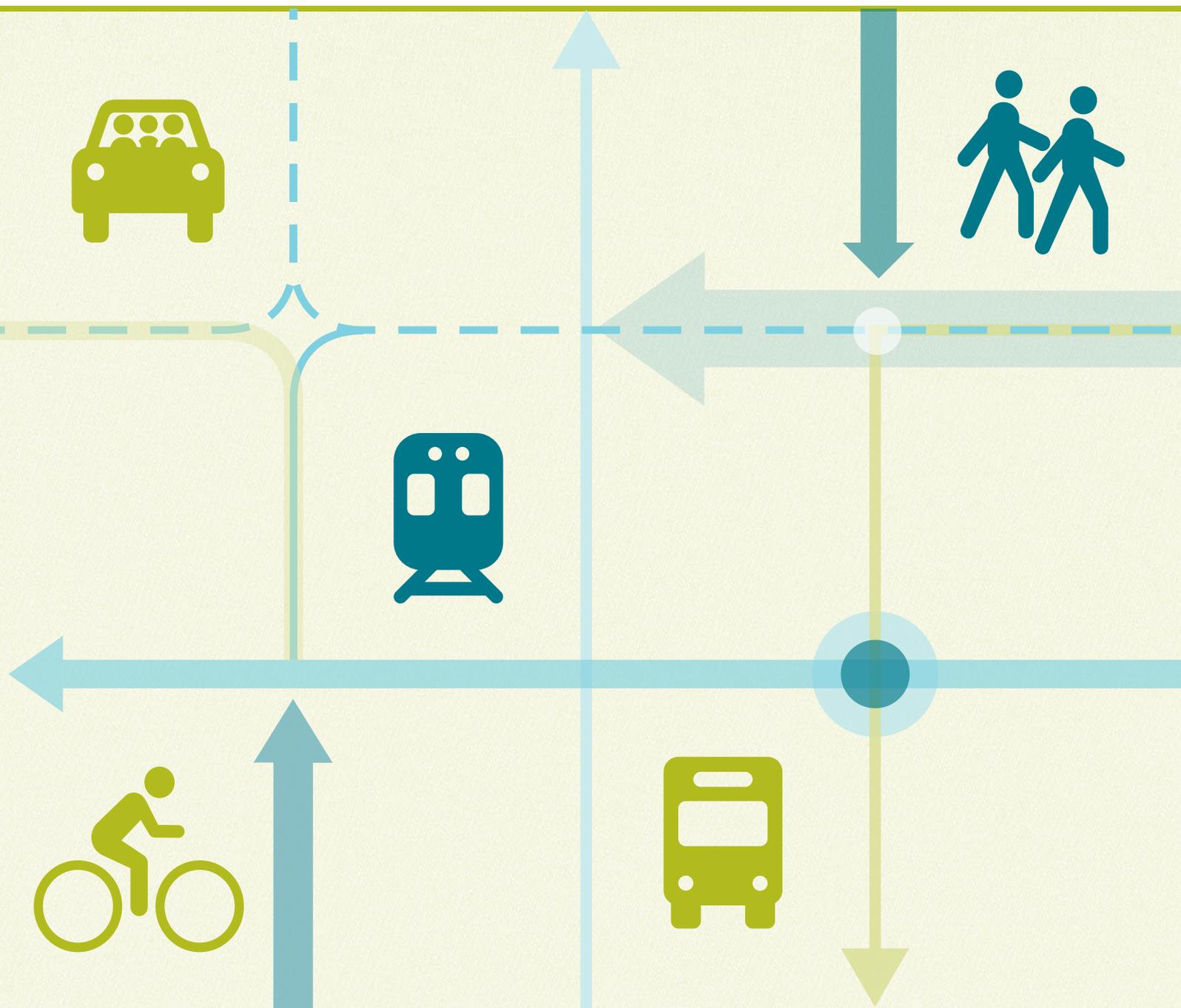


2015/16 Annual Monitoring Report on the Regional Land Transport Plan

November 2016



greater WELLINGTON
REGIONAL COUNCIL
Te Pane Matua Taiao



2015/16 Annual Monitoring Report on the Regional Land Transport Plan

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Executive Summary

The strategic objectives and outcomes are an integral part of the Regional Land Transport Plan 2015 (RLTP) by providing the policy framework for investment and development in the region's transport network.

The strategic objectives and outcomes in the RLTP have been developed in response to the major transport challenges and issues facing the region. Each strategic objective has a set of desired outcomes and from these, specific performance measures, so that we can monitor and report on progress.

This Annual Monitoring Report (AMR) represents the second year of monitoring since the RLTP was adopted in April 2015. This report presents data and information on the 20 RLTP outcomes, each with at least one measure and target.

In **Table 1-1** below each outcome and measure is listed with the RLTP 2025 target and 2013/14 baseline for each measure. Progress for each measure is summarised under the columns:

2015/16 data – This is the most recent data result for the measure.

5 year trend – Where the measure has at least five years of data, the short term trend is determined, and colour coding and arrows indicate the progress of the trend in relation to the RLTP and direction of results (using the Key below).

Comment – General comment on progress for this measure.

Colour code	<i>Progress in relation to RLTP Target</i>	Symbol	<i>Direction of data</i>
	The general direction of the 5 year trend is toward the target	↑	Results are increasing
	Neutral trend	↔	Neutral trend
	The general direction of the 5 year trend is away from the target	↓	Results are decreasing
	A new data series or no information at this time		

Table 1-1 Summary of RLTP strategic objectives and outcomes¹

Objective	Outcome	Measure	2025 target	Baseline	2015/16 data	5 year trend	Comment	
A high quality, reliable public transport network	Increased public transport use	Annual public transport boardings per capita	Increase to at least 76 boardings	72 boardings in 2013	73.9 per capita	↑	4.1% growth in the last five years.	
		Public transport mode share of journey-to-work trips (census)	Increase to at least 17.8%	16.6% in 2013				No update until after the next census in 2018
	Improved public transport accessibility for all	Public transport mode share of trips crossing Wellington City CBD cordon (AM peak)	Increase to at least 34.7%	33.1% in 2013	32.5%	↑		Results have fluctuated in the last 5 years.
		Population living within 500m of a core bus service or 1km of a railway station (census)	Improvement toward at least 50%	41.6% in 2013				No update until after the next census in 2018
	Improved quality of public transport	Population living within 500m of any bus stop or 1km of a railway station.	Improvement toward at least 88%	84.9% in 2013				No update until after the next census in 2018
		Accessibility to public transport network for all users	Continual improvement in physical accessibility and standards of vehicles, parking and facilities.	2013 standards	449 new park & ride parks	↑		Accessibility continues to improve.
	Improved quality of public transport	Public transport vehicle fleet emissions	At least a 50% reduction in emissions	2013 emissions 24 g/km ³	25.9 g/km ³			New data series from 2014
		Overall satisfaction with the Wellington region's public transport system (all modes) increases to 90%.	At least 90%	83% (2014 customer satisfaction survey)	88%	↑		A 5% point increase compared to baseline data

¹ The rows shaded grey indicate measures where new data is unavailable or a new data series with insufficient data to comment on trends at this stage.

Objective	Outcome	Measure	2025 target	Baseline	2015/16 data	5 year trend	Comment
A high quality, reliable public transport network (continued)	Improved public transport reliability and journey times	Peak period public transport travel times on core routes	A continuous improvement on core routes	Average peak period bus travel times: 41 min AM & 40 min PM	41.2 minutes AM 40.9 minutes PM		This data series began in 2014.
		Peak period bus travel time variability on core routes	A continuous improvement in variability along core routes	Average lateness along core routes: 3.8 minutes AM 3.2 minutes PM	4.2 minutes AM 2.8 minutes PM		This data series began in 2014
		Rail service punctuality (trains arriving at final destination within 5 minutes of scheduled arrival time)	At least 96% of services reach destination within 5 mins of timetabled time	94% in 2013	95%	↑	A 3.5% increase over the last 5 years.
A reliable & effective strategic road network	Reduced severe road congestion	Average peak period travel speeds on selected strategic routes	A 10% increase in 3 year rolling average travel speed	Rolling average speed of 46.2 Kph	48.1 Kph		A new monitoring regime began for travel time data in 2015.
	Improved reliability of the strategic road network	Average peak period travel speed variability on selected strategic routes	A 25% reduction in the 3 year rolling average travel speed	Rolling average variability was +/- 13.7% (2012 to 2014)	+/- 22%		A new monitoring regime began for travel time data in 2015.
An effective network for the movement of freight	Improved freight efficiency	Average all-day travel speeds on important regional freight routes	A 10% increase in average travel speed	Rolling average speed of 54.9 Kph			No new data available this year
		Average all-day travel speed variability on important regional freight routes	A 25% reduction in travel speed variability	Rolling average variability was +/- 10.6%			No new data available this year
	Increased proportion of freight moved by rail	Percentage of long distance freight volumes moved by rail	An increasing proportion of freight moved by rail	18.33 million tonnes in 2012			The MoT freight survey is undertaken every five years, next update on this outcome due in 2018.

Objectives	Outcome	Measure	2025 target	Baseline	2015/16 data	5 year trend	Comment
A safer system for all users of our regional road network	Improved regional road safety	Killed and seriously injured totals, measured on an annual basis against a 5-year rolling average (CAS data)	At least a 50% reduction in 5 year average	5 year average: 183.4 (to 2013)	167 deaths or seriously injured	↓	9% decrease compared to baseline.
	Increased safety for pedestrians and cyclists	Total casualties on an annual basis against a 5-year rolling average (CAS data)	At least a 50% reduction in 5 year average	5 year average: 1079.8 (to 2013)	923 casualties	↓	A consistent decrease in number of casualties for last 5 years.
	Improved transport infrastructure resilience to disruption from unplanned events	The number of vulnerable road users (cyclists and pedestrians) killed and seriously injured annually against a 5-year rolling average (CAS data)	At least a 50% reduction in 5 year average	5 year average: 56.5 (to 2013)	50 deaths or serious injuries	↓	A 5% decrease compared to baseline
An increasingly resilient transport network	Improved transport infrastructure resilience to disruption from unplanned events	Proportion of region covered by an adopted regional risk register	100% - risk register by 2017	0% in 2014			Work on risk register is progressing – an update is due in 2017
	A transport network that supports the restoration of access and regional recovery after a major event	Estimated time to reopen key road connections to and within the region and to key recovery facilities.	Continuous reduction in number of days to reopen the transport network	Existing emergency plan estimates (2014)			New projects planned or under construction will help to improve resilience and reduce the recovery time.
An increasingly resilient transport network	Reduced regional economic risk	Proportion of region covered by an adopted and comprehensive regional restoration and emergency plan	100%	Existing regional restoration emergency plans(2014)			Update due at the end of 2016
A well planned, connected and integrated transport network	Improved land use and transport integration	Population living within 500m of any bus stop or 1km of a railway station	Continual improvement towards 88%	84.9% in 2013			No update until after the next census in 2018
	Improved integration between transport modes	Number of secure cycle parking spaces at railway stations	Increase by 50%	100% increase in cycle parking spaces 2009-13	355 new cycle parking spaces	↑	

Objectives	Outcome	Measure	2025 target	Baseline	2015/16 data	5 year Trend	Comment		
An attractive and safe walking and cycling network	Increased mode share for pedestrians and cyclists	Proportion of journey to work trips by walking	13.6% of journey to work trips	11.6% in 2013			No update until after the next census in 2018		
		Proportion of journey to work trips by bike	4.6% of journey to work	2.9% in 2013			No update until after the next census in 2018		
	Improved level of service for pedestrians and cyclists	Proportion of urban trips by walking	20.1% of trips crossing the CBD cordon	18%	Walking 18.4% in 2013	↑	5 year trend has walking on the increase.		
		Proportion of urban trips by bike	4.6% of trips crossing Wellington CBD cordon	2.6%	2.6% in 2013	↔	Cycling mode share indicates a neutral trend for the last 5 years.		
		Perception of level of service for cyclists and pedestrians	95% and 60% level of service (walking & cycling)	Walking 85% Cycling 44%	Walking 90% Cycling 50% in 2012	↓			
		Use of active modes in journeys to school for those participating in the School Travel Plan programme.	Continually increasing use of active modes	26% walking 14.5% cycle/scooter (2014)	27% walking, 13% scooter or skateboard, rolling average 2010-2013	↑	A small drop in walking but increase in cycling and scootering to school.		
	An efficient and optimised transport system that minimises the impact on the environment	Reduced harmful emissions from transport	Transport generated emissions (per capita)	15% reduction in annual per capita CO ₂ emissions	Previous trend: 13% reduction in per capita CO ₂ emissions from 2005-2013	3% increase since baseline year	↔	Emissions per capita results indicate a neutral trend for the last five years.	
			Transport generated emissions (absolute)	10% reduction in total annual CO ₂ emissions	Previous trend: 7% reduction in CO ₂ from 2005-2013	7% increase since baseline year	↑	Absolute Emissions (kg/L) moved from neutral to an upward trend this year.	
		Increased private vehicle occupancy	Concentrations of harmful transport-generated pollutants	A reduction in the average conc. of harmful transport emissions	21.5 µg/m ³	5 year rolling average for NO ₂ 22.4 µg/m ³ to 2013			Data series began in 2013
			Peak period private vehicle occupancy	Gradual increase in private vehicle occupancy to 1.45	1.39 people per vehicle	1.35	↓	A small change downwards from baseline.	

Highlights of 2015/16

A number of major projects and milestones occurred during the year from July 2015 to June 2016:

- The Smart Motorway (SH 1 Ngauranga to Aotea Quay) opened in June 2016 for northbound traffic. The smart motorway is a combination of roading infrastructure improvements and intelligent technology.
- The Let's Get Wellington Moving (Ngauranga to Airport) programme got underway. This is a major collaborative planning process involving three agencies - NZTA, Wellington City Council and GWRC.
- An extensive engagement campaign was conducted in April and May 2016. More than 10,000 people participated. The insights from this engagement process were used to develop a set of 12 guiding transport and urban design principles.
- Transdev became the operator of the Wellington region's commuter rail network on 3 July. Train services are now consolidated under the Metlink brand.
- Conceptual roadmap for integrated ticketing in NZ reviewed and approved enabling GWRC to proceed with an interim integrated ticketing solution for bus.
- Snapper Services confirmed by Council as preferred provider of interim integrated ticketing for bus and negotiation commenced.
- Infrastructure and civil works required for new Wellington City bus network defined and progressed with WCC
- Mt Victoria Tunnel Safety Improvements project was completed in June 2016. This included upgrades to lighting, slope strengthening, improved cameras and ventilation, and upgraded fire resistance and emergency response systems.
- Port Access programme business case began in January 2016; a recommended programme of options for the port area is being developed in this business case.
- SH2 Corridor improvements (Ngauranga to Upper Hutt & Te Marua to Masterton) Programme Business Case has commenced.
- Wellington to Hutt valley cycleway/walkway/ resilience project –design and consent process is underway.

1 Introduction

The aim of the Annual Monitoring Report 2015/16 (AMR) is to report on the progress of the performance measures and targets identified in the Regional Land Transport Plan 2015²(RLTP).

The RLTP sets out the strategic direction for land transport for the next 30 years and brings together a series of existing strategies and corridor plans in an innovative business case approach. This includes the regional programme which sets out the activities and projects for the next six years.

The strategic objectives and outcomes in the plan have been developed by identifying and responding to the major transport challenges and issues facing the region. Each strategic objective has a set of desired outcomes and these are the outcomes that we measure so that we can report on progress. The regional programme includes a wide range of projects and the progress of these projects will help move the region towards achievement of the outcomes sought by the RLTP.

Key projects include the Ngauranga to Airport programme (Let's Get Wellington Moving), Petone to Grenada Link Road, State Highway 2, Hutt Valley to Wellington cycleway and Port Access.

This report presents progress on a range of transport-related outcomes both within the region and across its boundaries to provide a picture of regional performance from a transport perspective.

There are eight sections in this report that cover each of the RLTP strategic objectives. For each of the strategic objectives there are 20 RLTP outcomes, each with at least one measure and target. By measuring each outcome we can determine the level of overall progress in delivering the 8 strategic objectives.

² The Land Transport Management Act 2003 (amended in 2013) required the Regional Transport Committee (RTC) to produce a Regional Land Transport Plan (RLTP). Wellington's RLTP 2015 sets the strategic direction for a region's land transport network and replaces the Regional Land Transport Strategy (RLTS) 2010-40.

Table 1-1 on the following page lists the eight strategic objectives and the corresponding outcomes.

Within each section of the report is a table which includes the strategic outcomes, measures and targets, how the outcome is progressing at this time and summary comments about short term trends. The reported trend is based on the last five years of available data for the indicator. The trend-line is produced by drawing a line between the first and fifth year data points to simplify and indicate the general direction of the data forward to 2020. Some of the measures are new and so five years of data is not available; in this situation there will be no comment on trends at this stage.

The column ‘How we are going’ applies the colour code from the index table below (also used in the executive summary). The colour code represents the progress of each measure in relation to the RLTP targets.

The five year trend-line is illustrated in the graphs for each measure as the black dotted line. The trend-line shows the five year trend and this is projected another five years to 2020 to illustrate future direction.

To avoid duplicating work already presented in the RLTP 2015 and working papers³, this report will focus on those outcomes and corresponding measures where new data or information has become available since that time. To provide a connection between objectives, outcomes and transport related projects; at the end of each chapter is a section called ‘The progress made so far on this objective’. This is a summary providing examples of projects and initiatives which are currently underway or planned by the regional stakeholders to achieve the RLTP objectives and outcomes.

Legend for chapter summary tables:

Colour code	<i>Progress in relation to RLTP Target</i>
	The general direction of the 5 year trend is toward the target
	Neutral trend
	The general direction of the 5 year trend is away from the target
	A new data series or no information at this time

³ The RLTP working papers are a series of papers presenting background information for the RLTP (2015); WP1 to WP5 : <http://www.gw.govt.nz/rltplan/>

Table 1-1 RLTP 2015 Strategic objectives & outcomes

	Strategic Objectives	Outcomes
Chapter 2	A high quality, reliable public transport network	Increased public transport use
		Improved public transport accessibility for all
		Improved quality of public transport
		Improved PT reliability and journey times
Chapter 3	A reliable and effective strategic road network	Reduced severe road congestion
		Improved reliability of the strategic road network
Chapter 4	An effective network for the movement of freight	Improved freight efficiency
		Increased proportion of freight moved by rail
Chapter 5	A safer system for all users of our regional road network	Improved regional road safety
		Increased safety for pedestrians and cyclists
Chapter 6	An increasingly resilient transport network	Improved transport infrastructure resilience to disruption from unplanned events
		A transport network that supports the restoration of access and regional recovery after a major event
		Reduced regional economic risk
Chapter 7	A well planned, connected and integrated transport network	Improved land use and transport integration
		Improved integration between transport modes
Chapter 8	An attractive and safe walking and cycling network	Increased mode share for pedestrians and cyclists
		Improved level of service for pedestrians and cyclists
		Increased use of active modes for journey to school
Chapter 9	An efficient and optimised transport system that minimises the impact on the environment'	Reduced harmful emissions from transport
		Increased private vehicle occupancy

2 A high quality reliable public transport network

What is the latest on this objective?

This section discusses transport outcomes concerned with public transport, focusing on increasing patronage, reliability and accessibility.

Outcome	Measure	Baseline	2025 target	How are we going?	Comment
Increased public transport use	Annual public transport boardings per capita	72 boardings per capita in 2013	Increase to at least 76 boardings per capita		PT boardings increase to 73.9 per capita, 4.1% growth in the last five years.
	Public transport mode share of journey-to-work trips (census)	16.6% in 2013	Increase to at least 17.8%		No update until after the next census in 2018.
	Public transport mode share of trips crossing Wellington City CBD cordon (AM peak)	33.1% in 2013	Increase to at least 34.7%		While PT mode share was 32.5% in 2016, the overall trend is that mode share is increasing
Improved public transport accessibility for all	Population living within 500m of a core bus service or 1km of a railway station (census)	41.6% in 2013	Improvement toward at least 50%		No update until after the next census in 2018
	Population living within 500m of any bus stop or 1km of a railway station.	84.9% in 2013	Improvement toward at least 88%		No update until after the next census in 2018
	Accessibility to public transport network for all users	2013 standards ⁴	Continual improvement		Additional 449 park & ride spaces at railway stations and new Metlink website has improved accessibility this year.
Improved quality of public transport	Public transport vehicle fleet emissions	2013 emissions 24 g/km ³	At least a 50% reduction in emissions		Vehicle emissions have decreased in the last year. No trend yet after 3 years.
	Overall satisfaction with the Wellington region's public transport system (all modes) increases to 90%.	83% (2014 customer satisfaction survey)	At least 90%		In 2016 88% are satisfied with public transport service – new data series since 2014.
Improved public transport reliability and journey times	Peak period public transport travel times on core routes	Average peak period bus travel times	A continuous improvement on core routes		No trend yet from three years of AM & PM peak travel times.
	Peak period bus travel time variability on core routes	Average lateness along core routes	A continuous improvement in variability along routes		No trend yet from three years of results for travel time variability.
	Rail service punctuality (trains arriving at final destination within 5 minutes of scheduled arrival time)	94% in 2013	At least 96% of services reach destination within 5 mins of timetabled time		High level of punctuality continues for rail services, 95% in 2015/16.

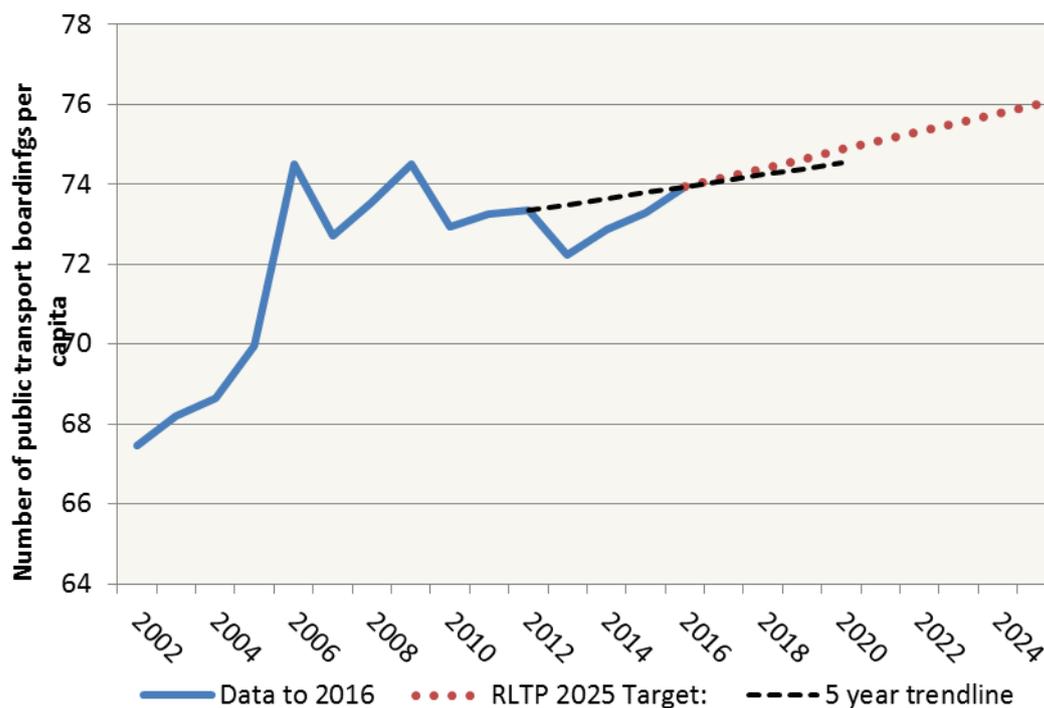
⁴ 2013 standards of vehicle infrastructure parking and facilities as captured by the RPTP and the Rail asset management plan

2.1 Increased public transport use

The Wellington region has a high quality, well used public transport network of bus, train and harbour ferry services. Wellington residents are high users of public transport with New Zealand’s highest number of public transport boardings per capita.

Figure 2-1 presents the annual number of public transport trips per capita taken by train, bus and ferry. It is calculated using annual public transport patronage and regional population. In 2016, there were 73.9 public boardings per capita which represents an increase of 4.1% in the last five years. The figure also illustrates the RLTP target of 76 boardings per capita by 2025.

Figure 2-1 Annual public transport boardings per capita and RLTP target



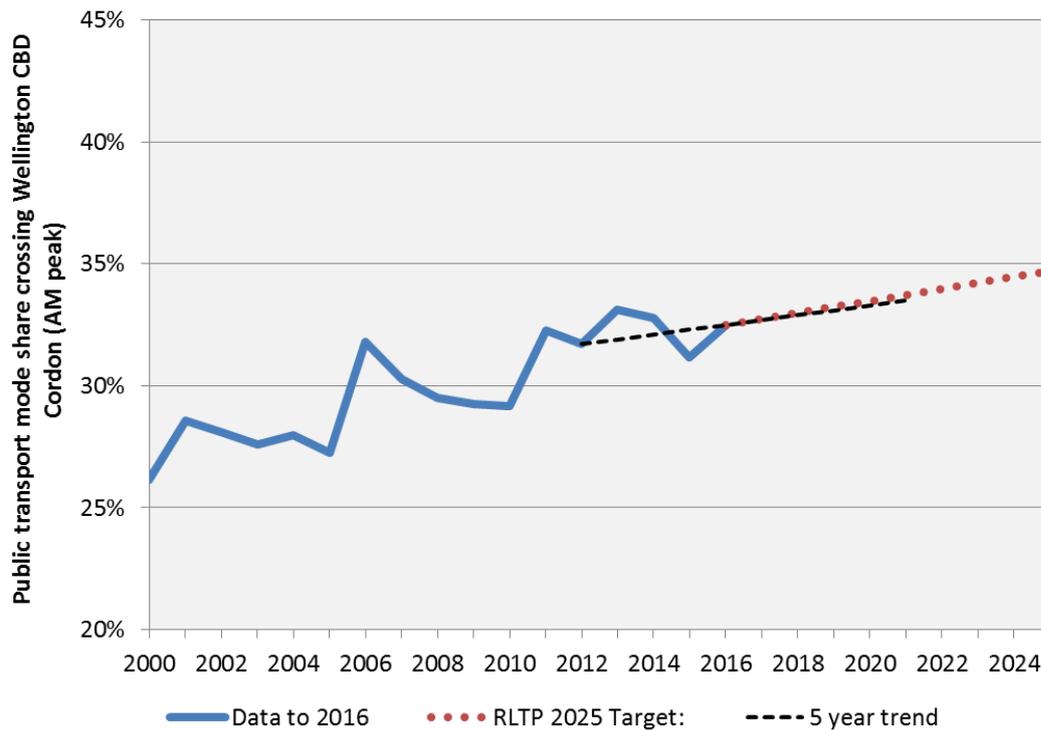
Source: Metlink, GWRC

In March GWRC runs an annual survey that counts people entering the CBD by public transport during morning peak travel times. In the same month Wellington City Council (WCC) commissions a survey that counts vehicles, pedestrians and cyclists crossing into the Wellington City CBD cordon during morning peak.

Figure 2-2 shows public transport trips crossing the Wellington City CBD cordon during peak hour. Public transport mode share is calculated using the data from the cordon surveys. In 2016 the mode share for public transport is 32.5%; this is an increase since last year and a return to 2014 mode share levels. The five year trend line indicates this measure is on track to meet 2025 targets. The 2025 RLTP target is a PT mode share of 34.7%.

PT mode share has fluctuated around 32% since 2007. This may be partly explained by fluctuations in the price of petrol, increased cost in parking and increases in rail and bus fares. In addition rail infrastructure improvements helped to make public transport more reliable and attractive, leading to increased rail patronage.

Figure 2-2 Public transport mode share of trips crossing Wellington CBD and RLTP target



Source: GWRC Wellington CBD cordon survey

2.2 Improved public transport accessibility for all

A public transport network should be accessible to all users. The key elements to accessibility are the provision of information, facilities, infrastructure and services. An example of this is the new Metlink website. The website provides timetabling for 100 bus services, 200 school bus services, 4 train lines and the harbour ferry. The website offers a wide range of functionality including real time information on PT services, journey planners and provides delay and service updates to the 22,000 subscribers via text, twitter and email.

There are a number of examples of improvements to infrastructure and facilities completed in the 2015/16 year, please see section 2.5.

2.3 Improved quality of public transport

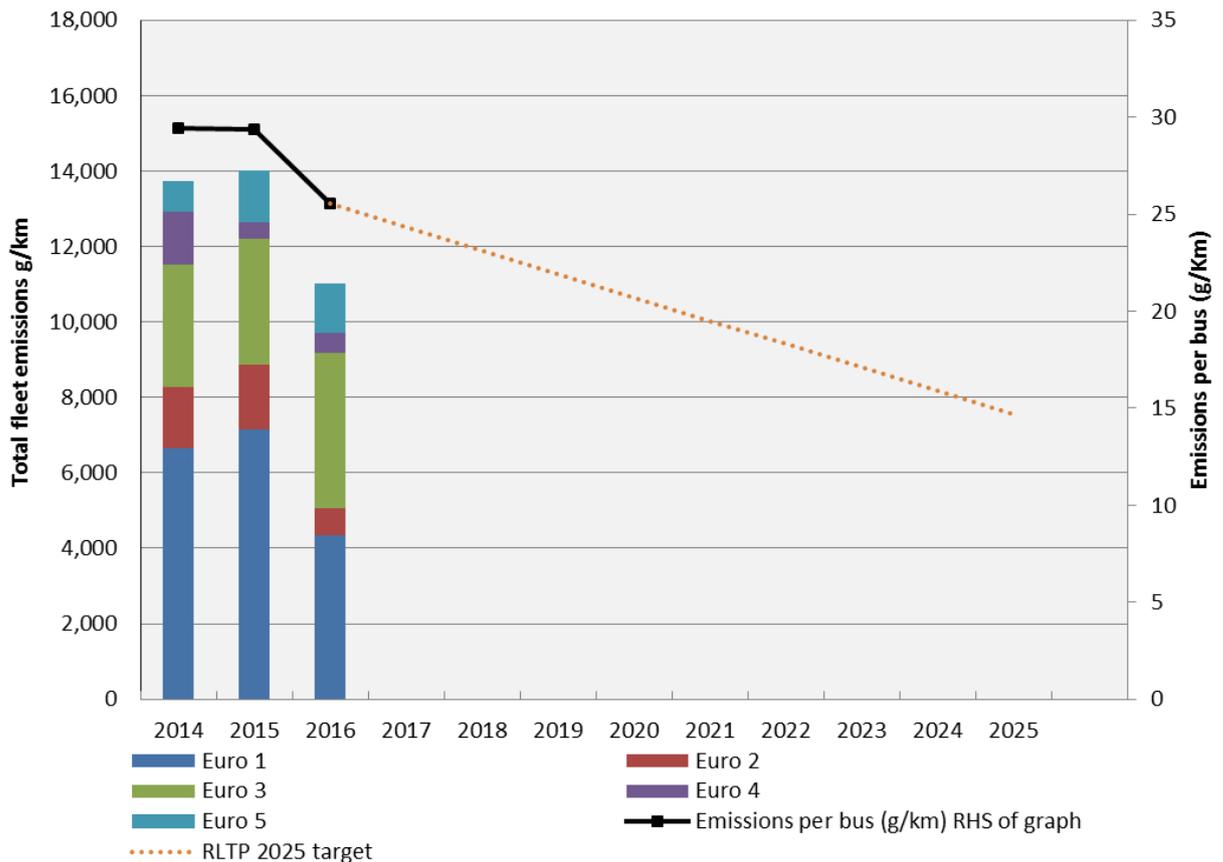
There are two measures used in the RLTP to assess the quality of public transport in the Wellington region. These are: public transport vehicle fleet emissions⁵ and overall satisfaction with the region's public transport system.

As the bus fleet transitions from old to next generation vehicles, the expectation is that fleet emissions over the next ten years will decrease. The RLTP target is for a 50% reduction in fleet emissions.

⁵ Emissions in this context are the sum of CO, HC, NO_x and PM₁₀ emissions.

Figure 2-3 shows bus fleet emissions for Euro 1-5. The composition of the vehicle fleet⁶ varies during the year, some of the changes are permanent others are to do with available supply in the region. In 2016 there was a large drop in the number of Euro 1 type mostly replaced with the Euro 3 type bus. The black line in figure 2-3 shows the average emissions per bus, in 2015/16 this was 25.5 g/km (units are on the right-hand side of figure), emissions per bus have dropped by 13% from 2014 to 2016.

Figure 2-3 Bus fleet emissions and RLTP target



The second measure designed to recognise public transport quality is customer satisfaction. The Metlink annual customer satisfaction survey asks passengers to rate overall satisfaction for the region’s public transport network. This covers fleet, transport facilities, on-time performance and customer service. The Metlink survey found that 88% of customers were generally satisfied with the public transport service; this is a 5% increase on the result⁷ for the previous year. The RLTP target for this outcome is to achieve at least 90% overall satisfaction with the public transport for the region.

⁶ The bus fleet also includes a range of pre-1995 makes/models referred to as non-euro; these buses are excluded from fleet emission calculations because emission rates for these vehicles are not available.

⁷ The Metlink survey has undergone changes to the methodology, so earlier survey results on customer satisfaction are not compatible with surveys for 2014 onwards.

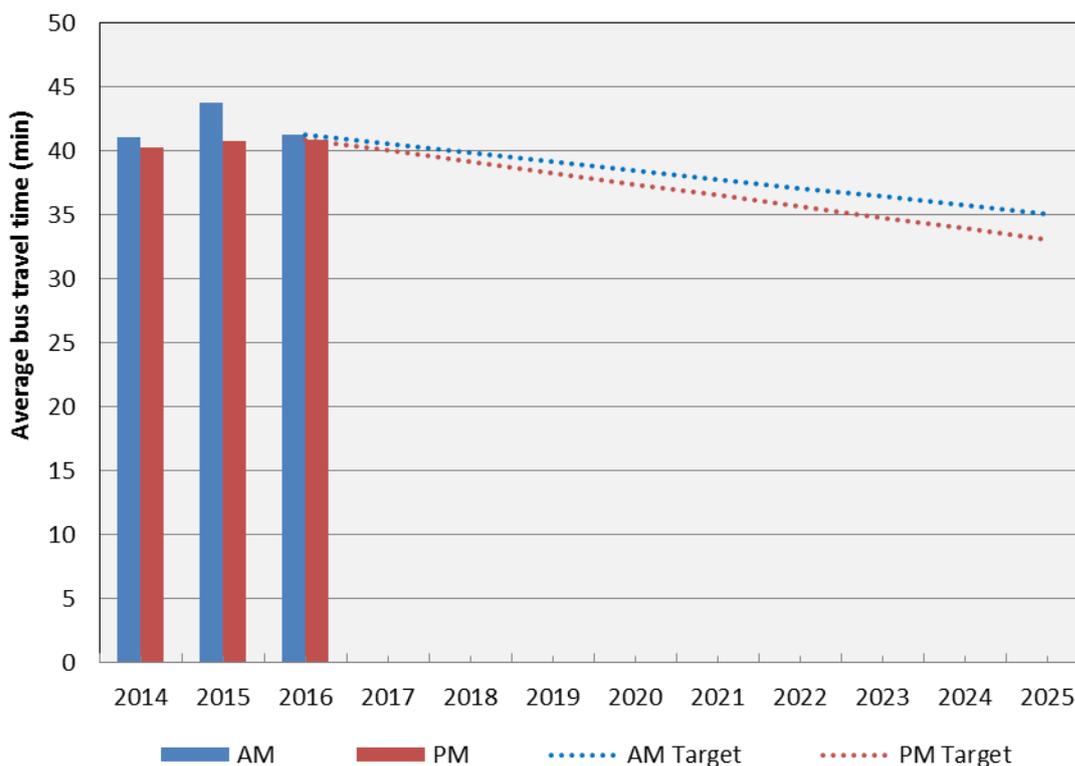
2.4 Improved public transport reliability and journey times

There are three measures used in the RLTP to assess public transport reliability and journey times in the Wellington region. These are: peak period public transport travel times on core routes, peak period bus travel time variability on core routes and rail service punctuality.

The Metlink network consists of three layers: core routes, local routes and targeted services. The **core routes** are the urban rail network and frequent bus services that form the network’s backbone, linking areas of high demand with high-capacity, direct services with extensive operating hours⁸.

Figure 2-4 shows results for bus travel time on core routes during peak AM and PM hours. Data collection methods changed in 2014, to electronic data and this is why the series begins at that time. In 2016, travel times during the AM and PM peak average approximately 41 minutes each, this is the same result for AM but slightly up on PM since 2014. The RLTP target is for continuous improvement in PT travel times to 2025.

Figure 2-4 Average bus travel times on core routes at peak times & RLTP target



Source: GWRC

The second measure for this outcome examines average lateness to represent variability of bus times on core routes. Comparing the results for variability between 2014 and 2016 there are

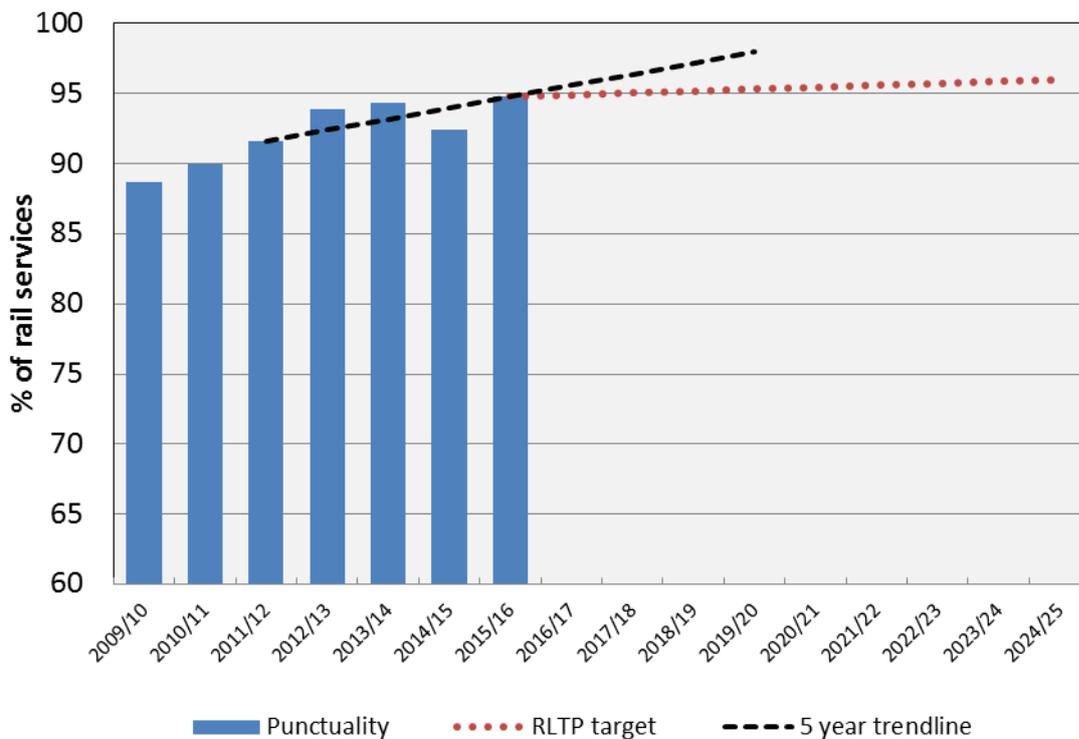
⁸ The Core bus routes used to measure travel time & lateness are routes: 1,3,11,110,120 and 130

minor changes; an increase in variability in morning peak from 3.8 minutes to 4.2 minutes and a decrease from 3.2 minutes to 2.8 minutes in the afternoon peak.

Figure 2-5 shows the percentage of passenger rail services in the region which run to time. A train which departs from or arrives at Wellington Railway Station within five minutes of scheduled time is defined as ‘on time’. These data are currently self-reported by public transport operators.

The trend-line for rail punctuality shows improvement overall for the last five years. In 2015/16 95% of rail services⁹ arrived or departed Wellington Railway Station within five minutes of scheduled time. Punctuality increased for rail services between 2011 and 2016 by 3.5%. This included a small decrease in punctuality in 2014/15 year. The RLTP target for this outcome is 96% punctuality for rail services by 2025.

Figure 2-5 Percentage of rail services arriving or departing on time (2009-2016)



Source: GWRC

Note: rail service punctuality is defined as those trains arriving or departing within five minutes of the scheduled arrival time.

⁹ Differences between actual and scheduled arrival and departure times are averaged across the financial year to calculate punctuality.

2.5 Progress made so far on this objective:

Ongoing investment such as expanding park and ride facilities for the train network will enable growth in rail patronage and extend the reach of the rail network. In the last year additional carparks were provided at Paraparaumu (118), Petone (185), Porirua (112) and Raroa (together adding 449 spaces).

As part of the programme of bus asset renewal in the last year, fifteen new and nine upgraded bus shelters have been installed in the region.

Bus service reviews across the region will be ongoing to ensure that networks and services are reliable and respond to changing needs over time. An area of proposed change involves improving the number of bus services that are scheduled to connect with the metro rail services.

Accessibility to public transport also relies on good customer information, publications and on-line channels such as the Metlink website. The new Metlink website went live in October 2015, completely replacing the previous one which had operated for around eight years.

A new Metlink app and widget were introduced to iPhones and Android phones over the 2015/16 year.

The Real Time Information (RTI) system is operational. Ongoing activities to improve the accuracy and the availability of the information provided to customers are planned. This includes availability of bus and train tracking on the Metlink website and the Metlink app.

The Matangi train fleet replacement was completed in 2015/16; this included new accessibility features on all Metlink metro services. These features include level access boarding, wheelchair spaces, seating with increased width and leg room (the green seats in the low-floor section of each carriage) and visual and audio next stop announcements.

3 A reliable and effective strategic road network

What is the latest on this objective?

This section discusses transport outcomes that relate to the strategic road network, including road congestion and travel times.

Outcome	Measure	Baseline	2025 target	How are we going?	Comment
Reduced severe road congestion	Average peak period travel speeds on selected strategic routes	Rolling average speed of 46.2 Kph	A 10% increase in 3 year rolling average travel speed		New monitoring regime began mid 2015
Improved reliability of the strategic road network	Average peak period travel speed variability on selected strategic routes	Rolling average variability was +/- 13.7% (2012 to 2014)	A 25% reduction in the 3 year rolling average travel speed		New monitoring regime began mid 2015

3.1 Reduced severe road congestion and improved reliability of strategic road network

Strategic routes consist of state highways and high volume regional roads. The strategic network serves an important role for both inter-regional long distance trips and short to medium distance trips within the region, and provides access and connectivity for people and goods to key regional destinations.

Travel time data is used to calculate the average vehicle speed for the road network. This is used to indicate levels of congestion - as increasing travel speed over time implies that traffic is less congested.

3.1.1 Travel time data

During 2015 changes were made by NZTA to how they monitor travel time in the region. New technology and a revised methodology have been adopted and the key transport routes¹⁰ for monitoring purposes were revised from 6 to 3 routes¹¹. This means the data prior to 2015 is not comparable to the current travel time results which began from mid-2015 onwards.

The travel time data is extracted (for week days only) according to the following criteria:

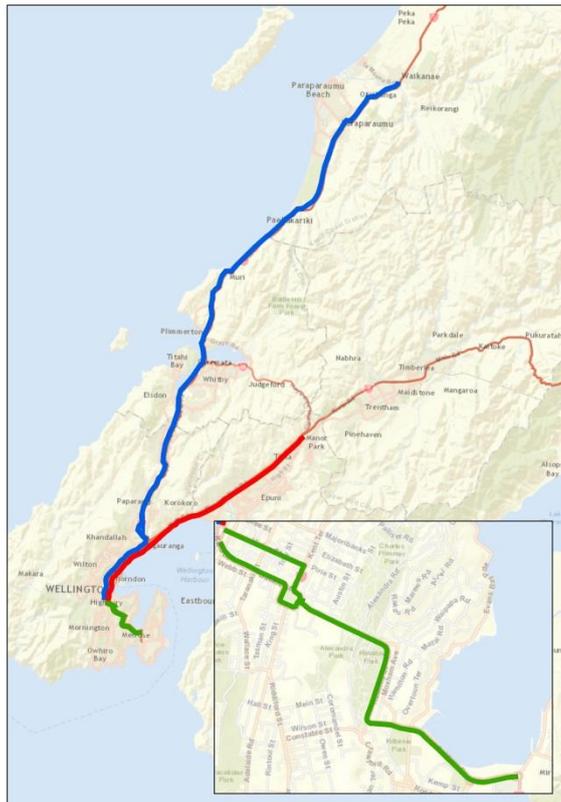
- Journey time data are extracted over the entire route and averaged over 15minute time periods

¹⁰ Previous analysis used data from 6 strategic roads, these were; Waikanae to Airport, Upper hutt to Wellington CBD, SH58 to Paramata to Haywards hill, Karori to Bowen St., Wellington Station to Island bay and Wainuiomata to Petone.

¹¹ We are working to again increase the number of routes reported in future years, as TOC and WCC systems become more closely integrated.

- Data is extracted for the 6 am to 10 am for the morning peak (inbound directions only) and 4pm to 6.30pm for the afternoon peak (outbound directions only).
- The three key routes are (in **figure 3.1** below) :
 - Route 1: Waikanae <-> CBD on SH1 (Blue)
 - Route 2: Manor Park <-> CBD on SH1/SH2 (Red)
 - Route 3: Airport <-> CBD on SH1 (Green)

Figure 3-1 The three strategic routes



3.1.2 Average travel speed

The RLTP target is to reduce severe congestion on strategic roads and the 2025 outcome is an increase in average speed of 10%. The average monthly travel speed for vehicles on each route is shown in **Table 3-1**. The overall average speed for AM inbound and PM outbound traffic is 48 and 49 kph respectively. The travel speed data is a new data series so we are unable to compare these results with previous years.

Table 3-1 Average Monthly travel speed 2015/16 (kph)

	CBD to Waikanae	CBD to Manor Park	CBD to airport	Overall average
AM inbound	61.34	52.29	30.78	48.14
PM outbound	59.49	60.67	27.45	49.20

3.1.3 Travel speed daily variation

This section looks at the variability in travel speed over the different routes and at different times of the day and year (for 2015/16). With the newly available data from NZTA, more comprehensive analysis is now possible.

The daily variation of the travel speeds in 15 minute time-periods, averaged over one year (2015/16) and for the three key routes in the AM peak is shown in **Figure 3-2**

Figure 3-2 Travel speed AM peak, inbound 2015/16

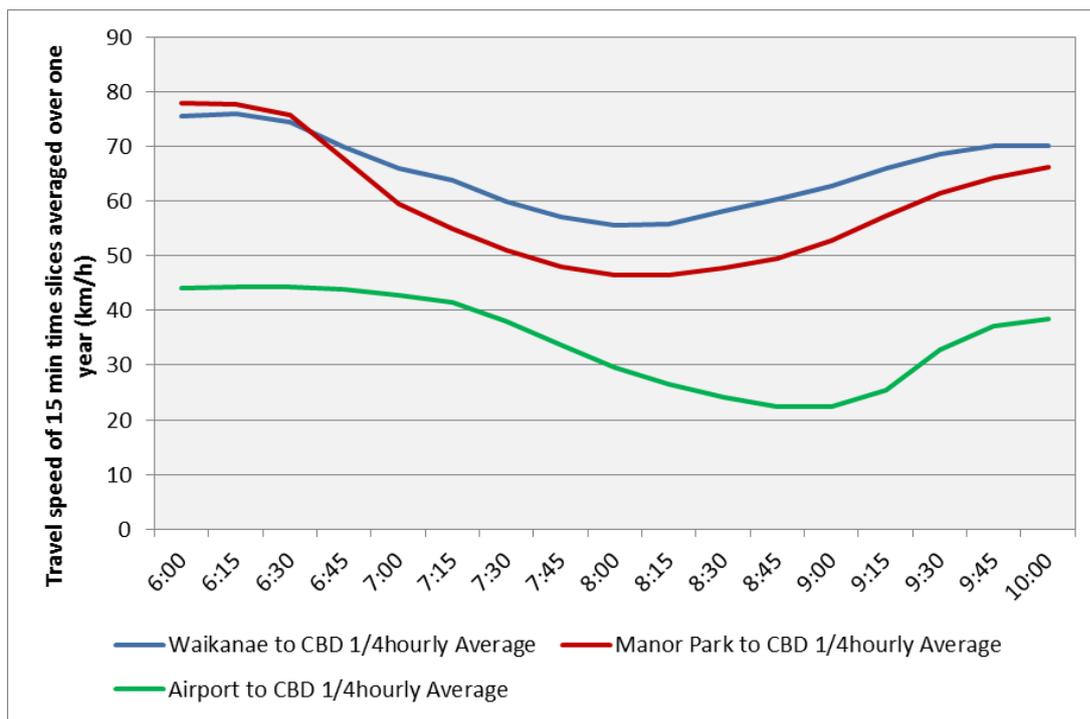
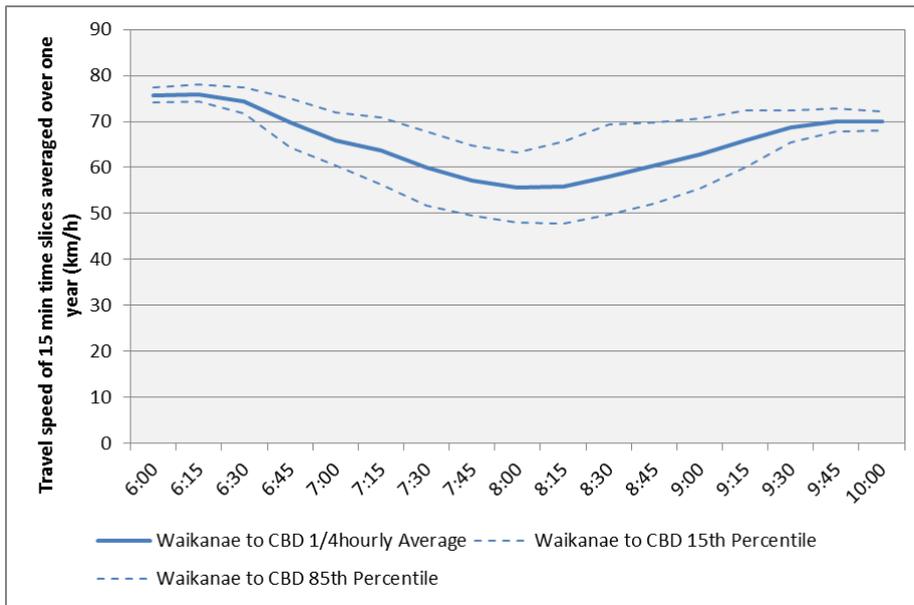


Figure 3-2 indicates the extent of the variation in travel speed from beginning of morning peak to the end of peak time. Travel speed drops significantly during the AM and PM peak periods and the mostly uncongested values of 6am are not reached again in the reported time period.

There is a sharp dip in average travel speeds for the AM peak on the Airport to CBD route leading up to 8.45 AM; on the two longer routes the dip is over a longer period and occurs earlier, leading up to 8 AM.

Variability of travel speeds can be seen in **Figure 3-3**, the average travel speed and 15th and 85th percentiles values for travel speed for the Waikanae to CBD route in the AM are presented. The speed variability at 8:30 AM ranges from 49 to 79 kph over the whole year.

Figure 3-3 Travel speeds AM peak, inbound Waikanae to CBD



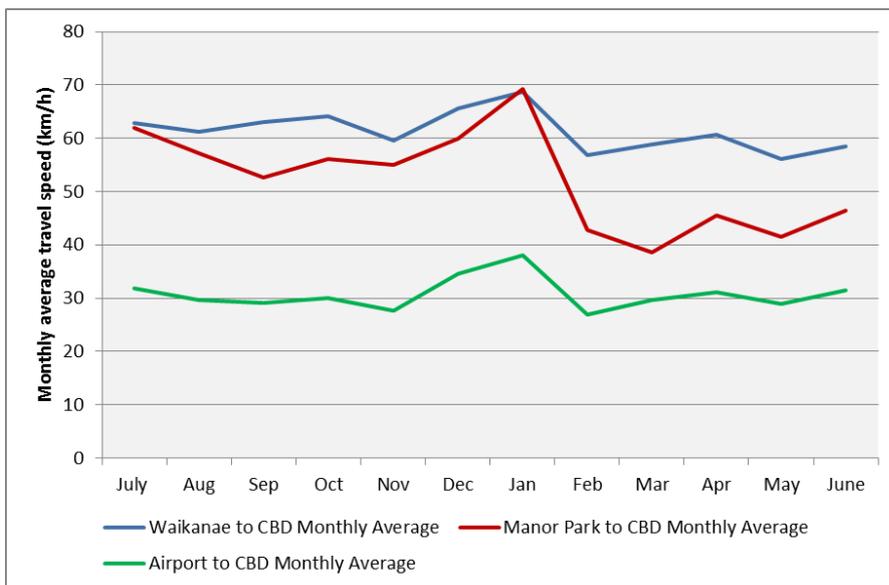
Increased congestion during the peak periods manifests in decreased travel speed and also in increased variability of travel speed.

3.1.4 Travel Speed Yearly Variation

Travel speed percentage variability is the second measure for this RLTP objective and this is calculated using average travel speed variability across all three strategic routes. The average peak travel speed variability for the 2015/16 year is +-22%.

The variation in monthly average travel speeds over one year for the three key routes in the AM peak is shown in **Figure 3-4**. Values are derived by averaging over the busiest 2.5 hours (7am-9.30am for AM-peak and 4pm-6.30pm for PM-peak) and over all weekdays of that month.

Figure 3-4 Travel speeds AM peak, inbound

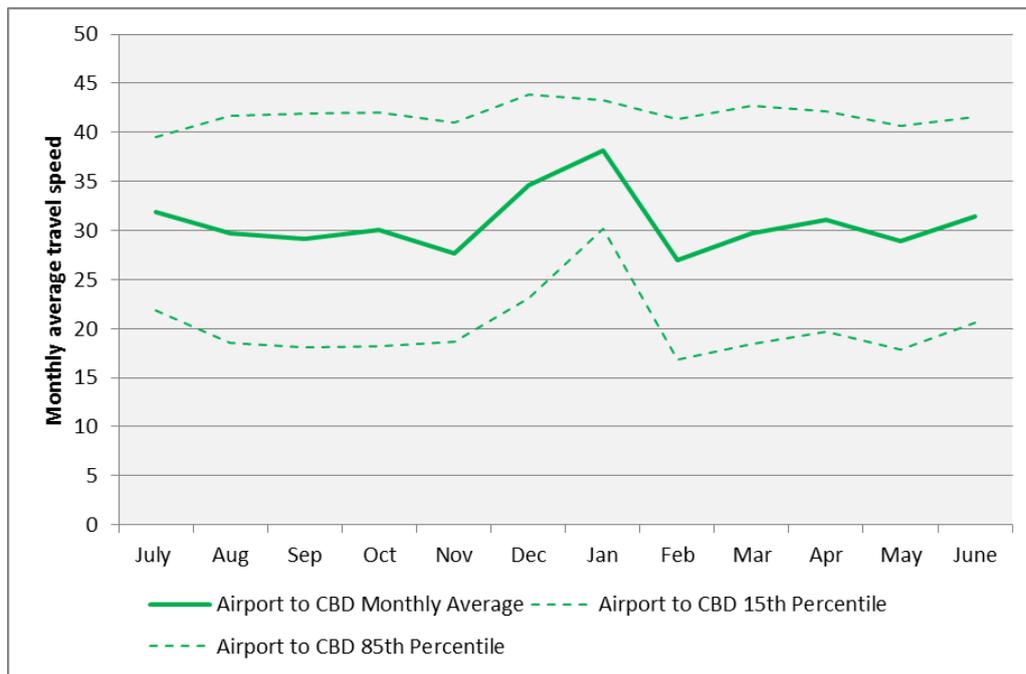


There is a marked increase in travel speeds in January probably due to fewer commuters during the summer holiday period. On the other hand, during February and March the travel speeds on these routes tend to be comparatively low, likely due to a combination of high demand by commuters (only one public holiday, no school holidays), and the commencement of the tertiary academic year.

Other patterns observable here may or may not be specific to the 2015/16 year and when future data is available more will be revealed about recurring patterns.

Figure 3-5 shows variability of travel speeds in terms of the 15th and 85th percentiles of the monthly data for the CBD to Airport route in the PM peak.

Figure 3-5 Variability of travel speeds PM peak, outbound CBD to airport



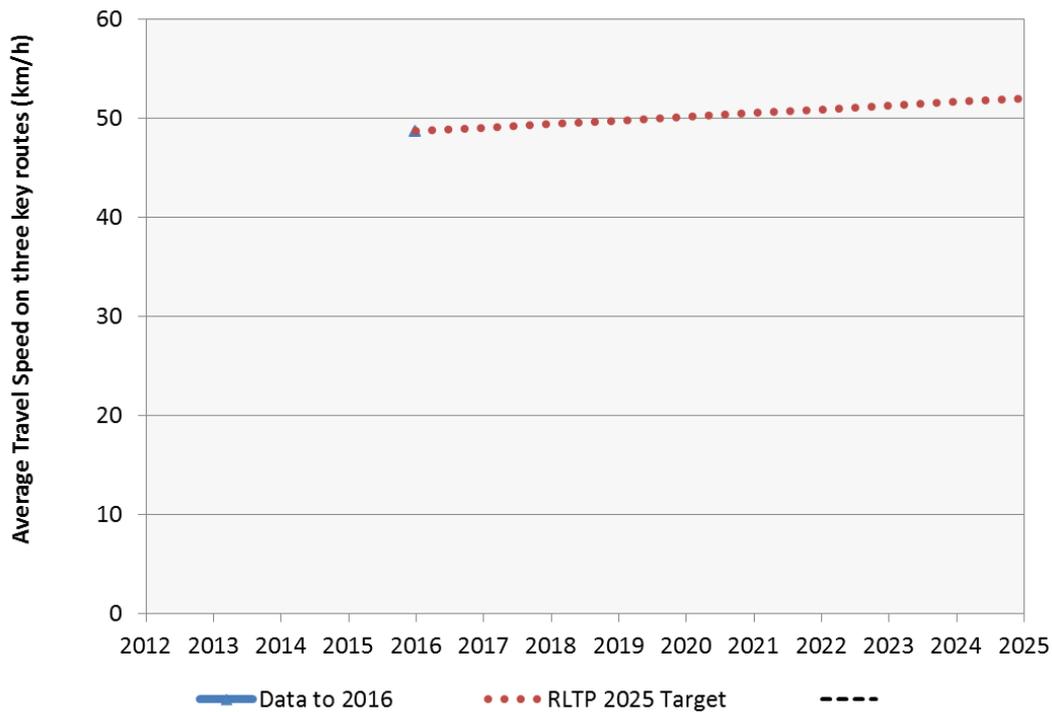
The slower travel speed on the same route is correlated with a greater variation of travel speeds. This is most pronounced in the busy summer months of February and March.

3.2 Establishing a revised baseline

Due to the disruption in data continuity for this measure the baseline needs to be revised. The objective in the RLTP 2015 established a 2012-2014 rolling average baseline for average speed and day-to-day variability. The 2025 target specifies a 10% increase in 3 year rolling average speed and 25% decrease in the 3 year rolling average travel speed variability.

With the start of the new data series in 2016, the three year rolling average baseline will cover 2016-2018. Assuming the same average year-to-year increase in travel speed (decrease in travel speed variability) as the target laid out in RLTP 2015, the new target for 2025 (with a 2016-2018 baseline) will be a 6.4 % increase in 3 year rolling average travel speed and a 16.2% reduction in the 3 year rolling average travel speed variability, see **Figure 3-6** for average travel speed in 2016 and 2025 target.

Figure 3-6 Preliminary baseline and target for average peak period travel speed



3.3 The progress made on this objective?

Congestion on strategic routes will be addressed by a range of projects, examples of these projects are:

- The Smart Motorway (SH 1 Ngauranga to Aotea Quay) opened on 22 June 2016 for northbound traffic, and opened southbound in early July 2016. The smart motorway reduces congestion by smoothing the traffic flow and maximising the number of vehicles that get through. This project also includes a fourth lane for the northbound direction between Aotea Quay and Ngauranga.
- Improving the region's connection to the north through implementation of Wellington Roads of National Significance (RoNS) e.g. Transmission Gully (on track to be finished in 2020) and SH1 Mackays to Peka Peka expressway (to be complete by 2017).
- Significant planning is underway to provide better east-west connections within the region e.g. the Petone to Grenada link road where construction is scheduled to start in 2019/20.

4 An effective network for the movement of freight

What is the latest on this objective?

This section refers to the transport outcomes for the movement of freight, including improving freight efficiency and freight volumes.

Outcome	Measure	Baseline	2025 Target	How are we going?	Comment
Improved freight efficiency	Average all-day travel speeds on important regional freight routes	Rolling average speed of 54.9 Kph	A 10% increase in travel speed		No new data available
	Average all-day travel speed variability on important regional freight routes	Rolling average variability was +/- 10.6%	A 25% reduction in variability		No new data available
Increased proportion of freight moved by rail	Percentage of long distance freight volumes moved by rail	18.33 million tonnes in 2012	An increasing proportion of freight moved by rail		The MoT freight survey is undertaken every five years, next update on this outcome due in 2018.

4.1 Improved freight efficiency

The region's freight network consists of roads, rail and port infrastructure. Road and rail are the two primary modes for freight in the region as Wellington is a key gateway for freight travelling between the north and south islands. Due to changes in the way travel time traffic speed is monitored by NZTA there is no data update for these two indicators in 2015/16. GWRC is working with the Traffic Operations Centre (TOC) and WCC to investigate alternative mechanisms to measure the level of congestion and travel times on the region's main arterial roads.

4.2 Increased proportion of freight moved by rail

The data associated with freight volumes transported by rail and used for this measure is provided by the Ministry of Transport (MoT) National Freight Demand study. This data is collected every five years and an update on this measure is due in 2018.

4.3 Progress made so far on this objective:

Investment in the Wellington Northern Corridor RoNS is forecast to reduce congestion, ensure reliability and provide better access to CentrePort and Seaview for freight traffic. The construction of the Transmission Gully motorway is underway and this is one of several corridor projects that will help alleviate connectivity issues identified for freight movement within the region. A recommended programme of options for the port area has been developed under the

Port Access Programme Business Case. Many of the recommended options will be developed as part of the Let's Get Wellington Moving programme.

The Waingawa log hub is in the final planning stages and aims to deliver benefits for the regional economy, motorists, and the environment. The hub, near Masterton, will provide a reliable, cost-effective transport connection from the Wairarapa to Centreport and beyond, with a rail connection served daily by KiwiRail freight trains.

5 A safer system for all users of our regional road network

What is the latest on this objective?

This section discusses the transport outcomes that are related to regional road safety which includes road crash fatalities and casualties.

Outcome	Measure	Baseline	2025 target	How are we going?	Comment
Improved regional road safety	Killed and seriously injured totals, measured on an annual basis against a 5-year rolling average (CAS data)	5 year average 183.4	At least a 50% reduction in 5 year average		167 Killed & seriously injured in 2015 (5 year average), a decreasing trend in these injuries.
	Total casualties on an annual basis against a 5-year rolling average (CAS data)	5 year average 1079.8	At least a 50% reduction in 5 year average		Total casualties are 923 in 2015 (5 year average), a consistent decrease in number of casualties for last 5 years.
Increased safety for pedestrians and cyclists	The number of vulnerable road users (cyclists and pedestrians) killed and seriously injured annually against a 5-year rolling average (CAS data)	5 year average 56.5 (to 2013)	At least a 50% reduction in 5 year average		50 pedestrians/cyclists killed or seriously injured in 2015 ¹² , 5 year trend shows decline in number killed or seriously injured.

5.1 Improved regional road safety

Measures to improve road safety should target every element of the transport system. A system wide approach will be used to address safety issues. Safer Journeys, the national strategy guiding road safety improvements, seeks to establish the safe system approach within New Zealand. GWRC, local councils and the NZ Transport Agency will work with NZ Police, ACC and other agencies to deliver coordinated and integrated road safety programmes and campaigns using a combination of engineering, education and enforcement.

Figure 5-1 shows the number of fatal¹³ and serious¹⁴ injury casualties for all vehicle types in the Wellington region as reported by the police to NZ Transport Agency via Crash Analysis System (CAS). A five-year rolling average is measured against the current data as it provides a more meaningful and statistically significant picture of trends over the short to medium term against which to measure future progress.

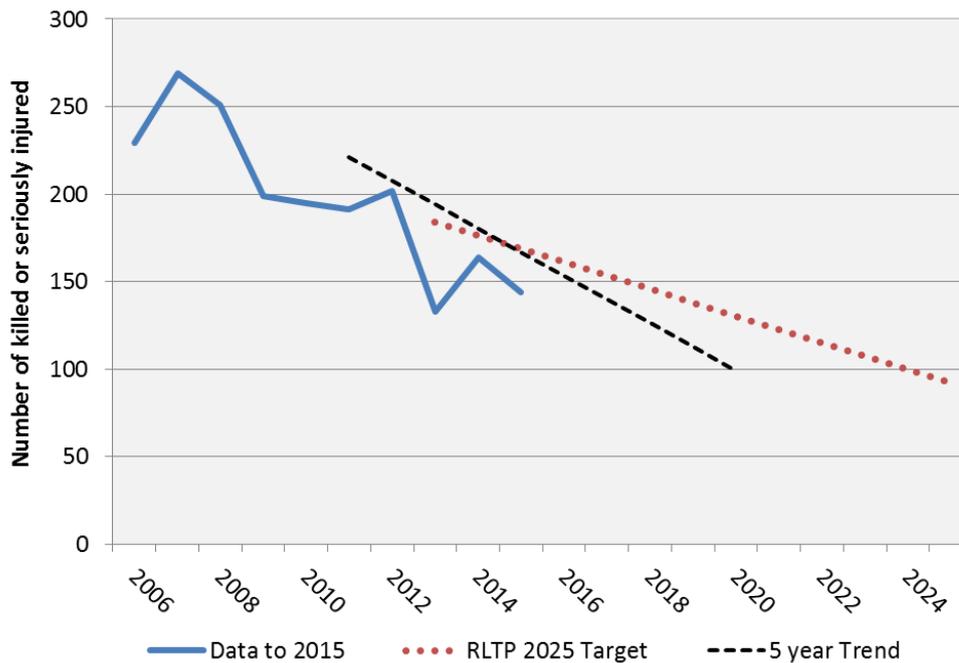
¹² 2014 total calculated using five year rolling average, actual total is 45 killed or injured for 2014

¹³ Injuries that result in death within 30 days of a crash

¹⁴ Serious is defined as fractures, concussion, internal injuries, severe cuts and lacerations, severe shock requiring medical treatment, and any injury involving admittance to hospital.

In 2015 the number of people seriously injured on the regions roads (144) was below the five year average of 167. In 2015 there were 10 deaths and 134 reported serious injury casualties. The number of deaths has decreased by 23% (from 2011 to 2015). Over the same period the number of reported serious injury casualties has decreased since 2011 (a 25% drop). The five year rolling average trend-line shows declining numbers killed or seriously injured in the region as both car ownership and usage has increased.

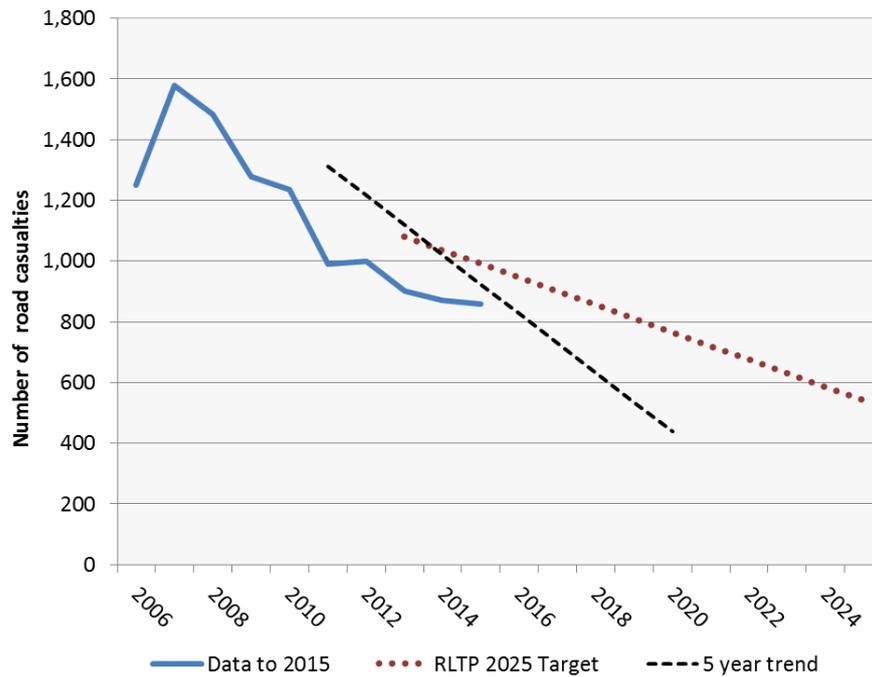
Figure 5-1 People killed or seriously injured on region's roads and RLTP target



Source: CAS, NZ Transport Agency

Figure 5-2 shows the total road casualties for the region up to 2015 and RLTP targets to 2025. The total casualties for 2015 are 858 this consists of 10 deaths, 134 serious and 714 minor casualties, rolling average for the year is 923 casualties. For the last three years total casualties per year have been below the 2013 rolling average RLTP baseline of 1,080 casualties. The five year rolling average trend-line indicates a decline in total casualties which is a positive result for this outcome.

Figure 5-2 Total casualties on the region’s roads and RLTP target



Source: CAS, NZ Transport Agency

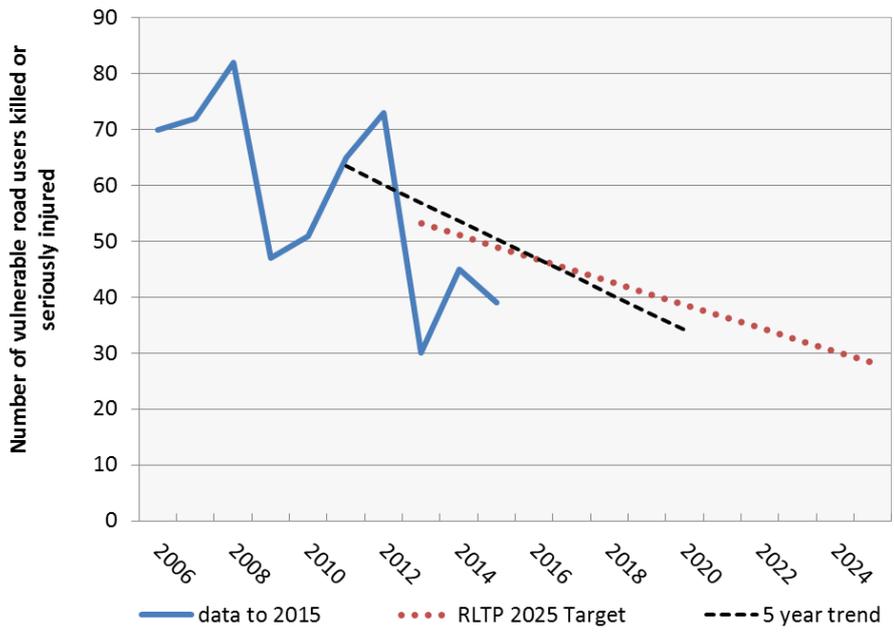
There is a general downward trend in casualties since 2007 and this is attributed to continued coordinated road safety efforts including targeting accident blackspots, safety infrastructure improvements, road safety educational programmes and campaigns, and improved vehicle safety standards.

5.2 Increased safety for pedestrians and cyclists (vulnerable road users)

This measure assesses the safety of the road network for pedestrians and cyclists by examining CAS data over time.

Figure 5-3 shows the number of pedestrians and cyclists killed or seriously injured on the region’s roads. Pedestrian and cyclist casualties increased between 2005 and 2008 with some variability in the number of casualties between 2008 and 2014. In 2015, the number killed or seriously injured was 39, which was below the five year rolling average of 50. The rolling average trend-line shows that although casualty numbers have fluctuated since 2010, the overall trend is for decreasing numbers of casualties.

Figure 5-3 the number of cyclists & pedestrians seriously injured on the regions road network (2006-2015) and RLTP target



Source: CAS, NZTA

Local authorities and NZTA are investing heavily in cycling infrastructure which is focused on targeting cyclist and pedestrian casualty blackspots, adding cycleways, and combining these projects with marketing campaigns to improve safety and educate road users. The 2025 RLTP target is at least a 50% reduction in the baseline (57 casualties), for vulnerable road user casualties on the region’s road network.

The performance measures for this objective on road safety show that the region’s road crash annual casualties continue to decrease, as evident by the five year rolling average trend-line for both annual casualties and serious casualties.

5.3 Progress made so far on this objective:

Targeted infrastructure safety improvements across the region include the following:

- SH58 stage 1 curve realignment work completed (Grays Road to SH2).
- Mt Victoria Tunnel Safety Improvements project was completed in June 2016. This included upgrades to lighting, slope strengthening, improved cameras and ventilation, and upgraded fire resistance and emergency response systems.
- Road safety educational promotions and campaigns are implemented at both national and regional level. Examples of regional initiatives on road safety include:

Be safe be seen campaign for cyclists, walkers and runners – recommending lights and reflective clothing and best practice for good visibility and safety in low light conditions.

6 An increasingly resilient transport network

What is the latest on this objective?

This section discusses outcomes concerned with the resilience of the transport network, including the regional risk register, restoration and recovery of the network and regional emergency plan.

Outcome	Measure	Baseline	2025 Target	How are we going?	Comment
Improved transport infrastructure resilience to disruption from unplanned events	Proportion of region covered by an adopted regional risk register	0% in 2014	100% - risk register by 2017		Work is progressing - Expected to be Complete at the end of 2016.
A transport network that supports the restoration of access and regional recovery after a major event	Estimated time to reopen key road connections to and within the region and to key recovery facilities.	Existing emergency plan estimates (2014)	Continuous reduction in number of days to reopen the transport network		New projects planned and under construction will improve resilience and reduce the recovery time.
Reduced regional economic risk	Proportion of region covered by an adopted and comprehensive regional restoration and emergency plan	Existing regional restoration emergency plans(2014)	100%		Restoration Plans are progressing with update due at the end of 2016.

6.1 A transport network that supports the restoration of access and regional recovery after a major event

A resilient network is one that is designed, developed and maintained to recover quickly from unplanned events. The region's road network is vulnerable to disruption or closure given an extreme event and this is because Wellington's topography and relatively narrow corridors of development, infrastructure and transport across the region make it relatively susceptible to disruption from natural hazards events and traffic crashes.

Planning and investment are needed in preparation of an extreme event to improve the resilience of existing key transport corridors and infrastructure and to identify alternative access points. One measure that addresses the importance of access in an event includes the estimated time to reopen key supply lines and road connections to and within the region. The restoration plan for the region was addressed in a 2013 report¹⁵; this included estimated times for access to be restored to key transport corridors (refer to the 2014/15 AMR). Although these restoration times have not been revised at this stage, new projects under construction and those soon to be

¹⁵ Wellington Lifelines Group/WREMO¹⁵: Restoring Wellington transport links after a major earthquake-Initial project report, 2013

operational will improve the regional transport network's resilience and reduce the time taken to re-open key corridors and recover during a major event.

6.2 Progress made so far on this objective:

Ongoing preventative maintenance and seismic strengthening of the transport network and infrastructure is important to achieve improved resilience. In the medium to long term, new routes such as Petone to Grenada and Transmission Gully will contribute to improving the regional network resilience by providing alternative and more robust access across the region in a major event.

The first stage of the Kapiti expressway is due to finish in 2016/17 and represents an improvement to the network on many levels including an improvement to resilience. Projects like the Wainuiomata Hill Road shared path and the SH2/SH58 intersection also contribute to improving resilience.

Mt Victoria Tunnel Safety Improvements project was completed in June 2016. This included upgrades to lighting, slope strengthening, improved cameras and ventilation, and upgraded fire resistance and emergency response systems

Recent emergency planning by the Lifelines group is the Wellington Fuel Plan¹⁶. This plan covers the response to a local or regional event that impacts fuel distribution in part or the entire Wellington region.

The most significant advance in 2016 has been the development of an agreed draft prioritised list of transport locations that have resiliency issues. This has been the main output from the regional transport resilience programme business case.

¹⁶ The Wellington Region CDEM Group Fuel Plan 2015; Wellington Lifelines group, Wellington Region Emergency management office, & Wairarapa Engineering Lifelines association.

7 A well planned, connected and integrated transport network

What is the latest on this objective?

This section discusses transport outcomes that are concerned with an integrated network, including improving land use and transport integration.

Outcome	Measure	Baseline	2025 Target	How are we going?	Comment
Improved land use and transport integration	Population living within 500m of any bus stop or 1km of a railway station	84.9% in 2013	Continual improvement towards 88%		No update as this measure relies on census address points & service routes.
Improved integration between transport modes	Number of secure ¹⁷ cycle parking spaces at railway stations	Previous trend: 100% increase in cycle parking spaces 2009-13	Increase by 50%		Provision for cycle parking spaces has increased regularly.

7.1 Improved integration between transport modes

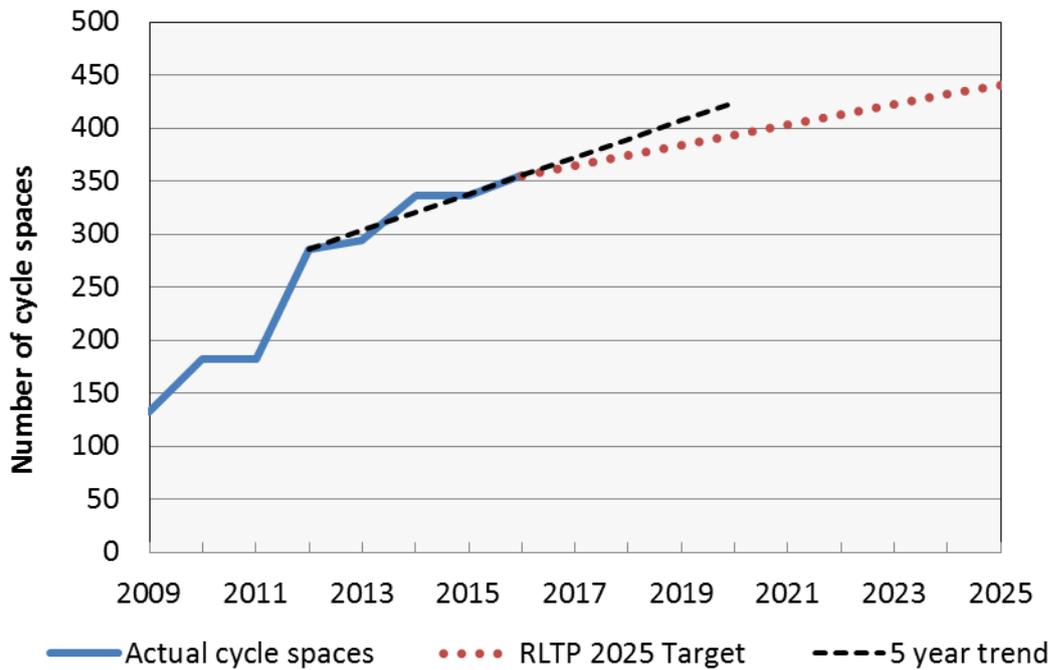
Over the last 8 years the number of dedicated cycle parking stands on railway station platforms and station forecourts across the region has increased by around 100%. This is both a response to the increasing popularity of cycling and a result of trying to encourage more people to cycle to and from the station as part of the wider objective of increasing public transport patronage.

The provision of cycle facilities at railway stations consists of a mix of secure cycle racks, cages, and lockers.

Figure 7-1 shows the 5 year trend and targets for cycle parking facilities at railway stations. In 2016 there were a total of 355 cycle storage spaces available to commuters at railway stations across the region. Cycle storage spaces at railway stations have increased steadily up to 2016 with cycle facilities showing an increase at most stations across the region.

¹⁷ Secure cycle parking is defined as either bike lockers or covered bike racks.

Figure 7-1 The number of cycle parking spaces at railway stations and RLTP target



Source: GWRC

7.2 Progress made so far on this objective:

RLTP policies support land use development that is well integrated with transport infrastructure, including denser development located around public transport nodes and along key public transport corridors.

A number of local councils throughout the region have been progressing updates of land use planning documents with enhanced provisions that seek to improve land use and transport integration. This includes review work on district plans by Kapiti Coast District Council, Porirua District Council, and Hutt City Council, and a new land use strategy in Upper Hutt’.

The Integrated Fares and Interim Integrated Bus Ticketing project will also contribute to this objective in the future. Further into the future, full integrated ticketing will mean just one card for all travel, and integrated fares will mean a simpler set of fare products with no additional costs for journeys requiring more than one service or mode.

An improved journey planner tool is now accessible on the Metlink website; this tool will plan your journey in real time using the available public transport services and with a version for your phone.

Bike racks on buses is a project designed to encourage more cycling in the region. The racks, which sit on the front of the buses, will be first tested by Mana Coach Service buses in Newlands, before going to public trial in October 2016.

8 An attractive and safe walking and cycling network

What is the latest on this objective?

This section discusses transport outcomes that promote active mode use; focusing on trips made by cyclists and pedestrians to work and study as well as cyclist/pedestrian level of service (LoS).

Outcome	Measure	Baseline	2025 Target	How are we going?	Comment
Increased mode share for pedestrians and cyclists	Proportion of journey to work trips by walking	11.6% in 2013	13.6% of journey to work trips		No update until after the next census in 2018.
	Proportion of journey to work trips by bike	2.9% in 2013	4.6% of journey to work		No update until after the next census in 2018.
	Proportion of urban trips by walking	Walking 18.4% in 2013	20.1% of trips crossing the CBD cordon		5 year trend shows increasing mode share, 18% in 2016.
	Proportion of urban trips by bike	2.6% in 2013	4.6% of trips crossing Wellington CBD cordon		Mode share of cycle trips shows little change in last five years, 2.6% in 2016
Improved level of service for pedestrians and cyclists	Perception of level of service for cyclists and pedestrians	Walking=90% Cycling= 50% in 2012	95% and 60% level of service (walking & cycling)		85% rated the level of service for pedestrians as "good" (2015); five year trend shows decline in level of service.
Increased use of active modes for journeys to school	Use of active modes in journeys to school for those participating in the School Travel Plan programme within the region	27% walking, 13% scooter or skateboard, rolling average 2010-2013	Continually increasing use of active modes		Active mode use for journeys to school has increased over the five years to 2015.

8.1 Increased mode share for pedestrians and cyclists

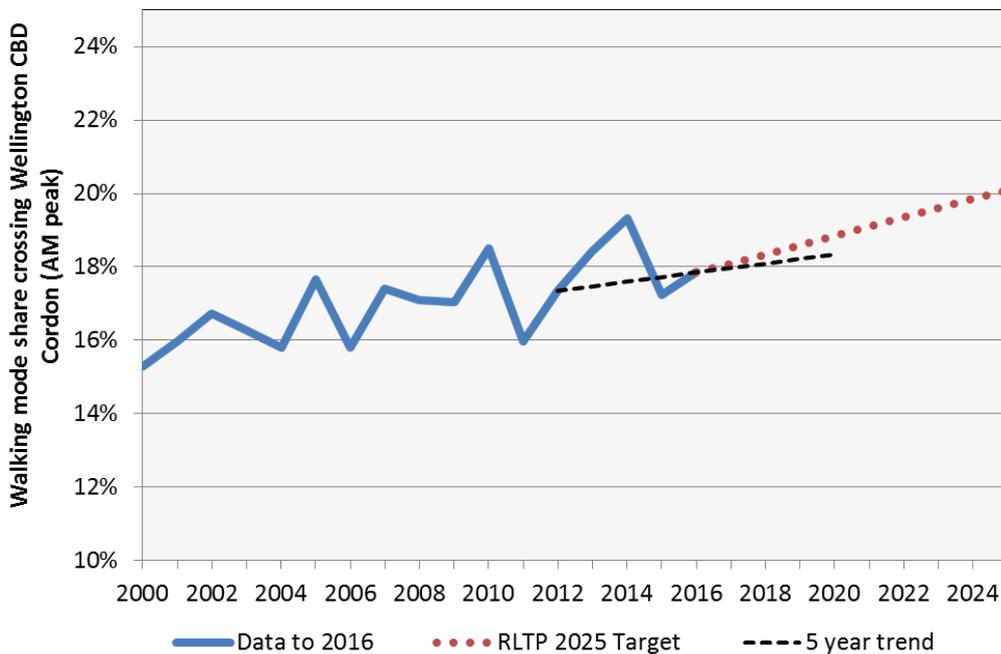
From a transport network perspective, walking and cycling are the most efficient mode choice for short trips. Both modes integrate well with other modes such as public transport and are essential for connecting modes for trips into work or study.

The Wellington City CBD cordon survey is undertaken annually in March and captures all trips by pedestrians, cyclists, public transport, and motor vehicles that cross a notional cordon around

Wellington City CBD. This dataset can be used to determine changes in travel patterns, mode share and patronage through time.

Figure 8-1 shows the mode share for pedestrians in the cordon count morning peak. The proportion of pedestrians crossing into the CBD compared to other transport modes (cycling, cars, and public transport) has fluctuated from 16% to 19% since 2001 but the five year trend indicates an overall increase over this period. In 2016, 18% of those people crossing the cordon were walking. The 2025 RLTP target is for 20.1% of all trips crossing the Wellington City CBD cordon to be walking trips.

Figure 8-1 Pedestrian crossing the CBD cordon (2000-2016) and RLTP target

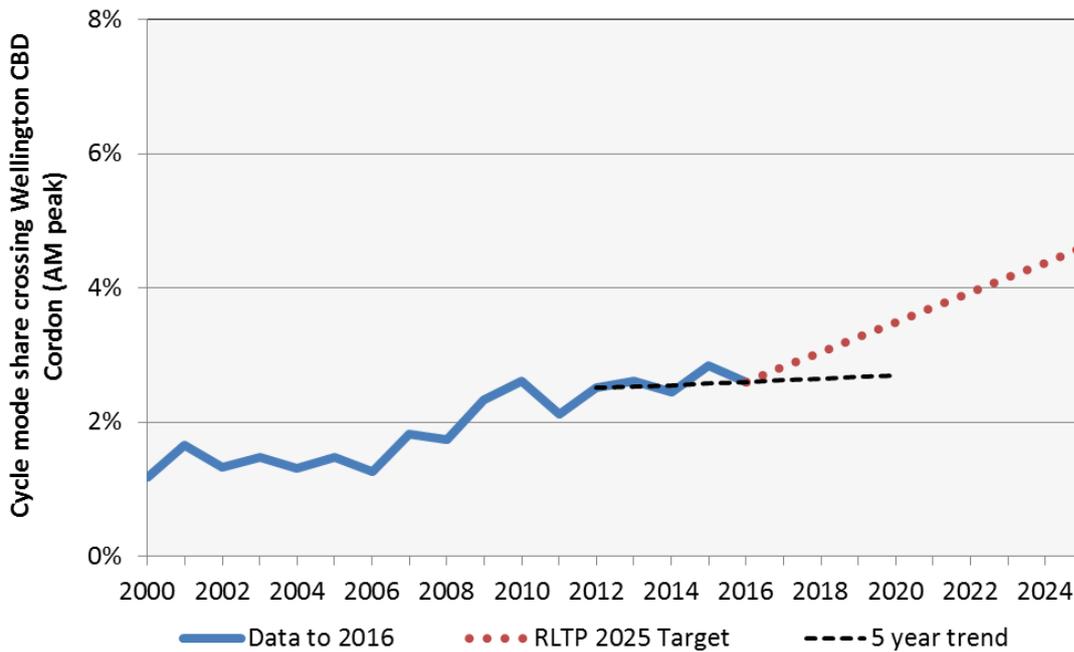


Source: Wellington CBD cordon survey 2016, WCC

Taking into account both cyclists and pedestrians together, the active mode share of trips crossing the Wellington City CBD cordon in the AM peak between 2011 and 2016 increased from 18% to 20%.

Figure 8-2 shows mode share for cyclists crossing the cordon. The average number of cyclists crossing the CBD cordon during the morning peak has increased by only 1% in the last five years, (2012 to 2016). The mode share of trips crossing the CBD cordon for cyclists has marginally increased over this time from 2.5% to 2.6% and the five year trend-line reflects this with an almost flat trend line. The 2025 RLTP target for this measure is 4.6% of trips crossing the cordon are cyclists.

Figure 8-2 Mode share for cyclist crossing the CBD cordon (AM peak) and RLTP target



Source: Wellington CBD Cordon Survey 2016, WCC

8.2 Improved level of service for pedestrians and cyclists

The levels of service for the walking and cycling networks are drawn from the GWRC Transport Perceptions Survey (TPS) through the following response: ‘the proportion of respondents that rated the level of service for pedestrians and cyclists as good or neither good nor bad’. This survey was last run in 2015 and occurs every two or three years.

The percentage of respondents who rated the level of service for pedestrians as good decreased in 2015 to 85% from the 2012 high point of 90%. The five year trend line also showing a decline in perceived level of service mainly due to the 2015 result. Upper Hutt respondents rated pedestrian service higher than other TA’s at 89% and Porirua’s rating was the lowest at 76%.

In the same survey, people were asked to rate the level of service for cyclists. Those that rated the service as either good or neither good nor bad have declined since 2007, from 53% in 2007 down to 44% in 2015.

8.3 Increased use of active modes for journeys to school

The School Travel Plan (STP) programme within the Wellington region began in 2006. It is a joint partnership between GWRC, local councils and the schools, with the aim of increasing the number of journeys to school made by active modes.

In 2015/16 no new schools were surveyed as part of the STP programme so results are unchanged from the previous year. However new schools are on board in 2016 so there will be an update in the next AMR.

Movin' March is a month long event which encourages schools to promote active travel to school by students. In 2016, sixty schools participated throughout the region compared to 49 in 2015. Of those surveyed, 35% were beginning to use active modes to get to school where previously they had journeyed to school by car or bus.

8.4 Progress made so far on this objective:

One of the key network priorities for investment in the cycling network is integrated cycling routes. Planned investment in new infrastructure for pedestrians and cyclists such as cycle lanes, off-road paths, and crossing facilities will help to improve the level of service. Regional projects that aim to improve safety for cyclist and walkers are mentioned in section 5.3 as part of the outcome: *A Safer system for all users of the regional road network.*

Some of the key projects are:

- In the Wairarapa, the Western Lake Road Cycleway is complete and Cycling Strategy reviews are underway.
- Several projects in Hutt City, Upper Hutt, Porirua, and Kapiti (Stride N Ride network upgrade) have had their business case approved. Hutt City's Beltway Cycling Project has received funding from the Urban Cycleway Programme and the next phase of the Te Ara Piko walk and cycle path in Porirua is about to begin construction.
- Construction was completed for the Island Bay Cycleway in conjunction with other works. Wellington City will be re-engaging with the community to review this project.
- A Seaward option was announced as the preferred for Ngauranga to Petone shared path, which forms a key section of the Wellington to Hutt Valley Walking Cycling and Resilience Project. It will provide a safer, easier link for cyclists and pedestrians between Wellington and Hutt Valley, and also help to protect the road and rail network by acting as a 'buffer' in natural events such as storms. The seaward preference is based on community and stakeholder feedback.
- Wellington eastern suburbs have been allocated funding for a cycling upgrade.
- The Wainuiomata cycleway project, aims to increase connectivity between Lower Hutt and Wainuiomata giving residents more transport options. The project is designed to improve both cyclist and pedestrian safety, reducing injuries and attracting new users. This is due to be completed in 2017.

9 An efficient and optimised transport system that minimises the impact on the Environment

What is the latest on this objective?

This section discusses transport outcomes connected to environmental impacts specifically transport generated emissions and vehicle occupancy.

Outcome	Measure	Baseline	2025 Target	How are we going?	Comment
Reduced harmful emissions from transport	Transport generated emissions (per capita)	Previous trend: 13% reduction in per capita CO ₂ emissions from 2005-2013	15% reduction in annual per capita CO ₂ emissions		CO ₂ emissions are 2.3 tonnes per capita, a neutral trend over five years of data.
	Transport generated emissions (absolute)	Previous trend: 7% reduction in CO ₂ from 2005-2013	10% reduction in total annual CO ₂ emissions		A sharp increase in the demand for fuel pushes up emissions to 2004 peak levels.
	Concentrations of harmful transport-generated pollutants	5 year rolling average for NO ₂ 23.5 µg/m ³ (for Wellington central only)	A reduction in the average concentration of harmful transport emissions		Rolling average data since 2013, initial results show decreasing emissions but not enough to show a trend.
Increased private vehicle occupancy	Peak period private vehicle occupancy	1.39 people per vehicle	Gradual increase in private vehicle occupancy to 1.45		A downward trend is emerging; vehicle occupancy is 1.35 in 2016.

9.1 Reduced harmful emissions from transport

Transport-generated greenhouse gas emissions have been relatively static overall over the five-year period to 2014. Future transport generated emissions will be influenced by a number of factors: Population and employment, modifications to vehicle engines, government policy, mode choice and Vehicle Kilometres Travelled etc.

Across New Zealand, 16% of total annual greenhouse gas emissions were attributed to the transport sector in 2014¹⁸. Carbon dioxide (CO₂) accounts for the bulk of transport-generated emissions and is therefore a suitable proxy for total transport-generated greenhouse gas emissions. This measure has been calculated from fuel consumption information¹⁹. The RLTP target is for 15% reduction in annual per capita CO₂ emissions by 2025.

¹⁸ Ministry for the Environment (2014). New Zealand Greenhouse Gas Inventory 1990-2012. MFE, Wellington, p. 37

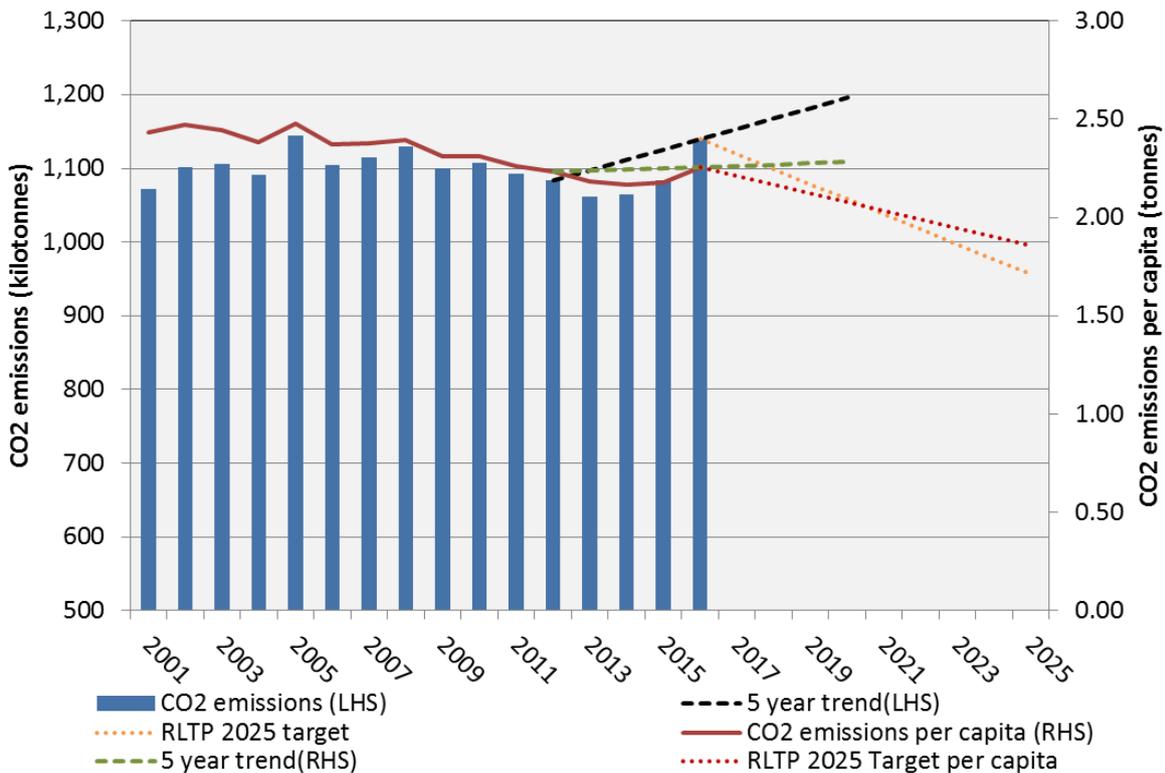
¹⁹ Carbon dioxide emission levels have been calculated from fuel consumption data using production rates from the Ministry of Economic development greenhouse gas emissions report (2010). The factors are 2.33 Kg/L of CO₂ per litre of petrol and 2.65 kg/L for diesel.

The per capita transport-generated emissions measure provides an indication of whether the transport system is becoming more efficient, in relation to emissions, by producing fewer emissions on a per person basis.

Figure 9-1 represents both measures associated with transport generated CO₂ emissions. These are CO₂ per Kilotonnes (LHS) and CO₂ emissions per capita (RHS). CO₂ per Kilotonnes (shown as blue bars below) have increased by 5.3% since 2012. This is mainly due to increases in diesel consumption with sales rising by 18% in the last five years (Wellington region).

The five year trend-line (dotted black line) for emissions per kilotonnes shows the level of CO₂ emissions indicates an upward trend. Both petrol and diesel sales have increased significantly in the last year (an increase of 4% & 7% respectively). The CO₂ emissions per capita trend-line indicates a neutral trend but this could change as fuel emissions per capita have increased in each of the last two years. In 2016, CO₂ emissions were 1,140 kilotonnes and 2.26 tonnes per capita.

Figure 9-1 Transport generated CO₂ emissions per capita (2000-2016)



Source: GWRC

9.1.1 New regional monitoring network

One of the aims of this RLTP objective is to improve the reporting and monitoring framework to provide data to inform a regional indicator of trends in traffic-related air pollutants (TRAP) which can be linked to trends in traffic and vehicle technology.

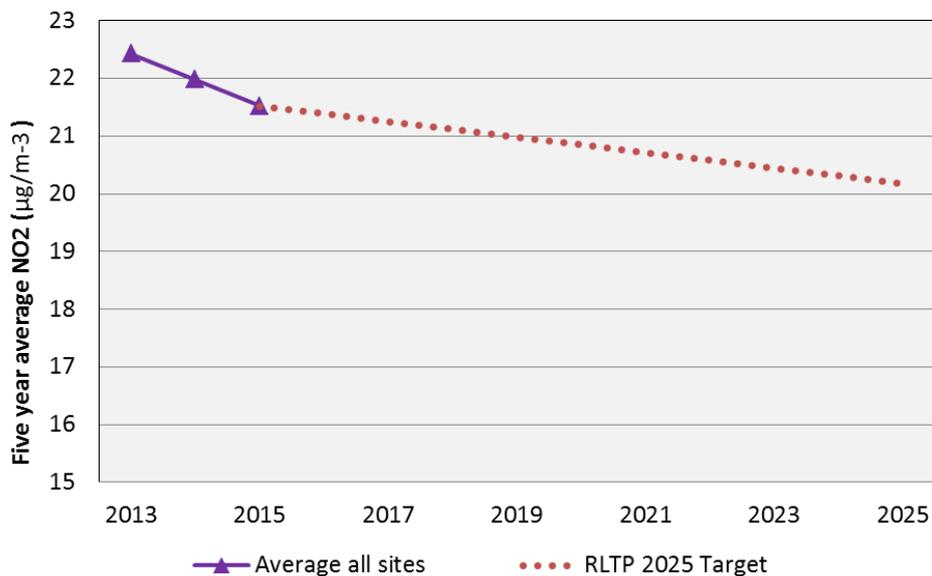
NIWA, on behalf of GWRC, will provide advice on the design of a monitoring network across the region. This network will include some existing monitoring sites that are part of NZTA’s national

monitoring programme, but will be augmented with new GWRC sites. The new network will be installed over a period of two years, with the first GWRC sites commissioned from July 2016, although some data will be available from July 2017. Initially the primary indicator to be measured will be nitrogen dioxide which is a good marker of traffic emissions and can be measured using a relatively inexpensive method (passive diffusion tubes) appropriate for assessing long term trends.

As trends in traffic emissions and impacts on air quality are likely to differ quite strongly across the region, this requires monitoring at a number of representative “peak”, “roadside” and “urban background” sites across each of the three zones: Wellington, Hutt Valley/Wairarapa and Porirua/Kapiti Coast. Over time and as resources permit, other traffic-related air pollution indicators, such as black carbon, and particle monitoring will be added to key sites in the network. The network will support the development of new more appropriate transport related targets.

Nitrogen dioxide is the only transport generated emissions pollutant which is currently monitored around the region and used to report on emission trends. **Figure 9-2** shows the results from Nitrogen dioxide monitoring sites, the level is calculated using a five year average. The data are obtained from the NZTA’s network of air quality monitoring sites²⁰ which cover state highways and local roads. The NO₂ data is measured using passive samplers²¹ at chosen sites in all areas around the region except the Wairarapa. Since 2013 there has been a downward trend in the level of nitrogen dioxide; overall there has been a 4% reduction in NO₂ during this time.

Figure 9-2 NO₂ monitoring using a five year average (2011-15)



²⁰ Passive diffusion tubes

²¹ NZTA Ambient Air Quality (Nitrogen Dioxide) Monitoring Programme – Operating Manual 2013/14: Passive sampling techniques are ‘screening’ methods and are useful for spatial and temporal assessments. However, any elevated NO₂ concentrations identified by passive sampling techniques are only indicative of a potential air quality issues. These ‘hot spots’ would require more accurate and precise monitoring from a reference method such as the continuous chemiluminescence analyser to confirm these findings for compliance monitoring. Pg. 24.

Source: NZTA

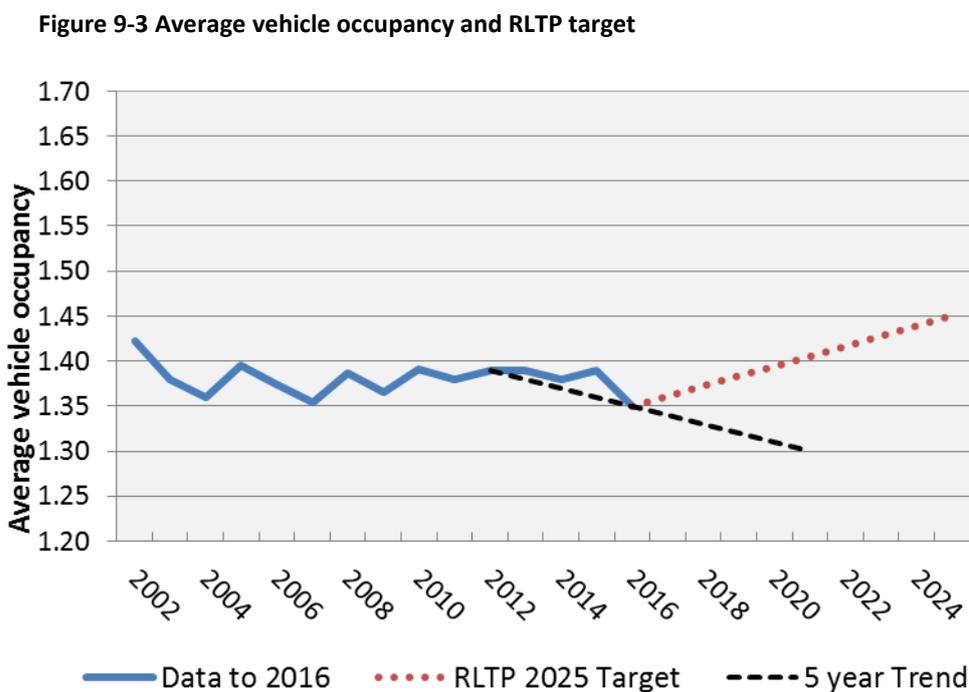
9.2 Increased private vehicle occupancy

Multiple occupancy vehicle trips (including buses) contribute to the efficient usage of the region's roads, as they raise the average number of people per vehicle, which in turn reduces the number of vehicles on the road required to transport those people. Given that capacity on the road network is limited, increasing average vehicle occupancy levels is a means of transporting more people, more efficiently across the network.

The Wellington City Council cordon survey measures vehicle occupancy crossing the Wellington City CBD between 7am and 9am. This survey data are used as a basis for developing future vehicle occupancy targets.

Figure 9-3 shows consistent variability in vehicle occupancy for the period 2003 to 2011 however in the last five years the trend-line for average occupancy suggests that occupancy is decreasing. In 2016, vehicle occupancy was 1.35; the 2025 RLTP target is to increase occupancy to 1.45.

Figure 9.3 is represented on a small scale this means that small changes to occupancy are noticeable but because the target is only 0.1 above the baseline the small scale is necessary to monitor this measure.



Source: Wellington CBD cordon survey 2016, WCC.

9.3 Progress made so far on this objective:

An efficient and optimised transport system that minimises the impact on the environment is an objective present in many of the projects that form the RLTP programme; the following projects are examples of this:

- Improving access and promoting public transport use through integrated ticketing, Metlink web site and park and ride spaces.
- Engaged with the bus industry to encourage the introduction of low emission buses, including diesel-electric hybrid buses.
- All Matangi 1 units have been upgraded and 28 out of 35 Matangi 2 cars are in service, these are all modern electric trains.
- The development of new air quality testing methods for monitoring transport related emissions in the region, monitoring began in July 2016.
- Facilitated a demonstration of a double decker urban bus and a short trial of a diesel-electric hybrid bus.

10 RLTP implementation

The RLTP implementation for 2015-2025 consists of the projects and activities that make up the Regional Programme. The progress of the RLTP implementation will be reported on to the Regional Transport Committee every 6 months by a separate reporting mechanism; The RLTP Progress report. The purpose of the half yearly report is to update the Committee on the current status and progress of significant projects and other projects of regional interest in the Regional Land Transport Plan 2015.

The RLTP progress reports can be located at the GWRC website or click to follow the link:

[RLTP progress report August 2016](#) - Report 16.348

[RLTP progress report December 2015](#) - Report 15.572

Glossary

AM	Morning peak period
AMR	Annual Monitoring Report
BERL	Business and Economic Research Limited
CARD	Communications and Resource Deployment system
CAS	Crash Analysis System
CBD	Central Business District
CO ₂	Carbon dioxide
FAR	Funding Assistance Rates
GPS	Government Policy Statement
GWRC	Greater Wellington Regional Council
IP	Inter Peak
Km	Kilometres
Kph	Kilometres per hour
Mins	Minutes
NITIS	National Integrated Ticketing Interoperability Standard
NLTP	National Land Transport Programme
NZTA	NZ Transport Agency; New Zealand Transport Agency
PM	Afternoon peak period
Police	New Zealand Police
RHS	Right hand side
RoNS	Roads of National Significance
RLTP	Regional Land Transport Plan
RTC	Regional Transport Committee
SH	State highway
TMIF	Transport Monitoring Indicator Framework
VKT	Vehicle kilometres travelled

The Greater Wellington Regional Council's purpose is to enrich life in the Wellington Region by building resilient, connected and prosperous communities, protecting and enhancing our natural assets, and inspiring pride in what makes us unique

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