

# 2014/15 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 (RLTP) 2015 by providing the policy framework for investment and development in the regions 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 beginning of the monitoring process for the RLTP adopted in April 2015. This report presents data and information on the 20 RLTP outcomes, each with at least one measure and target. In the Table 1.1 below each outcome and measure is listed. Progress so far is summarised (under Comment) and trends identified where data is available.

**Table 1-1 Summary of RLTP strategic objectives and outcomes**

Objectives	Outcome	Measure	Baseline	2025 target	Comment
<b>A high quality, reliable public transport network</b>	Increased public transport use	Annual public transport boardings per capita	72 boardings in 2013	Increase to at least 76 boardings	PT use was 72 to 73 trips per capita for the last five years, 73 per capita in 2015.
		Public transport mode share of journey-to-work trips (census)	16.6% in 2013	Increase to at least 17.8%	No update as this measure relies on census data.
		Public transport mode share of trips crossing Wellington City CBD cordon (AM peak)	33.1% in 2013	Increase to at least 34.7%	PT mode share has decreased from 33% to 31% in the last 2 years overall a downward trend in mode share
	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 as this measure relies on census data, PT services and address points.
		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 as this measure relies on census data, PT services and address points.
		Accessibility to public transport network for all users	2013 standards	Continual improvement	Additional 215 park & ride spaces at railway stations and 6 new bus shelters have improved accessibility this year.
	Improved quality of public transport	Public transport vehicle fleet emissions	2013 emissions 24 g/km <sup>3</sup>	At least a 50% reduction in emissions	No update available.
		Overall satisfaction with the Wellington region's public transport system (all modes) increases to 90%.	83% (2014 customer satisfaction survey)	At least 90%	In 2015 83% are satisfied with public transport service, no change.

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

Objectives	Outcome	Measure	Baseline	2025 target	Comment
	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	A new data series, initial travel time results are mixed for 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	A new data series but initial travel time result is positive.
		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	Although punctuality has dropped by 2 percentage points in 2014 the 5 year trend shows improvement in service.
<b>A reliable &amp; effective strategic road network</b>	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	No new data available
	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	No new data available
<b>An effective network for the movement of freight</b>	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.
<b>A safer system for all users of our regional road network</b>	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	177 Killed & seriously injured in 2014 (5 year average), a downward trend for this safety measure.
		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 997 in 2014 (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	53 pedestrians/cyclists killed or seriously injured in 2014, 5 year trend shows decline in number killed or seriously injured.
<b>An increasingly resilient transport network</b>	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	No new information available - Update 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.	Existing emergency plan estimates (2014)	Continuous reduction in number of days to reopen the transport network	A number of planned infrastructure developments will eventually reduce the recovery time.

Objectives	Outcome	Measure	Baseline	2025 target	Comment
<b>An increasingly resilient transport network</b>	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%	No new information available
<b>A well planned, connected and integrated transport network</b>	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 data, PT services and address points.
	Improved integration between transport modes	Number of secure cycle parking spaces at railway stations	100% increase in cycle parking spaces 2009-13	Increase by 50%	Long term trend showing consistent increases in the number of cycle parking spaces (336 in 2015)
<b>An attractive and safe walking and cycling network</b>	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 new data available as this measure relies on census data.
		Proportion of journey to work trips by bike	2.9% in 2013	4.6% of journey to work	No new data available as this measure relies on census data.
		Proportion of urban trips by walking	Walking 18.4% in 2013	20.1% of trips crossing the CBD cordon	5 year trend shows an increasing mode share, 2015 result for mode share was 17.2% which is less than previous 2 years.
		Proportion of urban trips by bike	2.6% in 2013	4.6% of trips crossing Wellington CBD cordon	Mode share of cycle trips has increased from 2.1% to 2.8% in last five years.
	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.	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 last five years.
<b>An efficient and optimised transport system that minimises the impact on the environment</b>	Reduced harmful emissions from transport	Transport generated emissions (per capita)	Previous trend:13% reduction in per capita CO <sub>2</sub> emissions from 2005-2013	15% reduction in annual per capita CO <sub>2</sub> emissions	CO <sub>2</sub> emissions are 2.2 tonnes per capita, a downward trend since 2010 but in the last 3 years no change.
		Transport generated emissions (absolute)	Previous trend: 7% reduction in CO <sub>2</sub> from 2005-2013	10% reduction in total annual CO <sub>2</sub> emissions	Trend shows reductions overall but emissions have increased in the last two years by 2%.
		Concentrations of harmful transport-generated pollutants	5 year rolling average for NO <sub>2</sub> 23.5 µg/m <sup>3</sup> (for Wellington central only)	A reduction in the average concentration of harmful transport emissions	NO <sub>2</sub> monitoring is underway but this is a new data series – no apparent trends at this time.
	Increased private vehicle occupancy	Peak period private vehicle occupancy	1.39 people per vehicle	Gradual increase in private vehicle occupancy to 1.45	5 year trend indicates slight upward movement in vehicle occupancy, 1.39 in 2015.

## Highlights of 2014/15

A number of major projects and milestones occurred during the 2014/15 year:

### Strategy

- Adoption of the Wellington Regional Land Transport Plan 2015. The plan provides a new integrated policy framework that provides a 30 year outlook and brings together a series of previous strategies and corridor plans in an innovative business case approach. It also sets out all the land transport activities in the Wellington region (proposed for funding) over a six year period
- Completion of the Bus Rapid Transit 'Indicative Business Case'. The Indicative Business Case (IBC) is a step in the business case process to support proposed investment in Bus Rapid Transit in Wellington City. The IBC identified and assessed a short list of options and confirmed the preferred option(s) to take forward to the next stage – a Detailed Business Case

### Public transport

#### *Rail*

- Highest ever annual rail patronage of 12.1 million trips
- Average week day patronage (at peak times) up 4% on the prior year at 31,800, with a five year high of 35,000 passengers in March
- Highest monthly recorded Mean Distance Between Failures (MDBF) of 70,000kms reached in early 2015 for the Matangi fleet (the higher the distance, the more reliable the fleet is)
- Continued construction of the second tranche of 35 two-car Matangi 2 trains and Software and hardware retrofit upgrades for the Matangi 1 fleet largely completed
- Infrastructure: EMU depot reconstitution completed and fully operational, the replacement of the Upper Hutt railway station is underway and work on the pedestrian bridges at Trentham and Woburn are complete
- Installation of information totems at Waikanae, Paraparaumu and Silverstream rail stations
- Park & Ride: additional carparks at Tawa, Takapu Rd, Raroa, Petone and Plimmerton and more planned at Paraparaumu and Waikanae
- The rail request for tender and performance-based partnering contract process is underway
- Stage one of the traction project (Muri to Redwood) on the Kapiti Line was completed in April 2015

#### *Bus*

- Hutt Valley Public Transport Review completed
- Next steps towards the introduction of a Bus Rapid Transit system for Wellington city completed via the development of an Indicative Business Case
- Bus improvements included installation of 6 new bus shelters and 10 replacement bus shelters, roading and kerbing renewal at the bus/rail interchange in Porirua completed, continued roll-out of new information totems across the region (10 in total)

- Safety improvements on the trolley bus overhead network from the installation of a new electrical fault protection system
- Completion of the upgrade of the Bunny Street bus interchange in Hutt city

#### **PT Customer Information**

- Improved and more resilient Metlink website
- New IOS phone app showing real time information
- Improved timetables and publications

#### **Travel demand management, walking and cycling**

- 78 schools active in the school travel plan programme in the Wellington region
- Pedal ready cycle skills training delivered to over 4000 school students
- 22% increase in number of people cycling into the Wellington CBD<sup>1</sup>
- Let's Carpool operating in 8 regions nationally

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<sup>1</sup> Wellington City CBD cordon survey 2015



# 1 Introduction

The aim of the Annual Monitoring Report 2014/15 (AMR) is to report on the progress of the performance measures and targets identified in the Regional Land Transport Plan (RLTP) 2015<sup>2</sup>.

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.

This AMR report represents the beginning of the monitoring process for the RLTP adopted in April 2015. 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. In order to deliver 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. Table 1-1 on the following page lists the eight strategic objectives and the corresponding outcomes.

Within each section is a table which includes the strategic outcomes, measures and targets, how the outcome is progressing at this time and summary comments about 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.

Progress is colour coded in the table using the following:

- green (there has been improvement to the measure)
- yellow (a neutral trend)
- red (the trend is getting worse)
- brown (a new data series or no information available at this time)

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<sup>2</sup> 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.

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 papers<sup>3</sup>, this report will focus on those outcomes and corresponding measures where new data or information for the 2014/15 period is now available. To provide a connection between objectives, outcomes and transport related projects; at the end of each chapter is a section called ‘The progress made 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 objectives and outcomes.

**Table 1-1 RLTP 2015 Strategic objectives & outcomes**

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

<sup>3</sup> 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/>

## 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 in 2013	Increase to at least 76 boardings		PT use is unchanged at 72 to 73 trips per capita for 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 as this measure relies on census data.
	Public transport mode share of trips crossing Wellington City CBD cordon (AM peak)	33.1% in 2013	Increase to at least 34.7%		PT mode share has decreased from 33% to 31% in the last 2 years overall a downward trend in mode share.
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 as this measure relies on census address points & service routes.
	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 as this measure relies on census address points & service routes.
	Accessibility to public transport network for all users	2013 standards <sup>4</sup>	Continual improvement		Additional 215 park & ride spaces at railway stations and 6 new bus shelters have improved accessibility this year.
Improved quality of public transport	Public transport vehicle fleet emissions	2013 emissions 24 g/km <sup>3</sup>	At least a 50% reduction in emissions		No update available.
	Overall satisfaction with the Wellington region's public transport system (all modes) increases to 90%.	83% (2014 customer satisfaction survey)	At least 90%		In 2015 83% 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		A new data series, initial travel time results are mixed for 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		A new data series but initial travel time result is positive.
	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		Although punctuality has dropped by 2 percentage points in 2014 the overall trend shows improvement.

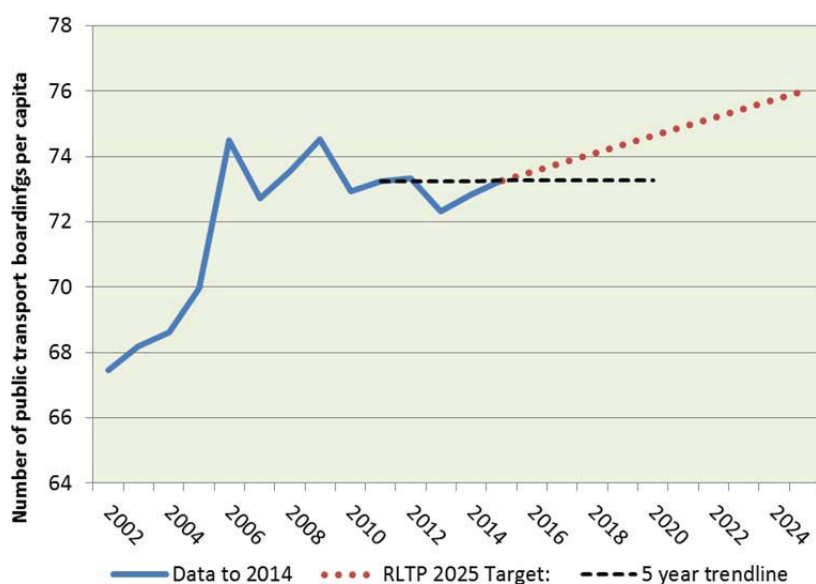
<sup>4</sup> 2013 standards of vehicle infrastructure parking and facilities as captured by the RPTP and the Rail asset management plan

## 2.1 Increased public transport use

The Wellington region has a high quality, well used public transport network of bus, train and harbour ferries. Wellington residents are high users of public transport and Wellington has New Zealand's highest number of public transport boardings per person per year.

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 2014, there were 72.9 public boardings per capita which represents minor change 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**



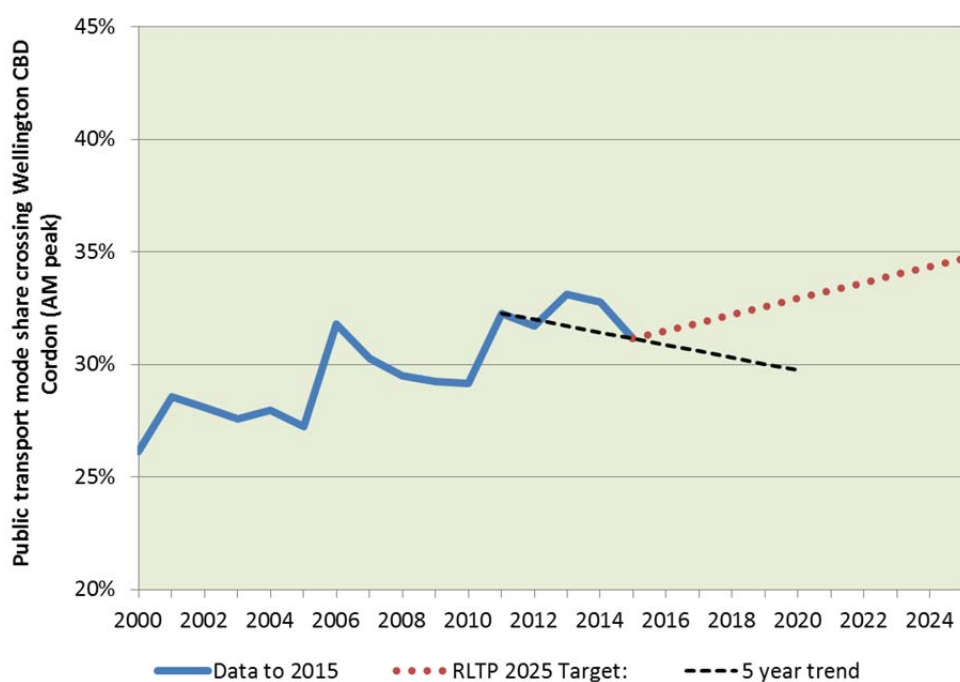
Source: Metlink, GWRC

In March GWRC runs an annual survey that counts people entering the CBD by public transport during morning peak. 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 2015 the mode share for public transport is 31% which is slightly below the 2013 peak of 33% due in part to a drop in bus patronage. The 2025 RLTP target is a PT mode share of 34.7%.

The steep increases in public transport use seen in the early years may be partly explained by residential growth in Wellington's inner suburbs and continued parking constraints in the Wellington City CBD. 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. One key element of accessibility is the provision of information, facilities, infrastructure and services. There are a number of examples of improvements to infrastructure and facilities completed in the last year and for the future, please see section 2.5.

Improving customer information is a key component of public transport accessibility. The focus this year has been on improving timetables, publications and on-line channels such as the Metlink website. A new Metlink app and widget were downloaded successfully to iPhones and Android phones over the year. Work is underway to develop an updated version with more features specific to the user's location and showing vehicle tracking on an interactive map in real time.

## 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 emissions and overall satisfaction with the region's public transport system. The indicators are shown in the figures for each measure.

The outcome concerned with reducing fleet emissions over the next ten years aims to measure the bus fleet emissions as the fleet transitions from old to next generation vehicles. GWRC is investigating a reliable mechanism that will accurately measure emissions as the composition of the fleet changes over time.

The second measure designed to recognise public transport quality is customer satisfaction. The Metlink annual customer satisfaction survey asks passengers to rate overall satisfaction with the

region’s public transport network. This covers fleet, facilities, on-time performance and customer service. The Metlink survey found that 83% of customers were generally satisfied with the public transport service, this is the same result achieved in the 2014 survey<sup>5</sup>. The RLTP target for this outcome is to achieve at least 90% overall satisfaction with the public transport for the region.

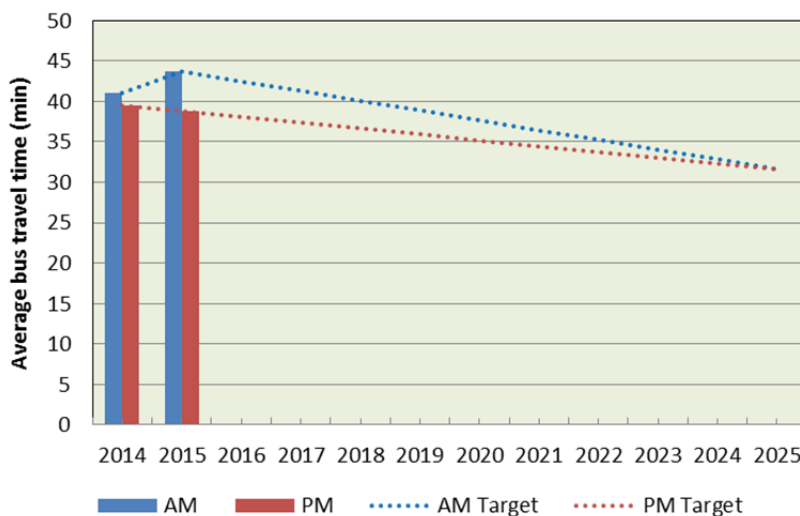
## 2.4 Improved public transport reliability and journey times

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 hours<sup>6</sup>.

Figure 2-3 shows results for bus travel time on core routes during peak AM and PM hours. Since 2014 this data collection has used electronic data and is a substantial change to reporting from previous years. Early indications show an increase in AM peak travel times and a decrease in PM peak travel times. The RLTP target is for continuous improvement in travel times to 2025.

Figure 2-3 Peak average bus travel times on core routes & RLTP target



Source: GWRC

The second measure for this outcome examines average lateness to represent variability of bus times on core routes. Comparing results from 2014 and 2015 show a decrease in variability in

<sup>5</sup> The Metlink survey has undergone changes to the methodology, so earlier survey results on customer satisfaction are not compatible with surveys for 2014 onwards.

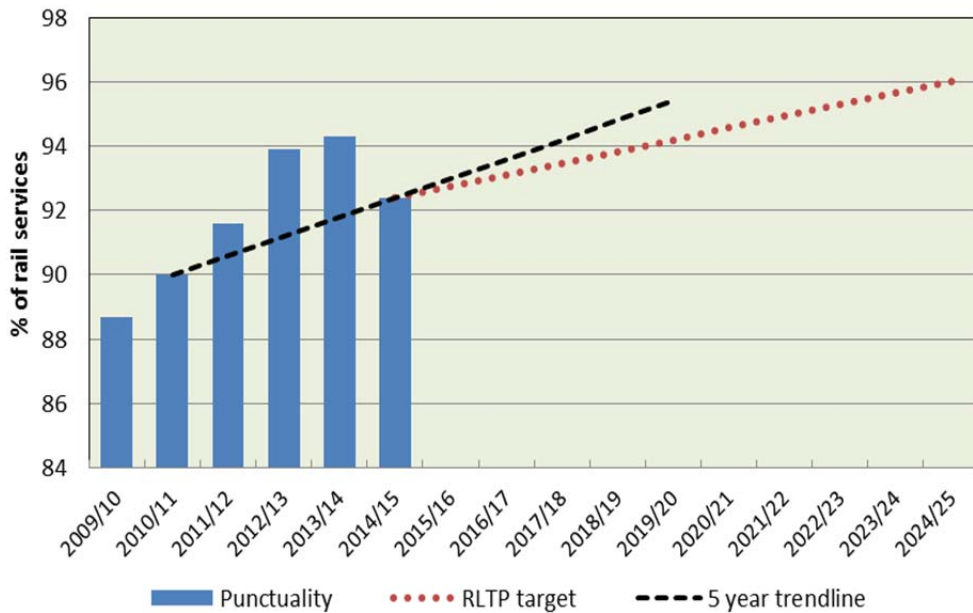
<sup>6</sup> The Core bus routes used to measure travel time & lateness are routes: 1,3,11,110,120 and 130

morning peak from 3.8 minutes to 3.5 minutes and a decrease from 3.2 minutes to 2.8 minutes in the afternoon peak.

Figure 2-4 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 2014/15 92.4% of rail services<sup>7</sup> arrived or departed Wellington Railway Station within five minutes of scheduled time. Punctuality increased for rail services between 2011 and 2015 by 3% 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 2-4 Percentage of rail services arriving or departed on time (2009-2015)**



Source: GWRC

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

<sup>7</sup> Differences between actual and scheduled arrival and departure times are averaged across the financial year to calculate punctuality.

## 2.5 The progress made on this objective?

Public transport patronage is forecast to increase as a result of ongoing investment in the rail network, integrated ticketing, the proposed Bus Rapid Transit (BRT) network, and other additional bus priority measures.

An ongoing programme of railway station renewal and development will ensure that station facilities increasingly contribute to a better overall journey experience for people using the rail network. Medium term priorities include a third platform at Porirua and station improvements at Waterloo and Upper Hutt stations.

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 Tawa, Takapu Rd, Raroa, Petone and Plimmerton. Land has been secured for future development at Paraparaumu and Waikanae (together adding about 380 spaces); this is to address two of the more critical Park & Ride capacity shortages 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 ongoing programme of bus stop asset renewals and developments will ensure that bus stop facilities increasingly contribute to a better overall journey experience for people using the Metlink public transport network.

Improvements already complete include changes to the bus interchange area in Hutt City CBD, improvements to bus facilities in Porirua, and Upper Hutt Station. The installation of 6 new bus shelters and 10 replacement bus shelters in the region, roading and kerbing renewal at the bus/rail interchange in Porirua have been completed. Improvements to journey travel times are planned through the optimisation of the spacing between bus stops; how bus stops are laid out; and the location of bus stops.

Greater Wellington Regional Council (GWRC) is in the process of procuring new partnering contracts for Wellington's train, bus and harbour ferry services. With the new contracts, GWRC aims to deliver a high quality service to customers that encourage customers out of cars and onto public transport, especially in peak times. Customers will have access to easy to use transport services that have consistent branding and information for the region's bus, train and harbour ferry services. The system will be developed and piloted and roll out is planned for 2017.



### 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		No new data available
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		No new data available

#### 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.

Due to changes in the way travel time traffic speed is monitored by NZTA there is no data update for these two indicators. 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.

#### 3.2 The progress made on this objective?

Congestion on strategic routes in Wellington will be addressed by a range of projects. Examples of these projects are:

- Improving the regions connection to the north through implementation of Wellington roads of national significance (RoNS) e.g. Transmission Gully and SH1 Mackays to Peka Peka expressway.
- Providing better east-west connections within the region e.g. the future Petone to Grenada link road.

## 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 Increased proportion of freight moved by rail

The regions freight network consist 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. 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.

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 therefore an update on this measure is due in 2018.

### 4.2 The progress made 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. The future Petone to Grenada link road will improve travel speeds and improve reliability within the region for freight traffic.

## 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		177 Killed & seriously injured in 2014 (5 year average), a downward trend in the number killed or seriously injured.
	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 997 in 2014 (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		53 pedestrians/cyclists killed or seriously injured in 2014 <sup>8</sup> , 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 fatal<sup>9</sup> and serious<sup>10</sup> 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.

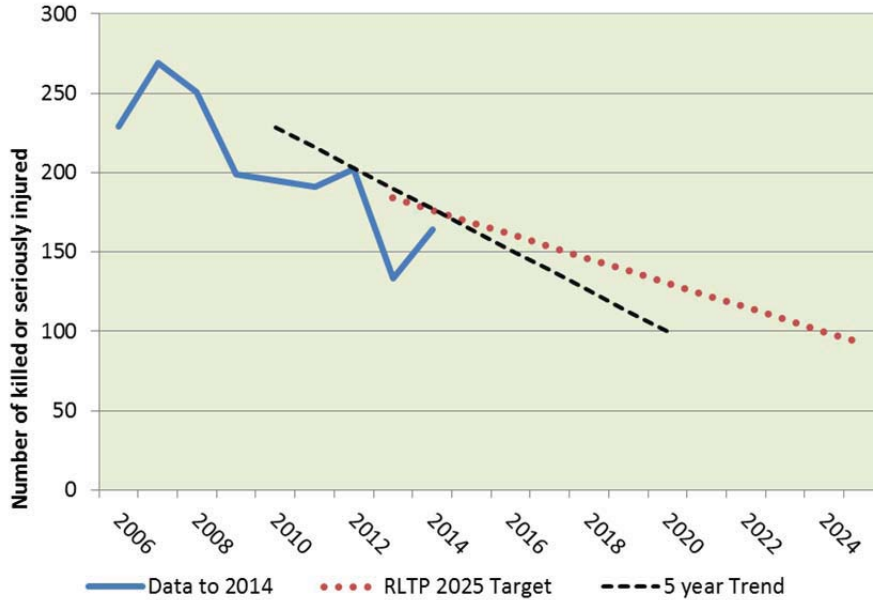
<sup>8</sup> 2014 total calculated using five year rolling average, actual total is 45 killed or injured for 2014

<sup>9</sup> Injuries that result in death within 30 days of a crash

<sup>10</sup> 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 2014 the number of people seriously injured on the regions roads (164) was below the five year average of 177. In 2014 there were 12 fatal and 152 reported serious injury casualties. The number of fatal casualties has increased from 10 to 12 (from 2010 to 2014). Over the same period the number of reported serious injury casualties has decreased from 185 in 2010 down to 152 in 2014 (a 18% drop). The five year rolling average trend-line shows declining numbers killed or seriously injured as both car ownership and usage within the region 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 2014 and RLTP targets to 2025. The total casualties for 2014 are 868 this consists of 12 fatal, 152 serious and 704 minor casualties. For the last two years total casualties 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

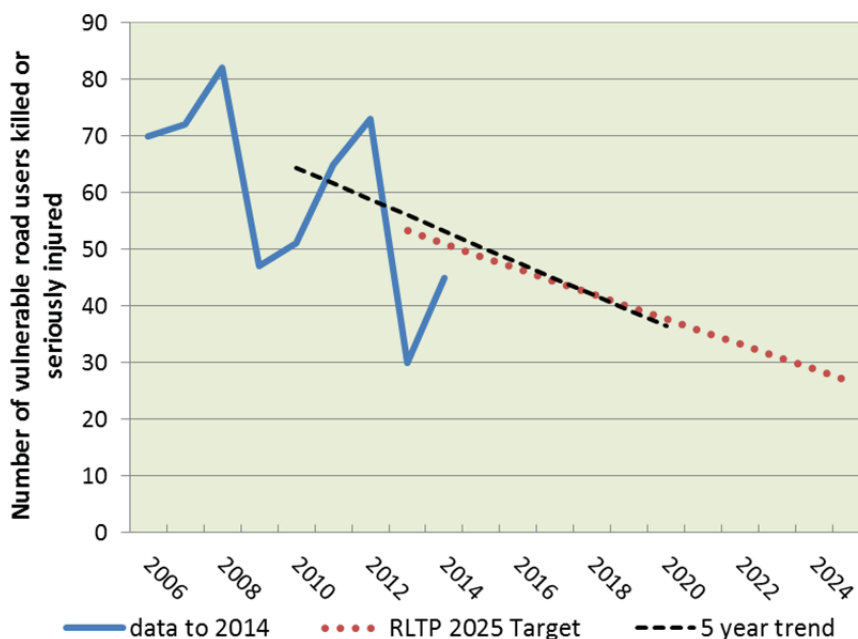
There is a general downward trend in casualties since 2007 and this is attributed to continued coordinated road safety efforts including targeting accident blackspots, safety infrastructure improvements, road safety educational programmes and campaigns, and improved vehicle safety standards.

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

This measure assesses the safety of the roading 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 and some variability in the number of casualties between 2008 and 2014. In 2014, the number killed or seriously injured was 46, which was below the five year rolling average of 53. 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, led by Wellington City Council, 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 roading network.

The performance measures for this objective on road safety show that the regions 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 The progress made on this objective?

Targeted infrastructure safety improvements across the region include the following:

- Safety works to improve three out-of-context curves on SH58 on the Haywards Hill with corridor safety treatments including; roadside guardrails, delineation improvements, median wire rope barriers and seal widening.
- The Rimutaka safety Programme is seeking to improve both the safety and alignment of the route. Including projects to include curve re-alignments and additional guardrails on both sides of the Hill.

Road safety educational promotions and campaigns are implemented at both national and regional level. Examples of regional initiatives on road safety include:

- Mind the gap campaign – educating road users on safe distances for passing cyclists
- See the Person Share the Road campaign – a regional version of the national campaign by NZTA
- RIDE – a new motorcycle safety brand to raise awareness of high and low risk routes for motorcyclists in the region.

## 6 An increasingly resilient transport network

### What is the latest on this objective?

This section discusses outcomes concerned with the resilience of the road 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		No new information available - Update 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.	Existing emergency plan estimates (2014)	Continuous reduction in number of days to reopen the transport network		A number of planned infrastructure developments will eventually 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%		No new information available

### 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 regions 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 makes 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 identify alternative access points. One measure that addresses the importance of access in an event is the estimated time to reopen key supply lines and road connections to and within the region. The estimated times for access to key Wellington areas are shown below in Table 6-1 below.

**Table 6-1 Estimated access times to Wellington areas**

Into	Mode	Time
Wellington CBD	Sea	4-5 days
	Road	120 days
Western Wellington	Barge (via Porirua)	5-7 days
	Road connection to Porirua and Tawa	3 weeks
Porirua	Barge	5-7 days
	Road connection to the Wellington CBD area	3 weeks
Lower Hutt	Barge	5-7 days
	Road connection to the Wellington CBD area	8-10 weeks
Upper Hutt	Road connection to Lower Hutt	3 days to 2 weeks
Kapiti	Road connection to the Upper North Island	1-4 days

Source: Wellington Lifelines Group/WREMO<sup>11</sup>: Restoring Wellington transport links after a major earthquake-Initial project report, 2013

The estimated access times in Table 6-1 above were developed using the scenario of a major earthquake following the analysis of transport access into and around Wellington region (metropolitan areas). Major areas in our transport network which are vulnerable to disruption have been identified and long term strategies implemented to reduce this vulnerability.

The table shows the estimated time to set up the alternative access routes so that water, food and material supplies can flow into the region. Barges will initially bring these supplies in and it is estimated this will take up to a week in most areas to obtain access. The region will be isolated by normal road access for at least 120 days. This is due to likely landslips on state highway routes. Access within the region will also be fragmented due to landslips.

## 6.2 The progress made on this objective?

Ongoing preventative maintenance and seismic strengthening of the transport network and infrastructure is important to 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.

Regional restoration planning continues and Wellington Lifelines Group (WeLG) are developing restoration times based on a major tsunami event for the region with a project report due out later this year.

<sup>11</sup> The Wellington Region Emergency Management Office (WREMO), co-ordinates the Civil Defence and Emergency Management services on behalf of the nine councils in the Wellington region.



GWRC is jointly developing a business case with NZTA on 'Regional Transport Resilience'. GWRC officers have worked closely with NZTA to ensure a broad scope that takes a wide view of resilience, considering all modes and transport corridors. The project is progressing under a joint management arrangement. The intention is that within the next two years this business case will be influencing the future transport resilience of the region.

The initial step is developing a regional transport risk register and agreeing this with councils in the region and NZTA. Having agreed where and what the transport resilience issues are, the aim is to develop, agree and apply a prioritisation methodology to the regional transport risk register such that the prioritised list can then be used to influence future transport projects within the region as part of the Regional Land Transport Plan programme 2018 to 2021 and beyond.

## 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 <sup>12</sup> cycle parking spaces at railway stations	Previous trend: 100% increase in cycle parking spaces 2009-13	Increase by 50%		Long term trend showing consistent increases in the number of cycle parking spaces.

### 7.1 Improved integration between transport modes

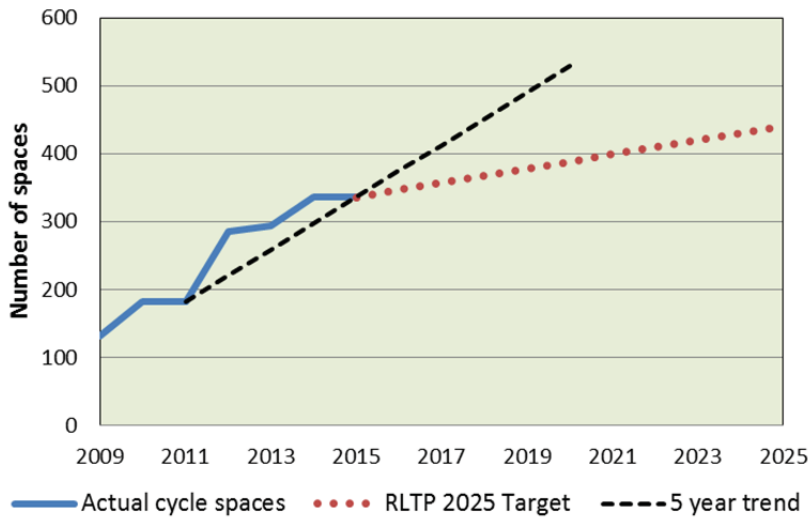
Over the last 8 years the number of dedicated cycle parking stands on railway station platforms and station forecourts across the region has increased by around 100%. This is both a response to the increasing popularity of cycling and a result of trying to encourage more people to cycle to and from the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

Figure 7-1 shows the 5 year trend and targets for cycle parking facilities at railway stations. In 2015 there were a total of 336 cycle storage spaces available to commuters at railway stations across the region. Cycle storage spaces at railway stations have increased steadily up to 2014 with cycle facilities showing an increase at most stations across the region.

<sup>12</sup> 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 The progress made 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.

The Integrated Fares and Ticketing project will also contribute to this objective over the next few years. This will occur through more integrated fares as well as the introduction of a new region-wide ticketing solution that is compatible across all three modes of public transport (rail, bus & ferry).

In addition the Wellington city bus review will also contribute, as changes are made to the bus network and infrastructure due to be rolled out in 2018.

What will the new network deliver?<sup>13</sup>

- Access (within 1km), to a high-frequency route for more people: up from 45% to 75%.
- More frequent off-peak services in 15 suburbs
- New weekend services in 10 suburbs
- Services running later in the evening in 10 suburbs
- Reduced service duplication
- An easier-to-understand network reducing routes from 42 to 34
- Less CBD bus congestion, with fewer buses travelling through the Golden Mile.

<sup>13</sup> New Wellington City bus network at web address: <http://www.gw.govt.nz/buses/>

## 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 new data available as this measure relies on census data.
	Proportion of journey to work trips by bike	2.9% in 2013	4.6% of journey to work		No new data available as this measure relies on census data.
	Proportion of urban trips by walking	Walking 18.4% in 2013	20.1% of trips crossing the CBD cordon		5 year trend shows increase in mode share, 2015 result was 17.2% which is less than previous 2 years.
	Proportion of urban trips by bike	2.6% in 2013	4.6% of trips crossing Wellington CBD cordon		Mode share of cycle trips has increased from 2.1% to 2.8% in last five years.
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 last five years.

### 8.1 Increased mode share for pedestrians and cyclists

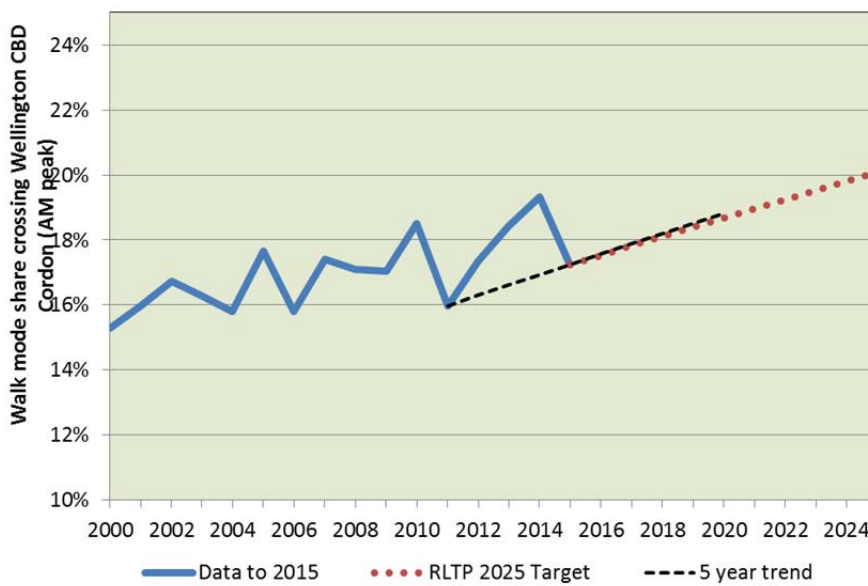
From a transport network perspective walking and cycling are the most efficient mode choice for short trips. Both modes integrate well with other modes such as public transport and are essential for connecting modes for trips into work or study.

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 2015, 17% 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.

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 2001 and 2015 increased from 18% to 20%.

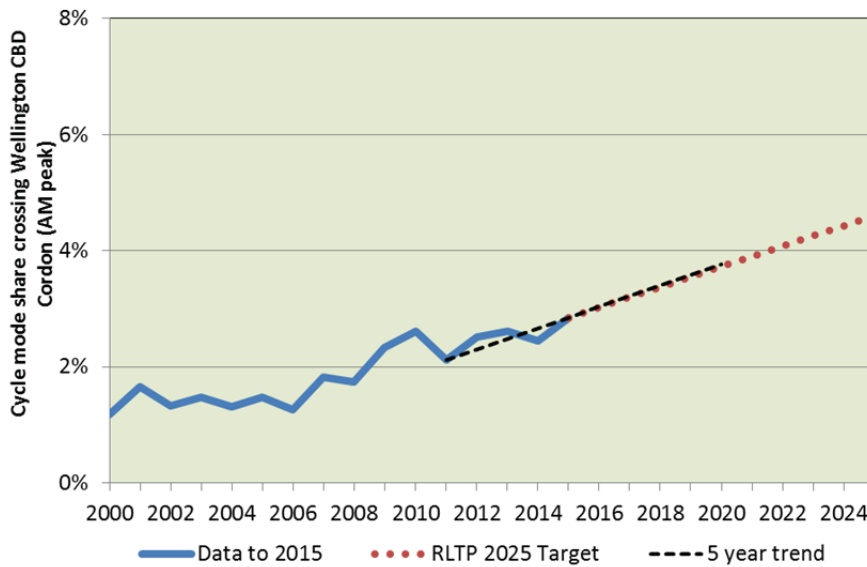
**Figure 8-1 Pedestrian crossing the CBD cordon (2000-2015) and RLTP target**



Source: Wellington CBD cordon survey 2015, WCC

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 23% in the last five years. From 2010 to 2015, the mode share of trips crossing the CBD cordon for cyclists has increased from 2.1% to 2.8% and the five year trend-line confirms this upward direction in mode share. 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



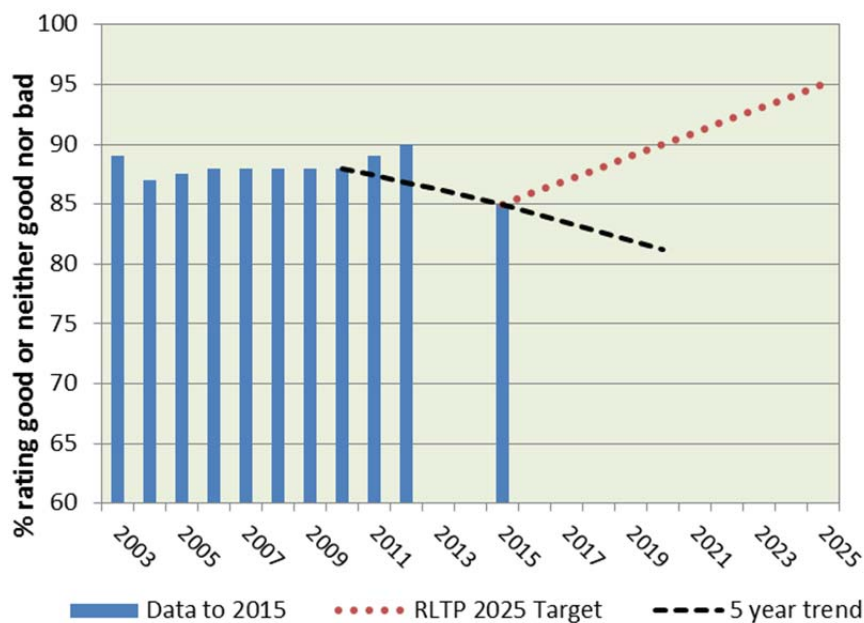
Source: Wellington CBD Cordon Survey 2015, WCC

## 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’.

Figure 8-3 below shows that the percentage of respondents who rated the level of service for pedestrians as good. The rating has 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%.

Figure 8-3 Perception of level of service for pedestrians and RLTP target (%)



Source: Transport perceptions survey (TPS) 2015, GWRC

Note: There was no TPS in 2013 & 2014.

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.

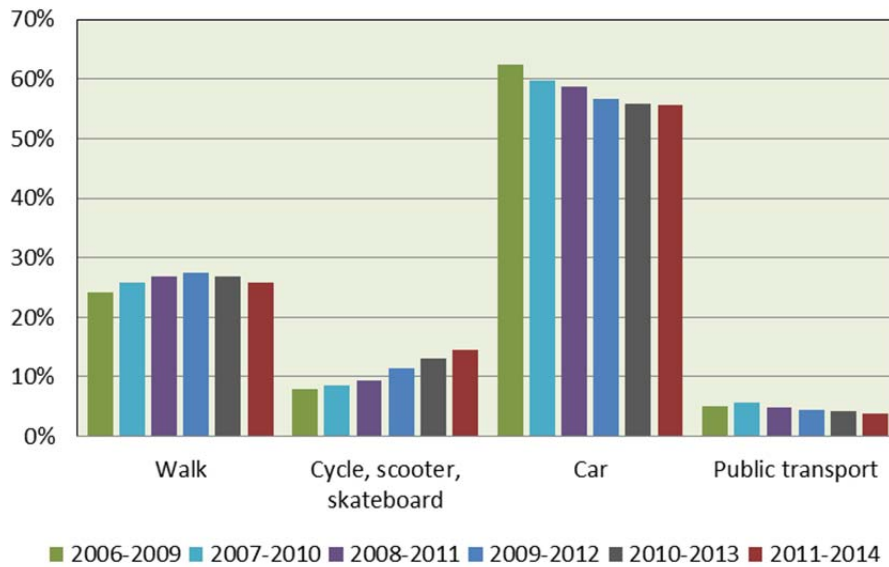
### 8.3 Increased use of active modes for journeys to school

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 2014, 74 schools (with 22,000 children) were included in the STP programme. Across the region, participation rates for school children varied from Kapiti (80% of children participated in the programme) to Upper Hutt (32%) and Porirua (9%). Across the region, approximately 25% of school children participated in the programme (2014).

Figure 8-4 shows that active modes have increased from 32% to 40% from 2009 to 2014, largely due to a big increase in the number of children cycling, skateboarding or scooting to school. The largest mode share is still by car 56%; this share has declined from 62% in 2009. Public transport mode share is 4%, down from a peak of 5% in 2010.

Figure 8-4 Mode share of journeys to school using a rolling 3 year average



## 8.4 The progress made 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.

Some of the key projects planned are:

- Continuing to improve and implement off-road and recreational walking and cycling facilities and tracks to provide alternative options for walking and cycling trips. These include progressing implementation of the Great Harbour Way and Upper Hutt Rail Corridor Cycle Link.
- New urban cycleway projects are planned or underway across the region for example: the Island bay cycleway in Wellington, the Hutt River trail (not new but to be sealed and widened) Upper Hutt, the Beltway in Lower Hutt, in Porirua the Onepoto-Wi Neera shared pathway and Stride n' ride on the Kapiti coast.
- Some of the cycle ways will connect across TA boundaries and link with existing cycle routes such as the Melling to CBD cycle way. These cycling networks will link residents to workplaces and educational facilities providing safer and more attractive journeys for cyclists.



## 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 <sub>2</sub> emissions from 2005-2013	15% reduction in annual per capita CO <sub>2</sub> emissions		CO <sub>2</sub> emissions are 2.2 tonnes per capita, a downward trend since 2010 but in the last 3 years no change.
	Transport generated emissions (absolute)	Previous trend: 7% reduction in CO <sub>2</sub> from 2005-2013	10% reduction in total annual CO <sub>2</sub> emissions		The 5 year trend shows small reductions overall but emissions have increased in the last two years by 2%.
	Concentrations of harmful transport-generated pollutants	5 year rolling average for NO <sub>2</sub> 23.5 µg/m <sup>3</sup> (for Wellington central only)	A reduction in the average concentration of harmful transport emissions		NO <sub>2</sub> monitoring is underway but this is a new data series – no apparent trends at this time.
Increased private vehicle occupancy	Peak period private vehicle occupancy	1.39 people per vehicle	Gradual increase in private vehicle occupancy to 1.45		5 year trend indicates slight upward movement in vehicle occupancy, 1.39 in 2015.

### 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. Despite these many variables it is likely the downward trend seen in recent years in per capita emissions will continue.

Across New Zealand, 16% of total annual greenhouse gas emissions were attributed to the transport sector in 2014<sup>14</sup>. Carbon dioxide (CO<sub>2</sub>) accounts for the bulk of transport-generated emissions and is therefore a suitable proxy for total transport-generated greenhouse gas

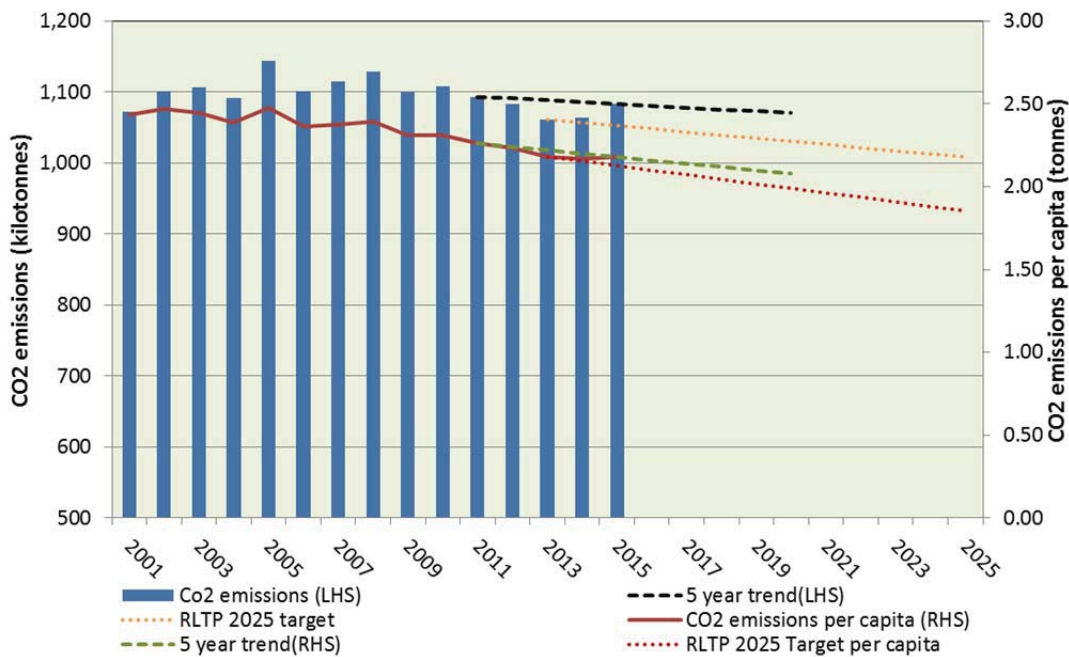
<sup>14</sup> Ministry for the Environment (2014). New Zealand Greenhouse Gas Inventory 1990-2012. MFE, Wellington, p. 37

emissions. This measure has been calculated from fuel consumption information<sup>15</sup>. The RLTP target is for 15% reduction in annual per capita CO<sub>2</sub> emissions by 2025.

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 CO<sub>2</sub> emissions. These are CO<sub>2</sub> per Kilotonnes (LHS) and CO<sub>2</sub> emissions per capita (RHS). CO<sub>2</sub> per Kilotonnes (shown as blue bars below) have increased since 2012. The five year trend-line (black line) for emissions per kilotonnes shows the level of CO<sub>2</sub> emissions have been decreasing overall since 2011 but only marginally, a 1% decline from 2011 to 2015. The CO<sub>2</sub> emissions per capita trend-line has a similar slight downward trend. In 2015, CO<sub>2</sub> emissions were 1,083 kilotonnes and 2.2 tonnes per capita.

Figure 9-1 Transport generated CO<sub>2</sub> emissions per capita



Source: GWRC

Nitrogen dioxide is the only transport generated emissions pollutant which is currently monitored around the region to report on 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 sites<sup>16</sup> which cover state highways and local roads. The NO<sub>2</sub> data is measured using passive samplers<sup>17</sup> at chosen sites in all areas around the region

<sup>15</sup> 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 2.31 Kg/L of CO<sub>2</sub> per litre of petrol and 2.64 kg/L for diesel.

<sup>16</sup> Passive diffusion tubes

<sup>17</sup> 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 NO<sub>2</sub> concentrations identified by passive sampling techniques are only

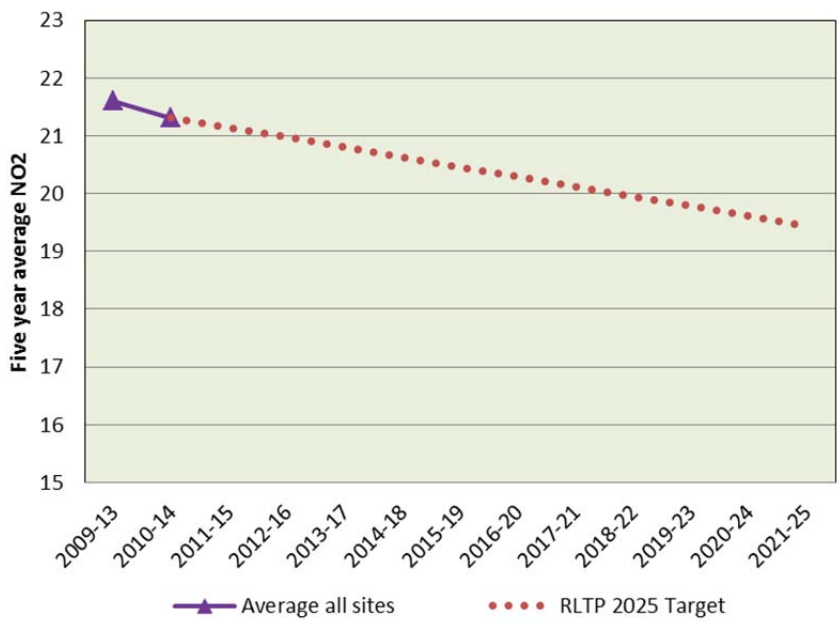
except the Wairarapa. There are only two years of data for this measure so it is too early to determine any trend.

In the future it is likely that the downward impact on fuel consumption from vehicle fleet efficiency improvements, including improvements to the bus fleet, will outweigh the impact on fuel consumption of population growth (generating additional vehicle trips) and any per capita increase in private car and freight VKT that might occur, resulting in a steady reduction in per capita CO<sub>2</sub> emissions and a similar reduction in absolute annual transport-generated CO<sub>2</sub> emissions.

The rate of reduction, however, will depend on several factors including growth in car VKT, modal shift from car to public transport, government policies and external factors such as the price of fuel.

One of the aims of this of this RLTP objective is to improve the reporting and monitoring framework to include the monitoring of pollutants CO, PM10 and PM25. Research is underway to develop a new improved indicator for future RLTP reporting.

**Figure 9-2 NO<sub>2</sub> monitoring using a five year average**



Source: NZTA

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.

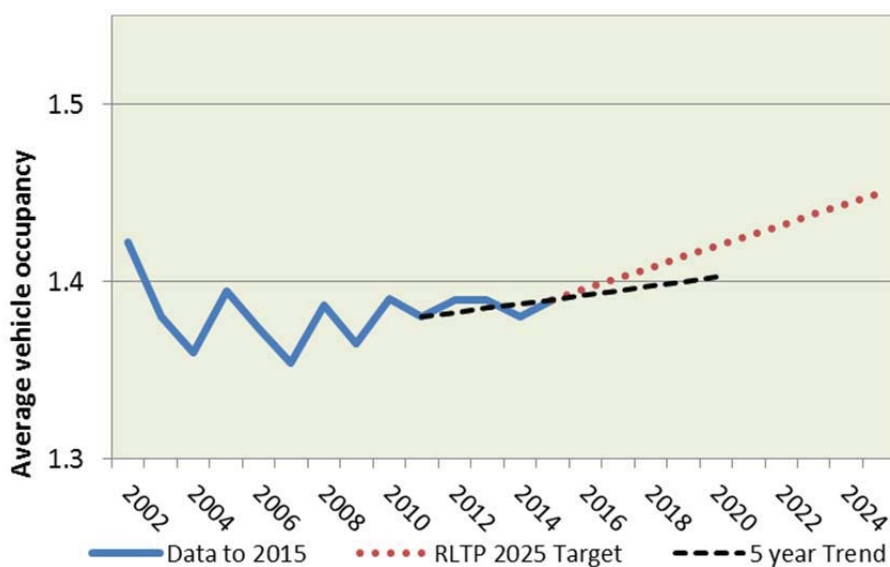
## 9.2 Increased private vehicle occupancy

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 roading 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 increasing. In 2015, vehicle occupancy was 1.39, the 2025 RLTP target is to increase occupancy to 1.45.

Figure 9-3 Average vehicle occupancy and RLTP target



Source: Wellington CBD cordon survey 2015, WCC.

## 9.3 The progress made 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 2015; the following projects are examples of this:

- Additional Matangi electric trains to replace the older fleet by the end of 2016.
- A phased introduction of the next generation buses within the next ten years e.g. hybrid and electric buses.
- The Wellington bus review.
- Promotion of travel options through lets Carpool and Active a2b programmes.
- Improving access and promoting public transport use through integrated ticketing, Metlink web site and park and ride spaces.

## **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.

## 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 <sub>2</sub>	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