines these changes. GPS 2015 merged many activity classes, and created a regional improvements activity class⁴.
24. State highway improvements and road policing along with most expenditure in the road safety promotion and investment management activity classes are completely funded from the NLTF. As regional improvements have, so far, all been State highway improvements, these have also received all of their funding from the NLTF.
25. Other activities are funded from the NLTF and by local authorities with the local share varying by region according to need and ability to pay. The average regional contribution is around 47 percent. The average funding assistance rate (FAR) from the NLTF is 53 percent.

⁴Prior to GPS 2015 population based R-Funds were used to fund regional improvement activity.

Table 1: Activity class changes, GPS 2008 to GPS 2015

 No significant change New Ended Merged Changed scope			
GPS 2008	GPS 2009	GPS 2012	GPS 2015
New and improved infrastructure for State highways	New and improved infrastructure for State highways	New and improved infrastructure for State highways	State highway improvements
New and improved infrastructure for local roads	New and improved infrastructure for local roads	New and improved infrastructure for local roads	Local road improvements
Renewal of State highways	Renewal of State highways	Renewal of State highways	State highway maintenance
Maintenance and operation of State highways	Maintenance and operation of State highways	Maintenance and operation of State highways	
Renewal of local roads	Renewal of local roads	Renewal of local roads	Local road maintenance
Maintenance and operation of local roads	Maintenance and operation of local roads	Maintenance and operation of local roads	
Public transport services	Public transport services	Public transport services	Public transport
Public transport infrastructure	Public transport infrastructure	Public transport infrastructure	
Walking and cycling facilities	Walking and cycling facilities	Walking and cycling	Walking and cycling improvements
			Regional improvements
Road policing	Road policing	Road policing	Road policing
Demand management and community programmes	Road user safety	Road safety promotion	Road safety promotion
Sector training and support Sector research	Sector training and research	Sector research	Investment management
Transport planning	Transport planning	Transport planning	
Performance monitoring Management of the funding allocation system	Management of the funding allocation system, including performance monitoring	Management of the funding allocation system, including performance monitoring	
Rail and sea freight	Rail and sea freight		
Domestic sea freight development	Domestic sea freight development		

1.3. NZTA prioritisation process

26. The NZTA interprets the GPS's short to medium term results and, within the funding ranges specified, uses a prioritisation process to give effect to them, by employing an investment assessment framework.⁵ The framework considers three factors:

- strategic fit - how an identified problem, issue or opportunity aligns with GPS results. Strategic fit focuses on the problem, issue or opportunity being addressed and is considered without regard to the possible solution
- effectiveness - the contribution that the proposed solution makes to achieving the potential issue or opportunity identified in the strategic fit assessment and the purpose of the LMTA
- efficiency – a benefit-cost appraisal⁶ of the proposal given as a benefit-cost ratio (BCR) for improvements and cost effectiveness for continuing programmes.

27. Each of the assessment factors can be rated as low, medium or high. The NZTA assigns a priority score to projects according to the combined assessment of these three factors.

Table 2: Assessments and priority scores for NLTP 2015

Assessment profile [strategic fit effectiveness efficiency]		Priority
	HHH	1
HHM	HMH	2
HHL	HMM	3
HML	MHH	4
MHM	MMH	5
MHL	MMM	6
	MML	7

28. As noted earlier, to see how well the Government's objectives are reflected in land transport processes, we need to look across the GPS and its implementation through NZTA's prioritisation process. The NZTA's strategic fit criteria are key to prioritising projects and operates as a gateway into the assessment process. It is important that the investment assessment framework and strategic fit align with the GPS. This requires review of the outcomes from the investment assessment process.

29. As with other elements of a GPS, there can be different emphases given to the relative weighting in the investment assessment framework depending on the GPS investment signals provided. For example, the value for money focus, based on BCRs, in GPS 2015 placed increased emphasis on the importance of efficiency.

30. In terms of projects progressing into the NLTP, the strategic fit criteria is key:

- projects with a low strategic fit rating or a low effectiveness rating cannot be approved for funding
- projects with high strategic fit can progress into the NLTP even if their efficiency scores are low

⁵ <https://www.pikb.co.nz/assessment-framework>

⁶ Alternative methods like cost effectiveness can be used on occasion or for particular activities. Maintenance, for instance, is generally assessed using cost effectiveness.

- projects without an economic efficiency assessment or with a BCR below 1 receive no rating and are ineligible for funding approval other than in exceptional situations.
31. The analysis concluded that the NZTA's strategic fit criteria overall reflects the relative importance GPSs have placed on economic growth by allowing activities that support economic activity to receive a high strategic fit. However, between GPS 2012 and GPS 2015 the investment framework may have reduced the focus on efficiency (BCR) slightly more than the intent behind GPS 2015.

1.4. Funding priority

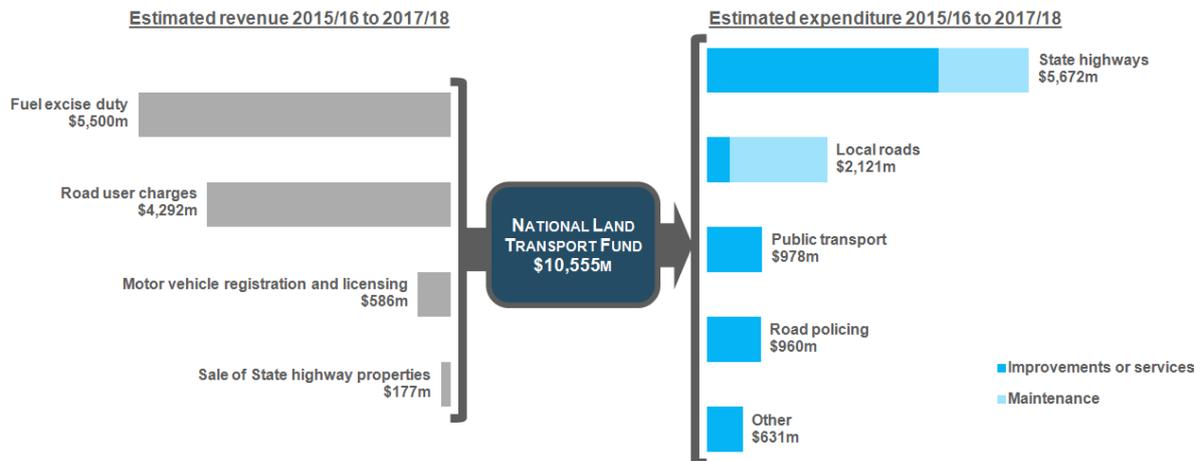
32. In developing the NLTP, the NZTA assigns each project a funding priority. Funding priorities are based on prioritisation scores, timing, and available funding.
33. There are five levels of funding priority:
- A. Committed – projects approved under previous NLTPs and carried forward into the current NLTP
 - B. Approved – projects approved under the current NLTP
 - C. Probable – projects likely to go ahead if sufficient funding is available
 - D. Proposed – projects that could go ahead if sufficient funding is available and if there aren't other higher priority projects that might yet be approved
 - E. Not included – projects that are put forward for inclusion in the NLTP that are not accepted by the NZTA.
34. A project's funding priority changes over time as projects move through the process, or as projects drop out as other higher priorities arise.

2. Revenue and expenditure

2.1. Summary of revenue and expenditure for 2015/16 to 2017/18

35. Figure 1 summarises⁷ revenue and expenditure for NLTP 2015. Later chapters explore revenue and expenditure in more detail.

Figure 1: Revenue and expenditure for NLTP 2015



Source: Ministry of Transport using [NZTA](#) estimate of revenue published at 30 June 2015 and [NZTA](#) expenditure 1 June 2016

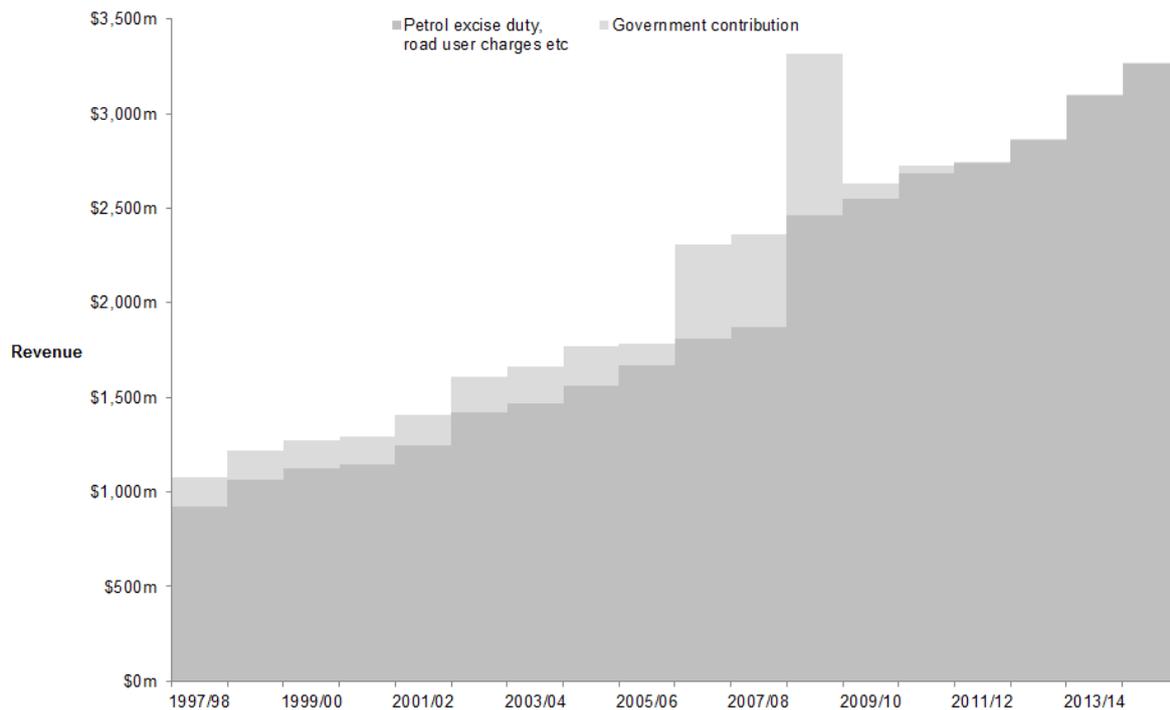
2.2. Revenue over time

36. Petrol excise duty was hypothecated 2008 meaning that this revenue is only available for transport projects. For most of the time prior to 2008, petrol excise duty was Crown revenue with Crown appropriations made into the NLTF.

37. Revenue sources for the NLTF are shown in Figure 2.

⁷ Expenditure and revenue totals may not equal as they were estimated at different dates (about a year apart), and because the NLTF can move into surplus or deficit in the short-term.

Figure 2: Revenue sources for the National Land Transport Fund, 1997/98 to 2014/15



Source: Ministry of Transport

3. Expenditure

3.1. Funding ranges

38. Figure 3 shows how activity class funding ranges have changed from GPS 2008 to GPS 2015. While funding ranges can be an important signal as to expected areas of investment, actual expenditure may differ. This is because some activity classes are subscribed at the top of the funding range (such as the walking and cycling activity class in GPS 2015), while others may be at (or below) the minimum for the funding range (such as the local road improvements activity class in GPS 2015).

39. Actual expenditure can be traced back to 1997/98 through the NZTA's, and its predecessors', annual reports.

Figure 3: GPS funding ranges, 2009/10 to 2024/25

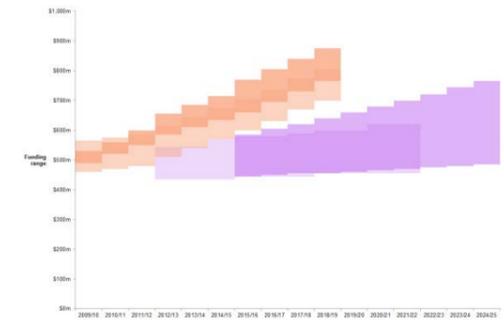
\$2,000 million scale

State highway improvements

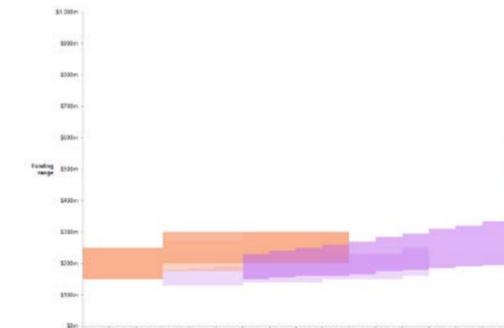


\$1,000 million scale

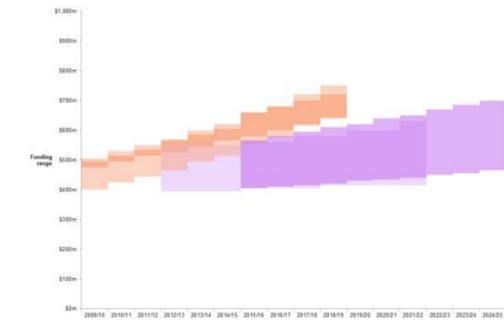
State highway maintenance



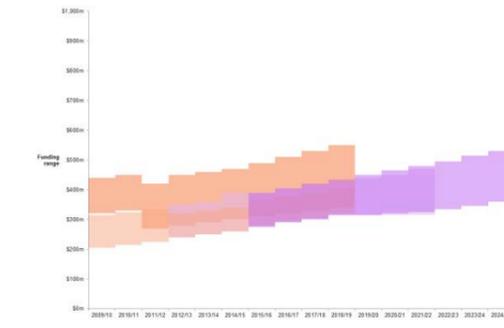
Local road improvements



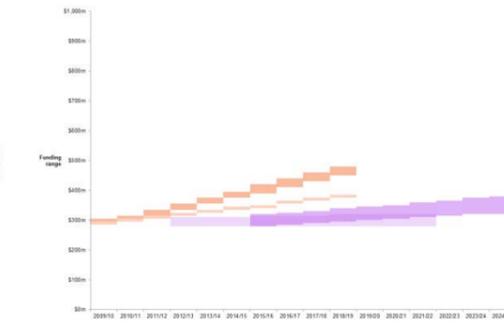
Local road maintenance



Public transport

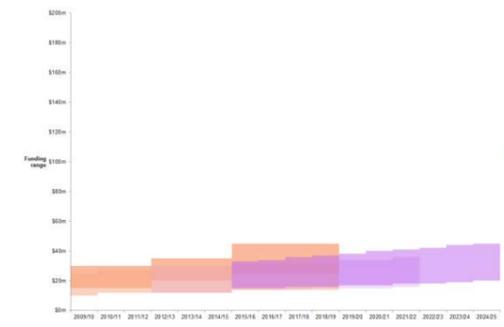


Road policing

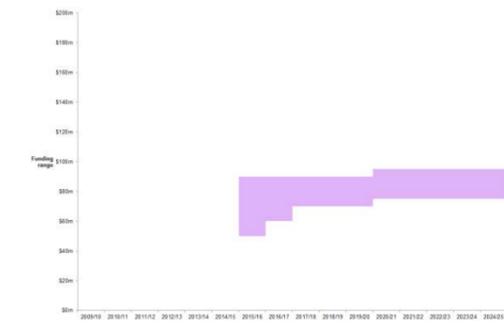


\$200 million scale

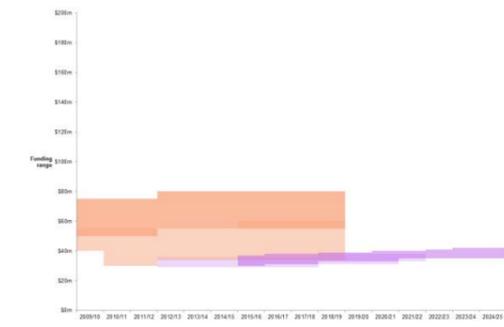
Walking and cycling



Regional improvements



Road safety promotion



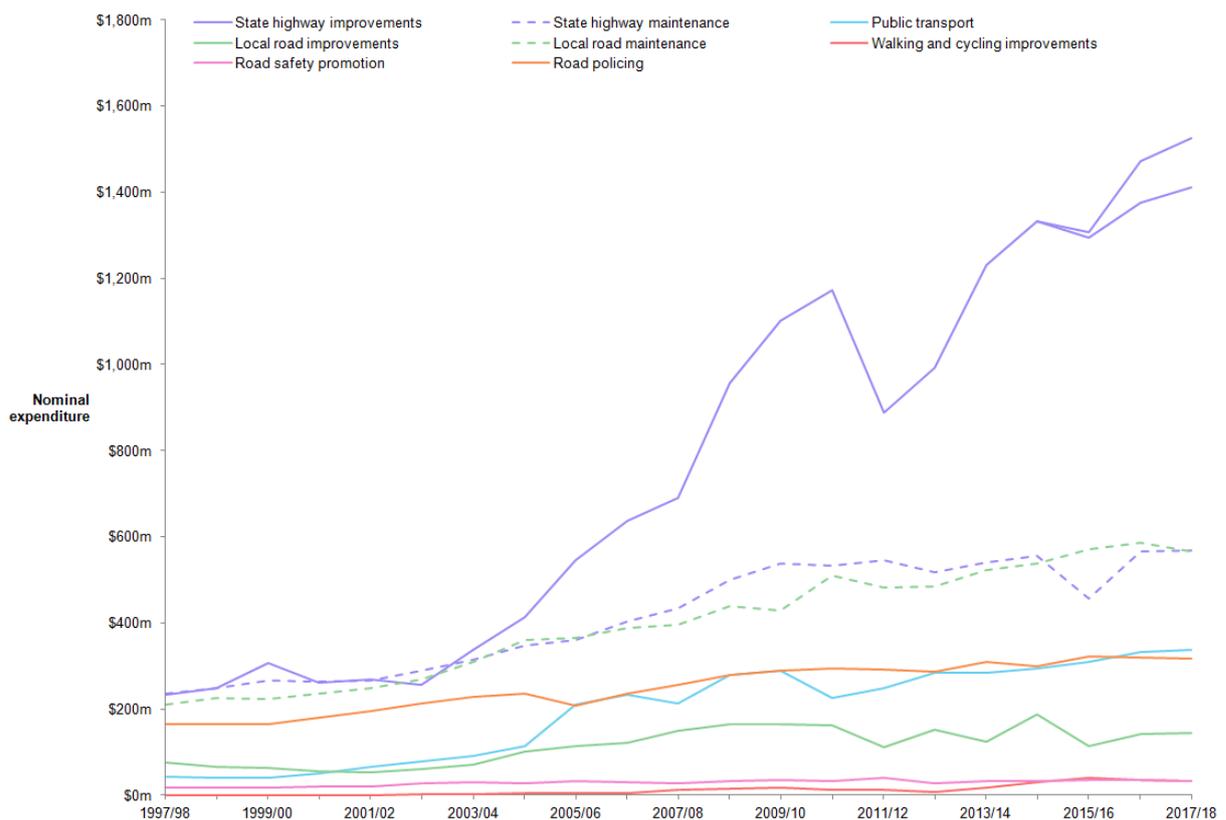
Investment management



Source: Ministry of Transport based on GPSs 2008, 2009, 2012 and 2015

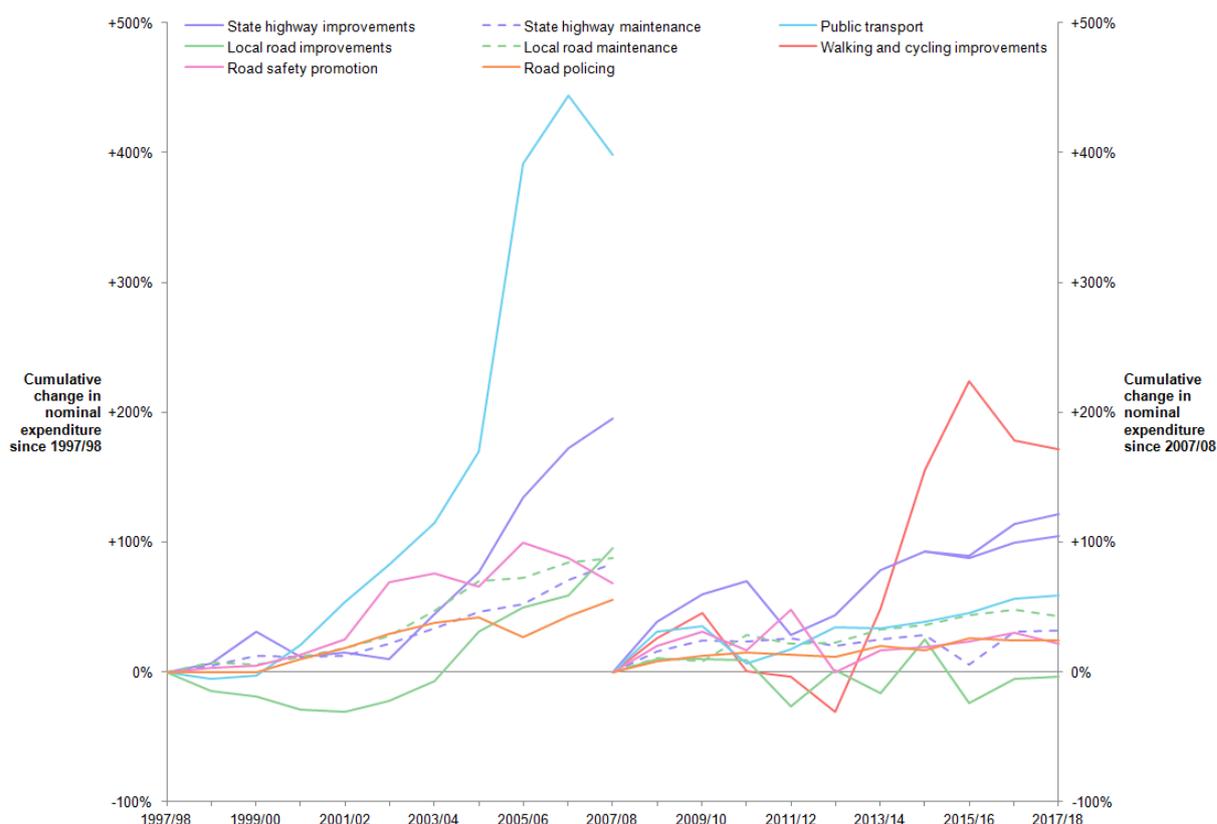
40. Figure 4a shows how activity class funding ranges have changed from GPS 2008 to GPS 2015.
41. For instance, State highway improvements had:
- a substantial increase in funding ranges between GPS 2008 and GPS 2009
 - a smaller, but significant, increase in GPS 2012
 - and a slight reduction in GPS 2015 (not including the effect of regional improvements).
42. The increase in funding for State highway improvements came from a combination of increased road taxes and reductions in the funding available to other activity classes. The pattern for local road improvements is typical:
- a slight change in funding ranges between GPS 2008 and GPS 2009
 - a substantial reduction in GPS 2012
 - a smaller, but significant, increase in GPS 2015.
43. Figure 4b shows the cumulative change in expenditure before and after 2007/08, the year from which the NZTA was formed, and road taxes became hypothecated.

Figure 4a: Actual expenditure for all activity classes



Source: Ministry of Transport - 1997/98 to 2014/15 using NZ transport agency annual reports, for 2015/16 to 2017/18 using [NZTA forecasts](#)

Figure 4b: Cumulative change in expenditure for all activity classes



Source: Ministry of Transport - 1997/98 to 2014/15 using NZ transport agency annual reports, for 2015/16 to 2017/18 using [NZTA forecasts](#)

44. Expenditure for 2016/17 and for 2017/18 come from NZTA's [forecasts of expenditure](#).

- Expenditure on State highway improvements is characterised by a relatively large increase over time. This increase appears to have started around 2005/06 with large, consistent increases continuing thereafter.⁸
- Expenditure on other activity classes since 2007/08 follows that of the relevant funding range with lower rates of growth than in previous years.

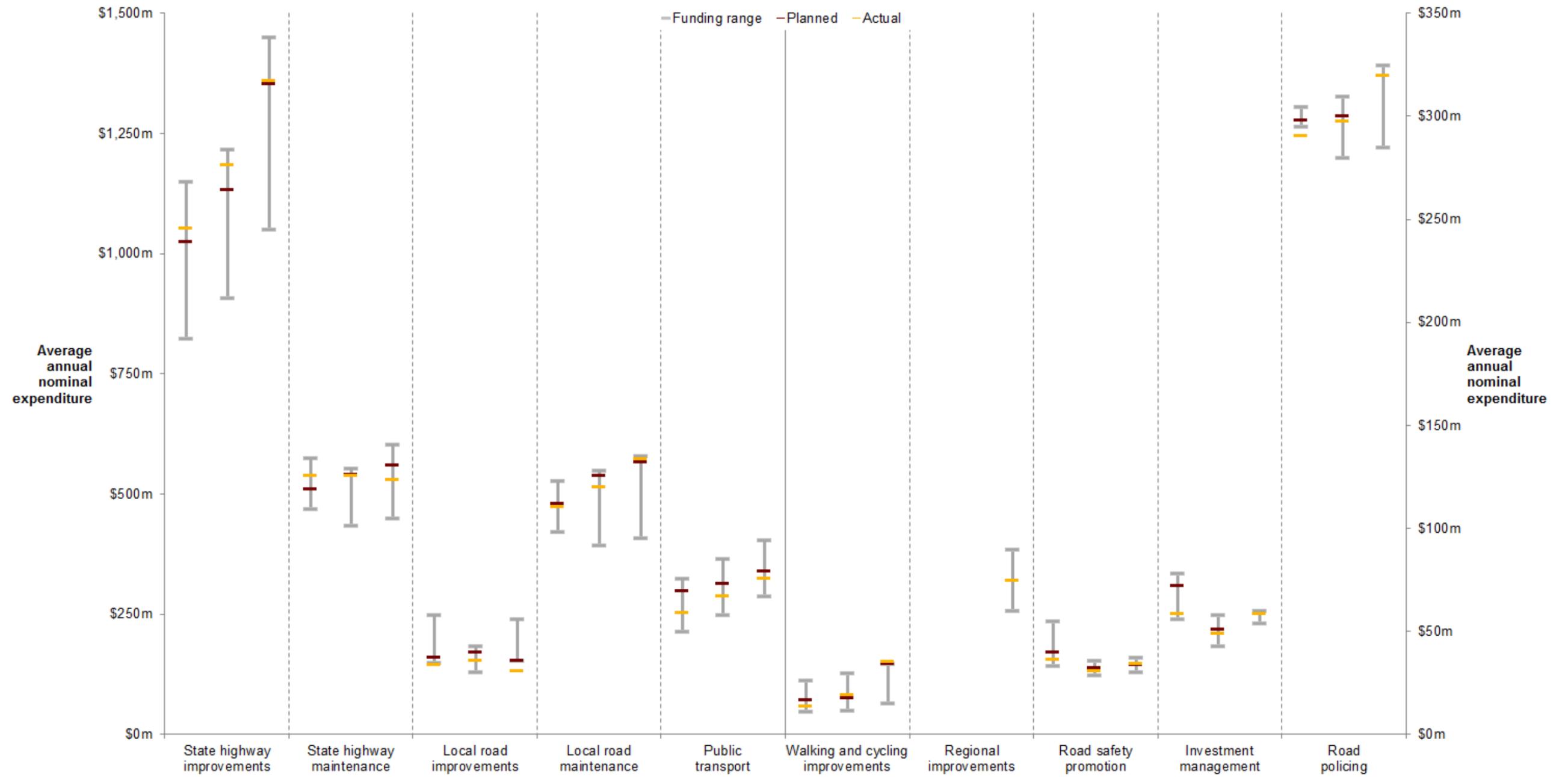
3.2. Expenditure relative to funding ranges

45. The Government sets funding ranges in the GPS that it considers will best achieve the results it has for land transport. Where expenditure actually ends up within those funding ranges is an indication of the quality of projects that turned out to be available and, in the case of activity classes where local funding contributions are required, regions' desire or ability to pay for those activities.

46. Figure 5 looks through the yearly variation and aggregates expenditure in three year blocks: 2009/10 to 2011/12 for GPS 2009; 2012/13 to 2014/15 for GPS 2012; and 2015/16 to 2017/18 for GPS 2015. The first five activity classes are graphed along the left hand axis; the second group of five activity classes is graphed along the right hand axis.

⁸ The fork at the end of the State highway improvements line is if regional improvements is and isn't included.

Figure 5: Expenditure relative to funding ranges, by GPS



Source: Ministry of Transport using planned and actual data is from NZ transport agency annual reports, for 2015/16 to 2017/18 using [NZTA forecasts](#)

47. Figure 5 shows:

- road maintenance tending to the top of funding ranges, particularly local road maintenance
- local road improvements tending to the bottom of funding ranges, even going below the minimum required expenditure
- other activity classes sitting within funding ranges although:
 - public transport expenditure is consistently lower than planned expenditure
 - State highway improvements have a tendency towards the higher end of funding ranges.

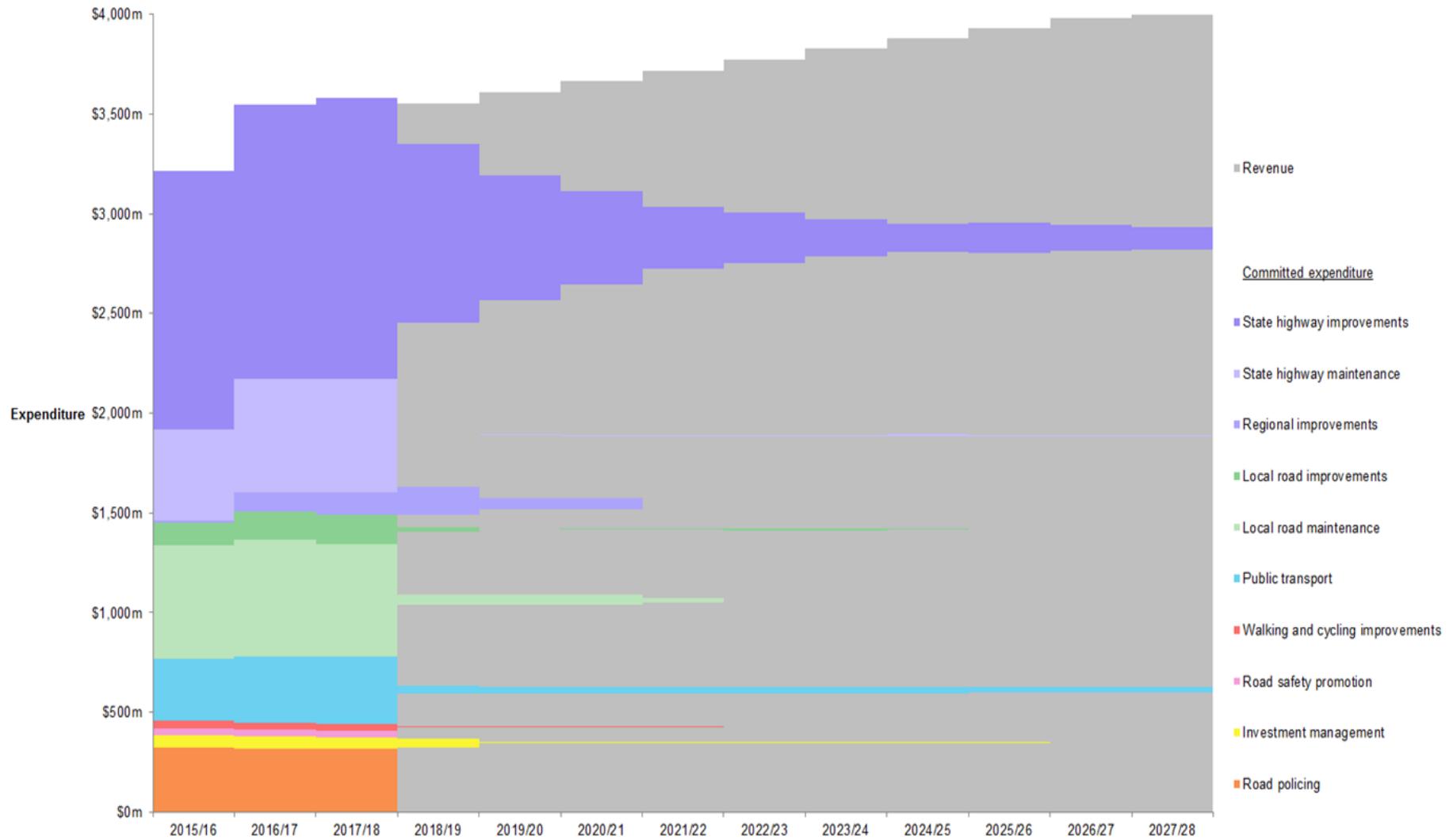
3.3. Committed expenditure

48. Many projects involve expenditure over more than one year, and projects started under one NLTP can carry over to future NLTPs. This section looks at how much of future funding is 'committed'. However, because transport projects generally take years to plan, design, and construct, some funding may be deemed 'committed' from one GPS to another.

49. Figure 6a shows Ministry estimates of how much revenue is committed by activity class over time. These estimates do not include future projects that may have been signalled but not yet approved (for example, any projects within the Auckland Transport Alignment Package). During the period of a GPS, committed projects match the expected revenue for the first three years. In the out-years, as might be expected, are less committed. The estimates for GPS 2015 are not dissimilar to committed expenditure shares following GPS 2012 (Figure 6b).

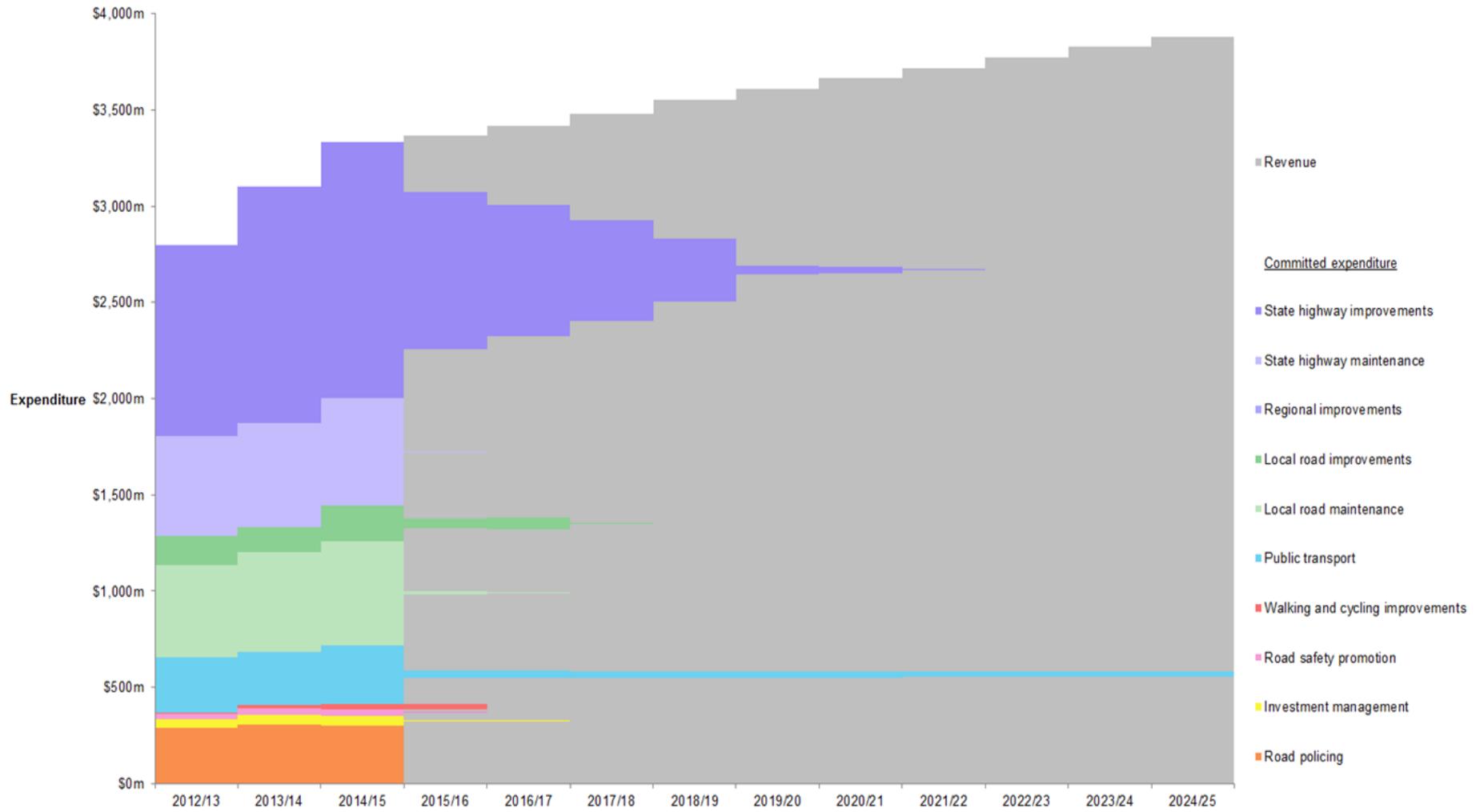
50. There is a considerable amount of uncommitted revenue in the years outside of the current NLTP. This can enable changes between activity class funding to be considered. Even for State highways, which have the most committed funds, there is still considerable discretion.

Figure 6a: Committed expenditure following GPS 2015



Source: Ministry of Transport estimate based on NZTA's Transport Investment Online data

Figure 6b: Committed expenditure following GPS 2012



Source: Ministry of Transport estimates based on NZTA's Transport Investment Online data

B. Transport policy and interventions

4. Transport policies and interventions affecting the GPS

51. This section summarises other transport policy and interventions that influence the development and content of the GPS.

4.1. Safer Journeys 2010 to 2020

4.1.1. The Safe System approach

52. *Safer Journeys* is New Zealand's road safety strategy for 2010 to 2020. The goal of *Safer Journeys* is a safe road system increasingly free of death and serious injury. To support this goal, *Safer Journeys* articulates how road safety should be managed across all parts of the safe system – roads and roadsides, speed, vehicles, and road use.

53. In this context, GPS investment enables the delivery of *Safer Journeys*' goal of reducing road deaths and serious injuries through Action Plans. Understanding the causes or contributors to crashes and their impact on social costs informs allocation decisions for road safety through the GPS.

54. Delivery of policy interventions to improve road safety occur through a number of mechanisms, such as regulations affecting standards of vehicles on the roads, speed limits, driver licensing, education, and promotion and enforcement of the regulations.

55. The Safe System approach (Figure 7) recognises that people make mistakes, and are vulnerable in a crash. It seeks to reduce the effects of a mistake so crashes do not result in injury or death. In a safe road system, all parts of the system work together to reduce risks. The four key parts of the safe road system are:

- safe vehicles - more vehicles have advanced safety features, including electronic stability control, crumple zones, front and side airbags. Tyres and brakes are better maintained
- safe roads and roadsides are more forgiving of mistakes. Surfaces are improved, shoulders are sealed, roadside hazards such as trees or poles are removed and barriers and rumble strips are installed
- safe speeds – speed is managed to survivable levels through speed limits that are appropriate for the road and through greater use of technology
- safe road use - people using the roads are skilled, alert, and drive or ride to conditions.

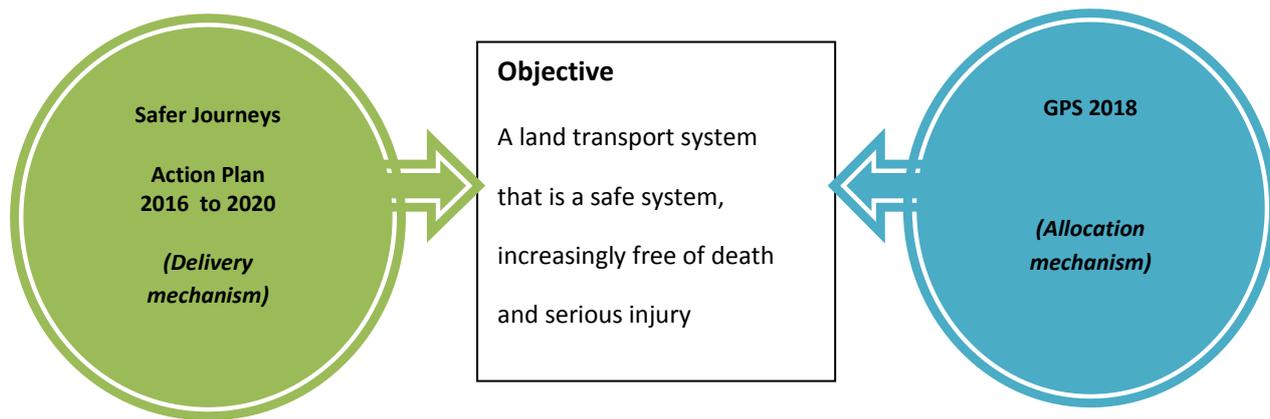
Figure 7: The safe system



4.1.2. Safer Journeys Action Plan 2016-2020 and GPS 2018

56. The outputs from the Safer Journeys Action Plan 2016-2020 (the Action Plan) are delivered through a number of initiatives involving a range of agencies. The National Road Safety Committee has governance and oversight of the Action Plan's delivery.

57. While the GPS objective for road safety is the same as for the Action Plan, the GPS includes other objectives and activity classes that influence road safety objectives.



58. The Action Plan divides activities into two parts based on crash statistics data and trends. The first part includes business-as-usual activities, and the second consists of four key priorities:

- Business-as-usual
 - Improving roads and roadsides
 - Four types of road user (young driver/riders, visiting drivers, high risk drivers, impaired drivers)
 - Speed management
 - Vehicles and motorcycles
 - Cycling and pedestrian safety
- Four key priorities
 - Action 1: Enable smart and safe choices (technology focus)
 - Action 2: Make motorcycling safer
 - Action 3: Ensure roads and roadsides support safer travel
 - Action 4: Encourage safe vehicles.

4.2. Accelerated Auckland projects

59. Budget 2014 provided \$375 million of new capital funding for the NZTA to accelerate \$815 million worth of Auckland transport projects. The additional funding accelerated key Auckland transport projects by up to 10 years.

60. Under the 2014 Auckland Transport Package:

- Northern Corridor Improvements have been progressed with the project expected to be completed by December 2021
- Southern Corridor Improvements remain on track for completion by October 2018
- upgrades to State Highway 20A to Auckland Airport are on track for completion by December 2017.

61. In September 2016, work began on Auckland East-West Connections (that is, widening a section of the South-western Motorway, as well as the planning and consent processes for the wider project).

4.3. Auckland Transport Alignment Project (ATAP)

62. In 2016, the strategic approach for ATAP was released. It recommends an aligned strategic approach from Auckland Council and the Government, and includes an indicative package of transport investment for the next 30 years.

63. Decisions on funding ATAP are underway.

4.4. Accelerated Regional Roding Package

64. In 2014, the Government announced a funding package to accelerate regionally important State highway projects. The package comprised three tranches⁹:

- Tranche 1 provided up to \$80 million for five critical projects in Otago, Canterbury, Northland, Gisborne and Taranaki
- Tranche 2 provided up to \$5 million to finalise investigation and consenting for projects in Northland, Gisborne, Taranaki, Horowhenua, Marlborough and the West Coast. Up to \$115 million was committed for construction, subject to the investigations finding that the projects were needed
- Tranche 3 provided up to \$12 million to accelerate design and investigation of three big projects in Hawke's Bay, Nelson and the Bay of Plenty.

65. In January 2016, the Government announced that up to \$115 million in funding would be made available to fund four projects in Taranaki, Gisborne and Marlborough. The Government also announced that projects investigated under Tranche 2 in Horowhenua, West Coast, Northland and Taranaki would be constructed with funding from the NLTF.

66. Overall, the package has provided funding to bring forward 14 regionally important State highway projects, drawing on the Future Investment Fund and the NLTF.

67. Currently, all Tranche 1 projects are either under construction or are completed. Tranche 2 projects are expected to start from 2016 to 2018. Tranche 3 projects are still in the investigation and design phase.

4.5. Urban Cycleway Programme (UCP)

68. The UCP was announced in 2014. It is intended to improve and accelerate cycling infrastructure in the main urban centres with a high proportion of the programme focused on the Auckland, Wellington and Christchurch metros. The additional funding is provided through the Urban Cycleways Fund, with \$10 million made available for projects in the first year (2014/15) and the remaining \$90 million provided over the following three financial years.

⁹ Further information on the individual projects can be found on the Ministry of Transport website: <http://www.transport.govt.nz/land/accelerated-regional-roding-package/>

C. Analysis across activity classes

Analysis across activity classes

70. This section contains analysis of outcomes across activity classes. This includes analysis where outcomes can be compared between activity classes or where multiple activity classes contribute to particular outcomes.
71. The section begins with a commentary on the features that are relevant to this analysis, including:
- benefit-cost ratios (BCRs) as an indicator of project value
 - outcomes that have been achieved (using BCRs)
 - and people's stated preferences.
72. This section then discusses safety, environmental mitigation, and resilience where investment is embedded in GPS investment in roads, public transport and active modes.
73. In addition to these areas, there are three further potential areas that work across activity classes:
- Auckland: in the analysis for GPS 2018 we have relied on the Auckland Transport Alignment Project to inform on Auckland issues
 - Regions: the Regional Economic Development process for regions as well as active engagement with local government at listening sessions have informed regional components of the GPS
 - the Intelligent Transport System Action Plan has been the basis for the technology content in the draft GPS 2018.
74. These areas are not further discussed in this section.

5. Benefit-cost ratios

75. High quality project BCRs are good indicators of the value of projects. BCRs are recorded in NZTA's Transport Investment Online database and have been used in the analysis that follows. It is also important to note that factors other than BCRs (such as strategic fit) affect the pool of available projects for each activity class and, therefore, the range of BCRs within each pool.
76. In using the Transport Online Database, the following caveats are important:

Table 3: Caveats and notes when using Transport Investment Online BCR data

A. <u>BCR averages are weighted</u> by the cost of projects.
B. <u>Incorrect BCRs</u> can be recorded in the database and may not match with the assessment of efficiency, and may use assessment ranges that have since been updated. This analysis ignores BCRs where they are inconsistent with the efficiency assessment.
C. <u>Some BCRs are unrecorded</u> have and have been assumed based on projects' efficiency ratings (e.g. between 1 and 3 if 'low').
D. The <u>BCRs of draft projects have not been reviewed and are not moderated</u> . The NZTA reviews BCRs as projects work their way through the prioritisation system.
E. Between GPSs, the <u>discount rate has been changed</u> from 8% to 6%. With transport investment usually having large upfront costs, with benefits over time, the NZTA estimate that reducing the discount rate to 6% increases BCRs by an average of 15%. To compensate for this, NZTA adjusted the BCR ranges for low, medium, and high efficiency projects as follows:

Efficiency rating	BCR range 2012/15	BCR range 2015/18
Low	1 to 2	1 to 3
Medium	2 to 4	3 to 5
High	4 or higher	or higher

This analysis makes the adjustment by lowering the weighted-average BCR by 13% to account for the 15% inflation in BCRs. As not all BCRs are recorded, this simple lowering may over- or under-estimate true BCRs.

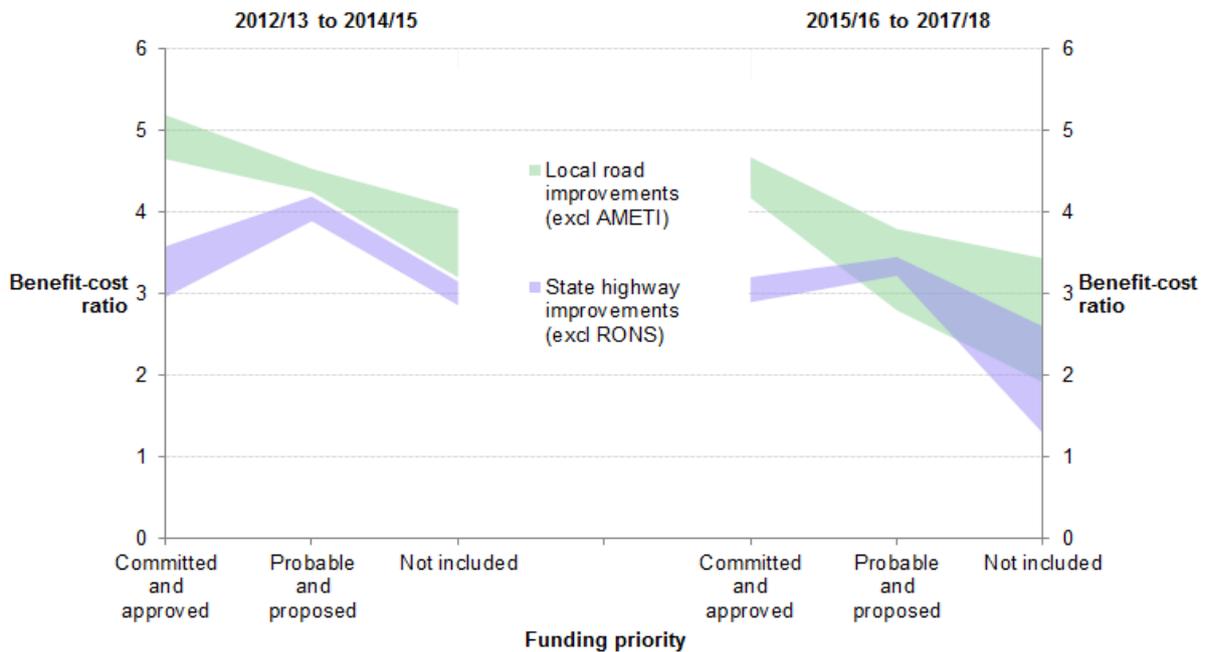
F. For projects with 'high' efficiency, the upper range was assumed to be 5 as part of GPS 2015 analysis of 2012/15 data. For the 2015/18 data, the upper range was assumed to be 15% higher at 5.75. When looking at known BCRs, the upper limit is an underestimate.

G. As projects move forward and backwards (generally forwards) in funding priority over time, care needs to be taken in comparing data at different points of time in GPS/NLTP cycles.

5.1. Benefit cost ratios of State highway and local road improvements

77. Figure 8 updates analysis prepared for GPS 2015. Figure 8 averages BCRs by funding priority for projects that are either: committed and approved, probable and proposed, or on reserve. Not included means the project has been declined or is still a draft.

Figure 8: State highway and local road improvements, by funding priority



Source: Ministry of Transport estimates based on NZTA's Transport Investment Online data

78. For local roads 2015/16 to 2017/18 committed and approved projects had the highest average BCRs. Probable and reserve projects had lower average BCRs, and not included projects had the lowest average BCRs. Local road BCRs decline with lower funding priority. This suggests that efficiency (BCRs) is a relatively important factor in prioritising new and improved local roads.

79. The pattern for State highway improvements 2015/16 to 2017/18 is different from local roads. The BCRs for committed and approved projects is lower than for probable and proposed projects. This pattern suggests efficiency may be a relatively less important factor in prioritising new and improved State highways.

5.2. BCRs by funding priority across all improvement activity classes

80. Looking at BCRs using Transport Investment Online data by improvement activity class, there appears to be no significant difference in BCRs between non-State highway activity classes.

81. The following features are observed:

- BCRs for State highway improvements are lower than all other improvement activity classes. However, when large project groups are taken out (that is, RONS which have among the lowest BCRs), State highway improvements have slightly lower BCR profiles to the other activity classes
- in general BCRs appear to have fallen between 2012/13 to 2014/15 and 2015/16 to 2017/18. BCRs for State highway improvements have fallen between the two time periods while the BCRs for all committed and approved projects across most other activity classes has risen with the exception of public transport where they appear to have remained the same over the very small number of public transport projects
- public transport BCRs look to be about the same between the two periods. Not too much can be read into the BCRs for public transport services for standby and declined projects as there are very few projects in the activity class. Public transport services are grouped together in programmes with a single BCR in Transport Investment Online
- BCRs for approved road safety promotion in 2012/13 to 2014/15 reflect a small number of projects. These projects include, for example:
 - Young Driver - National Network User Behaviour Programme (BCR 49.0)
 - Operator Rating System (BCR 40.2)

6. Types of benefit attained

82. The following analysis is of benefit type assigned to a project. This occurs before a benefit-cost analysis is completed. As such, it presents the link to GPS priorities and objectives rather than the BCR. The actual benefits from a BCR would have been preferred but were not available for this analysis. The analysis is subject to the following caveats:

- NZTA's data records primary and secondary benefits when a project begins and not the magnitude of each type of benefit a project generates. Where secondary benefits are recorded they tend to be numerous and do not shed any insights. As such, for this analysis all the net benefits of projects have been attributed to the primary benefit.
- the main strategic fit for investment linked to the GPS results of the project is recorded rather than the main monetised benefits. These reasons for investment and monetised benefits may differ and it would be useful for both to be recorded. An example where strategic fit and a BCR may differ is in walking and cycling activities where the actual benefits from this activity may be health related, the main benefit recorded relates to transport choice as this a GPS focus.
- as road safety promotion projects did not have a benefit type recorded, all of the benefits of this activity class have been attributed to 'reduced deaths and serious injury'

- care should be taken in analysing the public transport data as only a small proportion of approved public transport projects had a primary benefit recorded.

83. Table 4 describes the types of benefits and gives examples of the types of projects with these primary benefits.

Table 4: Types of benefits

Type of benefit	Project examples
Congestion relief	<ul style="list-style-type: none"> • Tauranga Northern Link • Pakuranga park and ride • Pakuranga to Botany Busway
Journey time reliability Whereas congestion is fairly constant, journey time reliability is about changes in travel time due to unexpected/infrequent congestion, bad weather, road accidents	<ul style="list-style-type: none"> • Gisborne – Napier Passing Opportunities • SH35 Slow Vehicle Bays
Freight efficiency Better freight routes that reduce costs for freight operators, e.g. strengthening bridges that allow operators to use High Productivity Motor Vehicles (HPMV's)	<ul style="list-style-type: none"> • HPMV T2 Nelson to Lyttelton • HPMV SH2 Waihi to Port of Tauranga • Waikato Bridge Replacement
Access for economic growth E.g. transport serving new commercial developments; access to ports	<ul style="list-style-type: none"> • Lyttelton Port Access Road • Road improvements complementing urban developments in Auckland
Secure and resilient network	<ul style="list-style-type: none"> • Milford Rockfall/Avalanche Protection • Waikouaiti Flood Mitigation • Bridge renewals in Timaru
Better use of existing capacity E.g. turning one lane of a road into a bus lane to increase throughput	<ul style="list-style-type: none"> • Otahuhu bus interchange • Double decker network mitigation works in Auckland • Rangiora – Kaiapoi Cycle Corridor
Reduced deaths and serious injury Includes road safety promotion (ads, education) and infrastructure improvements like safety barriers, lane separation	<ul style="list-style-type: none"> • NZTA's Network User Behaviour Programme • Boyd Road realignment in Otago • Ngakoroa Realignment and Passing Lane in Auckland • SH88 Cycling and Pedestrian Facilities in Otago
Positive health outcomes	<ul style="list-style-type: none"> • Noise Improvement Programme in Auckland • Dust Mitigation Programme in the Far North
Reduced environmental effects	<ul style="list-style-type: none"> • Stock truck effluent disposal facilities
More transport choice	<ul style="list-style-type: none"> • Wainuiomata Hill Road Shared Walking/Cycling Path • Trial of a bus service in Northland

6.1. Type and magnitude of benefits

84. Figure 9 shows the magnitude of gross monetised benefits¹⁰ by type of strategic fit by the 'improvement' activity classes for 2015/16 to 2017/18¹¹. Improvement activity classes include State highway improvements, local road improvements, public transport, walking and cycling improvements, and road safety promotion.

85. Benefit types have been ordered roughly from:

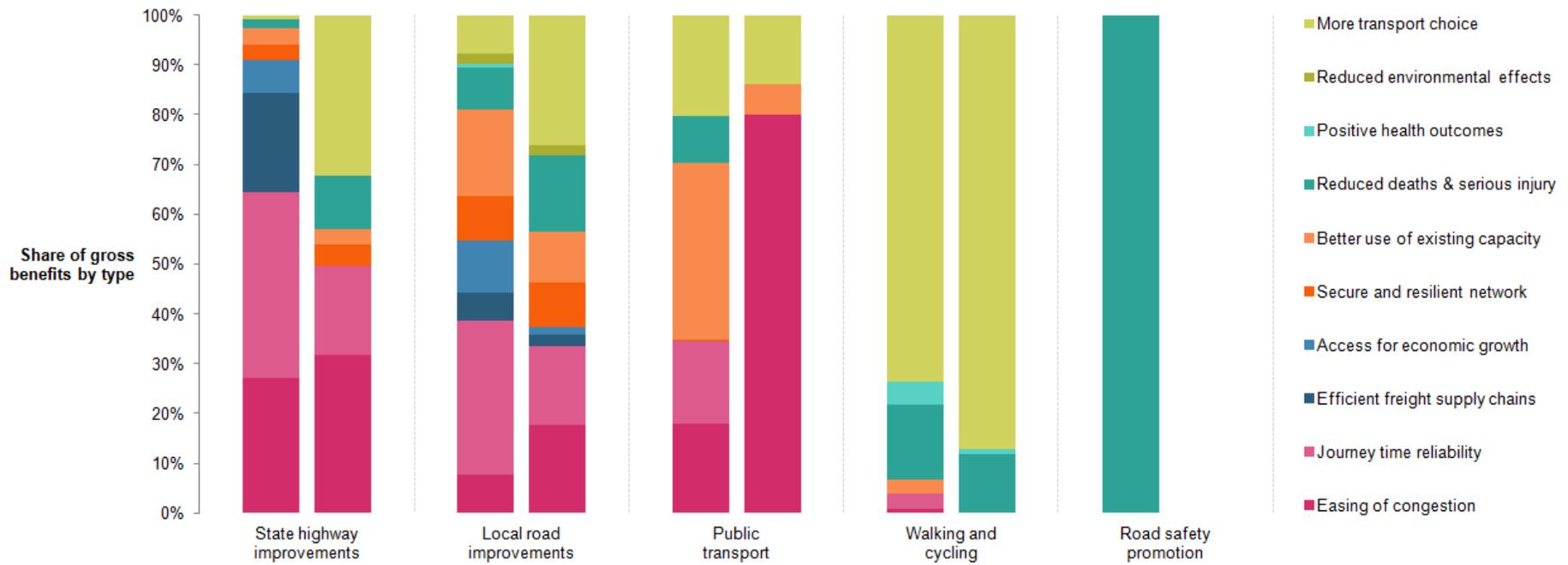
- time benefits to users to
- commercial benefits to users to
- outcomes that are about achieving other benefits to
- externalities on users and other people to
- other externalities and social benefits.

86. Figure 9 shows what types of benefits are generated by each activity class. Bars on the left are the shares for committed and approved projects; bars on the right are shares for probable and proposed projects.

¹⁰ The benefits of projects before costs are subtracted.

¹¹ Improvement activity classes require projects to have a BCR. For some activity classes (e.g. maintenance) the BCR for projects is implied.

Figure 9: Type and magnitude of benefits



Source: Ministry of Transport estimates based on NZTA's Transport Investment Online data

87. Across activity classes, there is a general pattern of more economic-type benefits and fewer social-type benefits from approved projects, while standby projects are more likely to be about social-type benefits. This broadly matches the direction of GPS 2015, which prioritises projects that deliver economic activity.

88. In terms of individual activity classes:

- State highway improvements contribute the most net benefits (noting the earlier finding that these improvements have lower BCRs on average) which are due to the magnitude of spending on State highway improvements.
- State highway improvements benefits are “economic” benefits. However, the distribution of benefits changes for standby projects (i.e. the hollow bars), with safety and transport choice featuring more
- local road improvements have fewer types and a flatter distribution of benefits than State highways
- public transport has a large amount of unrecorded benefits. This makes assessment from the data held on public transport less informative than in other areas. From the data recorded, public transport has a relatively even distribution of the benefits although it contributes little to freight supply chains and access to economic growth
- across State highway improvements, local road improvements and public transport, the main focus is on improving travel times whether through relieving congestion or by other means
- walking and cycling improvements are largely related to about transport choice and then safety, and contributes little to congestion
- by assumption, road safety promotion is about achieving safety benefits.

7. Progress of projects

89. Indications of demand for different types of activity may be inferred by how much projects progress, particularly for projects that require local funding contributions. If the public want particular types of projects, then these projects can be proposed through regional land transport plans. However, if better uses for rate revenues arise, then local authorities may not proceed with projects and may not put forward the local share of funding, even if the project has been approved by the NZTA.

90. Analysis presented earlier in this document looked at how actual expenditure compared to funding ranges by activity class. This suggested that there was a preference for more local road maintenance and less local road improvements.

91. Another indicator comes from how quickly projects progress through the NLTP. By looking at projects progressing through NLTP 2015 (to date):

- There are high rates of progress during NLTP 2015 for State highway improvement and State highway maintenance projects:
 - for State highway improvements, the percentage of known projects that are approved rises from less than 10 percent to almost 70 percent. There are also very few projects with draft status at the end of the time period suggesting that few projects that have a status of proposed or higher are subsequently withdrawn or removed from the process
 - for State highway maintenance, all programmes of work were included in NLTP 2015 after it was published moved through to being approved
- All local road maintenance programmes of work included in NLTP 2015 after it was published moved through to being approved. These projects made up a smaller proportion of projects than for State highway maintenance

- Local road improvement projects advance through the NLTP at a much slower rate than State highway improvements
 - The proportion of known local road improvement projects that are probable or proposed falls from around 65 percent to around 35 percent. However, ten percentage points of this reduction are projects dropping out of the NLTP rather than advancing through to approved status. The proportion of known projects that are approved rises from around 20 percent to around 45 percent
 - Public transport projects progress at the slowest rate, although actual expenditure is within funding ranges. There may be something about public transport projects that means they behave differently from the road activity classes when it comes to progressing through the NLTP
 - A large proportion of known public transport projects are recorded as proposed early on in the NLTP 2015 process, but around half of them appear to drop out of the NLTP
 - Around 20 percent of probable or proposed walking and cycling improvement projects have dropped out of the NLTP, while a good proportion of projects have moved through to approved status
 - Around 90 percent of known road safety promotion projects were approved when NLTP 2015 was published
92. The regional improvements activity class is new and it is perhaps too early to read too much into any patterns here. No regional improvement projects had approved status when NLTP 2015 was published. However, this activity class appears to behave in a similar way to State highway improvements with a relatively low number of approved projects at the start of the NLTP, but numbers accelerate relatively quickly. As all regional improvement projects to date have been State highways, this may help explain this result.
93. Apart from local road maintenance, projects with a local share appear to advance more slowly, have a lower likelihood of becoming approved and a higher chance of not proceeding. This may be a result of more pressing or valuable uses for rate payer funds. Discussions with Regional Transport Committees would suggest this is the case.

8. Congestion and travel times

94. Transport investment has sought benefits from reducing congestion and from improving travel times and travel time reliability.
95. Figures 10a and 10b show, respectively, travel time delays and travel time variability in the main metro cities of Auckland, Hamilton, Tauranga, Wellington, and Christchurch (up until the Canterbury earthquakes).
96. Variability in data makes it hard to make confident conclusions about travel times. It appears that travel time variability is decreasing, although it is noted that:
- travel time delays in morning and afternoon peaks are highest in Auckland
 - while peak travel time delays in Auckland do not appear to have a strong trend, travel time delays in the inter-peak period appear to be rising suggesting that congestion is spreading beyond peak times
 - there may have been some reduction in travel time delays in most cities following the 2008/09 recession.
 - there may be an increase in travel time delays over the three years to 2015, and Wellington's morning peak perhaps earlier than this.

Figure 10a: Travel time delays in metro cities

AM peak Interpeak PM peak

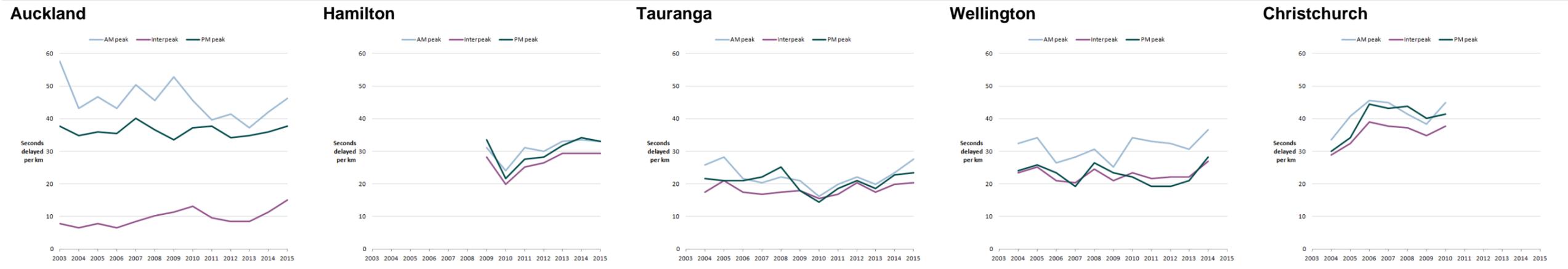
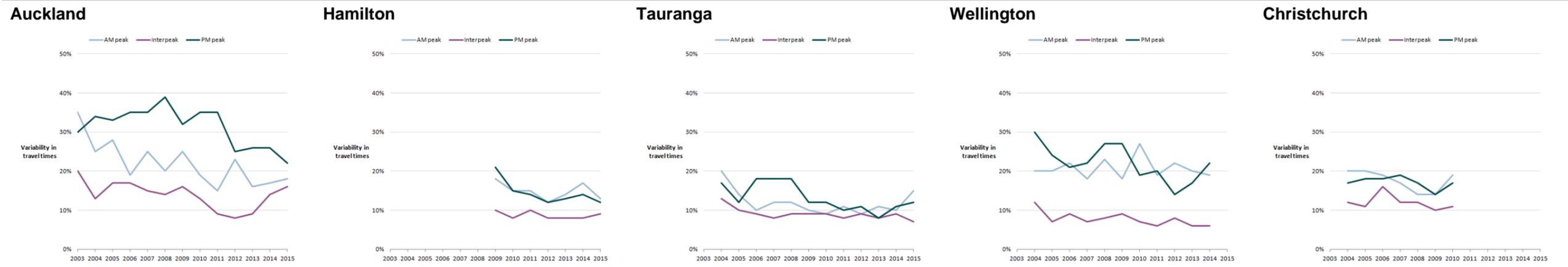


Figure 10b: Variability in travel times in metro cities

AM peak Interpeak PM peak



Source: Ministry of Transport [travel time delay indicator](#) and [travel time variability indicator](#)

9. People's stated preferences

97. A new online stated preference survey developed by the Ministry of Transport (with assistance from a range of agencies including the Treasury and the University of Otago) sought to understand people's preferences for different aspects of transport. It was the first survey conducted and looks at peoples stated preferences for roads. The survey can be found here: <http://www.transport.govt.nz/news/land/what-do-you-care-about-most-when-you-travel/>
98. In order to discover participants' priorities, the survey asks participants to choose between a sequence of scenarios. Each scenario is made up of two transport attributes as illustrated in Figure 11.

Figure 11: Question example

99. The survey asked people (individuals, not companies) to choose between the following attributes for travel on New Zealand roads:

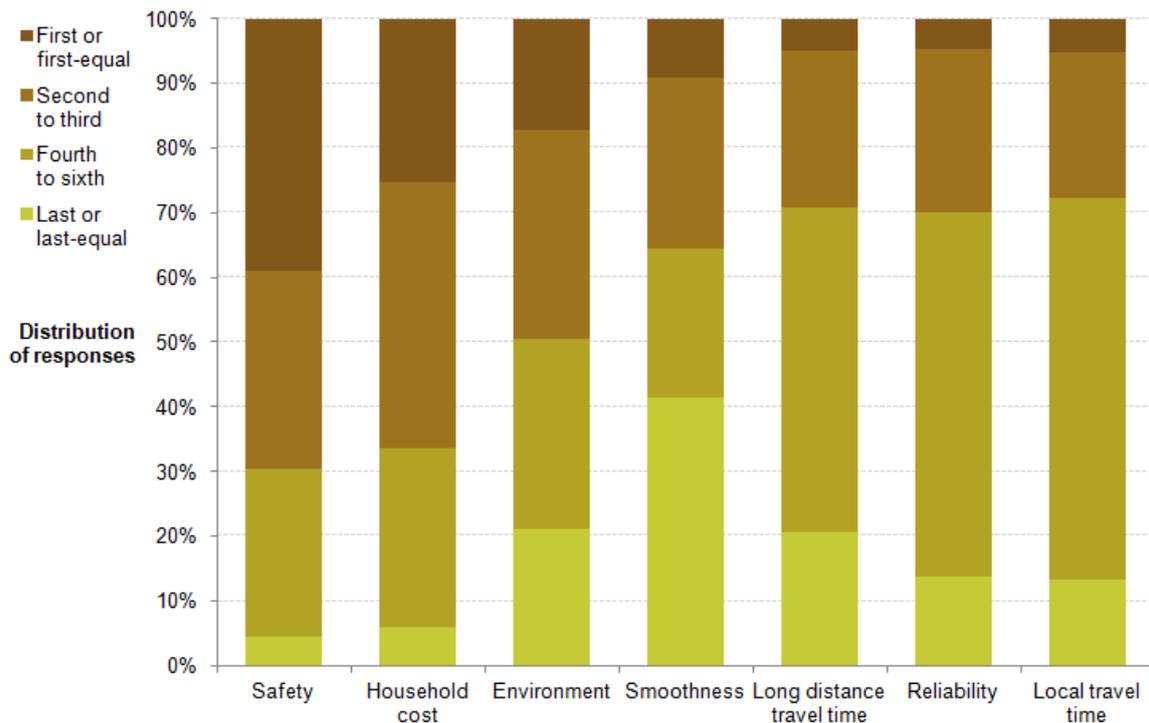
Table 5: Attributes, choices and alternatives

Attribute	Choice question	Inferior alternative	Superior alternative
Local travel time	Travel to work in a city (about 10km) takes...	30 minutes	20 minutes
Reliability	Due to unexpected road delays, one trip each week takes...	30 minutes longer than usual	15 minutes longer than usual
Long distance travel time	A 200km trip on main roads takes...	2 hours 45 minutes	2 hours 15 minutes
Smoothness	The road is...	rough for a quarter of the trip	always smooth
Household cost	Total household travel spend...	is \$25 (or \$10) more each week	stays the same

Safety	Each week...	6 people die in road crashes	5 people die in road crashes
Environment	Carbon dioxide emissions from transport...	stay the same	drop by 20%

100. Overall, safety ranks highest (i.e. first or first-equal) for the largest proportion of respondents, with 39 percent of people ranking it as their highest or highest equal priority and 70 percent ranking it in their top three options.
101. Household cost is also important for many, with a quarter (25 percent) of respondents ranking it as their highest or highest equal priority and two-thirds (66 percent) of respondents ranking it in their top three options.
102. Environment (CO₂ emissions) balanced in the middle, with a range of extreme reactions. While 17 percent ranked it their highest or highest equal priority, 21 percent ranked it their lowest or lowest equal priority. Other attributes were more evenly distributed. A distribution of respondent rankings is shown in Figure 12.

Figure 12: Distribution of respondent rankings



Source: Ministry of Transport

10. Safety across activity classes

103. This section looks at safety performance on roads, in particular deaths and injuries of car occupants and motorbike riders. Safety is included under the 'across activity class' section of this report because road infrastructure improvements, road safety promotion and road policing each make contributions to safety.

10.1. Road safety in GPS 2015

104. Road safety is a priority in GPS 2015, which includes two specific road safety activity classes that are focused solely on minimising harm on roads. However, the GPS includes a number of other activity classes that contribute to road safety outcomes.

Therefore, total road safety funding across the GPS is much higher than the funding for the two specific activity classes would suggest. GPS 2015 contains a multi class reporting line for road safety to reflect this. However, NZTA's first report under this multi class reporting line is not expected to be available before GPS 2018 is finalised.

105. Activity classes not solely focussed on safety nevertheless contribute to road safety outcomes including State highway and local road activity classes, and the walking and cycling improvements activity class. Many road projects contribute to better road safety outcomes through improved infrastructure such as the Roads of National Significance, or have a specific road safety objective such as corner realignments.

106. There are two specific road safety activity classes aimed at changing road user behaviours (which are not achievable through other activity classes):

- *Road policing*: Investment in road policing aims to reduce deaths and serious injuries through effective enforcement of regulation, primarily regulation focused on road users' behaviour (for example, speed limits and driving under the influence of alcohol/drugs). The NZ Police are responsible for delivering the outputs in this activity class. Per annum, the investment ranges for the 2015 – 2018 period is \$280 - \$290 million at the lower end to \$320 – \$330 million at the upper end. Based on current information, the funds will be fully used at the end of GPS 2015 timeframe.
- *Road safety promotion*: Investment in road safety promotion includes education, advertising, and raising awareness and public information activities. The NZTA is responsible for delivering the outputs in this activity class. For the period 2015 – 2018, the investment ranges from \$30 million to \$31 million at the lower end to \$37 million to \$38 million at the upper end. Based on current information, the funds will be fully used by the end of the GPS 2015 timeframe.

107. The NZTA is responsible for managing the fund allocation and reporting on achievements in these activity classes.

10.2. Road safety indicators

108. Figure 13 shows the fatality rate¹² from 2001-2015. Road deaths declined from 415 in 2006 to 253 in 2013. The pattern with the injury rate is not too dissimilar with the decline in injuries starting later than the decline in fatalities.

¹² The figure for 'cars' includes all fatalities other than for motorbikes. There may be a small number of fatalities among heavy truck or bus drivers and passengers but we do not expect to change the results significantly. The rate has been calculated using VKT for light personal vehicles (solid line) and for VKT for light personal vehicles and light commercial vehicles combined (dashed line).

Figure 13: Cumulative change in fatality rate, 2001 to 2015



Source: Ministry of Transport – [road injury data](#) and [vehicle kilometres travelled](#)

109. Factors that may be contributing to this trend include:

- legislative changes such as the zero blood alcohol level for under 20 year olds
- increasing the driving age to 16
- a more challenging restricted licence test
- since 1989, introduction of compulsory breath testing
- changes to blood and breath alcohol limits
- changes to penalties for being over the blood alcohol limit and reducing the minimum alcohol purchase age from 20 to 18 years.

110. However, since 2013 the fatality rate has injury rate has begun to increase. We conducted statistical tests (Poisson) to see whether this increase was more than natural variation, and found strong evidence that the fatality and injury rates are actually rising.

111. In addition, the estimated social cost of crashes by crash severity for 2015 is \$3.731 billion compared to \$3.476 billion in 2014.

112. Factors such as safety interventions, more safe vehicles and technology improvements have had an effect in improving road safety. Other factors, such as lower fuel prices, have contributed to the growth in traffic and travel and, therefore, more exposure to risk on the road.

113. Crashes involving alcohol, speed and the absence of safety equipment have continued to be prevalent factors in the make-up of recent road tolls.

114. For example, in 2016, provisional road toll data indicates that:

- 42 percent of fatal crashes had drugs and/or alcohol as a contributing factor
- 39 percent of drivers and 42 percent of passengers killed in car accidents were not wearing seatbelts

- 25 percent of fatal crashes involved drivers who were driving too fast for the conditions.

115. Safety related investment is not solely contained in the GPS. Research also shows that vehicle safety technology (for example, side curtain airbags and Electronic Stability Control) could contribute to a reduction in the road toll and mitigate the severity of injury crashes¹³.

10.3. Summary

116. The indicators show that deaths and serious injuries have been increasing on New Zealand roads in recent years. While VKT has increased, there are some concerning road user behaviours that may be contributing to fatalities and serious injuries on the road that need to be addressed.

117. Regardless of behaviour, the safe system also recognises that people make mistakes and are vulnerable in a crash. Investment in the safe system reduces the price of a mistake so that crashes do not result in loss of life or in severe injury.

11. Environment

11.1. Effects of transport on the environment

118. GPS 2015 sought mitigation of the most adverse environmental effects of the land transport system. It also sought improved transparency of investment in mitigating adverse environmental effects, including climate change.

119. There is a growing understanding of the effects of transport use in generating greenhouse gases and creating harmful particulates. There has also been greater public policy discussion about best practices in mitigating environmental effects since GPS 2015 was developed¹⁴.

11.2. Greenhouse gases

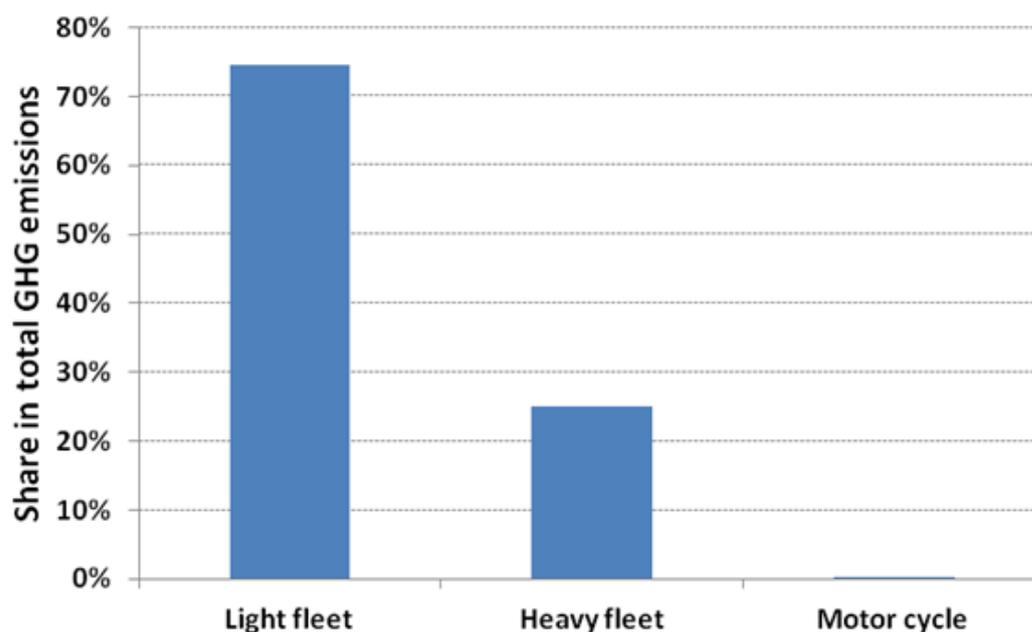
120. Transport is the second highest greenhouse gas (GHG) emitting sector. (The agricultural sector is the first highest emitter). The 2014 Briefing to the Incoming Minister of Transport noted that transport represented 18 percent of GHG emissions¹⁵. Figure 14 shows contributions by fleet to 2014 GHG emissions across road transport. About three quarters of the GHG emissions came from light vehicle fleet.

¹³ See TERNZ Report prepared for the Ministry of Transport, April 2016. "Why do people die in crashes" <http://www.transport.govt.nz/news/land/why-do-people-die-in-road-crashes/>

¹⁴ For example, as canvassed in the Productivity Commission draft report (August 2016) on Better Urban Planning. See http://www.productivity.govt.nz/sites/default/files/better-urban-planning-draft-report_1.pdf

¹⁵ Briefing to the Incoming Minister of Transport (2014) page 37
<http://www.transport.govt.nz/about/publications/briefingtoincomingminister/>

Figure 14: 2014 CO₂ gas emissions across road transport by fleet type



Source: Ministry of Transport

121. Transport GHG emissions are projected to increase over the next few years. While more electric or hybrid vehicles will become part of the fleet, these vehicles will still make up a very small percentage of the overall fleet at the moment and their uptake will take time.

122. With increasing uptake of electric vehicles and continuous improvement in the fuel efficiency of the fleet, transport GHG emissions would decline in the medium and long terms.

11.3. Harmful particulates

123. The transport sector is also contributing to the levels of pollution from fine particulate matter. The Health Research Council has estimated that just over half of fine particulate matter is caused by human activity, and that 22 percent of human-generated particulate matter is due to motor vehicles.¹⁶

124. A report commissioned by NZTA¹⁷ examined the effects of exposure to dust on unsealed roads. Based on monitoring of a specific site in Northland, the report identified that the particulate matter contained in the dust plume from the untreated, unsealed road exceeded the National Environmental Standard on 15 out of 52 days and was capable of causing harmful health effects.

125. The report also found that the cost effectiveness of resealing roads compared to other dust treatments is dependent on the economic life of the road. That is, where a road is not expected to have a long economic life, dust treatments are likely to be more cost effective than seal. Where the road is expected to have a long economic life (say 20

¹⁶ Health Research Council of New Zealand (2012) "Updated Health and Air Pollution in New Zealand Study, Volume 1: Summary Report"

http://www.hapinz.org.nz/HAPINZ%20Update_Vol%201%20Summary%20Report.pdf

¹⁷ Report published August 2016, on NZTA's website:

<http://www.nzta.govt.nz/resources/research/reports/590/?category=60&subcategory=103&audience=&term=&sort=date&start=0>

years), sealing a road can be a cost effective means of managing harmful particulate matter.

11.4. GPS 2015 evidence base

126. The GPS 2015 multi class reporting line requires reporting on GPS investment in environmental mitigation. The reporting has taken this form because, leading up to the development of GPS 2015, very little was known about GPS investment in environmental mitigation. This remains the case for GPS 2018 as GPS 2015 reporting on environmental mitigation is not expected until late 2017 or early 2018. That is, after decisions on GPS 2018 have been taken.

11.5. Cumulative effects on the environment

127. GPS 2015 reflects the Resource Management Act approach to project by project consideration of environmental effects and an approach whereby the harmful effects of the flow of new investments are addressed. However, cumulative environmental effects (that is, those that have built up or arisen as a result of past investment or as a result of changed use of these assets) may not be addressed.

128. The Productivity Commission draft report on Better Urban Planning¹⁸ discusses, generally, the effectiveness of the current planning to address cumulative environmental effects, as well as climate change mitigation and adaptation.

129. Addressing the effects of the stock of land transport investments, as well as the flow of new investments¹⁹ provides opportunities to better mitigate harmful effects of land transport on the environment. To enable these opportunities to be met the land transport system would need to *increasingly* mitigate harmful effects of land transport on the environment.

11.6. Summary

130. There is a growing understanding of the environmental effects of transport use, in generating GHGs and creating harmful pollutants. While reporting on GPS investment in environmental mitigation efforts has started, this information is not expected to be available until late 2017 or early 2018, after decisions on GPS 2018 have been made. This information will likely inform decisions for future GPS investments.

131. Since GPS 2015 was developed, there have been policy developments that could provide a potentially better management platform of harmful environmental effects. This could involve addressing harmful effects arising from the stock, as well as the flow, of investments.

12. Resilience

12.1. A land transport system that is resilient

132. A resilient land transport system is one that meets future needs and endures shocks. Shocks can be relatively common events, such as crashes on the network or vehicle breakdowns. Others may be hard to predict, but have a significant impact such as severe weather events or earthquakes.

133. These shocks have always been an issue that the land transport system needs to manage or avoid. However, GPS 2015 acknowledges that resilience has economic and social dimensions, and prioritises expenditure to the most economically or socially critical points of the network.

¹⁸ See http://www.productivity.govt.nz/sites/default/files/better-urban-planning-draft-report_1.pdf

¹⁹ The flow of new effects is primarily addressed through Resource Management Act processes.

12.2. What do we mean by ‘resilience’?

134. Resilience in GPS 2015 is aimed at maintaining network efficiency by avoiding failures of the network to operate and restoring an operating network when it fails.

135. Central to ensuring a resilience system is *risk management*. Risk management involves forecasting and evaluating risk (e.g. of climate change, population growth, or mode shifts), and identifying procedures or practices to avoid or minimize the effect of the risk (e.g. emergency preparedness and emergency response, performance standards).

136. *Risk mitigation* involves reducing the severity of risk consequences, reducing the probability of the risk materializing and reducing exposure to the risk.

137. While GPS investment in resilience is incorporated through short and medium term results relating to the risk of disruption and dealing efficiently with such disruptions, it is also incorporated in:

- planning and design to cost effectively manage or avoid probable disruption at [critical points] in the future²⁰
- investment in land transport infrastructure and services that have the capacity to manage costly manmade events (e.g. accidents on critical/major routes, congestion) and natural events (floods, slips, wind, soil erosion etc from climatic and ecological conditions)
- transport choice in the form of alternative routes or modes of travel.

138. Listening sessions with local government identified resilience as a key issue. However, the scope of what resilience means has been broadly defined, including:

- disruption to network access and availability
- managing manmade and natural hazards
- reducing economic and social vulnerability to disruption on key routes
- asset maintenance
- road safety.

139. This wide view of resilience is reflected in regional land transport plans. These plans identify points on regional networks that raise resiliency issues. These issues include difficult stretches of road from a safety and congestion perspective, areas of vulnerability to disruption exacerbated by lack of alternative routes or modes, and the need for adaptability to gradual challenges such as climate change and population changes.

12.3. Resilience expenditure

140. An element of resilience is built into roads and similar assets given they are long-lived and would be expected to cope with some change in the environment and use, such as climate change and population growth.

141. The NZTA²¹ provides data on recorded road closures. However, this data does not provide useful insight into GPS resilience results. The two main categories of expenditure associated with resilience - emergency works and resilience improvements - also provide an ambiguous picture.

²⁰ This includes design that invests in environmental mitigation or environmental improvements that can lead to increased network resilience.

²¹ NZTA's Traffic Road Event Information System (TREIS) data

142. Emergency works are associated with fixing the network when a risk has been realised, whereas resilience improvements are preventative rather than reactive.
143. Considerably less is spent on resilience than emergency works by around a factor of ten. However, it is unclear exactly what has been spent on preventative measures as investment in resilience is not only made through resilience improvement projects, but also feature as an element of other investment in roads. A certain level of longevity and ability to withstand changes in environment and use is embedded in these investments.
144. This means that while the substantially larger level of expenditure on emergency works might suggest a risk mitigation approach being taken to resilience, risk management may actually be the prevailing investment approach.
145. Over the past year, the NZTA has been undertaking work to better define how resilience issues are addressed. This research has, in part, been a response to GPS 2015 requirements for improved resilience at the most economically and socially critical parts of the network.
146. NZTA has recently commissioned research that would establish a consistent approach to transport resilience. This includes a consistent approach to what various aspects of resilience mean. The research will also develop a decision support tool to assist with establishing the value of resilience investment, taking account of both the necessary level of resilience in land transport infrastructure and desired community outcomes.

12.4. Effect of the Kaikōura earthquakes

147. In December 2016, the Cabinet Economic Growth and Infrastructure Committee agreed to changes to GPS 2015. These included an increase to funding allocated for local road improvements in 2016/17 and 2017/18 to ensure flexibility for responding to damage arising from the earthquakes.

12.5. Summary

148. The Kaikōura earthquakes, and the earlier Canterbury earthquakes, have brought resilience considerations to the fore. The response to the Kaikōura earthquakes will be a significant influence on GPS 2018. There is greater recognition of the social and economic dimensions of resilience. Currently, local authority conceptions of resilience are wide-ranging.
149. The above discussion, along with the heightened focus on the importance of good risk management raised by the Canterbury and Kaikōura earthquakes suggests that, as a minimum, the GPS should place emphasis on resilience planning. This could include the requirement for a clear statement and reporting of the resilience approach that is being applied to investment in each region.

D. Analysis by activity class

13. Roads

13.1. Vehicle kilometres travelled (VKT)

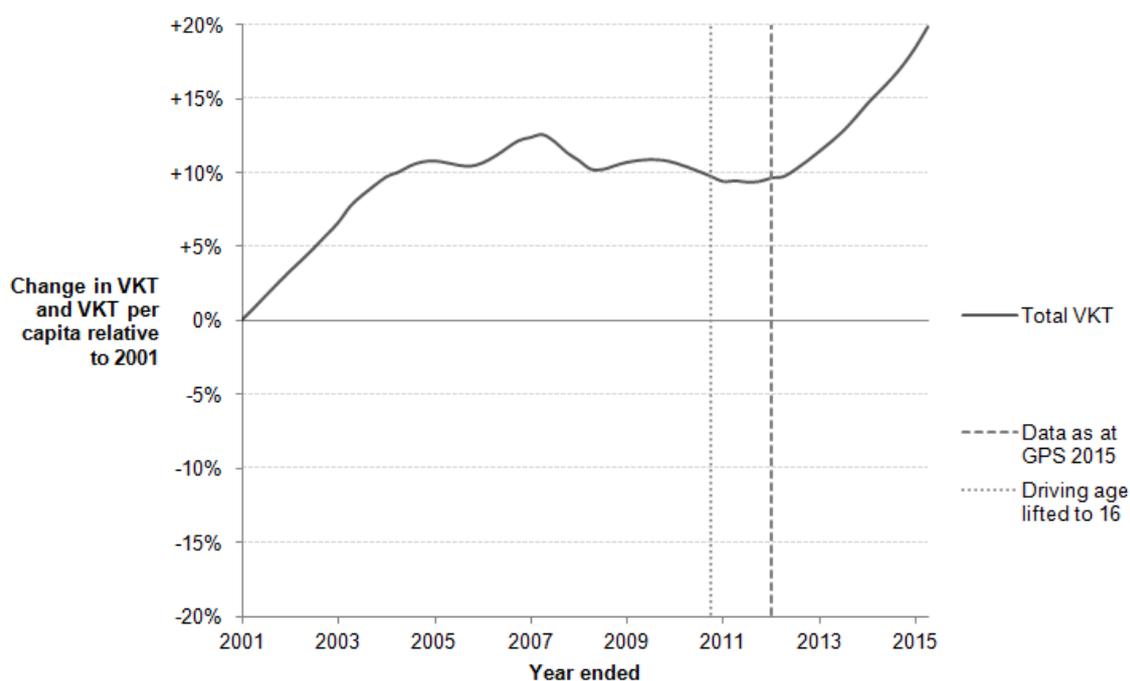
150. This chapter looks at road use as measured by VKT.

13.1.1. Total VKT

151. Figure 15 shows the change in total VKT since 2001 (when estimates began). The chart indicates when the driving age was lifted to 16 years (which affected the size of the population eligible to drive), and the end of the data series available for GPS 2015 analysis.

152. Total VKT increased in the early 2000s before flattening around 2004/05. It began rising again around 2013.

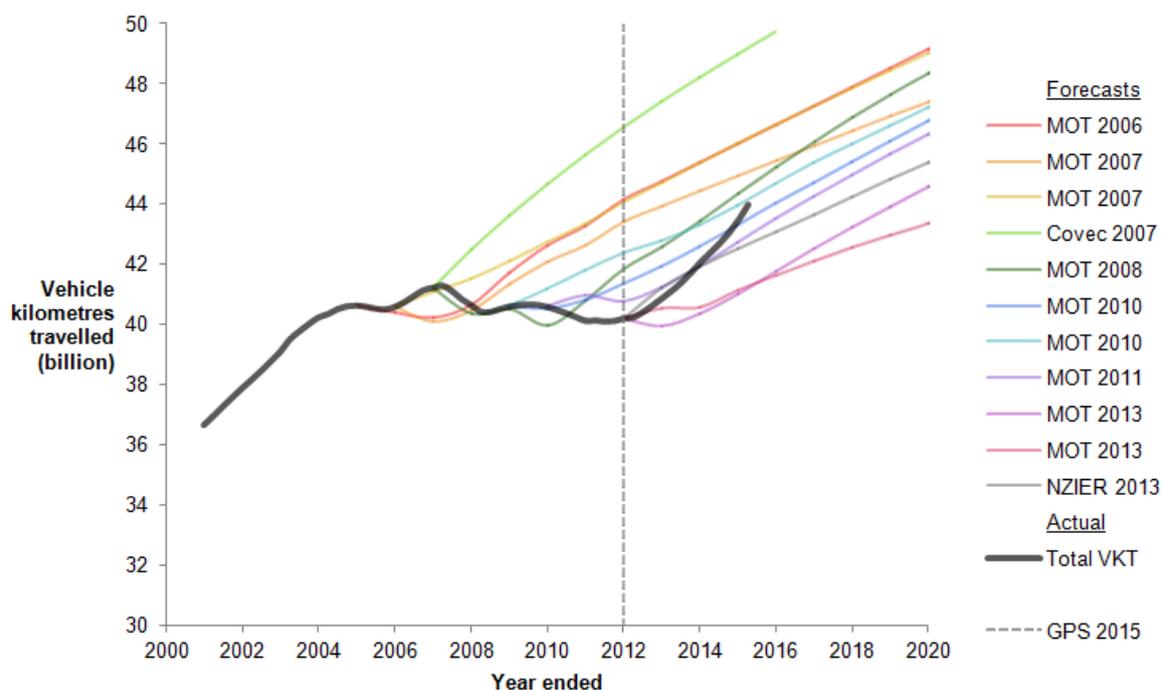
Figure 15: Change in total VKT, 2001Q4 to 2016Q1



Source: Ministry of Transport [vehicle kilometres travelled](#)

153. Figure 16 shows the forecasts of total VKT available for the development of GPS 2018. These forecasts show that VKT is expected to continue to increase. Figure 16 also identifies the VKT forecasts (up to 2012) that were available for GPS 2015 analysis.

Figure 16: VKT forecasts 2006 to 2013, VKT 2001Q4 to 2016Q1



Source: Ministry of Transport internal forecasts and [vehicle kilometres travelled](#)²²

154. A number of factors are likely to have influenced total VKT. A further breakdown of total VKT is required to understand what the drivers of changes in rates of total VKT growth may have been.

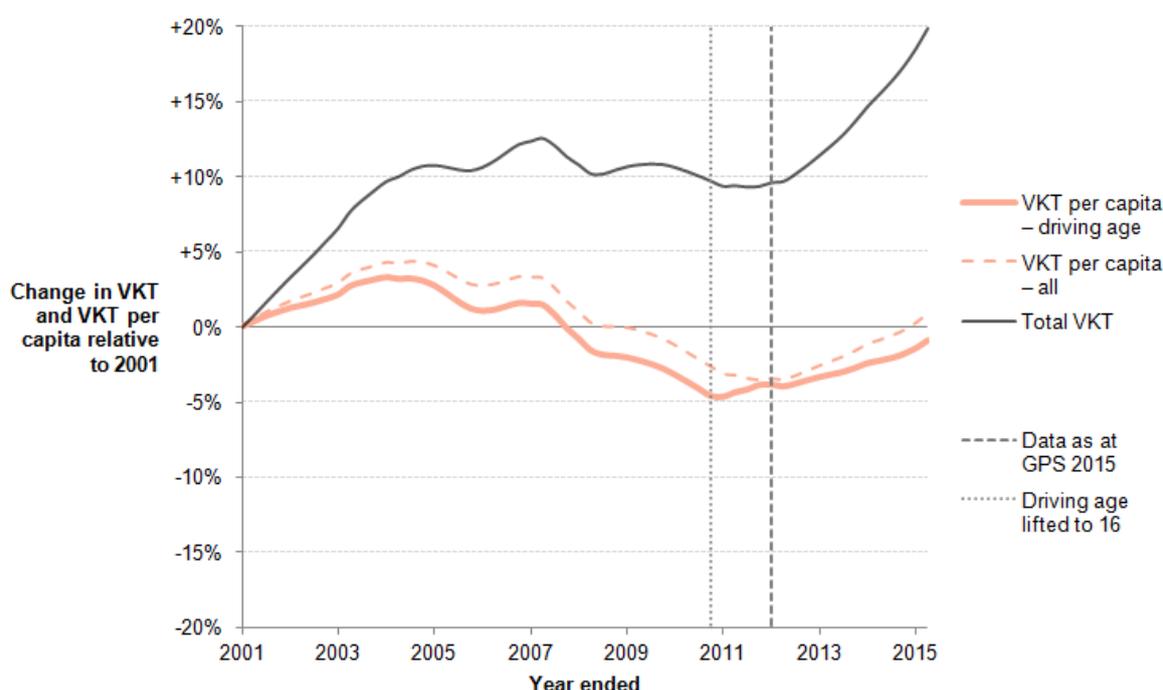
13.1.2. Total VKT per capita

155. Figure 17 shows the change in total VKT since 2001, along with changes in VKT per capita (all ages, and those of driving age 23). VKT per capita - driving age takes into account regulatory decisions that have altered the potential size of the driving population. This may be a better measure for understanding population-based VKT trends as it may better indicate people's propensity to drive.

²² Note that the Ministry is developing a new model for forecasting VKT so more recent forecasts are not yet available.

²³ Assumed upper limit of 89 years. Lower age limit is 15 years prior to the lifting of the driving age in August 2011 and 16 thereafter.

Figure 17: Change in total VKT per capita, 2001Q4 to 2016Q1



Source: Ministry of Transport using [vehicle kilometres travelled](#) and Statistics New Zealand [population](#) data

156. VKT per capita has increased since 2012/13 although it is some way off historical levels. Up to 2011 VKT per capita driving age tracks lower than VKT per capita all ages, with a lower peak, and a deeper trough. These results may be attributable to an aging population as this leads to more driving age people relative to non-driving age people over time.

157. Shortly after 2011, *VKT per capita - driving age* increases to, or past, *VKT per capita for all ages*. This is because the increase in the driving age reduced the population eligible to drive. Post 2011/12, *VKT per capita driving age* grew slower than *VKT per capita all ages*. While *total VKT* grew around 9.5 percent since 2012, *VKT per capita* grew around 3 percent. About two-thirds of the increase in VKT can be attributed to population growth. Other factors may include possible higher rates of passenger (including public transport) travel or increased walking and cycling²⁴.

158. Shortly after 2011, *VKT per capita driving age* increases to or past *VKT per capita all ages*.

159. Post 2011/12, we can see *VKT per capita driving age* again growing slower than *VKT per capita all ages*.

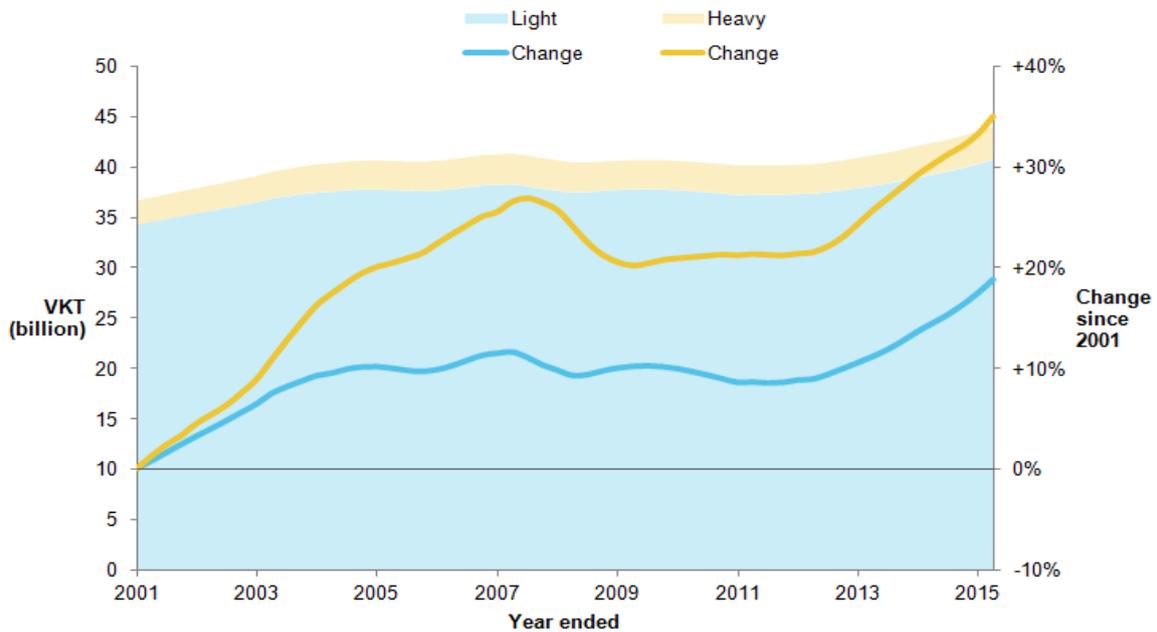
13.1.3. Light VKT and heavy VKT

160. Heavy vehicles cause more damage to roads than light vehicles. The amount of VKT that is heavy versus light might have implications for the balance between spending on improvements and maintenance.

²⁴ The choice of what population to adjust for matters. Only those of driving age can drive cars, but anyone can ride buses. Only those of driving age can drive heavy trucks, but the demand for the products they freight comes from all people. Motorcycles are a mix of personal travel (driving age) and, with couriers, freight (all people).

161. Figure 18a shows actual VKT and cumulative change in VKT over time.

Figure 18a: Actual and cumulative change in light and heavy VKT, 2001Q4 to 2016Q1



Source: Ministry of Transport [vehicle kilometres travelled](#)

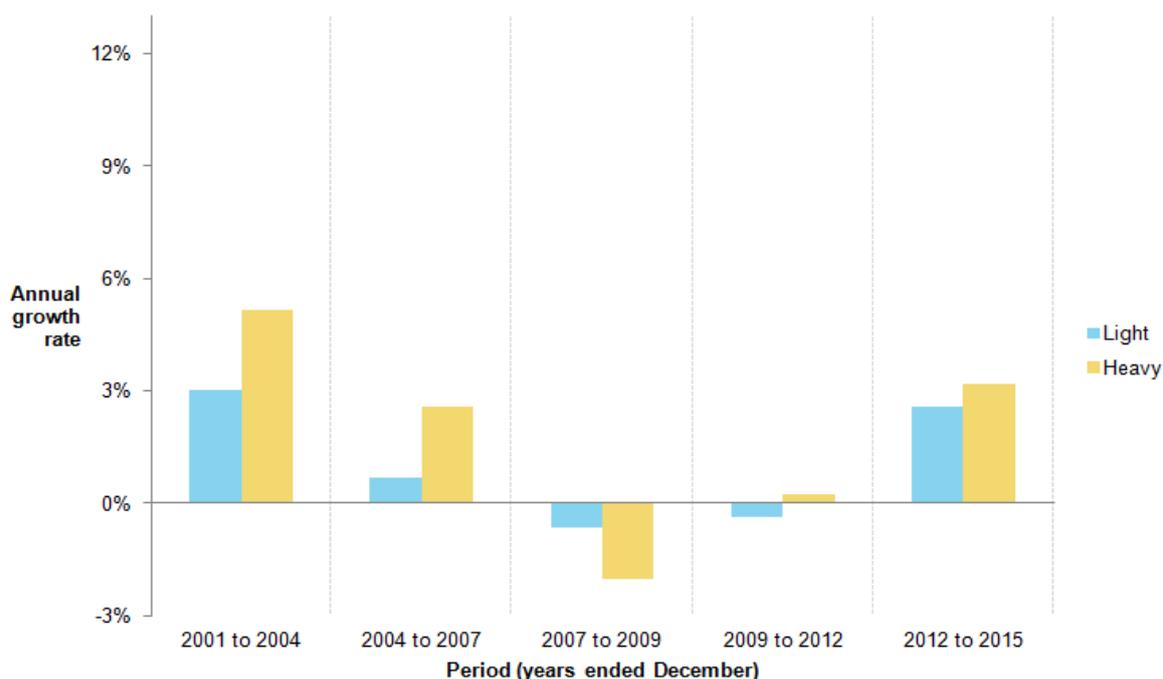
162. Figure 18b shows annual growth rates²⁵ by selected periods of time:

- to the end of 2004 – approximately when VKT began to flatten
- to the end of 2008 – taking us to the recession
- to the end of 2009 – the end of the recession (actually mid-2009)
- to the end of 2012 – post recession
- to the end of 2015 – the last full year of data we have.²⁶

²⁵ Constant/geometric growth rates.

²⁶ The last data point we had at time of writing was Q1 of 2016. The unseasonally-adjusted annual growth rates up to 2016Q1 is 2.7% for light vehicles and 3.3% for heavy vehicles compared to 2.6% and 3.2% respectively to the end of 2015.

Figure 18b: Annual change in light and heavy VKT, 2001 to 2015



Source: Ministry of Transport [vehicle kilometres travelled](#)

163. This information suggests that prevailing economic conditions affect light and heavy vehicle VKT, with heavy vehicle VKT more responsive to these changes. If we know GDP is expected to grow, then the expected result is more heavy vehicles affecting the level of maintenance and road improvements required.

13.1.4. VKT by vehicle type

164. Looking at VKT by type of vehicle may provide some insight into about people's travel demands.

165. In the following charts, vehicle types have been sorted from vehicle types that are largely used for personal travel to use that is largely commercial:

- **passenger cars**, and other similar vehicles
- **buses**
- **motorbikes**
- **light commercial**
- **heavy trucks.**

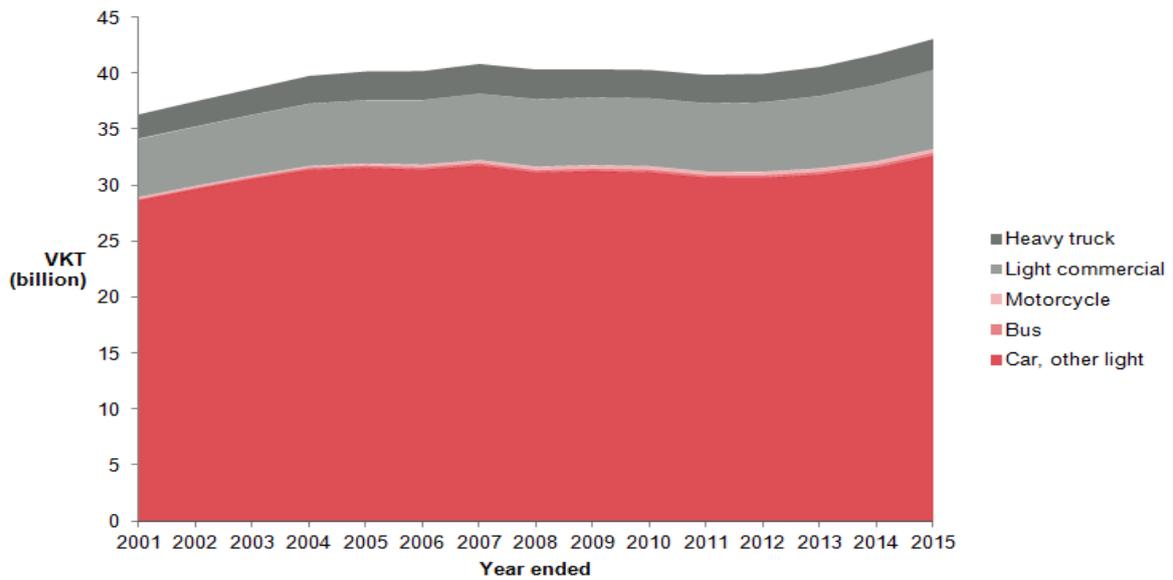
166. Figure 19a shows actual VKT; Figure 19b shows cumulative changes; and Figure 19c shows annual growth rates²⁷ using the selected periods above.

167. The noticeable features of these charts, in particular seen in Figure 19c, are that personal travel in cars stopped growing well before other vehicles²⁸ and well before the global financial crisis (GFC), and that personal travel in cars has been slower to grow since GFC effects ended.

²⁷ Constant/geometric growth rates.

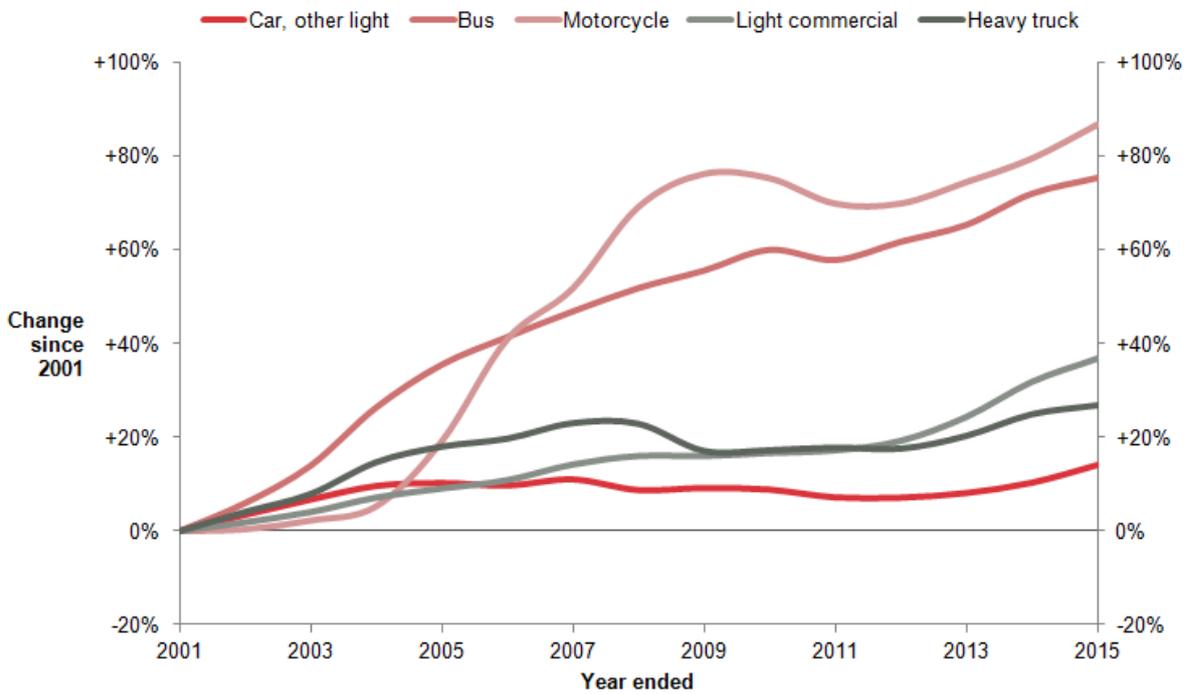
²⁸ However, care needs to be taken when comparing bus transport. Bus services are contracted by local authorities and may be slower to react to decreases and increases in demand than market-provided services of private cars, motorcycles, light commercial and heavy trucks.

Figure 19a: Actual personal and commercial VKT, 2001 to 2015



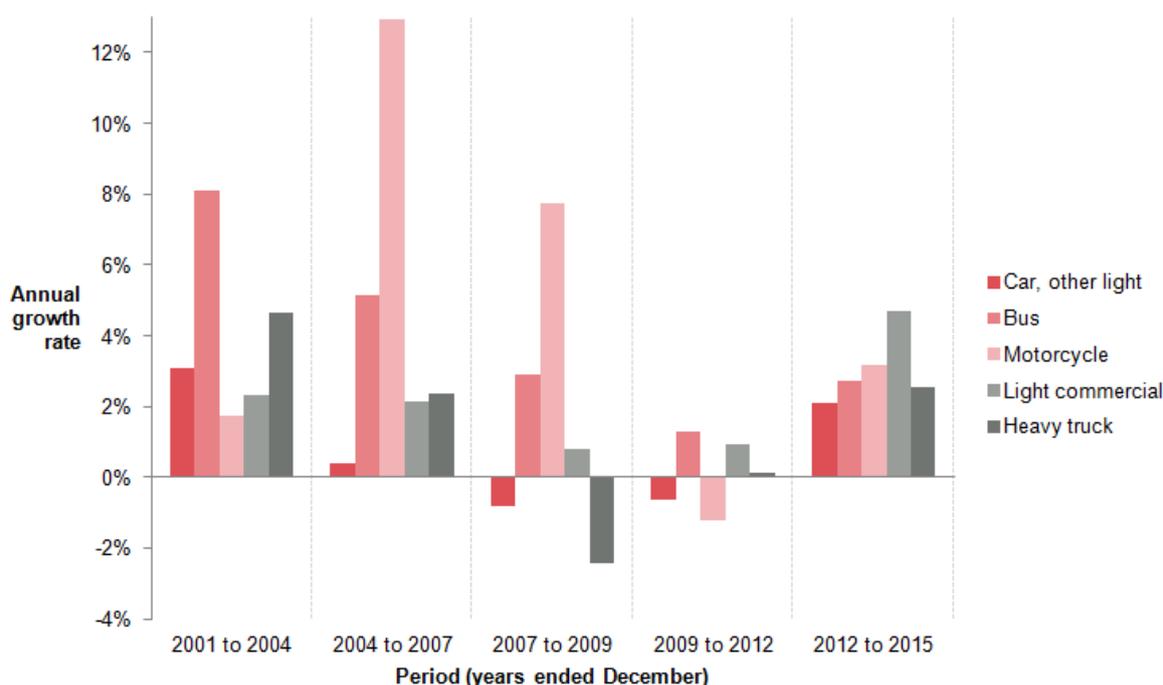
Source: Ministry of Transport [vehicle kilometres travelled](#)

Figure 19b: Cumulative change in personal and commercial VKT, 2001 to 2015



Source: Ministry of Transport [vehicle kilometres travelled](#)

Figure 19c: Annual change in personal and commercial VKT, 2001 to 2015



Source: Ministry of Transport [vehicle kilometres travelled](#)

168. There could be many explanations for the slower growth in personal travel in cars, including changing preferences, including demographic shifts in the way people prefer to travel. People may be increasingly using public transport, as well as walking and cycling to travel. They may also be increasingly ordering goods to their door rather than shopping in person. (This would help explain the relatively strong performance of light commercial).

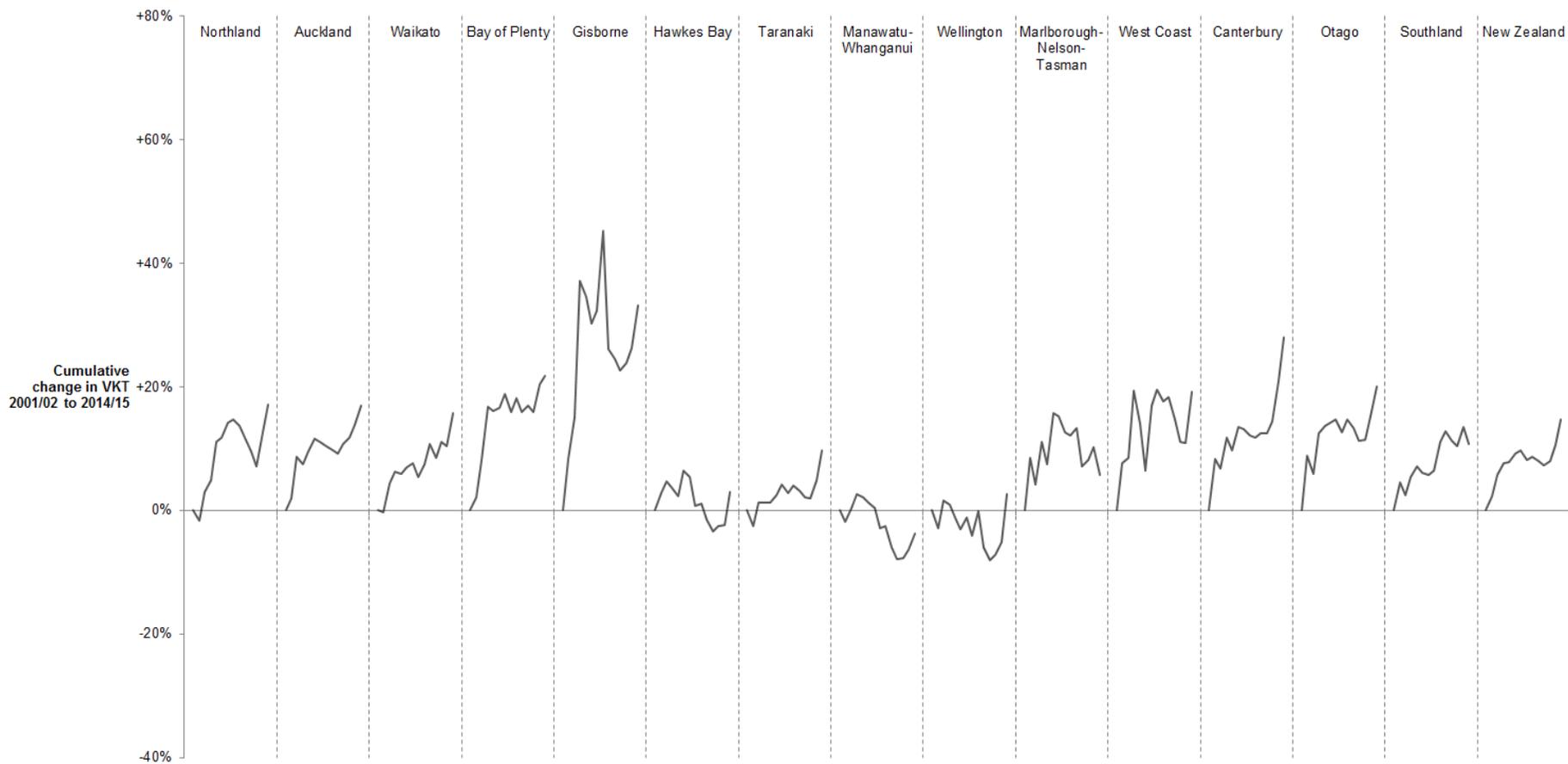
13.1.5. VKT by region

Total VKT

169. Figure 20a shows the cumulative change in total VKT by region²⁹.
170. Figure 20b shows total VKT per capita by region. Southland may have been the only region to have growing VKT per capita during nearly ten years of weak growth elsewhere nationally. All regions except, perhaps, Auckland may be experiencing the recent increase in VKT per capita. VKT per capita is lowest in Auckland and Wellington.
171. Figure 20c shows the cumulative change in total VKT per capita by region and confirms stability in VKT per capita in southern regions with declines in most other regions.

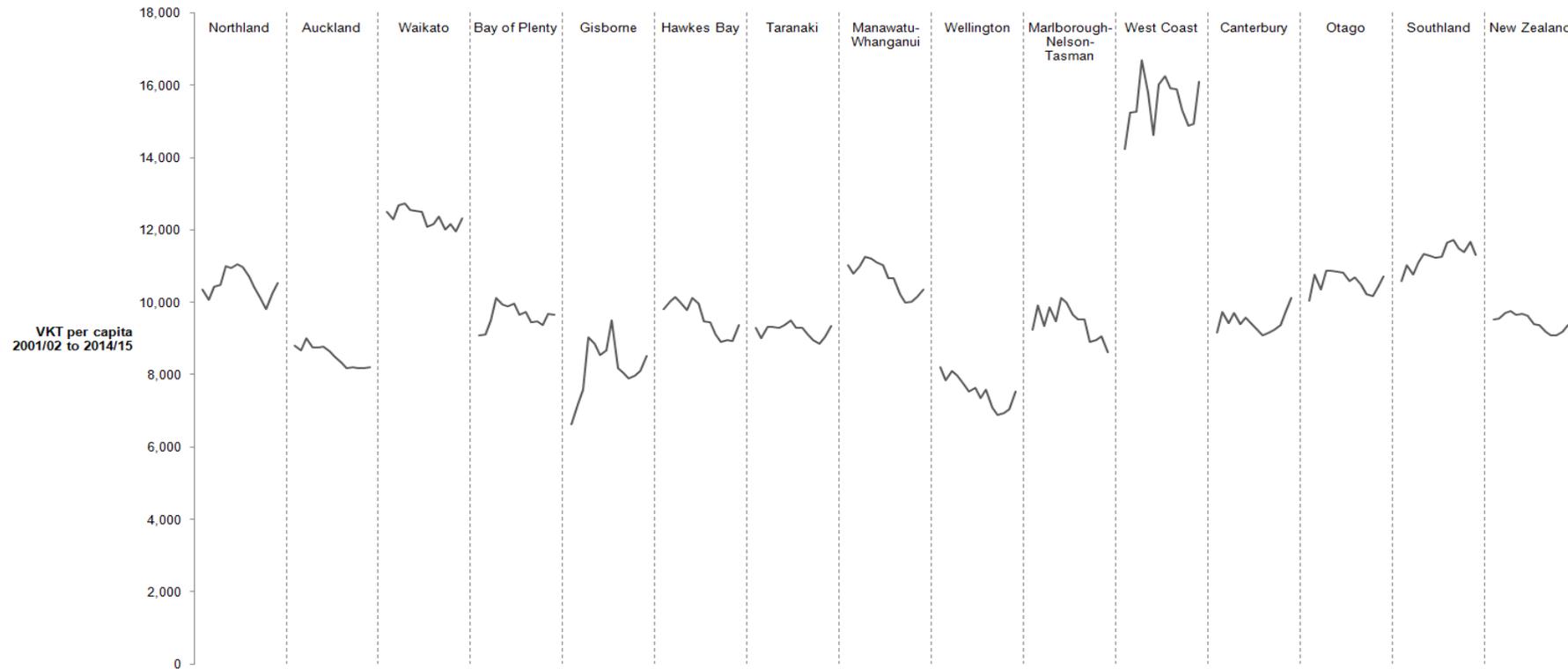
²⁹ The general quality of local data and differences in surveying frequency between regions affects the reliability of this data. Gisborne's data, in particular, should not be relied upon in early years. The 'New Zealand' plot in Figure 22 differs from that in Figure 17 as it's for the financial rather than calendar year.

Figure 20a: Cumulative change in total VKT by region, 2001/02 to 2014/15



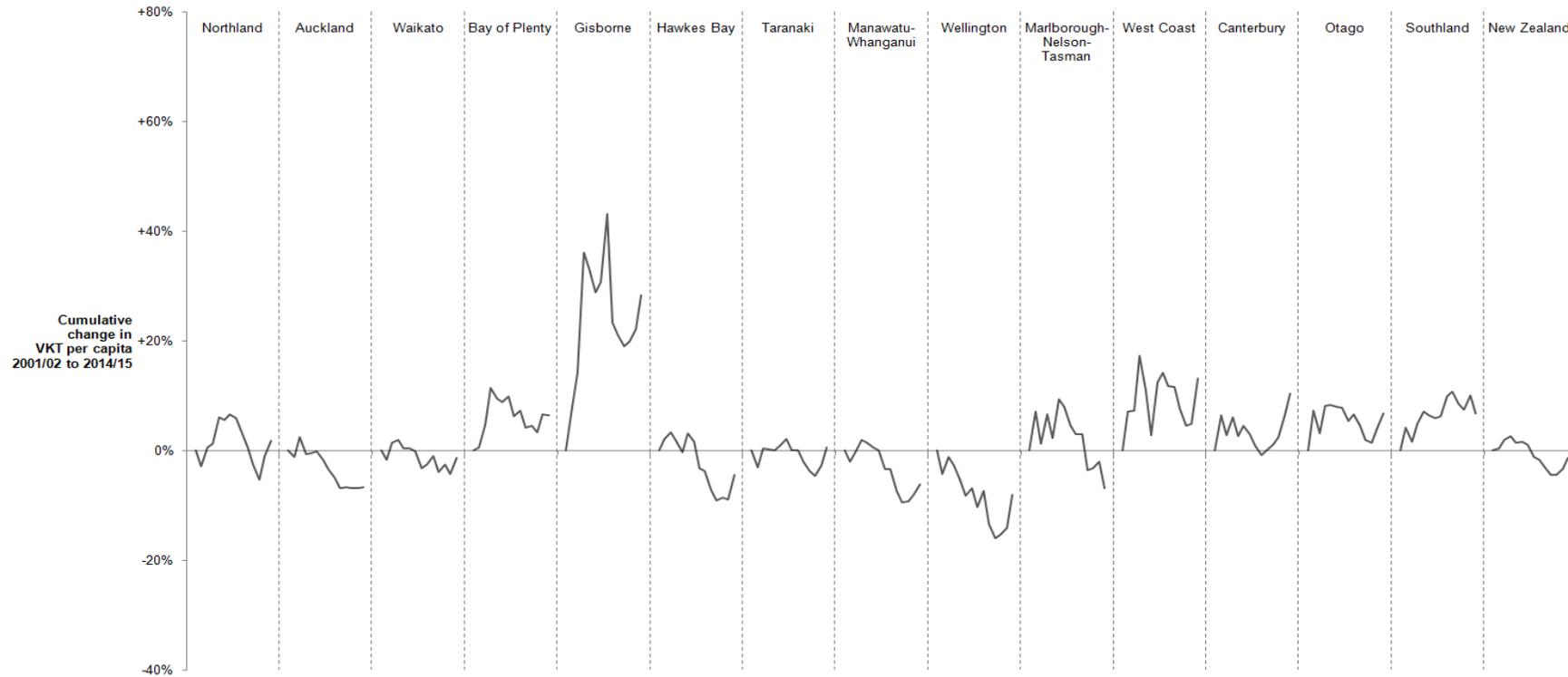
Source: Ministry of Transport [regional vehicle kilometres travelled](#)

Figure 20b: Total VKT per capita (all ages) by region, 2001/02 to 2014/15



Source: Ministry of Transport using Ministry of Transport [regional vehicle kilometres travelled](#) and Statistics New Zealand [population](#)

Figure 20c: Cumulative change in total VKT per capita (all ages) by region, 2001/02 to 2014/15



Source: Ministry of Transport using Ministry of Transport [regional vehicle kilometres travelled](#) and Statistics New Zealand [population](#)

13.1.6. State highways and local roads

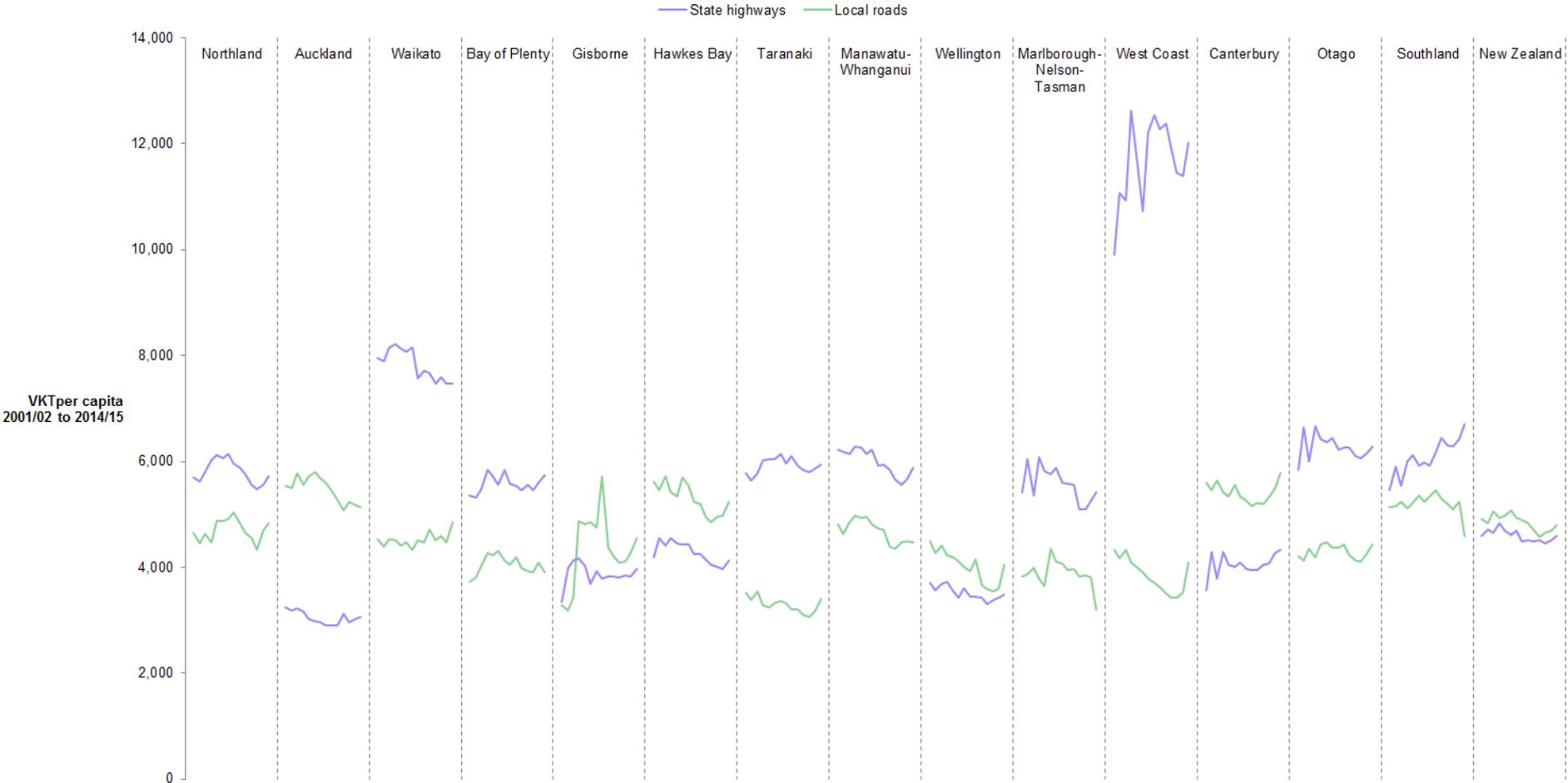
172. VKT by region for State highways and local roads is surveyed separately from total VKT and, as such, does not match the (more reliable) total VKT estimates. Due to differences in surveying frequencies and the general quality of local road data, the State highway data is more reliable than the local road data.
173. Figure 21a shows cumulative change by region for State highways and local roads. Taking an approach where VKT is 75 percent of the difference between the regional and national estimates is attributed to local roads, and 25 percent to State highways:
- there are three regions – Auckland, Waikato, Bay of Plenty (excluding Gisborne) - where local road VKT has been stronger than State highway VKT. This appears to be consistent with stronger growth in commercial VKT rather than personal VKT
 - there are four regions - Auckland, Hawke's Bay, Gisborne and Canterbury - where there is more VKT along local roads than State highways
174. Figure 21b shows State highway VKT and local road VKT per capita by region. In only four regions is there more VKT along local roads than state highways.
175. Figure 21c shows cumulative change in State highway and local road VKT per capita by region.

Figure 21a: Cumulative change in State highway and local road VKT by region, 2001/02 to 2014/15



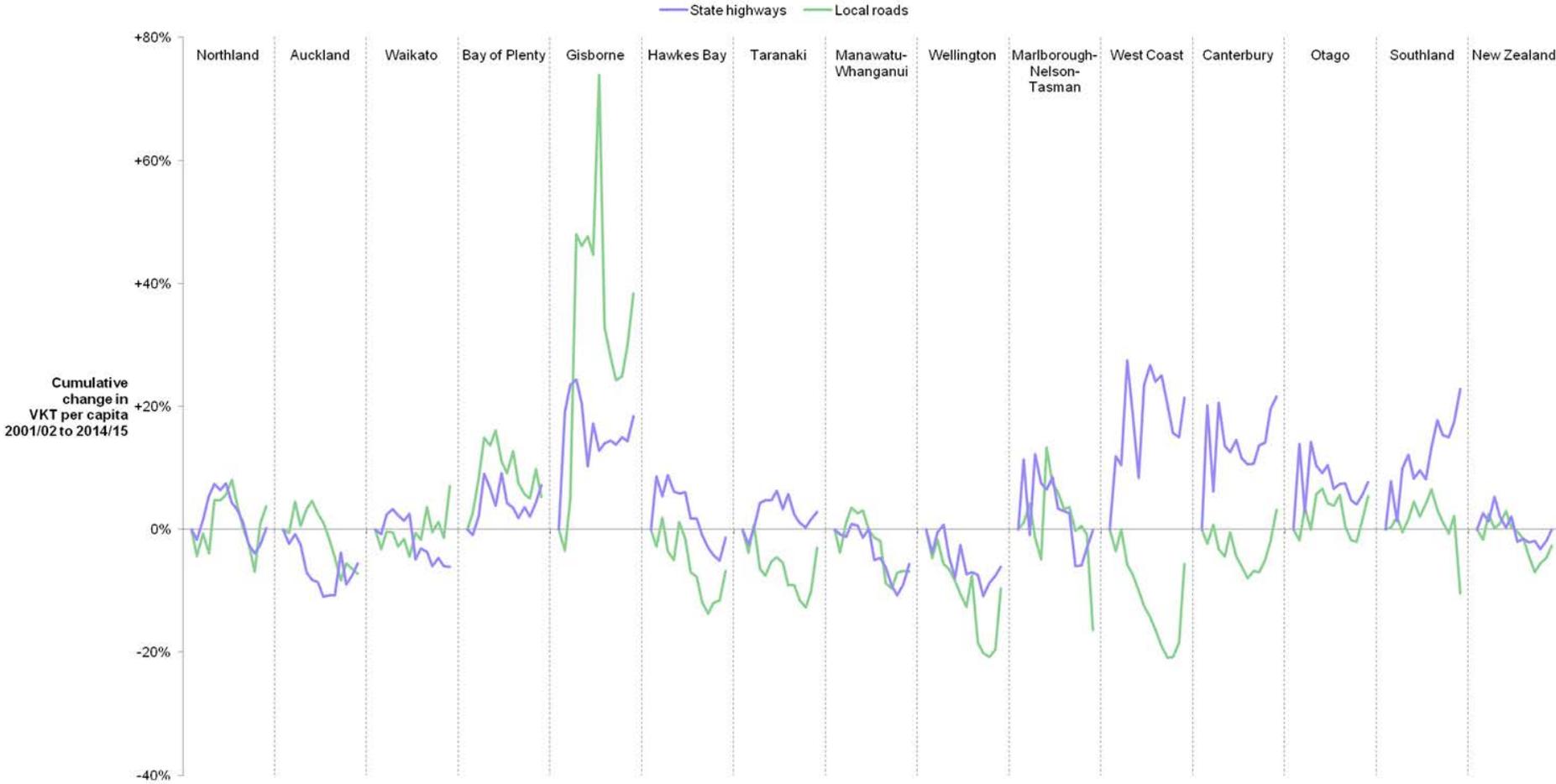
Source: Ministry of Transport using NZTA [state highway and local road vehicle kilometres travelled](#) and Ministry of Transport [regional vehicle kilometres travelled](#)

Figure 21b: State highway and local road VKT per capita by region, 2001/02 to 2014/15



Source: Ministry of Transport using NZTA [state highway and local road vehicle kilometres travelled](#), Ministry of Transport [regional vehicle kilometres travelled](#) and Statistics New Zealand [population](#)

Figure 21c: Cumulative change in State highway and local road VKT per capita by region, 2001/02 to 2014/15



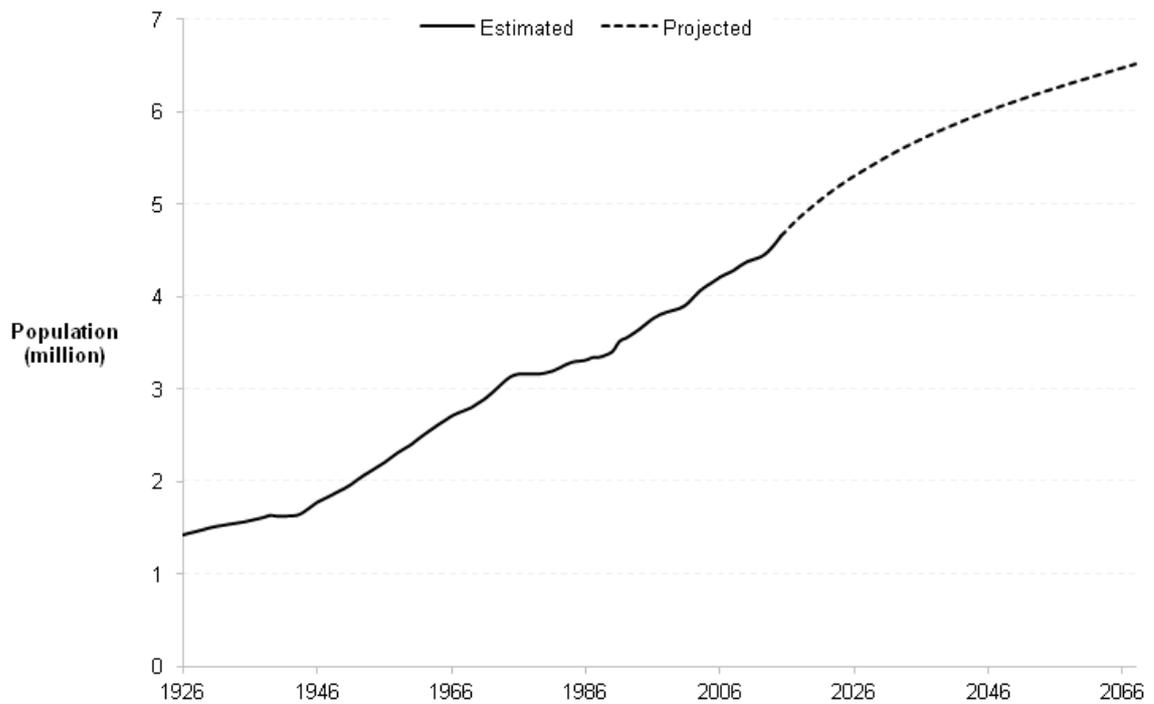
Source: Ministry of Transport using NZTA [state highway and local road vehicle kilometres travelled](#), Ministry of Transport [regional vehicle kilometres travelled](#) and Statistics New Zealand [population](#)

13.2. Influences on road use

13.2.1. Population

176. Based on Statistics New Zealand's median-case projections in November 2014, the New Zealand population is projected to rise to 6.2 million in 2068, an increase of close to one third on the current population.

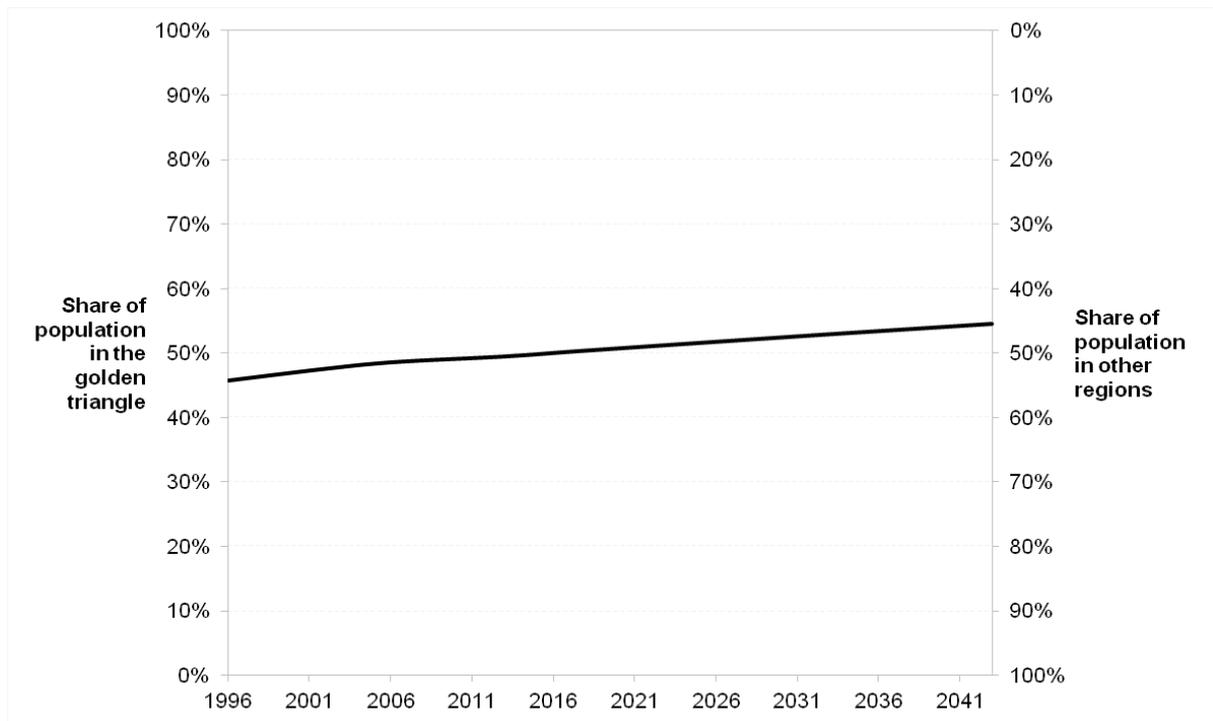
Figure 22: Projected increase in New Zealand population



Source: Statistics New Zealand

177. About half of the total population is currently concentrated in the Auckland-Hamilton-Tauranga 'golden triangle' with growth projected to increase at a faster rate than for the rest of the country.

Figure 23: Projected share of national population on the 'golden triangle'



Source: Ministry of Transport using Statistics New Zealand data

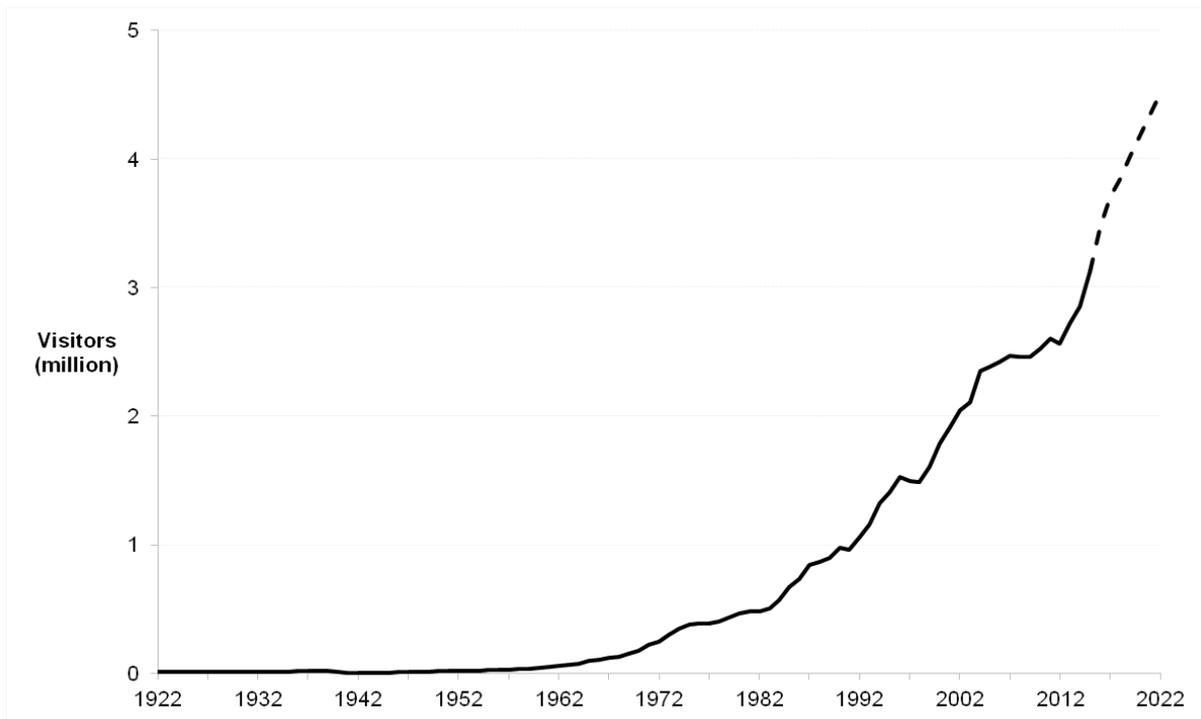
178. Responding to growth in the 'golden triangle' area is important as is the response in areas where population growth may be declining. Both scenarios require decisions about the extent and levels of land transport services that are developed and maintained to meet user demand.

13.2.2. Tourism

179. Tourism has made a contribution to the shape of New Zealand's transport system. In the early to mid 20th century, New Zealanders used the train for excursions or holiday travel. Now, domestic and overseas tourists remain an important source of income for the long-distance train lines and Cook Strait ferries. Overseas tourists provide an important market for domestic flights as many fly into Auckland and travel further on from there. This has led to expansions at some airports, for example Queenstown, Auckland, and Wellington.

180. The Ministry of Business, Innovation and Employment (MBIE) forecasts an increase in the number of international visitors from currently just over three million to 4.5 million in 2022. Factors that can contribute to increasing tourism include continuing declines in the cost of air travel and increasing prosperity in Asia. Tourism is soon expected to overtake the dairy sector as New Zealand's largest export earner.

Figure 24: Projected increase in international visitors to New Zealand



Source: Ministry of Business Innovation and Employment

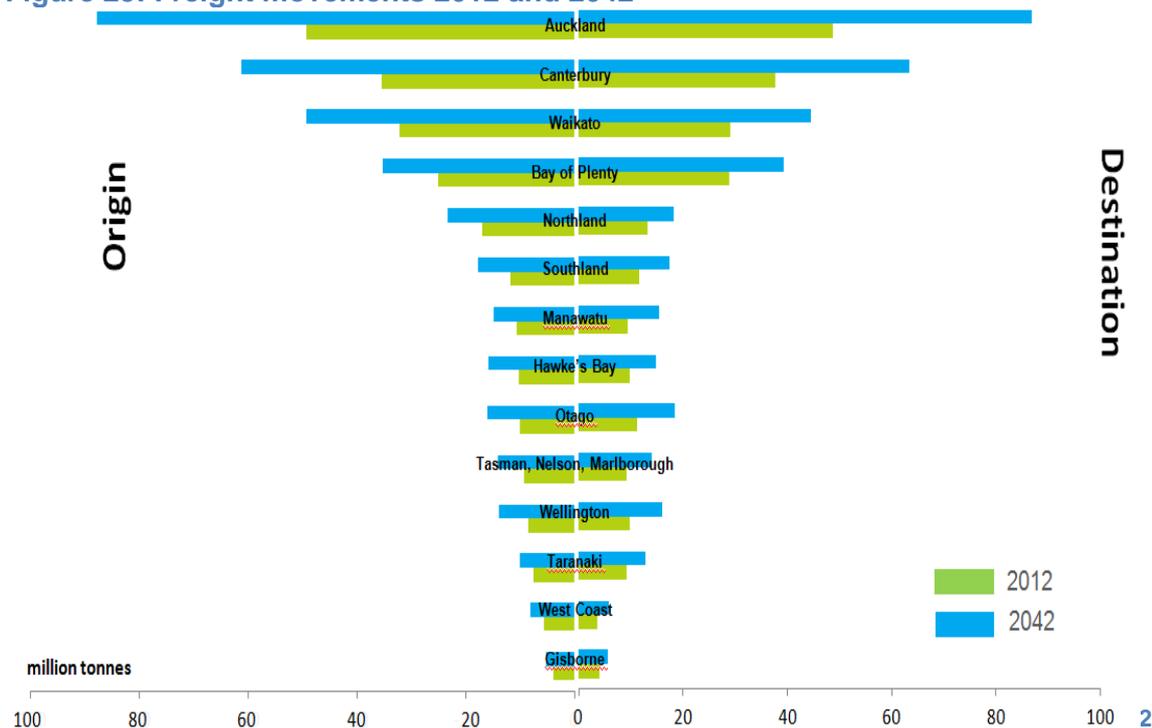
181. Increased tourism drives demand for extra cars, camper vans, and tourist coaches.

This can place pressure on the road infrastructure, for example around Auckland International Airport and in parts of the country such as Queenstown, the West Coast and Southland where local transport demand on the approaches into these areas is comparatively light. Increased tourism drives increased demand for goods and material for constructing accommodation for both tourists and workers.

13.2.3. Freight

182. The amount of freight on our network is forecasted to grow by over 50 percent by 2042 (from 230 million tonnes in 2012, to over 370 million tonnes in 2042). Much of that growth will be within regions that already have a substantial amount of freight, as illustrated in Figure 25. Road transport is expected to remain the primary mode for freight, accounting for about 70 percent of freight moved, with most of the freight growth concentrated in Auckland, Canterbury, and Waikato.

Figure 25: Freight movements 2012 and 2042



Source: Ministry of Transport National Freight Demand Study 2014

<http://www.transport.govt.nz/assets/Uploads/Research/Documents/National-Freight-Demand-Study-Mar-2014.pdf>

13.2.4. Technology

183. Increased use of the internet to obtain goods and services will also have implications for transport as light commercial VKT may increase at a faster rate as more deliveries are made. Goods and services, including some transport services can be accessed through apps and the internet. This may lead to increasingly less reliance on a private vehicle. This may slow the rate of increase in private vehicle VKT as well as reduce the need to obtain or hold a driver's licence.

184. Technology developments (such as electric vehicles, autonomous vehicles, and freight platooning) are expected to change transport demand in the future. These technologies will make transport more efficient and may reduce transport demand overall. However, while we know these technologies will become available, it difficult to predict how quickly and how much change will occur.

13.3. Road improvements

185. GPS 2015 sought the following from investment in road improvements:

- continuation of the Roads of National Significance Programme
- reduced travel times in key corridors
- increased productivity where constraints existed in main routes in main metro areas
- increased freight productivity across the network
- improved regional roads.

186. This section summarises the main findings from the State highway, local road and regional improvements activity classes. It focuses on the following key developments:

- Progress on the Roads of National Significance
- Regional transport investment

187. Auckland investments are covered in Section 4.

13.3.1. Roads of National Significance (RONS)

188. The RONS are lead infrastructure projects that support large traffic volumes, reduce congestion, improve safety, and support economic growth.

189. All seven projects are either underway or completed. Projects currently underway are scheduled to be completed by 2018.

Table 6: RONS projects

Projects completed	Projects in progress
Tauranga Eastern Link	Wellington Northern Corridor
State Highway 1 - Victoria Park Tunnel	State Highway 1 - Pūhoi-Wellsford
	Auckland Western Ring Route
	Waikato Expressway
	Christchurch motorway projects (the last two projects started in November 2016).

13.3.2. Travel time and productivity in metro areas

190. Under GPS 2015, travel time is measured using an Austroads³⁰ measurement that represents average travel time per kilometre travelled. An increase of 0.1 in this measure between years would represent an increase of six seconds per kilometre travelled.

191. The NZTA reports that since 1 July 2015³¹, travel times in key metros have stayed the same in Auckland (1.1) and Christchurch (1.2), and have improved by 6 seconds per kilometre travelled in Wellington (from 1.5 to 1.4). For local roads in these same areas, the travel time in Auckland was maintained (2.5), Wellington travel times have improved (from 2.1. to 1.9) and Christchurch times have worsened (from 2.2 to 2.7)³².

13.3.3. Freight productivity

192. The State highway network provides critical economic links for New Zealand businesses and communities. State highways carry most of New Zealand's current freight task and link major ports, airports and urban areas. Although the State highway network is only 11 percent of the total road network, it accounts for about two-thirds of freight vehicle kilometres travelled each year.

³⁰ See <http://www.austroads.com.au/>

³¹ Note that Figure 10a in Section 8 contains data to 2015.

³² NZTA GPS 2015 Reporting, September 2016

193. Road is the dominant mode of transport for intra-regional freight flows with market share over 95 percent in all regions except for the Bay of Plenty (which is 83 percent in this region, given log volumes transported by rail to the Port of Tauranga).³³

194. GPS 2015 sought reporting on the proportion of the State highway and the local road networks available to high productivity motor vehicles (HPMV). The proportion of network availability is used as an indicator of freight productivity. The NZTA Annual Report 2016 identifies that the kilometres available for use by HPMVs on key regional routes increased from 4,500kms in 2014/15 to 5,342kms in 2015/16³⁴.

Figure 26: High Productivity Freight Vehicle Network (HPN), Quarter 3 2015/16



Source: NZTA <https://www.nzta.govt.nz/assets/resources/quarterly-report/docs/3rd-quarter-2015-16.pdf>

13.4. Road maintenance

195. Maintenance investment under GPS 2015 was focused on achieving measurable productivity improvements in maintaining the State highway and local road networks and a reduction in the variability in the maintenance efficiency of networks.

196. This section summarises the main findings from the State highway and local road maintenance activity classes.

³³ <http://www2.deloitte.com/content/dam/Deloitte/nz/Documents/finance/2016-Ports-and-Freight-Yearbook.pdf> referenced in Transport Outlook 2016 [draft]

³⁴ See NZ Transport Agency Annual Report 2016, page 81 at <https://www.nzta.govt.nz/assets/resources/annual-report-nzta/2015-16/nzta-nltf-annual-reports-2016-complete.pdf>

13.4.1. Network statistics

197. The national road network is valued at approximately \$80 billion, with local roads estimated at \$50 billion (excluding land values). Selected road network statistics are included in Table 7.

Table 7: Road network statistics

Road network statistics			
Total road network	In 2015, the total road network in New Zealand is 94,611km	10,828 km of the network is classified as State highway (11 percent of total network)	83,571km of the network is classified as local roads (89 percent of total network)
Length of sealed network	The length of the sealed network increased from 120,087 lane-km in 2007 to 125,922 lane-km in 2015		The length of the unsealed network decreased from 54,730 lane-km in 2007 to 52,307 lane-km in 2015
Number of bridges	There were 19,244 bridges in 2015, spanning 406 km		Between 2015 and 2015, 1,672 bridges were added to the network, spanning an extra 31 km compared.

13.4.2. One Network Road Classification

198. All State highways have been classified according to the One Network Road Classification (ONRC) framework which categorises roads into one of six functional classifications:

- National (and high volume sub-category)
- Regional
- Arterial
- Primary Collector
- Secondary Collector
- Access (with a low volume sub-category)

199. Each functional classification has an associated Customer Levels of Service (CLoS) which defines what the fit-for-purpose outcomes are for each category in terms of:

- mobility – consideration of travel time reliability, resilience, and optimal speeds for each road
- safety – how road users experience the safety of the road
- accessibility – the ease with which people are able to reach key destinations and the transport networks available, which includes land use access and network connectivity
- amenity – the travel experience and level of travel comfort experienced by the road user, such as cleanliness, comfort, convenience and security.

200. The assessment of actual road condition against desired ONRC service levels will not be complete for some time. Data on change in road condition in relation to ONRC will be available to support monitoring of GPS 2018 and development of GPS 2021.

13.4.3. Distribution of maintenance expenditure

201. For GPS 2015, a chart was produced showing average annual maintenance costs³⁵ for sealed local roads on a lane-kilometre basis. The GPS 2015 calculations covered years 2007/08 to 2011/12, where 2011/12 was the last available data on the length of roads at the time. The analysis starts from 2007/08 as changes made in the definitions of activity classes at that time would have made comparisons back to 2005/06 problematic.

202. GPS 2015 analysis compared variability in maintenance costs against a single variable (VKT) and found only a weak relationship.

203. However, the approach taken to analysing maintenance costs may not be the best way of understanding the issues. There are a number of variables that could explain maintenance cost distributions. This includes factors such as the mix of heavy VKT versus light VKT, the weather, the amount and quality of improvement spending,³⁶ and willingness to pay³⁷. However, the distribution of costs using the method employed during GPS 2015 was still so wide that it seemed likely that there would be a lot of variation that was unexplained or without good explanation.

204. The analysis underpinning the GPS 2015 work on distribution of maintenance costs has been updated for GPS 2018 and includes some adjustments to the original method and approach³⁸. These adjustments do not change the overall conclusion of wide variability in maintenance costs found in the GPS 2015 analysis.

13.4.4. How has the distribution of costs changed?

205. Figure 27 shows the variation in average annual maintenance expenditure on sealed local roads for NLTP 2009 and NLTP 2012 together.

206. To compare across the two periods, Figure 27 shows how much higher or lower each region was to the median rather than actual spending, keeping the order of local authorities unchanged from NLTP 2009. Figure 28 shows the distribution allowing the order of local authorities to vary between NLTP 2009 and NLTP 2012.

207. Comparing to median expenditure avoids complications of inflation in maintenance costs and of changes in funding ranges and levels. Looking at these results, it appears that higher cost regions have cut costs relative to the median, and lower cost regions have also cut costs relative to the median.

208. Overall, the change in the distribution of costs suggests more of a normal distribution for NLTP 2012 than NLTP 2009 which leaned to higher-cost. The percentage by which average³⁹ regional costs are higher than median regional costs has dropped from 15.6 percent to 6.0 percent, and the standard deviation in difference from means has fallen from 0.63 to 0.53. The reduction in the standard deviation shows that the distribution is

³⁵ Work categories included are 111 – sealed pavement maintenance; 212 – sealed road resurfacing; and 214 – pavement rehabilitation/sealed road pavement rehabilitation.

³⁶ Better built roads may require less maintenance expenditure.

³⁷ Median personal income in Queenstown-Lakes District is 42% higher than that of Waimate (Census 2013) which might imply a higher willingness to pay in Queenstown Lakes District.

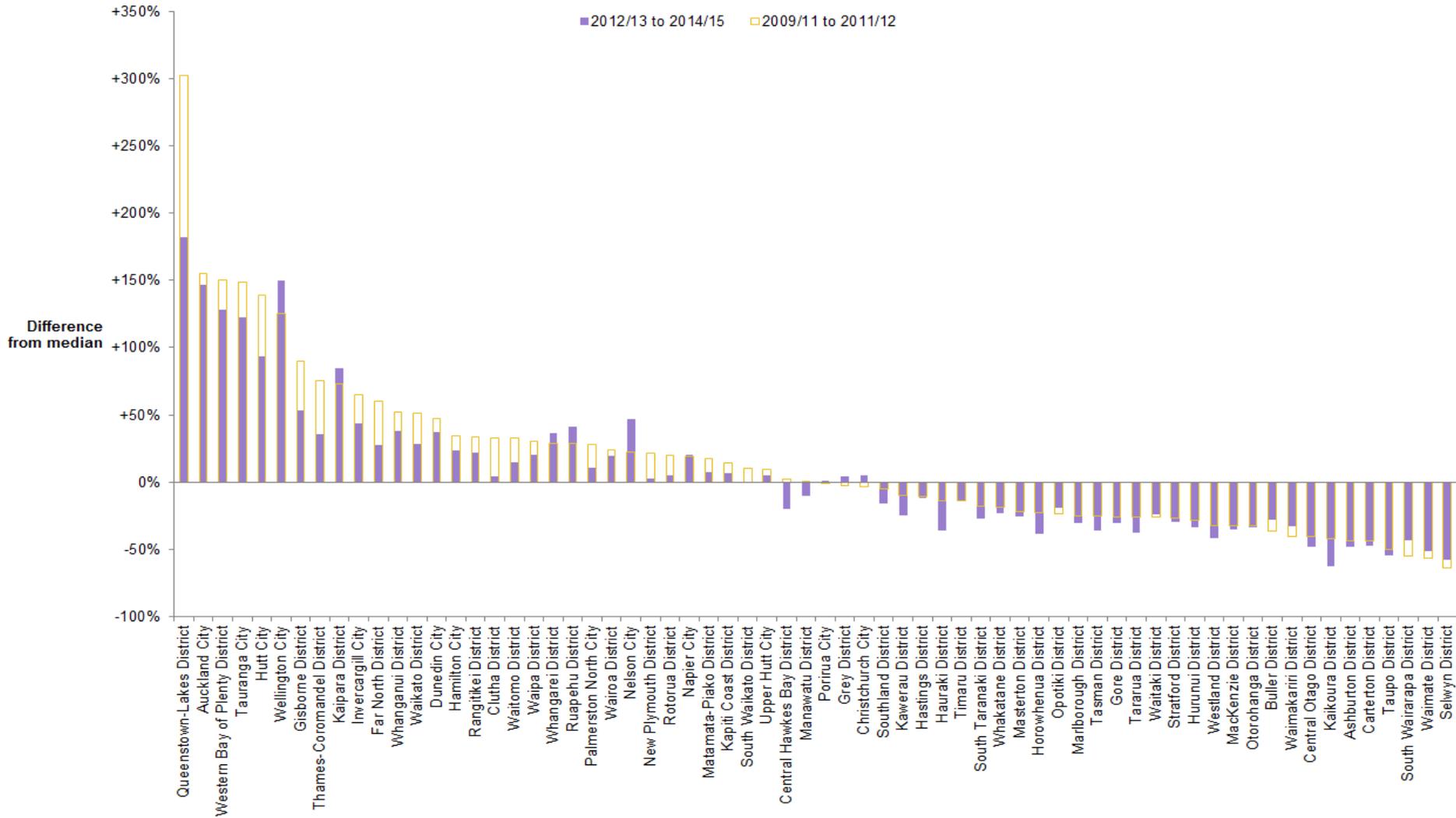
³⁸ The adjustments made involve corrections made to the GPS 2015 data for analysis to use a weighted average cost, use NZTA data on lane kilometres rather use network kilometres doubled to get lane-kms, use of complete time periods across two NLTPs periods (six years) rather than across 5 years, and corrections resulting from a check of data quality to remove implausible or incorrect information about roads.

³⁹ Unweighted.

less varied and the reduction in the difference between average and median regional costs shows that the distribution leans less towards high cost.

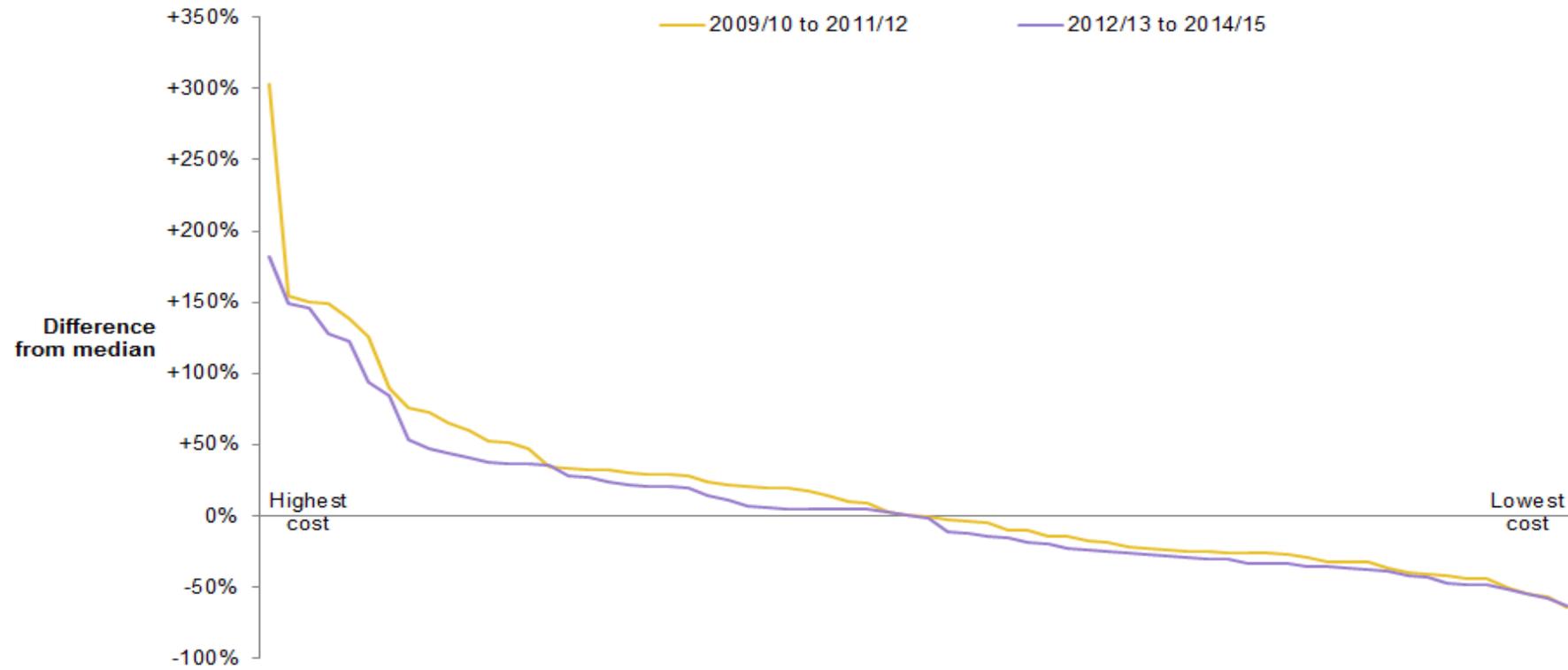
209. Given the limitations of the method that has been used to present the distribution of maintenance costs, a better approach would be to consider the classification of roads using the One Network Road Classification (ONRC) and to use peer groups to help understand the variations and cost drivers.

Figure 27: Distribution of maintenance costs per sealed lane-km, NLTP 2009 versus NLTP 2012, fixed order



Source: Ministry calculations based on NZTA data

Figure 28: Distribution of maintenance costs per sealed lane-km, NLTP 2009 versus NLTP 2012, variable order



Source: Ministry calculations based on NZTA data

13.4.5. Road Efficiency Group and the One Network Road Classification

210. The NZTA and Local Government NZ established the Road Efficiency Group (REG), in response to recommendations made by a Road Maintenance Taskforce. The Taskforce was established in 2011, to identify opportunities to increase the effectiveness of road maintenance.

211. The REG has focused on developing and implementing initiatives covering:

- the One Network Road Classification (ONRC)
- capability and enabling for council staff to meet new reporting and delivery requirements
- data
- procurement.

212. A reassessment of maintenance costs across regions shows that there is less variation in maintenance costs than was observed in 2012 when GPS 2015 was being developed.

13.5. Reporting metrics for GPS 2015

13.5.1. Network condition and its relationship with ONRC Customer Levels of Service

213. The picture of the overall condition of the road network is not yet clear. NZTA have a good understanding of the condition of the State highway network as the agency responsible for maintaining it. All State highways have been classified according to the ONRC framework and the preceding State highway classification system. The State highway classification system and associated fit for purpose customer levels of service were, and are, being incorporated into the Network Outcome Contracts' performance framework.

214. NZTA have measured the difference between the ONRC performance framework that was in place in 2015 and the performance framework of the Network Outcome Contracts. The preceding State highway classification system and associated customer levels of service are substantially the same as those of the ONRC⁴⁰. The core principles are the same. That is, customer service levels and community outcomes are paramount, and service levels are differentiated across the road classifications.

215. Service levels and robust condition information will be imbedded across the State highway network as the next series of maintenance contracts are let in two years.

216. The timeline for implementing ONRC and condition data for local roads is less clear. It will depend on the capability and capacity of local authorities to assess their road network, along with developments in data collection and updated contracts. However, once it is in effect, the ONRC will be a valuable tool.

13.5.2. Change in State highway maintenance cost per lane km expenditure by road classification

217. As with road condition, there is no information yet on expenditure or changes in expenditure by road classification.

⁴⁰ While the State highway framework required lower levels of customer service than the ONRC framework, the differences were small. They were so small that they did not warrant variation of the Network Outcome Contract terms because this would not deliver customer benefits greater than the cost of variation.

218. There has been reporting of expenditure per lane kilometre nationally and by region. However, the analysis provides limited insight and may even be misleading, as it fails to take into account:

- different quality or condition starting points for regions
- the amount of maintenance undertaken
- the nature of the work (i.e. resurfacing versus sweeping)
- the characteristics of the local or regional network – the proportion of urban versus rural roads
- the amount of traffic on the roads.

219. Since the GPS 2015 analysis was undertaken, further assessment of maintenance costs was undertaken by NZTA.

220. The NZTA identified a strong correlation when the cost per km was plotted against the percentage of urban roads in a network. Rural roads seem to cost approximately \$5,000/km on average and urban roads up to around \$25,000/km on average. This work is forming the basis for improved peer group allocation and analysis.

221. The NZTA analysis also found that there appears to be a correlation between cost and the proportion of urban roads within a Road Controlling Authority region. Factors that may be influencing this include:

- extra width of urban roads
- street lighting and extra lane markings
- kerb and channel costs
- higher costs on high use roads.

222. Cost drivers specific to road maintenance are being investigated through a Ministry funded research project on the subject, which is expected to be completed in early 2017.

223. The outcomes of the research will be used to support and inform the process of:

- understanding the factors that contribute to cost escalation in road maintenance and construction and how government policy settings maybe able to influence these factors
- establishing a mechanism to ensure maximum value is delivered through GPS in relation to road maintenance and construction expenditure
- establishing the associated monitoring and evaluation framework with associated metrics to ensure value for money is delivered and sustained on a long-term basis.

13.6. Summary

224. Information on the condition of the network, and changes in maintenance expenditure has been limited. However, this is beginning to change.

225. The development and implementation of the ONRC and customer levels of service will help provide a clearer picture of the current state of the network, and provide standards for maintenance requirements. Further research into cost drivers for maintenance costs will also help provide a better understanding of costs.

14. Public transport

226. Public transport has a low share of total transport, although its use is increasing. Public transport accounts for 2.8 percent of trip legs and represents 4.1 percent of total travel time (2010/14). It is used mostly for education and work which accounts for 62 percent of all public transport travel.

227. The Household Travel Survey identifies public transport's share of total transport trips as:

- 4 percent in Auckland
- 5 percent in Wellington
- 3 percent in Christchurch⁴¹.

228. However, public transport has a larger share of trips to work⁴² in the Auckland, Wellington regions. By region (rather than urban area), public transport features in 9 percent of trips to work in Auckland, 20 percent of trips to work in Wellington⁴³.

229. Public transport use in New Zealand is increasing. There were 85.9 million boardings in 2000/01. This increased to 144.2 million boardings in 2014/15. Most of this growth has been driven by an increase in bus trips although train use has grown most in percentage terms, mostly in Auckland⁴⁴.

230. The public transport activity class aimed to achieve the following long-term results:

- support economic growth and productivity through the provision of better access to markets, employment and business areas;
- provide appropriate travel choices, particularly for people with limited access to private vehicles;
- improve returns from public transport; and
- mitigate adverse environmental effects.

14.1. Supporting economic growth and productivity

231. The GPS 2015 sought to support economic growth and productivity by increasing throughput through key corridors.

232. Public transport boarding trends have different profiles, depending on the region.

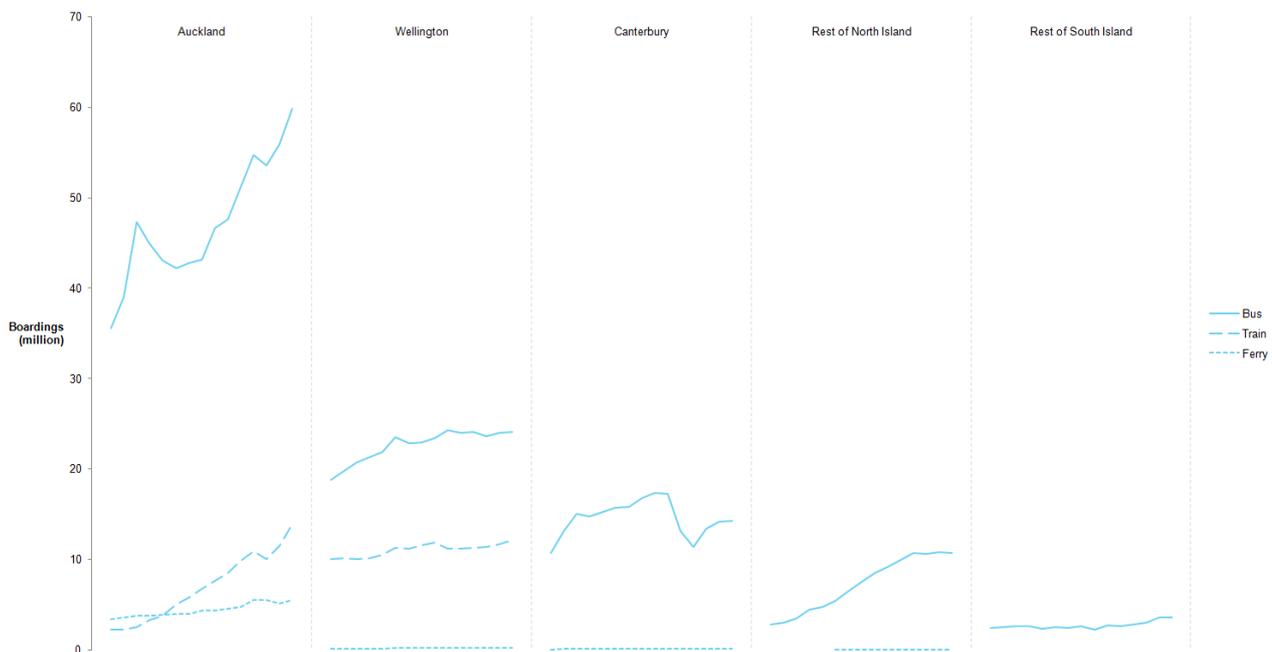
⁴¹ The Household Travel Survey identifies public transport's share of total transport trips for Hamilton as 1 percent, Tauranga 2 percent, and Dunedin 1 percent.

⁴² Full-time workers aged 16 and over, for journeys commencing from 6am to 9.30am (2010/14). Public transport mode share includes trips entirely by public transport, by public transport and car, and public transport, car and walking.

⁴³ Public transport mode share of trips to work (2010/14) for Waikato 0 percent; Bay of Plenty 1 percent; Otago 2 percent.

⁴⁴ NZTA

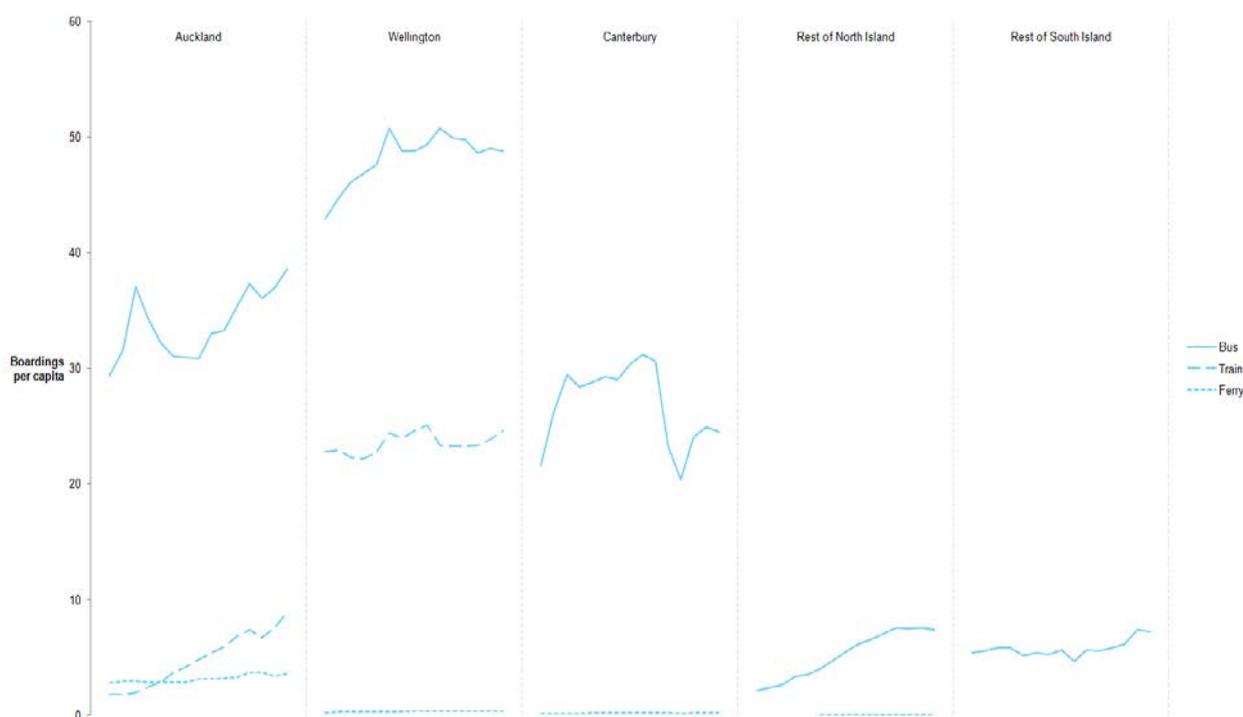
Figure 29: Public transport boardings 2000/01-2014/15



Source: Ministry of Transport [boardings](#)

233. Auckland remains the biggest public transport market in New Zealand and buses remain the main mode of public transport in Auckland. However, rail in Auckland has experienced major growth since the opening of Britomart Station in the Auckland CBD in 2003, the introduction of electric multiple units from April 2014 to May 2015 and other service improvements including integrated ticketing and station upgrades.
234. Wellington shows a mature public transport market with stable minor increases and relatively high boardings per capita. Growth has also come from minor upgrades to the network and increased park-and-ride facilities.
235. Christchurch has the third largest public transport market in New Zealand. Its patronage has been affected by the earthquake in 2011 and has yet to recover to pre-earthquake levels. However, it is expected that patronage will increase in the near future with the new bus interchange, minor upgrades, and as the CBD rebuilds.

Figure 30: Public transport boardings per capita, by region 2000/01-2014/15



Source: Ministry of Transport using [boardings](#) and Statistics New Zealand [population](#)

236. Cordon studies conducted by Auckland Council and Greater Wellington Regional Council indicate that throughput (number of people moving through a corridor) has increased during peak hours on key congested corridors into the CBD. Although this is not solely attributed to public transport, it seems that public transport played a key role in increasing throughput, along with increased road capacity and more people walking and cycling.

237. Although the growth in Auckland and Wellington is positive, both regional councils have indicated future capacity issues (bus capacity for Auckland and rail capacity for Wellington). This issue is further highlighted by a forecast increase in demand for public transport in Auckland and Wellington. Through population growth alone, it is expected that there will be 5 million extra passengers in Auckland and 1 million extra passengers in Wellington by 2022/23.⁴⁵

14.2. Providing alternative transport choices

238. In Auckland and Wellington, 87 percent⁴⁶ and 84 percent of the population live within 500 metres of a public transport stop respectively. Before the 2011 earthquake and bus network changes, 91 percent of people in Christchurch lived within 500 metres of a public transport stop.⁴⁷ This gives one indication of the coverage of public transport.

239. The GPS also subsidises public transport for smaller urban areas and off-peak services in major urban areas. The rationale for funding these services is mainly to provide alternative transport choice, rather than for congestion relief.

⁴⁵ Ministry of Transport forecast based on Household Travel Survey

⁴⁶ Auckland Transport is aiming for 90 percent coverage by 2022.

⁴⁷ Based on figures in Regional Public Transport Plans from Auckland, Wellington and Canterbury.

240. The GPS also provides on-demand services through the Total Mobility scheme for those who cannot use scheduled public transport or private transport⁴⁸. Around 1.6 million total mobility trips are taken annually, which has remained stable since 2002/03.

241. These indicators show that public transport is providing some alternative transport choice.

242. However, there are some indicators that there may be some social exclusion problems in New Zealand.⁴⁹ These include:

- no access to a vehicle (8 percent according to 2013 Census)
- having a disability (24 percent according to 2013 New Zealand Disability Survey)
- not having a drivers license.

243. The 2013 Disability Survey surveyed 1.1 million New Zealanders who were identified as having a disability. The survey also showed that around 5 percent of people with a disability had difficulty using public transport.

244. These are just some early indications and do not necessarily mean that there are social exclusion problems. It also does not mean that public transport is the only solution to solve potential social exclusion issues.

245. It is plausible that there may be some social access issues that are not currently addressed under current objective of transport choice. However, there is not clear whether or how investment in public transport would address these issues.

14.3. Improved returns from public transport

246. Farebox recovery has been improving since 2012/13 and is currently at 48 percent, which is 2 percent below NZTA's national target of 50 percent. However, each region can have it own targets depending on private benefits, congestion, and social needs.

247. The increase in farebox recovery is also associated with strong growth in Auckland rail's patronage and the introduction of electric multiple units, that have reduced operational costs compared with their diesel predecessors.

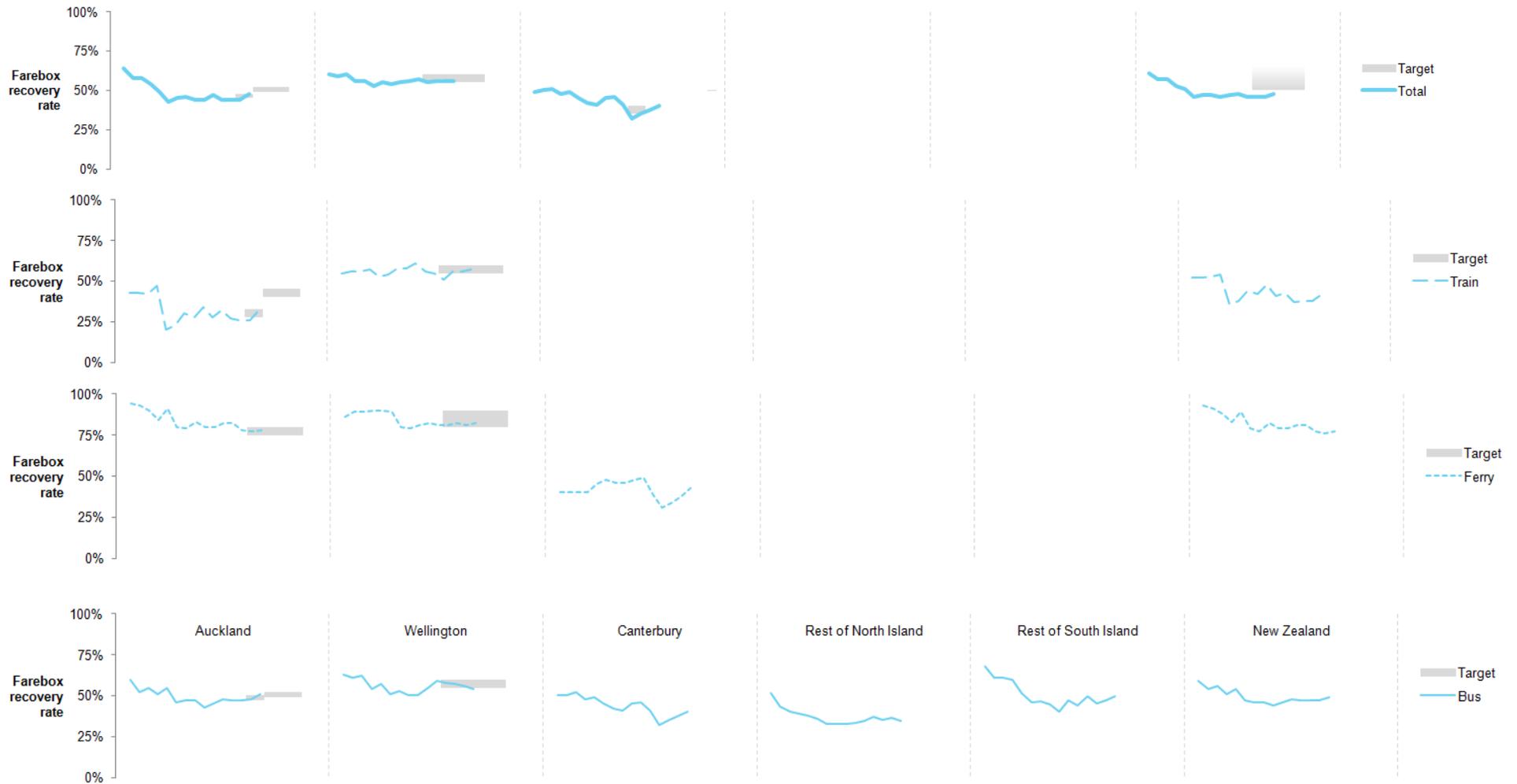
248. Alongside farebox recovery, the subsidy per passenger kilometre was increasing from 2000/01 to 2005/06 but has stayed relatively flat since 2012/13. This is attributed to increases in public transport patronage and reduced operational costs.

249. Public transport projects also showed relatively high benefit-cost ratios, estimated to be around 3.5 to 5.0. This suggests that public transport projects deliver appropriate infrastructure and services.

⁴⁸ For information about the Total Mobility scheme see www.nzta.govt.nz/resources/total-mobility-scheme/total-mobility/

⁴⁹ Social exclusion refers to constraints that prevent people from participating adequately in society.

Figure 31: New Zealand farebox recovery for all public transport modes, 2000/01 to 2014/15



Source: NZTA – farebox recovery and [Auckland Transport](#), [Greater Wellington Regional Council](#), [Environment Canterbury](#) farebox recovery targets

14.4. Mitigation of adverse environmental effects

250. Domestic transport greenhouse gas (GHG) emissions for the transport sector have remained relatively flat since 2008 to 2014. One part of this could be attributed to, electrification of Auckland rail, which reduced annual CO₂ emissions by 82 percent, or 25 kilotonnes CO₂ equivalent. However, this is very small compared to the approximately 13,000 kilotonnes CO₂ equivalent produced by land transport in New Zealand annually.
251. The Ministry of Transport estimates that GHG emissions are likely to increase again from 2015⁵⁰. This increase is attributed to increases in light and heavy VKT and the performance of fuel economy and emissions of the vehicles entering our fleet stalling.
252. Nonetheless, increases in public transport patronage have likely absorbed some of the increased demand for private transport, thereby mitigating some environmental effects. It is estimated that a carbon reduction of 31 kilotonnes per year from the current annual CO₂ equivalent released is likely from the current level of public transport investment and patterns of growth to 2020.
253. Particulate matter (PM) and nitrogen oxides (NO_x) are harmful emissions and regarded as the most significant local pollutant. Diesel buses are 35 times more polluting on a per kilometre basis, suggesting that only highly-occupied diesel buses would reduce total particulate emissions compared with petrol car use. These numbers relate to diesel buses only, so shifts to use hybrid buses or electric (trolley or battery electric) buses will have lower relative emissions.
254. Operational changes to mitigate adverse environmental effects and the use of low-emission technologies are currently driven by Public Transport Operating Model (PTOM) contracts. Examples include introduction of new low-emission buses in South Auckland and potential plug-in hybrid buses in Wellington.

14.5. Summary

255. Overall, public transport has performed well by increasing patronage, providing transport choice, and reducing operational costs for some services and GHG emissions. However, there are opportunities to improve public transport to better address social and environmental challenges. Further, increasing capacity of public transport networks in the near future may be required.

15. Walking and cycling improvements

256. This section summarises the main findings for the active transport (walking and cycling) activity class. Cycling is the focus of this activity class, and this section outlines the current levels of network completion, and usage.

15.1. Cycling

15.1.1. Network completion

257. Walking paths and cycleways⁵¹ has been growing since 2006, with infrastructure in New Zealand nearing 1,600km.
258. Most of the network is in urban areas, with a very small proportion in rural areas. This reflects the focus on walking and cycling as an alternative mode of transport in areas with high population density.

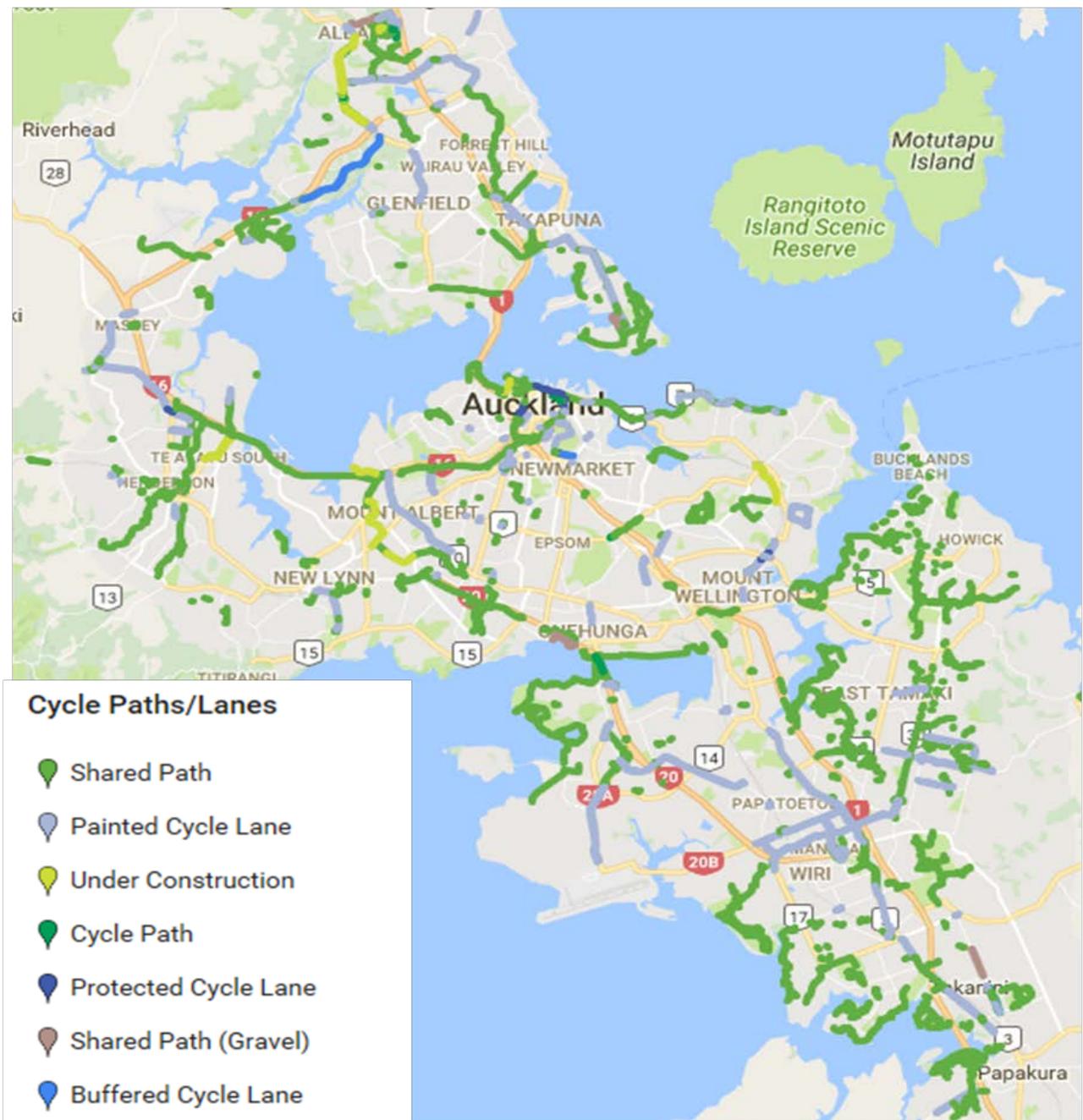
⁵⁰ Note that this data will be available in mid-2017

⁵¹ Cycleways is used in the broadest sense to refer to a range of cycle facilities, be they cycle lanes on-road, separated facilities or shared paths etc.

259. Growth in the network will continue in 2017/18, as construction continues on the projects underway as part of the Urban Cycleway Programme, as well as cycle facilities delivered as part of major State highway road projects and the broader national cycling programme.

260. However, the network in urban areas remains fragmented. For example, the existing cycle network in Auckland has many gaps.

Figure 32: Existing cycle network in Auckland



Source: [#AKLcycemap](#) by [@ja_xolodilnik](#)

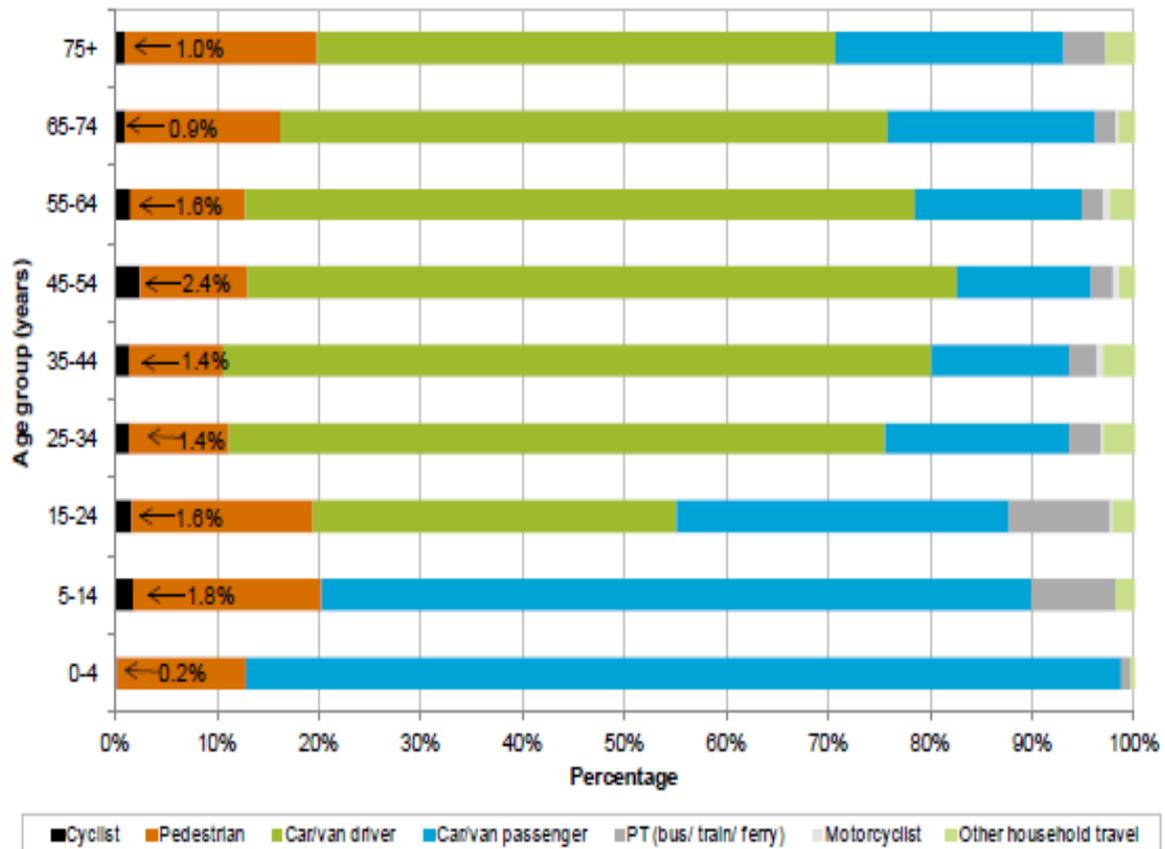
261. The cycle network in Auckland is relatively immature, fragmented, lacks critical mass, and has limited integration with public transport. Auckland Transport, Auckland Council and NZTA are currently reviewing the forward programme of investment in cycling to

look at how it can improve connectivity and continue to increase cycling mode share and the number of trips made by bicycle.

15.1.2. Participation

262. Walking and cycling make up small proportions of the overall mode share, with private cars the main mode used. Walking makes up 13 percent of total time travelled and 17 percent of the number of trip legs. Cycling makes up 1.6 percent of total time travelled and 1.2 percent of the share of trip legs.⁵²

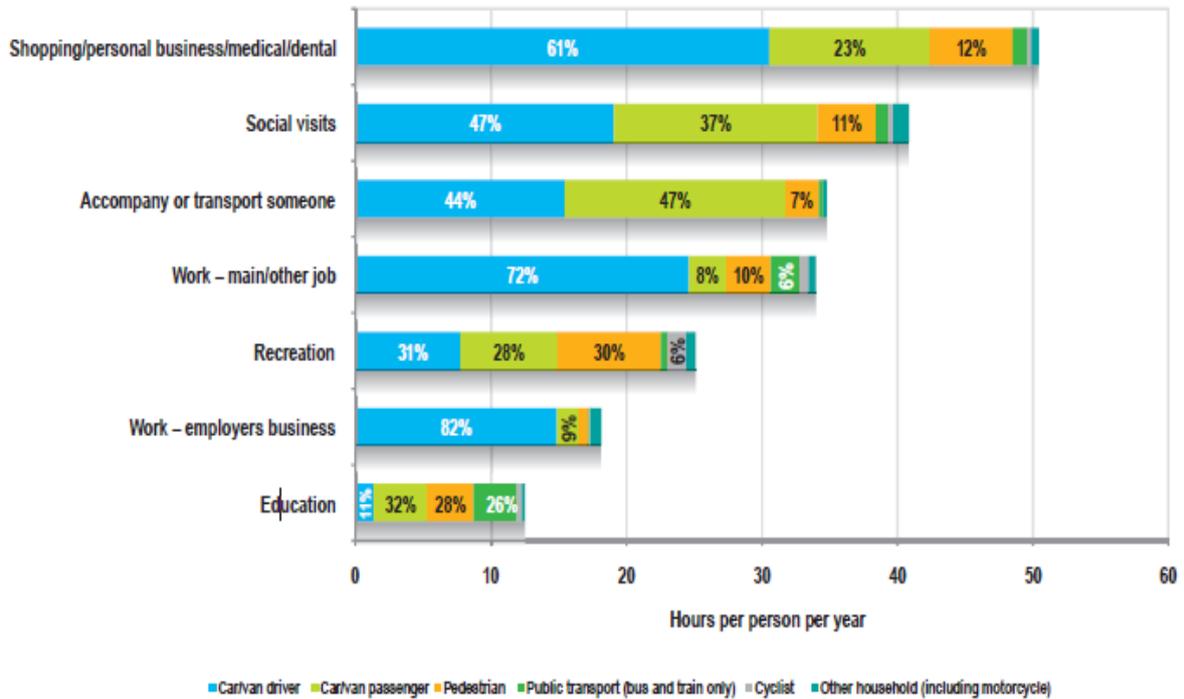
Figure 33: Mode share of travel time by age (percentage of total time spent travelling by each mode of travel)



Source: [New Zealand Household Travel Survey 2011 to 2014](http://www.transport.govt.nz/assets/Uploads/Research/Documents/Cycling-2015-y1012.pdf)

⁵² Ministry of Transport (September 2015). Cycling New Zealand Household Travel Survey 2011-2014. Accessed from Ministry of Transport website: <http://www.transport.govt.nz/assets/Uploads/Research/Documents/Cycling-2015-y1012.pdf>

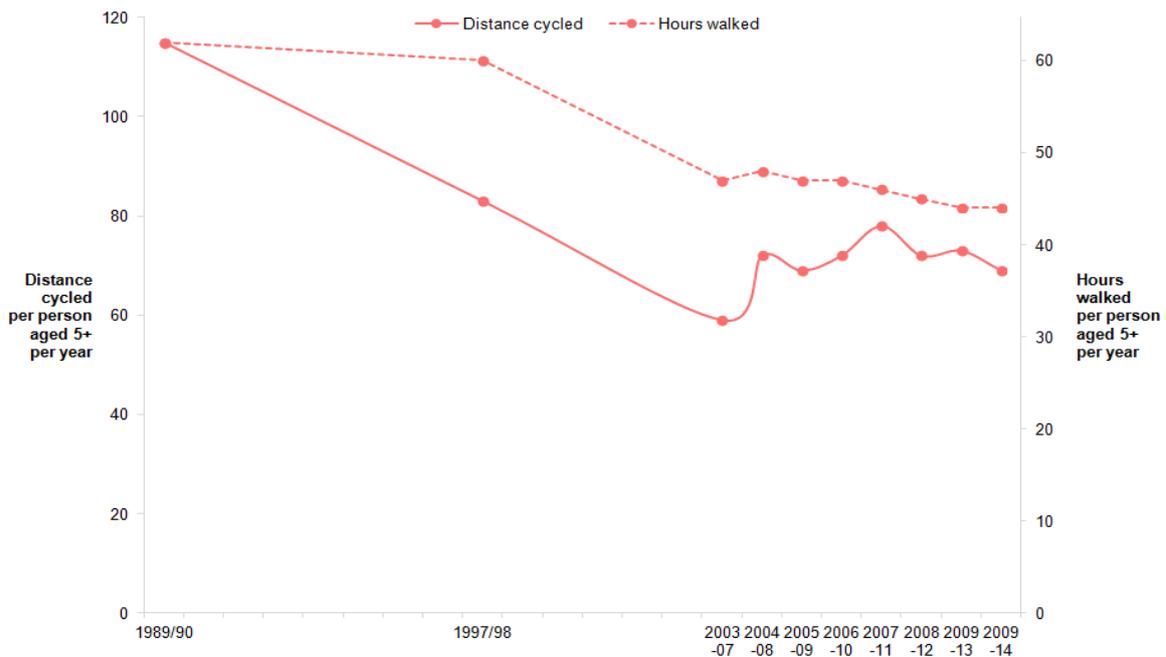
Figure 34: Mode share of time spent travelling for each trip purpose/destination type (2010-2014)



Source: [Ministry of Transport](#)

263. Walking and cycling use per capita appears to be fairly flat although any recent trends from more complete cycle networks may be hidden by the averaging across Household Travel Survey years.

Figure 35: Walking and cycling travel



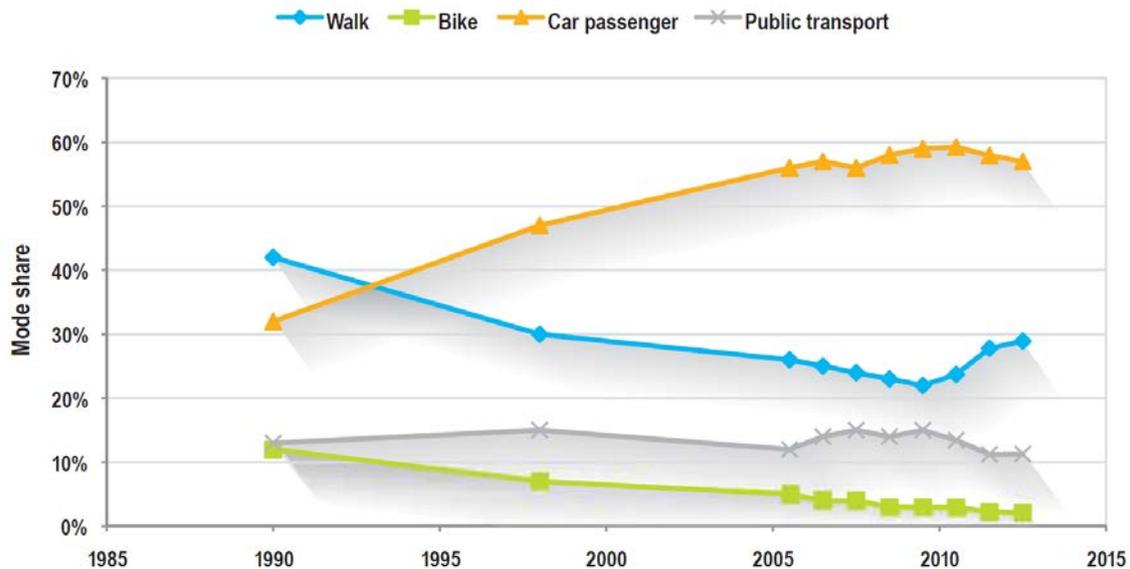
Source: [Ministry of Transport](#)

15.1.3. Getting to and from school

264. In developing GPS 2015, we were interested in the extent to which improved cycleways might relieve congestion due to school drop offs and pick ups.

265. For all school-age children, cycling to school has declined since 1989. Younger children are walking less while older children are walking at about the same rate as they did in 1989, although there was a noticeable decline from 1990 to 1998.

Figure 36: Travel to school, mode share ages 2 to 12 years

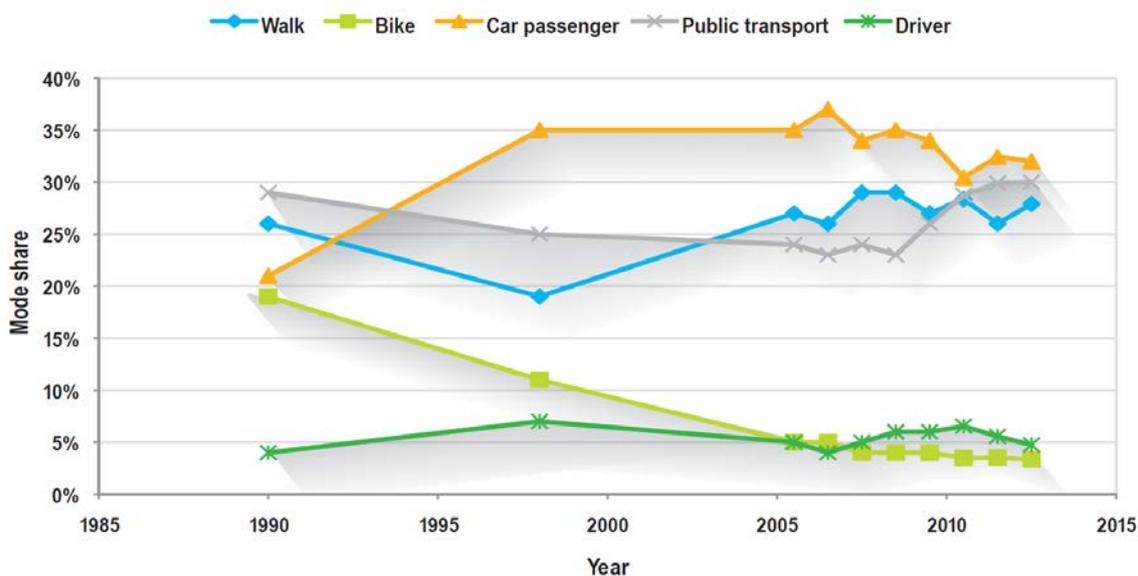


Source: [Ministry of Transport](#)

266. For journey's to primary school, there has been a recent increase in walking but this has not risen to pre-1998 levels. Cycling continues to be the least used mode of transport for getting to school for this age group, with this trend continuing to decline. These modes have been replaced by increased use of private cars to get to school.

267. There is a slightly different picture of walking and cycling for older children. Cycling is still the least used mode and cycling to school has declined in much the same way as it has for younger children. However, there was a large increase in the use of private cars to get to school in the mid 1990s, with use increasing to about 2005 and more or less flattening thereafter. There has been an increase in walking and public transport use since the mid-1990s.

Figure 37: Travel to school, mode share ages 13 to 17 years



Source: [Ministry of Transport](#)

268. At this stage, it is too early to tell whether these trends might be changing as a result of investment in walking and cycling or are having an effect on school-related congestion.

15.1.4. Safety as a barrier to participation

269. International experiences suggest that safety is an important influencing factor on rates of participation, especially for cycling.

270. Rates of death and serious injury in cyclist crashes have been declining in recent years as shown by Figure 38. While this appears to line up with increased investment in cycleways, further data on participation and regional analysis is required to determine whether the reduction in deaths and serious injuries are due to increased investment or reduced participation across the network.

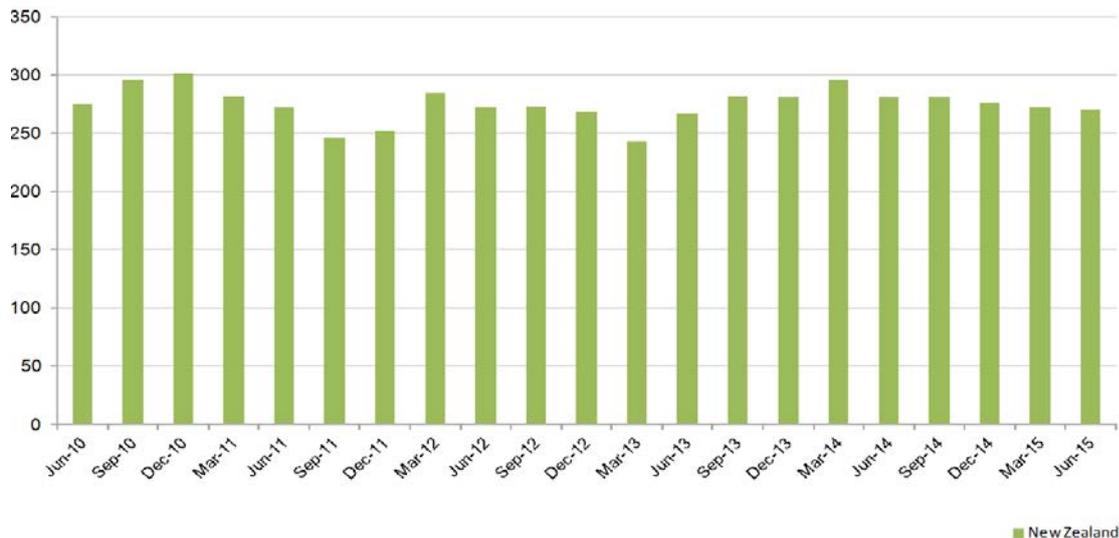
Figure 38: Death and serious injury in cyclist crashes (by year)



Source: NZTA Crash Analysis System

271. Rates of death and serious injury in pedestrian crashes are much higher, potentially reflecting a higher participation rate for walking compared to cycling.

Figure 39: Death and serious injury in pedestrian crashes (by year)



Source: NZTA Crash Analysis System

15.1.5. Summary

272. Investment in walking and cycling activity has been growing in recent years, particularly for cycling. While health benefits are likely to be the main benefits from this activity, there is increasing recognition of its importance in reducing congestion, improving transport choice and mitigating environmental impacts of transport. However, walking and cycling make up a small proportion of overall transport mode share. This may change as increased investment in integrated and safer cycleways is realised.

15.2. Walking ⁵³

15.2.1. Footpaths as part of the transport network

273. Walking makes up 13 percent of total time travelled and 17 percent of the number of trip legs. Those aged 15–24 years walk the most of any age group (at around 73 minutes per person per week).

274. Using the results from the New Zealand Household Travel Survey, people in main urban centres walk more (on public footpaths) than people outside the main centres. There is also a large variation in walking by region. Wellington has the highest time spent walking per person aged over 5 (at 77 minutes per person per week between 2010-2014) and Southland has the lowest (at 25 minutes per person per week between 2010-2014).

275. GPS led investment relates to investment in new footpaths as part of the development of other infrastructure. For example, a footpath incorporated into a new bridge. Building new and maintaining existing footpaths is locally funded.

⁵³ See <http://www.transport.govt.nz/assets/Uploads/Research/Documents/Walking-2015-y1012.pdf>)

15.2.2. Footpath maintenance

276. Given that walking forms part of almost all journeys and 17 percent of all trip legs, the question has been raised as to whether maintenance of walking facilities - footpaths, in particular - should be funded from the NLTF. This issue was most recently considered in 2008 when the Ministry of Transport undertook to review funding policies to encourage greater provision of public transport, walking and cycling.

277. These earlier reviews also identified that before any NLTF funding of footpath maintenance could occur, there would need to be some important precursors in place. These include an assessment of footpath condition and levels of service, and agreement on how to approach differences between current and required levels of service.

15.2.3. Summary

278. The lack of footpath condition data means that it is not possible to say whether footpaths are at an adequate level, whether their condition is responsible for the 400 people injured by trips and falls on footpaths each year, or whether footpath condition limits access by the elderly or those with disability.

279. At this point, it would be useful to work toward attaining better data to address questions about footpath condition.

E. Initial feedback from selected stakeholders

16. Stakeholder feedback

280. The GPS 2018 seeks to improve on the previous GPS by reflecting road user needs and taking into account the views of relevant stakeholders. In addition to the online stated preference survey covered earlier, the Ministry has undertaken listening sessions with local government and provided an online forum for non-governmental organisations (NGOs) to respond.

281. Feedback from the listening sessions and the online forum was considered in the analysis for the draft GPS 2018.

282. The listening sessions involved meeting with local government transport officials and attending Regional Transport Committee (RTC) meetings to discuss any key transport issues that the regions were facing. These sessions provided an opportunity to better understand how the current GPS is being used, what transport issues are emerging, and what changes could be included in future GPSs.

283. The areas we have visited are shown in the table below.

Table 8: Regional visits, 2016

Regional visit	Type of session
Tauranga, Greymouth	Regional Transport Committee (RTC)
Christchurch - 'Whole of South Island'	Technical workshop with officials
Wellington, Northland, Auckland, Gisborne, Napier, Waikato, Palmerston North, Taranaki	RTC and technical workshop with officials
Otago and Southland	Combined RTC and technical workshop with officials

284. Following the listening sessions with local government, the Ministry ran an online forum for NGOs. This was a new initiative introduced this year to provide an opportunity for the stakeholders to share their thoughts in a centralised place. Participants were able to see alternative views, shape the conversation together and come to an agreed position on key issues.

285. The Ministry invited 24 NGOs to participate in the online forum, which ran for three weeks closing on Tuesday 25 October 2016. Although the participation rate was lower than expected, the key themes that emerged from the discussions were consistent with the issues raised by the local government.

286. This engagement is important in developing the GPS 2018. They help the officials to understand the sector's perspectives of what is working well within the current GPS and broader land transport funding system. It also allows the sector to indicate its expectations and priorities for the next GPS and suggest changes.

16.1. Summary of listening session themes

287. Five themes emerged from the regional government listening sessions:

- The efficiency and effectiveness of freight movement remains important for economic growth in regions
 - Freight efficiency and effectiveness was still very important for economic growth in the regions. However, some regions identified a number of issues

- that are expected to occur over the next decade, such as the expected increase in forestry harvest and just time deliveries.
 - It is expected that the increase in logging trucks will put more pressure on road maintenance and improvements.
 - The shift towards just in time deliveries will put greater focus on providing resilient networks and intraregional freight. This is because regions can become isolated without vital supplies
- Tourism is increasingly on the regional economic growth agenda
 - Regions identified the importance of tourism to regional economic growth. However, the regions also noted that tourism task was changing from scheduled tours to individual travellers in light vehicles.
 - Some regions raised an issue that tourism tasks often conflicted with freight tasks. Regions thought that tourism needed to be better captured in economic growth and productivity.
- Maintenance efficiency and the ONRC process are delivering gains
 - Most regions expressed their optimism for the One Network Road Classification (ONRC) approach. ONRC seeks to classify all the roads in New Zealand and define their service level standards depending on the task of the road.
 - However, some local governments were worried about the potential funding implications of the ONRC approach (that is, would they receive more or less funding to implement it).
 - Regions were concerned with the change in freight task given an increase in logging vehicles and heavier trucks on the road, and what impact this may have on local roads and State highways.
- Resilience is about access and choice that can be critical for regions
 - All regions expressed the importance of resilience and issues associated with potential failure at key points on their networks.
- GPS structure could be improved
 - Almost all regions sought greater opportunity to use multi-modal approaches and/or flexibility in the GPS.
 - Some regions felt that activity classes interfered with the overall story and objectives of the GPS. The Regions felt that multi-modal solutions were less achievable under the current GPS structure.
- Multi-modal approaches to be enabled more in the GPS. Better integration of modes and planning was also suggested during the listening sessions.
- More balanced prioritisation of investment between metro and rural areas
- Greater integration between land use and transport decision-making, such as incorporating land use factors into GPS priorities.

16.2. Online forum for engagement

288. From the online NGO forum, the following broad themes emerged:

- the opportunity for supporting land use policies through the GPS 2018. Participants saw a relationship between land use policy and transport decision-making and saw opportunities for reflecting this better in the GPS.
- the forum participants agreed with comments from the local government listening sessions on the desirability of better integration between roads, rail, public

transport, walking and cycling modes and, in some cases, maritime and coastal shipping

- improved understanding of the benefits delivered by transport investment and strengthening the relationship between those who pay for the expenditure and those who benefit from it
- the need for connection between GPS investment priorities and what best supports regions and road users (including, more “soft” projects for users, such as smart-journey planning services).