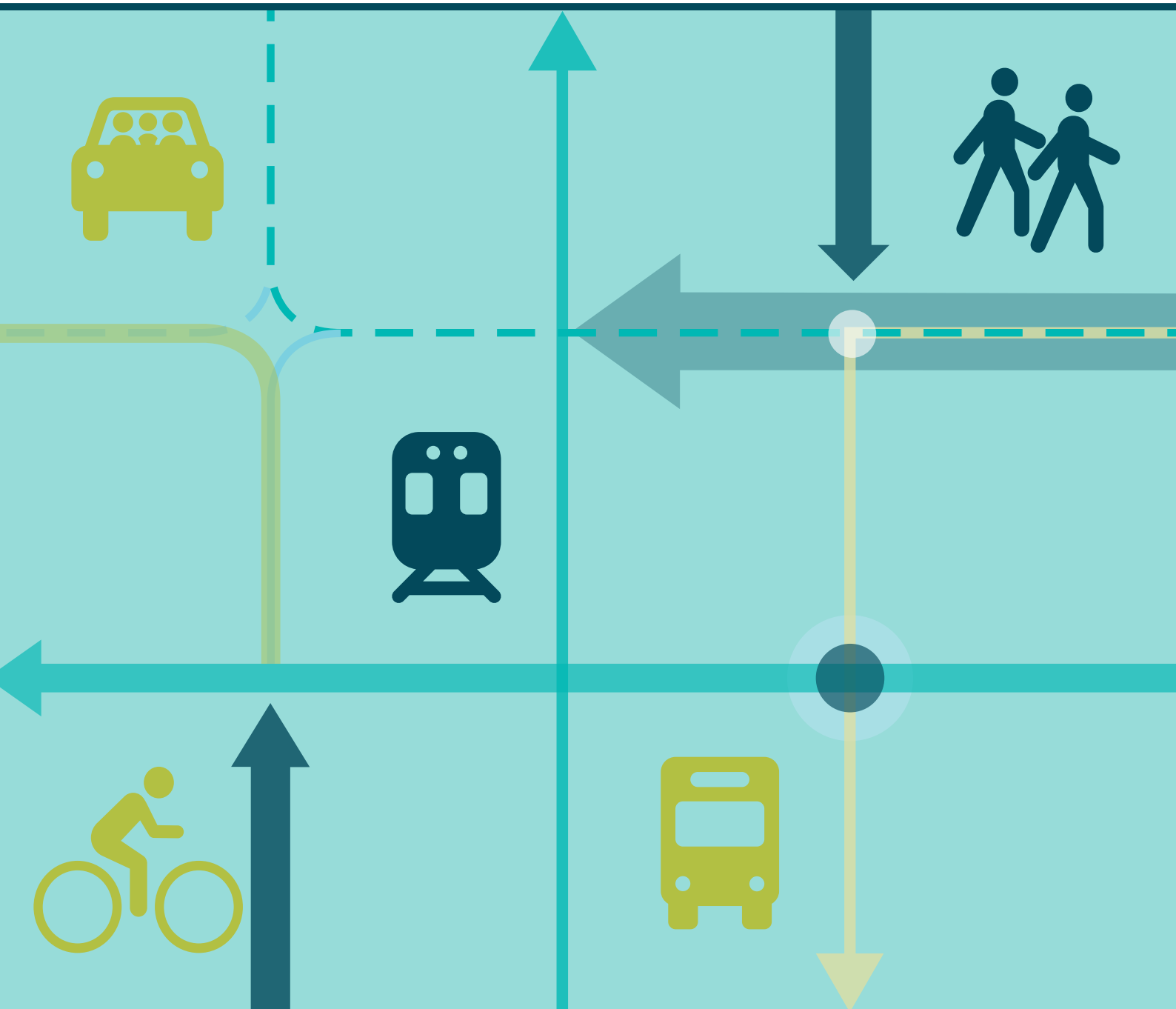
2019/20 ANNUAL MONITORING REPORT ON THE REGIONAL LAND TRANSPORT PLAN

OCTOBER 2020

Greater Wellington
Te Pane Matua Taiao



Executive Summary

The Wellington Regional Land Transport Plan (RLTP) sets out the strategic direction for the region's land transport network. It includes a policy framework comprising eight strategic objectives and 20 outcomes to guide land transport planning and investment for the region. The strategic objectives and outcomes in the RLTP have been developed in response to the major transport challenges and issues facing the region.

This Annual Monitoring Report (AMR) has been prepared to measure progress against the RLTP outcomes and associated targets. It covers the 2019/20 financial year and represents the sixth year of monitoring since the RLTP was adopted in April 2015. This is a full AMR and the last AMR for the 2015 RLTP which will be succeeded by a new RLTP in June 2021. Over the duration of the 2015 RLTP, seven measures reached their targets:

Three measures reached their RLTP target this year:

- ✓ Improved Public Transport (PT) accessibility to core services - At least 50% of the population living within 500 m **of a core bus stop** or 1 km of rail station
- ✓ Improved PT accessibility across the whole network - At least 88% of the population living within 500 m **of any bus stop** or 1 km of rail station
- ✓ Increase in public transport mode share from **2018** census results – The mode share of journey to work trips by PT is at least 18%

Over the course of the 2015 RLTP, another 4 measures reached their RLTP targets:

- ✓ Resilient transport network - Adoption of a regional risk register
- ✓ Improved PT reliability - At least 96% of rail services are punctual
- ✓ Improvement in the quality of PT- At least a 50% reduction in harmful[1] emissions from the bus fleet
- ✓ Effective network for freight – Travel time predictability for freight reached 95%

This year we are able to update five RLTP measures using the **2018 census** data. These indicators refer to accessibility to public transport and travel to work mode share (PT, walking and cycling). In section 2 of the report, data and commentary on regional results and travel to work analysis from the 2018 census results, this includes information by territorial authority (TA).

COVID-19 had an impact on data collection and indicator results for 2019/20, specifically the Wellington City Cordon survey (4 measures), public transport patronage and transport generated emissions. Where possible, we provide annual results and also commentary on how the measure was tracking pre-COVID.

On the next page, **Table 1** lists each outcome together with the RLTP 2025 target and 2013/14 baseline against which progress has been measured. The results for each measure for 2019/20 are shown (if available) and progress is indicated by colour and symbols according to short term or 5-year trend – defined in the legend on page 5.

[1] For this indicator harmful emissions refer to CO, HC, NO_X and PM_{10} emissions see page 11 for more information.

Table 1: Summary of RLTP measures for each strategic objective and outcome

Objective: A high quality, reliable public transport network

Outcome	Measure	2025 target	Baseline	2019/2020 results	Short term trend	5 year trend	Comment
Increased public transport use	Annual public transport boardings per capita	Increase to at least 76 boardings	72 boardings (2013)	73.5 per capita	↔	↑	Boardings per capita up to February 2020 (pre-Covid-19) to estimate annual result.
	Public transport mode share of journey-to-work trips (census)	Increase to at least 17.8%	17.3% (2013)	19.6%	✓	✓	2018 Census results show a 2 percentage point increase since 2013, RLTP target achieved
	Public transport mode share of trips crossing Wellington City CBD cordon (AM peak)	Increase to at least 34.7%	33.1% (2013)	34% (2019)	↔	↑	The 2020 Cordon survey results are unreliable due to impact of covid-19, however PT growth was tracking higher than car growth up to Feb 2020.
Improved public transport accessibility for all	Population living within 500m of a core bus service or 1km of a railway station (census)	Improvement toward at least 50%	41.6% (2013)	61.2%	✓	✓	2018 Census address data shows a 19% point increase in number of people close to PT services, this is mainly due to changes to high frequency bus routes in 2018, target achieved.
	Population living within 500m of any bus stop or 1km of a railway station.	Improvement toward at least 88%	87.6% (2013)	92.4%	✓	✓	2018 census data shows a 5 percentage point increase in number of people close proximity to PT, the RLTP target is achieved.
	Accessibility to public transport network for all users	Continual improvement in physical accessibility and standards of vehicles, parking and facilities.	A comprehensive range of bus and rail facilities for customers.	New mobility services	↑	↑	A range of work on bus and rail services has been implemented to improve customer accessibility.
Improved quality of public transport	Public transport vehicle fleet	At least a 50% reduction in harmful emissions (average 15 g/km per bus)	2014 emissions 29.6 g/km^3	11.9 g/km^3	✓	✓	The majority of the bus fleet are now low emission diesel buses. The RLTP target has been reached.
	Overall satisfaction with the Wellington region's public transport system (all modes)	At least 90%	83% (2014)	74% (2019)	↑	↓	November 2019 Survey shows increase in satisfaction. 2020 survey delayed due to Covid-19
Improved public transport reliability and journey times	Peak period public transport travel times on core routes	A continuous improvement on core routes	bus travel times: 41 min AM & 40 min PM (2014)	38.6 mins AM 35.5 mins PM	↔	↓	In short term there is no change at the AM peak travel times. Overall bus travel times gradually decrease over the last five years
	Peak period bus travel time variability on core routes	A continuous improvement in variability along core routes	Ave lateness: 3.8 minutes AM 3.2 minutes PM (2014)	2.9 mins AM 3.8 mins PM	↔	↔	No obvious trend for both am & pm variability in short or long term
	Rail service punctuality	At least 96% of services reach destination within 5 mins of timetabled time	88% (2017)	89%	↑		The punctuality rating for rail has increased this year. Short term trend is positive

Outcome	Measure	2025 target	Baseline	2019/20 results	Short term trend	5 year trend	Comment
Objective: A reliable & effective strategic road network							
Reduced severe road congestion	Rolling average peak period travel speeds on selected strategic routes	A 10% increase in 3 year rolling average travel speed (40 km/hr AM, 45 km/hr PM)	36 km/hr AM 41 km/hr PM (2016)	35 km/hr AM 39 km/hr PM (2019)	↔		No new data this year. Over the short term, average travel speed is unchanged for AM & PM.
Improved reliability of the strategic road network	Average peak travel time predictability on selected strategic routes	A 10% increase in the 3 year rolling average predictability (71% AM, 73% PM)	64% AM 66% PM (2016)	63% AM 64% PM (2019)	↔		No new data this year. Over the short term there is little change in travel time predictability.
Objective: An effective network for the movement of freight							
Improved freight efficiency	Rolling average all-day travel speeds on important regional freight routes	A 10% increase in average travel speed (68 km/hr inbound, 66 km/hr outbound)	62 km/hr inbound, 60 km/hr outbound	62 km/hr Inbound 61 km/hr Outbound (2019)	↔		No new data this year. Over the short term there is little change in travel time predictability.
	Average all-day travel time predictability on important regional freight routes	A 10% increase in travel time predictability (95% inbound, 93% outbound)	86% inbound 85% outbound (2016)	96% inbound 96% outbound (2019)	✓	✓	No new data this year. Target reached for inbound and outbound predictability in 2019.
Increased proportion of freight moved by rail	Percentage of long distance freight volumes moved by rail	An increasing proportion of freight moved by rail	4.8% of freight by rail (2012)	4.9% of freight by rail (2018)	↑	↑	Rail freight volumes moving in and out of the region have increased and proportion that is rail freight is up slightly (2018).
Objective: 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 (total below 92 seriously injured or killed)	183 killed or seriously injured people (2013)	208 DSI (2019)	↑	↑	Average serious casualties still high (5 year average) but 2019 annual DSI total has dropped.
	Total casualties on an annual basis against a 5-year rolling average (CAS data)	At least a 50% reduction in 5 year average (below 540 casualties)	1,080 casualties (2013)	1,115 casualties (2019)	↑	↑	A 7% increase in average casualties in the last year, this is due to an increase in minor injuries from 2018.
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)	At least a 50% reduction in 5 year average (below 28 killed or seriously injured)	53 killed or seriously injured (2013)	57 DSI (2019)	↑	↑	A 9% rise in fatal or seriously injured in the last five years. The rise is due to increase in accidents from 2017.

An increasingly resilient transport network							
Outcome	**Measure**	**2025 target**	**Baseline**	**2019/20 results**	**Short term trend**	**5 year trend**	**Comment**
Improved transport infrastructure resilience to disruption from unplanned events	Proportion of region covered by an adopted regional risk register	100% - risk register by 2017 and agreed prioritisation methodology by 2019	Project list	Up-to-date regional risk register produced	✓	✓	The risk register provides a list of regional network priorities. Target achieved in 2018.
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)	-	↓	↓	Transport network projects that are planned or under construction will help to 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	100%	Existing regional restoration emergency plans(2014)	Group plan and emergency plan finalised	↑	↑	Progress is ongoing on emergency and recovery planning for the region.
Objective: 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%	87.6% in 2013	92.4%	✓	✓	2018 census data shows an increase in people in close proximity to public transport services, the result exceeds the RLTP target.
Improved integration between transport modes	Number of secure cycle parking spaces at railway stations.	Increase by 50% (441 cycle spaces)	294 cycles spaces (2013)	433 cycle spaces	↑	↑	48 new cycle parking spaces this year.
Objective: 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	12.1% in 2013	11.4%	↔	↑	2018 census result is slightly below 2013 for walking mode share, partly a result of a significant increase in PT. Wording of JTW mode question was changed in 2018 so results treated with caution.
	Proportion of journey to work trips by bike	4.6% of journey to work	3.1% in 2013	2.7%	↔	↑	Some fluctuation in census results over the last four years for cycling mode share. Wording of JTW mode question was changed in 2018 so results treated with caution.
	Proportion of urban trips by walking	20.1% of trips crossing the CBD cordon	18.4% in 2013	16.7% (2019)	↔	↔	Cordon survey results are unreliable in 2020 due to impact of covid-19 on commuter trips.
	Proportion of urban trips by bike	4.6% of trips crossing Wellington CBD cordon	2.6% in 2013	2.7% (2019)	↔	↔	Cordon survey results are unreliable in 2020 due to impact of covid-19 on commuter trips.
Improved level of service for pedestrians and cyclists	Perception of level of service for cyclists and pedestrians	95% and 60% level of service (walking & cycling)	Walking 90% Cycling 50% (2013)	Walking 82% Cycling 52% (2019)	↔	↔	The perceived level of service for cyclists has increased in short term and decreased for pedestrians.
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.	Continually increasing use of active modes	27% walking, 13% cycle, scooter or skateboard (2013).	2014 results: 26% walking 14.5% cycle or scooter	↔	↔	The online reporting tool for schools to record student travel is in development.

Objective: An efficient and optimised transport system that minimises the impact on the environment							
Outcome	**Measure**	**2025 target**	**Baseline**	**2019/20 data**	**Short term trend**	**5 year trend**	**Comment**
Reduced harmful emissions from transport	Transport generated emissions (per capita)	15% reduction in annual per capita CO_2 emissions (1.86 tonnes per capita)	2.18 tonnes per capita (2013)	2.09 tonnes per capita	↓	↓	Per capita CO_2 decreased by 9% since the previous year. Decrease mainly due to impact of COVID-19. Trend line shows a general improvement toward the target.
	Transport generated emissions (absolute)	10% reduction in total annual CO_2 emissions (956 kilo tonnes)	1,062 kilo tonnes (2013)	1,117.3 kilotonnes	↓	↔	Emissions per capita have dropped by 8% compared to previous year. Fuel consumption dropped significantly from March to May 2020 due to COVID-19. 5 year Trend line is neutral.
	Concentrations of harmful transport-generated pollutants	A reduction in the average concentration of harmful transport pollutants (20.2 µg/m^3)	22.4 µg/m^3 (2013)	19.9 µg/m^3	↓	↓	Since 2013, average pollutant levels have decreased by 11%.
Increased private vehicle occupancy	Peak period private vehicle occupancy	Gradual increase in private vehicle occupancy to 1.45	1.39 people per vehicle (2013)	1.36 (2019)	↔	↔	Occupancy rate continues to fluctuate by small amounts but are still below the 2025 target.

Table 1 legend

Definitions used in summary table	
2019/20 data	The latest results for each measure unless date indicated
Short term trend	The trend is based on 2 to 4 years of results so trend might change
5 year trend	Where the measure has at least five years of data, the long term trend is determined, and colour coding and arrows indicate the progress of the trend in relation to the RLTP target.
	Observed progress in relation to RLTP Target
↑ ↓	Green arrows show data trend is positive and heading toward the target, results show an increase ↑ or decrease ↓
↔	Orange arrow results have not changed indicating no obvious direction or Neutral trend
↑ ↓	Red arrows indicate the data trend is away from the target
NR	No result at this time - a new data series or no new information available
✓	RLTP Target achieved

Transport highlights for 2019/20

A number of major projects and milestones occurred during the 2019/20 financial year. Examples include:

- The NZ Upgrade Programme funding of $1.35 billion will be invested during the next decade to support growth under the proposed Wellington Regional Growth Framework. The focus is on improving safety, resilience, and public transport and travel choice options across the Wellington region. The transport-related investment signalled for the Wellington region includes:
    (a) $211 million for improvements to the Wellington, Wairarapa and Palmerston North rail network, including upgraded tracks for the Wairarapa and sections of the North Island Main trunk line, safety connections and refurbishment of the Capital Connection carriages
    (b) $817 million for highway between Ōtaki to north of Levin (this sits in the Horizons RLTP)
    (c) $258 million for Melling interchange improvements
    (d) $59 million for the second stage of safety upgrades to State Highway 58.
- LGWM awarded contracts to investigate:
    - Mass Rapid Transit (MRT) from the railway station to Newtown and to the southern and eastern suburbs
    - Strategic Highway Improvements (SHI), including the Basin Reserve and an extra Mt Victoria tunnel
    - Travel behaviour change measures to support the programme.
- LGWM established a project team to investigate proposals for City Streets, including bus priority between suburban centres and central city, and walking and cycling improvements in the central city.
- The formal public consultation on Safer Speeds in the Central City took place in March 2020. Reducing speed limits to 30 km/h on most central city streets was implemented in July 2020.
- Waka Kotahi has completed negotiations with the project contractor for Transmission Gully in order to determine the time and cost of commercial impacts of the Covid-19 shutdown on the project. There will be additional payments to contractors and Transmission Gully is expected to open by September 2021.
- The Beltway cycleway project in Hutt City has progressed with the construction contract awarded in July 2020, and completion expected in May 2021.
- The new *Road to Zero* road-safety strategy and initial action plan were released in December 2019. The *Road to Zero* strategy sets a target of a 40 per cent reduction in deaths and serious injuries by 2030. To achieve this goal, the Government is increasing investment in road safety by 25 per cent. *Road to Zero* has five focus areas: Infrastructure improvements and speed management, vehicle safety, work-related road safety, road user choices, and system management.

A high quality reliable public transport network

This section focuses on public transport: on increasing patronage, reliability, quality and accessibility.

Increased public transport use

The Wellington region has a high quality, well-used public transport network of bus, train and harbour ferry services. Overall, there is high-public transport patronage within the region, mainly driven by high-rail commuter volumes travelling to Wellington CBD and high-bus ridership within Wellington City. **Figure 1** shows the annual number of public transport trips per capita taken by train, bus and ferry. The number is calculated using annual public transport patronage and regional population.

The **first measure** is the number of public transport trips per capita in the region. In 2019/20, approximately 33 million public transport trips were made. This is a 16% drop compared to the previous year largely due to the impact on patronage during the COVID-19 emergency.

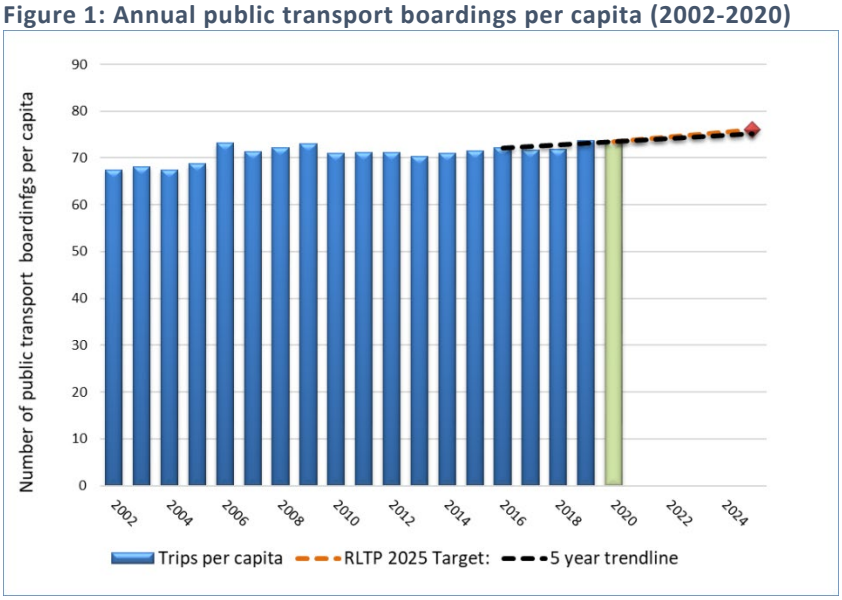
For monitoring purposes, PT passenger boardings prior to COVID-19 will be used to estimate annual patronage to compare with previous years.

Year to date growth (to February 2020) was 5.9% in passenger boardings[2] for the region. An **estimate** of growth in PT trips per capita was derived for the 8 months to February 2019/20 this showed little change compared to the previous year, mainly due to population growth for the region.

In 2019/20 pre-COVID boardings estimated:

- 73.5 PT boardings per capita compared to 73.8 for the previous year
- Estimated boardings per capita have increased by 2% in the last five years
- PT patronage shows steady growth toward the RLTP target of 76 boardings per capita

Figure 1: Annual public transport boardings per capita (2002-2020)



DATA SOURCE: METLINK, GWRC

Indicator trends

Public transport (PT) boardings per capita	↑
PT mode share of trips, census 2018	✓
PT mode share of trips crossing Wellington City CBD cordon	↑
Accessibility to PT network for all users	↑
92% of population live in close proximity to Public transport	✓
61% live within 500m of high frequency bus stops and 1km from railway stations	✓

3 RLTP targets achieved ✓

[2] https://www.metlink.org.nz/assets/Uploads/Feb-20-Metlink-monthly-performance-report.pdf

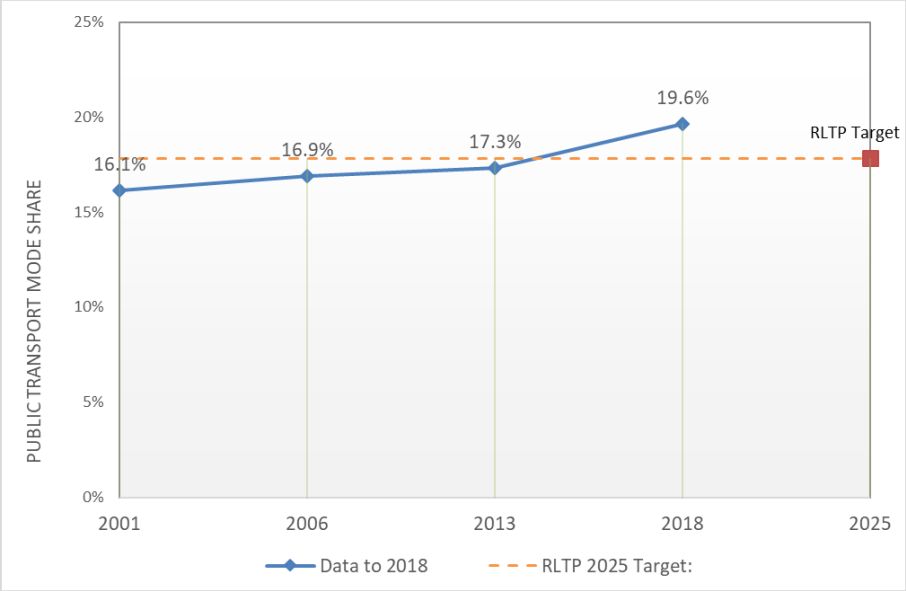
The **second measure** for increased public transport (rail, bus and ferry) use comes from the travel to work[3] data from the Census. Regional census data on the main means of travel to work shows public transport mode share was 19.6% in 2018. This is a 2.5 percentage point increase since the last census in 2013, when modeshare was 17.3%.

Travel-to-work mode share for 2013 and 2018 census results for bus increased from 9.5% to 10.2% and for rail from 7.8% to 9.4%. There was significant growth in commuter rail trips over the five years to 2018 (passenger boardings up by 16% according to the Census).

The mode share result is also above the RLTP target of at least 17.8% mode share by 2025.

Additional census results for the region, city and district on travel to work and education are reported in section 2 of the AMR.

FIGURE 2: Travel to work – public transport mode share across the region



Public transport mode share is also measured using the annual March cordon survey. This is a count of the people entering the Wellington City 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 (7am to 9am)[4].

This year the Cordon survey coincided with the beginning of the Covid-19 pandemic. The impact on travel within the region began to show prior to level 3 restrictions in mid-March. Traffic and PT commuters arriving into the Wellington CBD began to decrease in the third week of March, steadily decreasing up to the beginning of level 4 lockdown (25 March) with reduced patronage continuing through to June 2020.

Indicator Trends

Overall satisfaction with the Wellington region's PT system ↓

Peak period PT travel times on core routes ↓

Peak period bus travel time lateness on core routes ↔

PT vehicle fleet emissions (average g/km) ✓

Rail service punctuality ↑

1 RLTP target achieved ✓

[3] The travel to work question changed in the 2018 census; from how you travelled to work on census day to how you usually travel to work. Another change in 2018, travel to work and education were separated into two categories.

[4] The CBD cordon survey only covers a short time period (7am to 9am) and looks at all trip purposes (unlike the Census that only covers journeys to work). Variations cordon results can occur from one year to the next due to day-to-day variability/weather; the focus should therefore be on the medium to longer term trend, which in this case is an increase in PT / active mode share and decrease in car mode share.

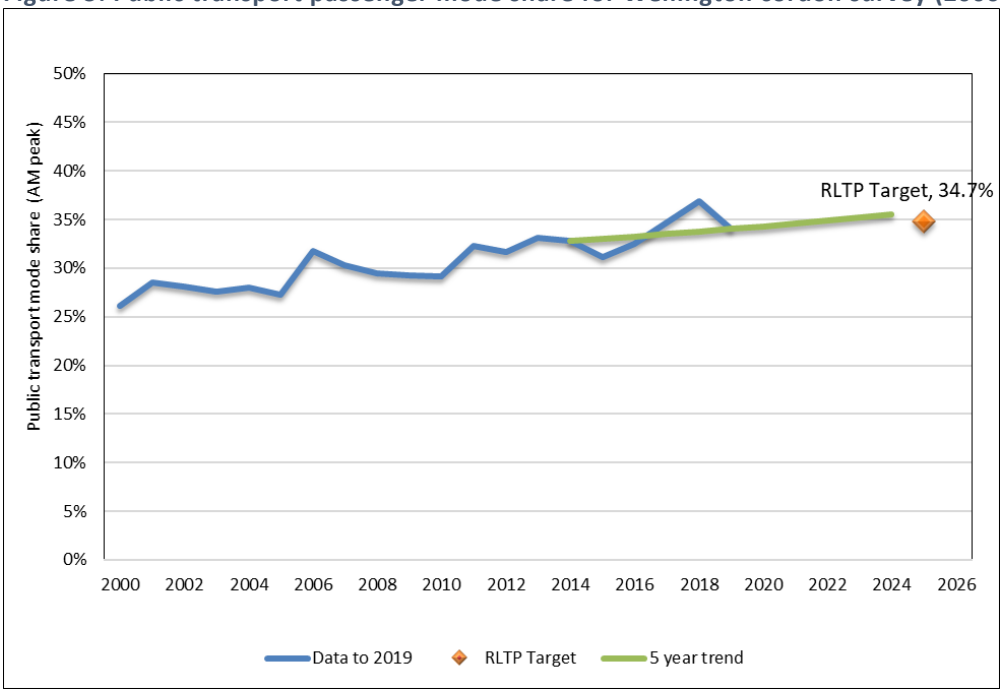
The cordon survey took place from 7th to 18th March. Cordon survey results showed reduced counts across all travel modes into the CBD, except cycling. Due to COVID-19 the survey results for 2020 are not reliable and therefore will not be assessed in this reporting phase.

Figure 3 shows mode share of public transport trips crossing the Wellington City CBD cordon during the AM peak 2 hour period (7am to 9am). Results in 2019 show that:

- PT mode share was 34.0% (Cordon survey 2019)
- a 4% increase over the last five years
- The 2019 result is just below the target of 34.7%. The trend line indicates that PT patronage is progressing toward the target.

Regional PT patronage from July 2019 to February 2020 (prior to Covid-19), saw a 5.9% year to date growth across bus, rail and ferry boardings. It is likely that if the cordon survey had been unaffected by Covid-19, this increase would have been reflected in increased PT cordon crossing volumes and increased PT mode share.

Figure 3: Public transport passenger mode share for Wellington cordon survey (2000-2019)



Data source: GWRC

Improved public transport accessibility for all

Access to public transport is monitored using three outcomes: two of these use census address data to measure the proportion of the population living in close proximity to public transport and the third measures improving accessibility to public transport with reference to infrastructure, information and facilities.

Figure 4 shows the percentage of the population that live within 500m of a bus stop and 1km from a train stop. Using 2018 census data, 92% of the region's population lived in proximity to a bus or rail stop. This is a 5% point increase since 2013 and equal to the 2025 target for this indicator.

FIGURE 4: POPULATION LIVING NEAR PUBLIC TRANSPORT

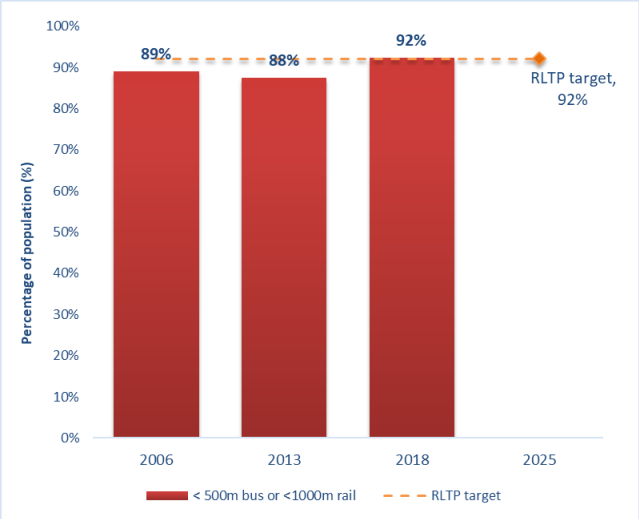
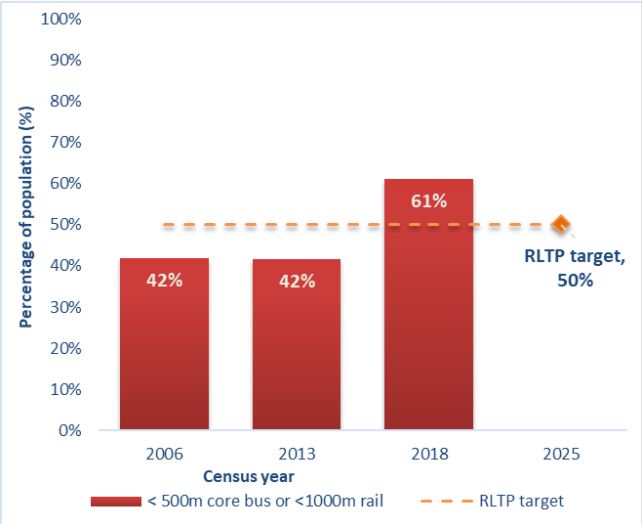


FIGURE 5: POPULATION LIVING NEAR HIGH FREQUENCY PT



The second accessibility measure is shown in **Figure 5**, this is the percentage of the population that lives within 500m of high frequency bus stop and 1km from a train stop. In 2018, 61% of the region's population lived in proximity to a bus or rail stop. This is a 19% point increase since 2013 and exceeds the RLTP target (50% target) for this indicator.

Changes to bus service from mid-2018 led to an expansion in the number of (and access to) high-frequency bus routes. These changes are likely to have contributed to the significant increase in the proportion of the population in proximity to bus stops shown by this measure.

Accessibility to PT network

Accessibility to the public transport network is evaluated by looking at the investment in transport infrastructure in the region. There are numerous projects and ongoing work to build or upgrade bus and rail facilities. This contributes to improved accessibility for public transport users around the region. Examples of these for bus and rail include:

- Additional Park and Ride spaces provided at Waterloo (160 spaces) and Paremata (72 Spaces.)
- Upgraded accessible infrastructure – handrails fitted to stairs and subway ramps at Paremata, Waterloo and Upper Hutt.
- Accessible toilets facilities improved to meet current code at Porirua, Waikanae and Petone stations.
- Collaborative work continued with the Ministry of Education and Industry Training Organisations to review training standards for both Total Mobility and Special Education Service transport services, and for improved training standards for drivers.
- Ongoing work with the Total Mobility and bus transport providers to address any issues affecting customer safety.

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.

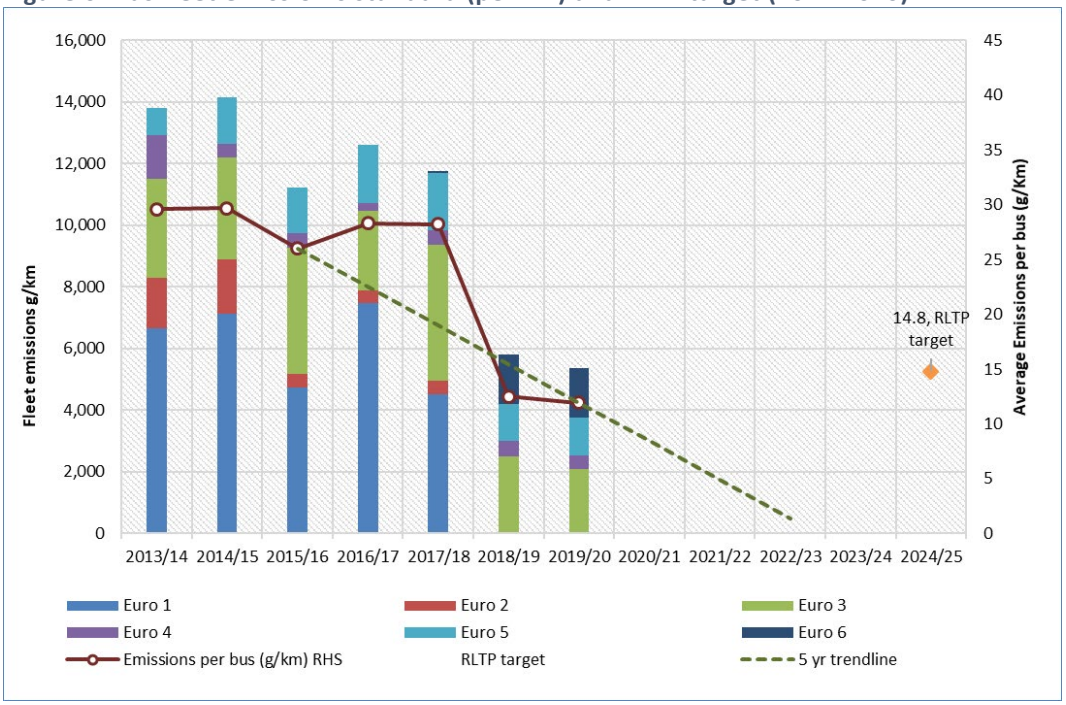
The bus fleet emissions indicator is a proxy for PT vehicle quality. The indicator measures the composition of the fleet in terms of the emissions rating for each bus type (Euro 1 to Euro 6). Based on the overall fleet composition we can calculate average localised emissions per km[5]. Modern buses such as Euro 6 emit one tenth of the emissions of Euro 1 type buses (grams/km). Since 2014 the regional bus fleet has transitioned to modern low emission diesel buses and the fleet's average emissions per kilometre have decreased.

Figure 6 shows average bus emissions from 2014 to 2020 for Euro type buses 1-6.[6] The fleet has changed significantly since 2018; 79% of the fleet are now Euro 5 or above including the ten electric vehicles.

The solid brown line in **Figure 6** shows the average harmful emissions per bus per kilometre; in 2020 this was 11.9 g/km (refer to axis is on the right-hand side). Average emission rating per bus have decreased by 60% from 2014 to 2020, the trend line (black dotted line) is downward reflecting the drop in average emissions.

The RLTP target is for a 50% reduction in fleet emissions, the baseline is 14.8 g/km[7] (2014 average). For the last two years the 2025 target was reached for this emissions indicator.

Figure 6: Bus fleet emission's standard (per km) and RLTP target (2014-2020)



Data source: GWRC

[5] Localised bus emissions are the sum of CO, HC, NO_X and PM_{10} emissions. The monitoring of CO2 emissions are not included in this indicator. The focus here is on emissions that impact on human health. Transport generated CO2 emissions are monitored under the environment objectives, page 30.

[6] The composition of the bus fleet can vary during the year due to the availability of buses for service.

[7] The original target was changed from 12 to 14.9 g/km[3] in 2015 because monitoring for this indicator was expanded from Wellington bus fleet to include the regional fleet.

The second measure designed to recognise public transport quality is **customer satisfaction**. The Metlink customer satisfaction survey asks passengers to rate overall satisfaction for the region's public transport system. This covers fleet, transport facilities, on-time performance and customer service. Due to Covid-19, the 2020 Customer Satisfaction survey has been delayed till the end of the year.

The 2019 November Metlink survey found that 74% of customers were generally satisfied with the public transport service; this is a 5 percentage point increase, compared to the March 2019 survey. Whilst the five year trend for this indicator is still downward, it has improved in the short term for both rail and bus. The RLTP target for this outcome is to achieve at least 90% overall satisfaction with the public transport for the region.

TABLE 2: CUSTOMER SATISFACTION WITH PUBLIC TRANSPORT[8]

	2015	2016	2017	2018	2019 May	2019 Nov	Difference 2015 vs 2019
Satisfaction with PT network all modes	83%	88%	86%	85%	69%	74%	▼ 9% points

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[9].

Figure 7 shows results for bus travel time on core routes during peak AM and PM hours (2014-2020). In 2020 results show[10]:

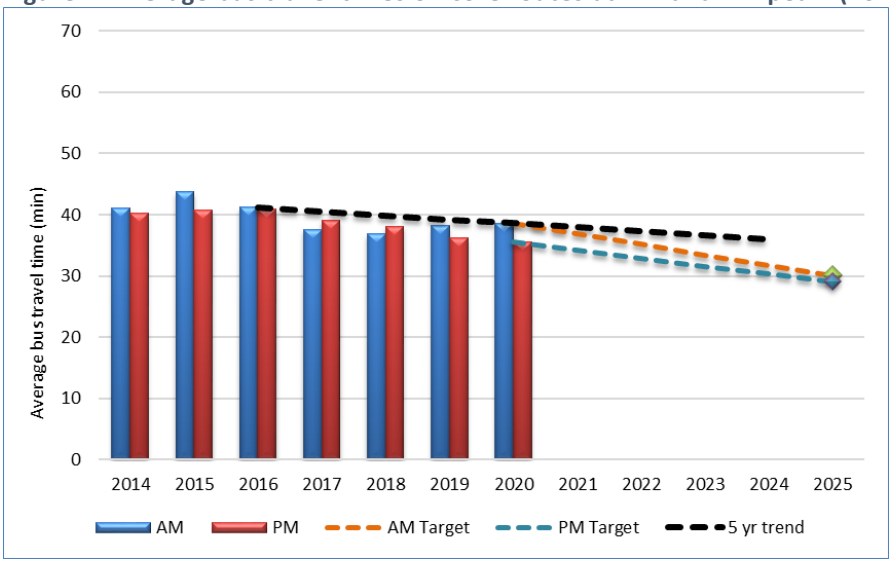
- Average travel time during the AM peak has not changed compared to 2019, 38.6 minutes in 2020.
- PM peak average travel time decreased slightly to 35.5 minutes.
- Average bus travel times have fallen by 2.5 minutes in AM and 4.8 minutes PM peak since 2014.
- The RLTP target is for continuous improvement in PT travel times to 2025, the 5 year trend line is tracking toward the target and results show a general reduction in average travel times since 2015 but not consistently.

[8] https://www.metlink.org.nz/assets/Uploads/GWRC-Public-Transport-Customer-Satisfaction-Survey-November-2019-Public.pdf p37

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

[10] Route changes in the last year meant that some routes were no longer comparable to previous years, to rectify this new routes were adjusted to match old routes therefore some results are considered approximate travel times.

Figure 7: Average bus travel times on core routes at AM and PM peak. (2014-2020)

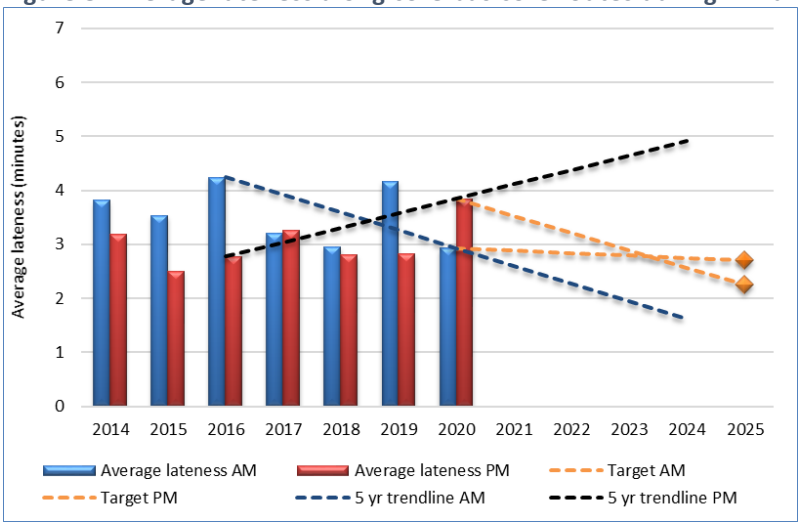


Data source: GWRC

Figure 8 shows the second measure for this outcome: average lateness which represents variability of bus times on core routes. Variability or lateness has increased for AM and decreased for PM peak since 2014:

- Average AM lateness in 2020 has dropped from 4.2 (2019) to 2.9 minutes (2020) but fluctuates from year to year and therefore this decrease should be treated with caution
- PM lateness increased from 2.8 minutes to 3.8 minutes in the PM peak from 2019 to 2020
- Travel time variability or lateness has fluctuated over the last five years for both AM and PM results.
- There is not a consistent trend for variability in AM or PM results.

Figure 8: Average lateness along core bus core routes during AM and PM peak. (2014-2020)



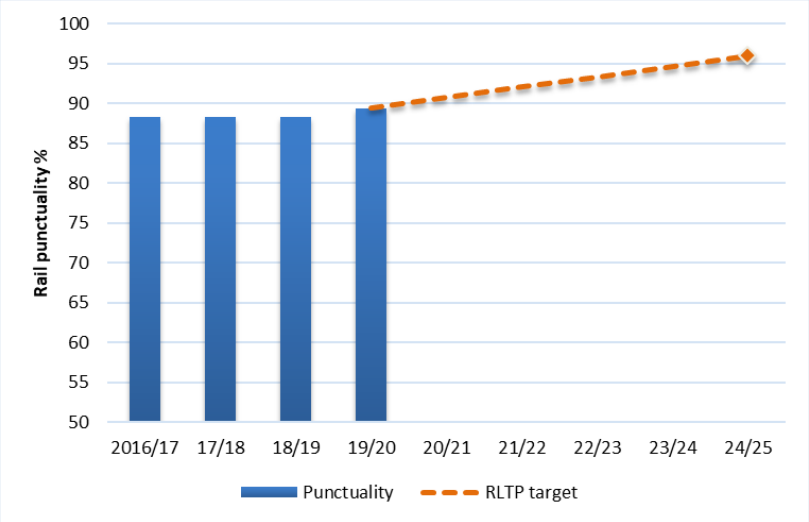
Data source: GWRC

Figure 9 shows the percentage of passenger rail services in the region which run to time. The punctuality rating refers to trains arriving at key stations[11] at the scheduled time and less than five minutes late.

The punctuality target of 96% was reached in 2016 using the original methodology for this measure. Since then the methodology for service punctuality has changed to include all key stations[12] (previously it was just Wellington station).

Four years into the new methodology the punctuality rating has increased by 1 percentage point from previous years to 89.4% for 2019/20. The 2025 target, which was developed based on the old measure, is at least 96% punctuality.

Figure 9: Percentage of rail services arriving on time (2016-2020)



Data source: GWRC

[11] Key stations are: Porirua, Waterloo, Upper Hutt, Featherston and Wellington

[12] Under the new operating contracts (with Transdev) revised performance measures were introduced in 2016.

A reliable and effective strategic road network

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

Reduced severe road congestion and improved reliability of strategic road network

Strategic routes consist of state highways and high volume regional roads[13]. The strategic network serves an important role for both inter-regional long distance trips and short to medium distance trips within the region. It provides access and connectivity for people and goods to key regional destinations.

The indicator measures rolling average peak travel speeds on strategic routes using GPS data obtained from commercial vehicles (including a mix of light, medium and heavy). The performance measures are based on March weekday average travel time and speeds for inbound AM peak and outbound PM peak vehicles on the six routes in the region. Unfortunately this data series has been discontinued so the 2019 results are the most recent data. A new travel time series (for monitoring purposes) will be included in the AMR from next year.

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

Indicator trends

Average peak travel speeds on strategic routes ↔

Average peak travel time predictability ↔

Average travel speed on strategic routes

Table 3 shows the average travel speed and RLTP target for the six strategic routes. The target is to increase the baseline travel speed by 10%. In 2019, the AM inbound and PM outbound average travel speed is 35.2 and 39.5 km/hr respectively. This is almost the same results as 2018 and therefore no measured advance toward the target.

The travel speed for inbound and outbound travel initially decreased followed by minor changes in the last three years. Indicative findings using other data sources for 2019/20 (pre-Covid 19) suggests that traffic congestion on these routes is not improving and travel speeds decreasing, driven by increased travel demand.

TABLE 3: THREE YEAR ROLLING AVERAGE TRAVEL SPEED AND 2025 TARGETS (ROLLING AVERAGE 2014-2019)

		2014-2016	2015-2017	2016-2018	2017-2019	Target
Three year Rolling Average travel speed (km/hr)	AM (inbound)	36	36	35	35	40
	PM (outbound)	41	40	40	39	45

[13] Six strategic routes: Wellington Airport to Waikanae (SH1), Wellington CBD to Upper Hutt (SH2), SH58 Haywards road to Paremata, Bowen St to Karori, Wellington Railway Station to Island Bay, Petone to Wainuiomata.

Travel time predictability

Travel predictability (previously variability) is the second measure for this RLTP objective and is averaged over the six strategic routes. The measure indicates how well customers can predict their journeys based on typical historic performance.

Predictability measures the travel times against the baseline to determine how consistent or reliable the travel time is for each route. The higher the predictability rating the more consistent the travel time is for the route.

To calculate predictability, a baseline target is created for each part of the road, for every 15 minutes of the day, and this baseline is compared against the targets every 15 minutes, every weekday. A high percentage represents a high level of consistency of customer experience. A low percentage means the customer will have difficultly estimating how long the journey will take.

Table 4 shows the rolling average peak travel time predictability. The results for 2019 show:

- 63% inbound (AM peak) and 64% outbound (PM peak).
- Predictability has decreased by 2-4 percentage points since 2016 for AM and PM times, a result of increased travel demand – leading to more congestion and unreliable travel times.
- Little change in predictability over the short term.

As noted in relation to average travel speed, indications from other sources are that travel time predictability will not have significant changed between 2018/19 and 2019/20 (pre-Covid 19).

TABLE 4: PREDICTABILITY FOR STRATEGIC ROUTES (2014-2019)

		2016	2017	2018	2019	Target
Predictability %	AM (inbound)	65	63	62	63	71
Predictability %	PM (outbound)	66	61	62	64	73

An effective network for the movement of freight

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

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. Wellington is a key gateway for freight travelling between the North and South Islands.

The three key freight routes[14] represent typical road freight movement across the region. The average all day travel speeds for freight transport provide a measure of efficiency for freight movement. The 2025 target is 67.8 km/hr (inbound) and 66.1 km/hr (outbound).

Figure 10 below shows the three year rolling average travel speed over the three key freight routes. The 2019 results show:

- Inbound travel speed is 61.6 km/hr
- Outbound travel speed is 60.9 km/hr averaged over the three key routes.
- A slight increase in outbound travel speed in the last four years.
- Little change in inbound travel speed over the four years.

Indicator trends

Average all day travel speeds on regional freight routes	↔
Average daily predictability for travel speed on freight routes	✓

The second measure for improved freight efficiency monitors the predictability of the journey time for freight. Predictability measures the consistency of travel time by testing how predictable the journey time is against a baseline, over 15 min periods. Fluctuating travel times mean low predictability and vice versa (see page 17 for a definition of predictability).

Figure 10: Average travel speed on freight route (2014-2019) (LHS)

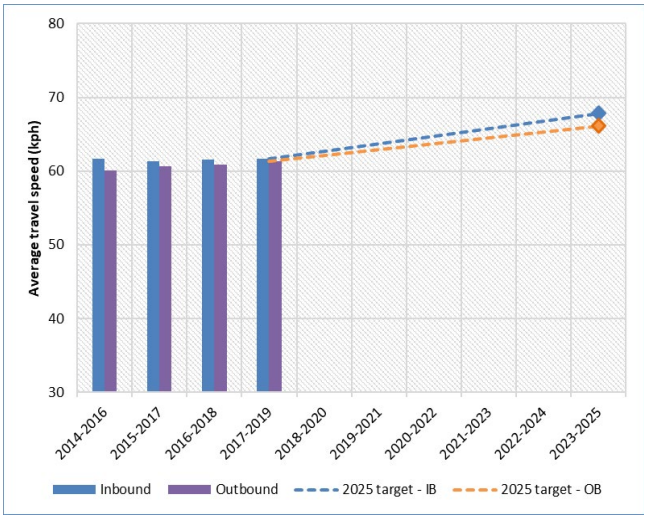


Figure 11: Predictability of travel speed for freight (RHS)

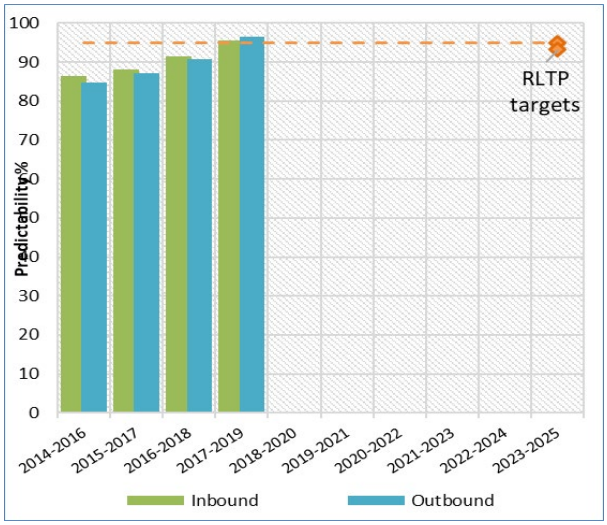


FIGURE 11 shows the rolling average predictability rating from 2016-2019 and the RLTP target. In 2019, predictability for freight was 96% for both inbound and outbound travel. This is the third

[14] Paremata to Seaview (via SH58), Paremata to Seaview (via Ngauranga gorge), Seaview to Centreport.

consecutive year that predictability has improved. The 2019 results exceeded the RLTP targets 95% & 93% for inbound and outbound predictability respectively.

Increased proportion of freight moved by rail

The original baseline for this indicator came from the National Freight Demand study (2012) by the Ministry of Transport. Since this research occurs every five years, we have used the Freight Information Gathering System (FIGS) data[15] for information on rail freight volumes in the intervening years. This year we are able to report on the latest National Freight demand study which covers 2017/18, and includes information on the type and volume of freight moving in and out of the region by rail, shipping, air and road.

The following is a summary of results on the freight volumes moved in and out of the region. Rail freight in 2012 compared to 2018 studies show:

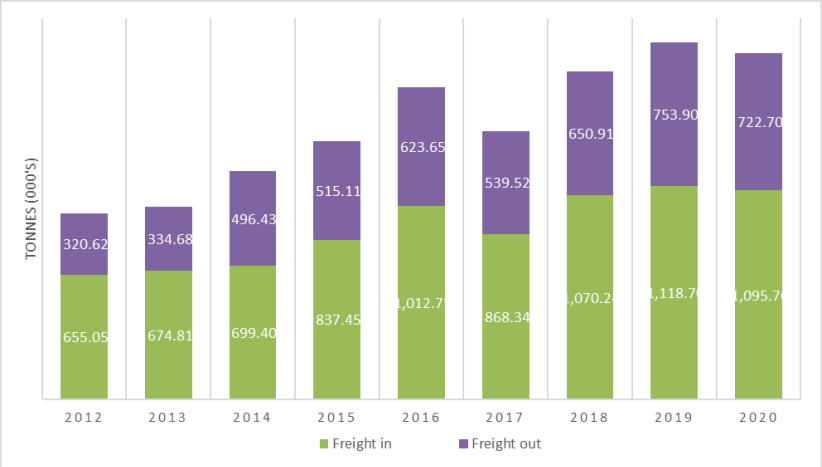
- Total estimated freight by rail in 2012 was 0.88 million tonnes; 1.2 million tonnes in 2018
- Rail freight (tonnes) coming in and out of the region has increased by 36% from 2012 to 2018
- The proportion of rail freight compared to total freight has increased slightly (from 4.8% to 4.9%)
- At a national level the proportion of rail freight is 5.6% (estimated for tonnes)

The FIGS data provides annual estimates of rail freight volume nationwide. The movement of freight by rail (tonnes) inbound and outbound was 1.8 million tonnes in 2019/20 for the Wellington region, shown in **Figure 12** (for freight moving April 2019 to March 2020). A large proportion of this freight is wood and forestry products.

The RLTP seeks to improve the rail network to increase the movement of freight by rail. Rail is an effective mode of transport for high volume and heavy freight and carries approximately 15 percent of freight moved in New Zealand (when measured in tonne-kilometres).

Rail freight uses less energy than freight transported by road (at most 25% of the energy for road transport). The rail system also reduces the pressure on New Zealand's roads and can provide safety, health and environmental benefits.[16]

FIGURE 12: RAIL FREIGHT MOVING IN AND OUT OF REGION (THOUSANDS OF TONNES)



Data source: Ministry of Transport

[15] Freight data provided by Ministry of Transport, KiwiRail and Statistics NZ
[16] Ministry of Transport

A safer system for all users of our regional road network

This section discusses the transport outcomes that are related to regional road safety which includes road crash fatalities and casualties. Note that all safety-related indicators relate to calendar years and are thus unaffected by Covid-19.

Improved regional road safety

A system-wide approach is used to address safety issues. Safer Journeys, the national strategy guiding road safety improvements, seeks to establish the safe system approach within New Zealand.

Figure 13 shows the number of fatal[17] and serious[18] injury casualties for all vehicle types in the Wellington region according to the Waka Kotahi Crash Analysis System (CAS). The blue bars show the annual results and the red line shows the five-year rolling average. The rolling average is used as the RLTP indicator as it smooths out annual fluctuations and highlights long-term trends. The five year trend line (black line) shows serious injuries increasing in the short to medium term.

Whilst in 2019 the number of people seriously injured or killed on the region's roads (186 – 11 deaths, 175 serious injury casualties) was below the five year (2015-2019) average of 208, it was higher than the 2014 figure (144) it was replacing leading to a slight increase in the rolling 5 year average. If the trend seen this year continues in 2020, the rolling 5 year average should start to reduce.

Indicator trends

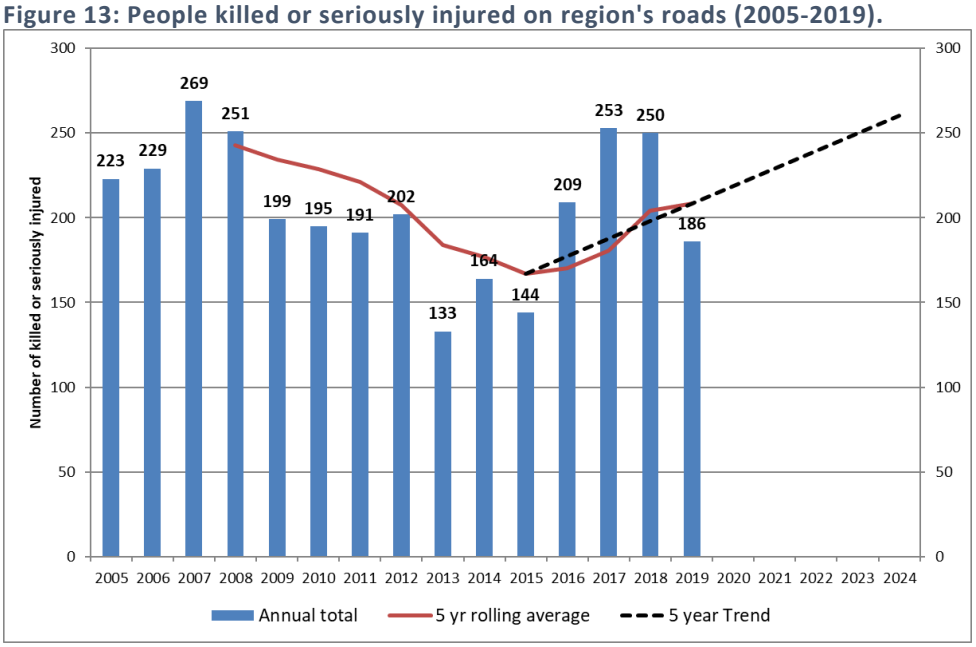
Deaths and serious injuries ↑

Road casualties ↑

Cyclists & pedestrians: deaths and serious injuries on our roads. ↑

At a national level, serious and fatal road casualties have followed a similar trend with a downward movement from 2005 to 2014 followed by an increase in the last four years (up by 25%). The main causes of serious road crashes are poor observation, failing to give way, speed, alcohol and poor handling.

Figure 13: People killed or seriously injured on region's roads (2005-2019).



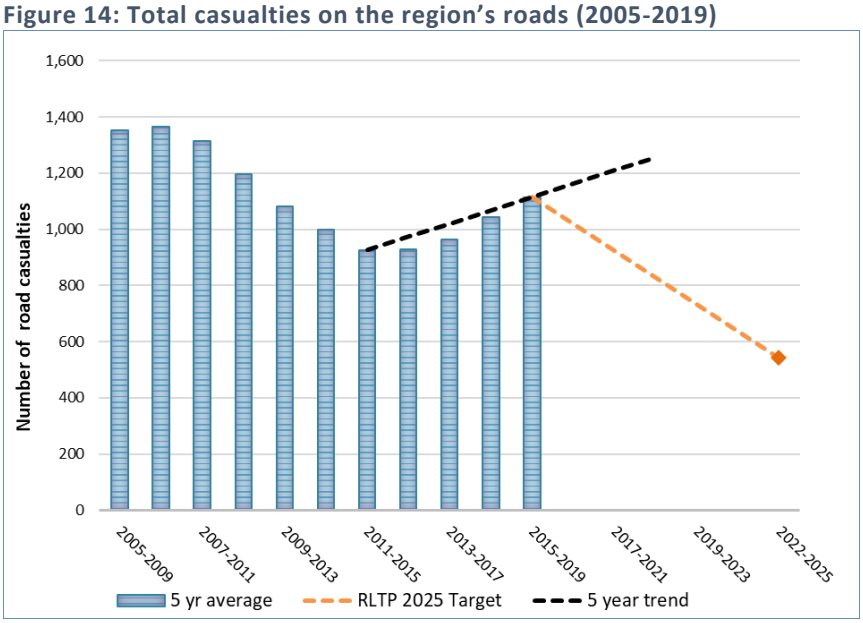
Source: CAS,Waka Kotahi

[17] Injuries that result in death within 30 days of a crash

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

Figure 14 shows the total road casualties for the region from 2009 to 2019 and RLTP targets to 2025. The total casualties for 2019 were 1,231, and the five year rolling average (2014-19) was 1,115 casualties. The five year trend-line has changed in the last three years from neutral to an upward trend. As this upward trend has been influenced by increased casualties over the last 2 to 3 years it will be a number of years before the five-year rolling average stabilises or begins to decrease.

Figure 14: Total casualties on the region's roads (2005-2019)



Data source: CAS, Waka Kotahi

Increased safety for pedestrians and cyclists (vulnerable road users)

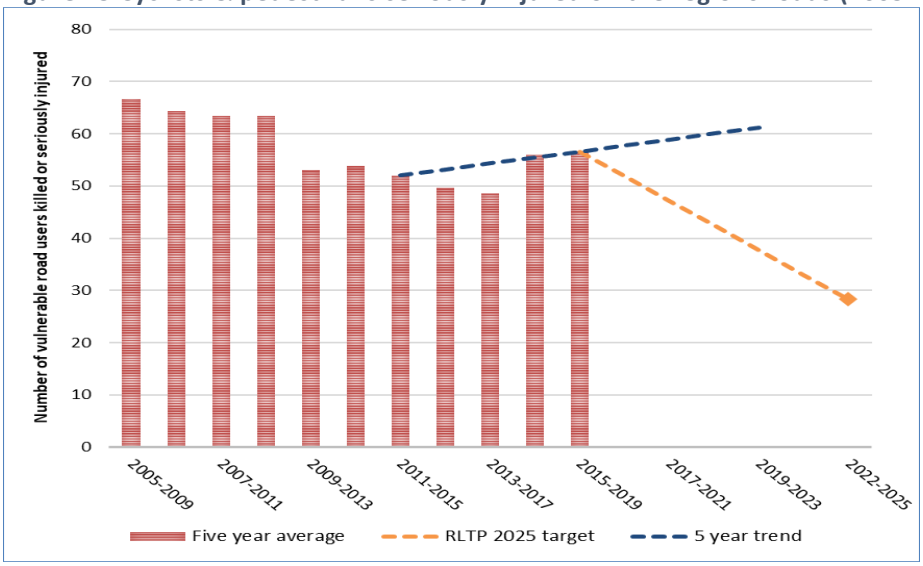
This measure assesses the safety of the road network for pedestrians and cyclists by examining CAS data over time. A five-year rolling average is applied to the data to even out fluctuations in the annual results.

Figure 15 shows the number of pedestrians and cyclists killed or seriously injured on the region's roads. In 2019, CAS data showed:

- The number seriously injured in 2019 was 54, this result was just below the five-year rolling average of 57 for years 2014-19.
- There were 25 seriously injured cyclists, and 27 seriously injured and 2 fatally injured pedestrians during 2019 in the Wellington region.
- Deaths and serious injuries increased by 2% compared to the previous year.

The rolling average trend-line (dotted black line) shows an upward trend (away from the target) due to a sharp increase in casualties since 2011.

Figure 15 Cyclists & pedestrians seriously injured on the regions roads (2005-2019)



Data source: CAS, Waka Kotahi

Local authorities and Waka Kotahi are investing heavily in cycling and pedestrian infrastructure which is focused on targeting casualty blackspots and providing a cycling network. The 2025 RLTP target is at least a 50% reduction in the baseline, for vulnerable road user casualties on the region's road network.

An increasingly resilient transport network

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

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. 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.

A regional risk register allows resiliency to be better prioritised and represented in the RLTP programme in the future. The regional risk register was a joint project with Waka Kotahi and GWRC and was completed at the end of 2016.

The second resilience measure addresses the importance of access to key routes and infrastructure after an event. The Wellington Lifelines group restoration plans include the estimated time to reopen key supply lines and road connections to and within the region[19]. Improvements to the regional network to improve resilience, will reduce the number of days to restore key recovery facilities.

Since the Kaikōura earthquake in 2016, Lifeline group members have started a number of significant regional projects to increase the region's level of

Indicator trends

Region covered by an adopted regional risk register	✓
Estimated time to reopen key road connections to and within the region	↓
Regional restoration and emergency plan	↑

[19] Wellington Lifelines Group/WREMO: Restoring Wellington transport links after a major earthquake-Initial project report, 2013

resilience. Examples include:

- Wellington Water's Community Infrastructure Resilience Project, which is providing an above-ground emergency water supply network, multimillion-dollar storm water upgrades and a new Prince of Wales/Omāroro Reservoir (35 million litres);
- Wellington Electricity's Earthquake Readiness Programme to reduce the risk and improve earthquake readiness across their network;
- The Unreinforced Masonry Project to secure unreinforced masonry on buildings in the Wellington CBD.

The third resilience measure is about the adoption of a comprehensive regional emergency plan. The Wellington Region Civil Defence Emergency Management Group (the CDEM Group) is made up of various agencies who work together to provide civil defence and emergency management to the region. A regional emergency plan incorporates response, reduction, recovery, and readiness

Examples of progress toward this measure (from the group) in the last year include the following:

- Group plan 2019-2024 was released and Wellington Region Earthquake plan (WREP) finalised.
- Development and implementation of the Community Response Plan process, where local communities get to plan for their response to an emergency.
- Development and implementation of the Community Emergency Hub concept. Communities have run exercises to test their Hub activations to see how they can respond to an emergency.
- Group Resilience Framework for the region.
- Development of the Natural Hazards Management Strategy for the region.
- Regional CDEM Training strategy – i.e. to manage the training of EOC and ECC staff.

A well planned, connected and integrated transport network

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

Improved land use and transport

Ensuring the region's residents have good access to public transport services is a desirable outcome for the region. This means that people have choices about how they travel. There are economic and health benefits to investing in public transport i.e. increasing public transport patronage reduces congestion on the roads, is more energy efficient than single car use and is beneficial to the environment by reducing emissions and contributes to active travel use.

The first integrated transport measure is the population living within 500m of a bus stop or 1 km of a railway station. The 2018 census data shows 92% of the region's population lived in the relative proximities to a bus or rail stop. This is a 5% point increase since 2013 and equal to the 2025 target for this indicator. This measure is also included under PT outcomes with results shown on page 10.

Indicator trends

Population living within 500m of a bus stop or 1km of a railway station ✓

Cycle parking spaces at railway stations ↑

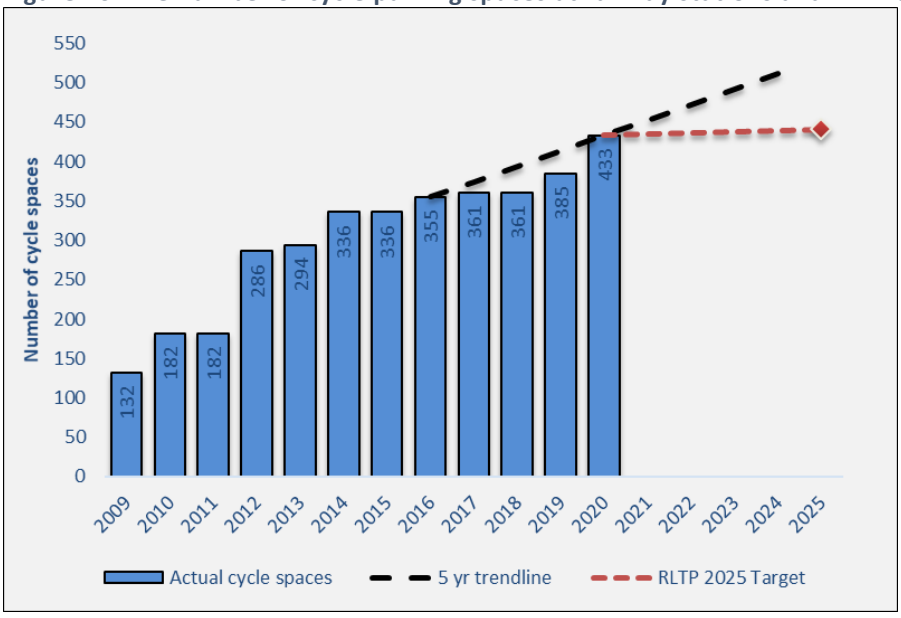
1 RLTP target achieved ✓

Improved integration between transport modes

The provision of cycle facilities at railway stations consists of a mix of secure cycle racks, cages, and lockers. The cycle facilities encourage commuters to cycle from home to the station instead of driving.

Figure 16 shows the 5 year trend and targets for cycle parking facilities at railway stations. In 2019/20, new cycle parking racks were installed at Waterloo and Paraparaumu train station with capacity for 24 bikes each. Overall, there are 433 cycle spaces at railway stations around the region. In the last five years, cycle spaces have increased by 22% in the region. The trend line for cycle storage shows an upward trend tracking toward the target with current capacity just below the target of 441 cycle spaces.

Figure 16: The number of cycle parking spaces at railway stations and RLTP target (2009-2020)



Data source: GWRC

An attractive and safe walking and cycling network

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).

Increased mode share for pedestrians and cyclists

From a transport network perspective, walking and cycling are the most efficient mode choice particularly for short trips. Walking and cycling integrate well with other modes such as bus and rail and are essential for connecting modes for trips. Active travel mode share is monitored from both census and Wellington cordon survey data. The Census travel to work data[20] is summarised for the RLTP as mode share[21] this is the proportion of those who travel to work by walking, cycling, by private motor vehicles and public transport.

General trends for mode share (census):

- Walking mode share for the region was 11.4% in 2018 down slightly from 12.1% in 2013 (**Figure 17**).
- Cycling mode share was 2.7% in 2018 down slightly from 3.1% in 2013 (see **Figure 18**).
- Walking mode share is generally increasing toward the target
- Cycling mode share is fluctuating and has only progressed slightly since 2001

The 2018 census question for main means of travel to work has changed since the previous census and now refers to usual travel rather than how you travelled on census day.

Whilst difficult to verify, it is thought that these changes could have affected active mode proportions (bringing them down slightly compared to the previous method of reporting). For example, the proportion of infrequent cyclists would have been captured as cyclists using the old method, whereas using the new method infrequent cyclists would be accounted for by their main mode (which could be PT or car).

Indicator trends

Travel to work by walking (census)	↑
Travel to work by bike (census)	↑
Level of service for cyclists and pedestrians	↔
Pedestrian mode share for cordon survey	↔
Cyclist mode share for cordon survey	↔

Therefore the results from the 2018 Census and comparison against previous Census results should be treated with a degree of caution.

[20] The travel to work question changed in the 2018 census; from 'how did you travel to work on census day' to 'how do you usually travel to work'. Also in 2018, travel to work and education were separated into two categories.

[21] Mode share is the proportion of trips to work using a transport mode, modes are typically private motor vehicle, bus, rail, cycle, walk, motorcycle.

Figure 17: Mode share for walking to work (Census 2018)

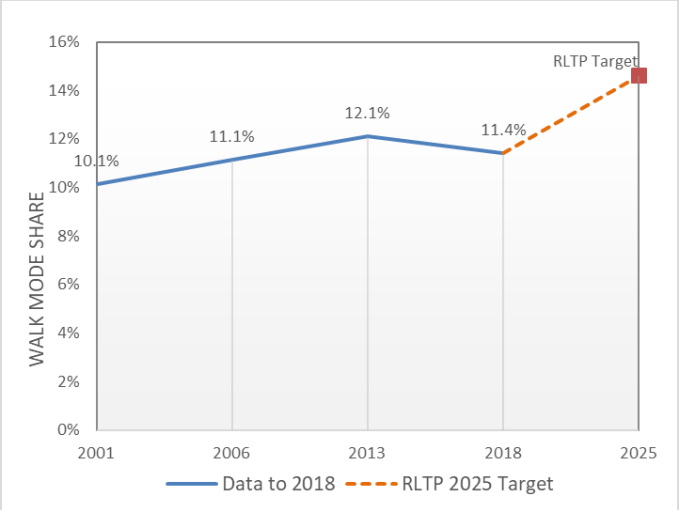
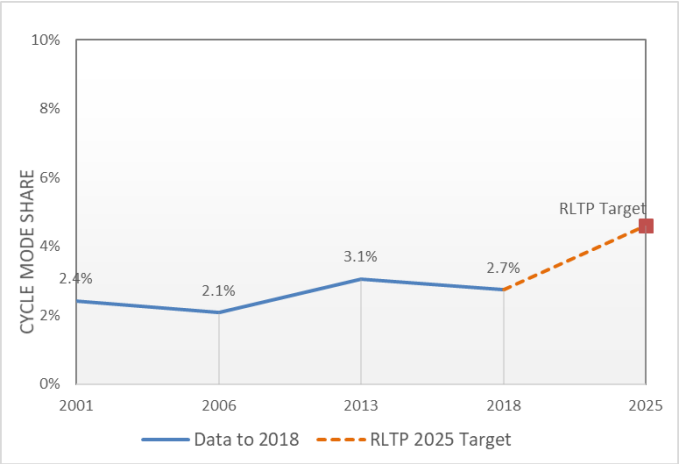


Figure 18: Mode share for cycling to work (census 2018)



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.

The cordon count survey is undertaken over two weeks in March; this year the survey coincided with the beginning of the national response to Covid-19 (see page 9). Due to the impact on commuter activity during that time, this year's results are not reliable and will not be assessed for these measures.

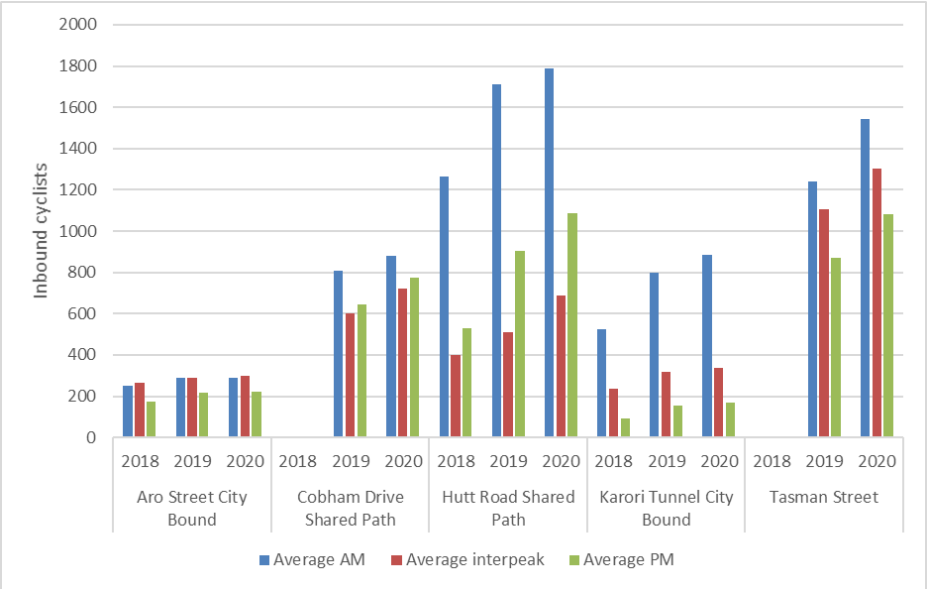
Survey results to 2019 for pedestrians and cyclists crossing the cordon show the following:

- A small decrease in pedestrian and cyclist mode share.
- In 2019, 16.7% of those people crossing the cordon were walking, 2.7% were cycling
- Since 2015, pedestrian mode share has not made progress toward the target of 20.1%.
- There has been a similar trend for cyclist mode share, with little progress toward the target of 4.6%.

Cycle counter data collected in Wellington City from 2018 - 2020 show cyclist numbers are steadily increasing each year for weekday cyclists. **Figure 19** shows average daily counts for morning, afternoon and inter-peak cyclists who are inbound to central Wellington on five main routes.

This data, collected daily, shows a broad trend through time of increasing cycling numbers accessing Wellington CBD along the main cycle corridors.

FIGURE 19: AVERAGE WEEKDAY COUNT FOR INBOUND CYCLISTS (2018-2020)



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'. The survey was run in 2019 after a gap of four years.

The proportion of respondents who rated the level of service for pedestrians as good or neither good or bad was 82% in 2019, shown in **Figure 20**. This is a high rating, but is 3 points below the 2015 result of 85%. The five-year trend line shows a decline in perceived level of service due to a drop in the rating for the last two surveys. Upper Hutt respondents rated pedestrian service higher than other Territorial Authorities (TAs) at 89% and Porirua respondents rated at 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 has increased. At 52%, this is a significant improvement from 2015 (rating of 44%) over the short term, shown in **Figure 21**. The trend for level of service for cyclists, shows an increase in perceived level of service from 2015 to 2019.
Both measures are below their respective RLTP targets, 95% for pedestrians and 60% for cyclists, the targets are 10-20% above the perceived level of service rating (at the time the plan was developed) for cycling and pedestrian services.

FIGURE 20: The perception of level of service for pedestrians

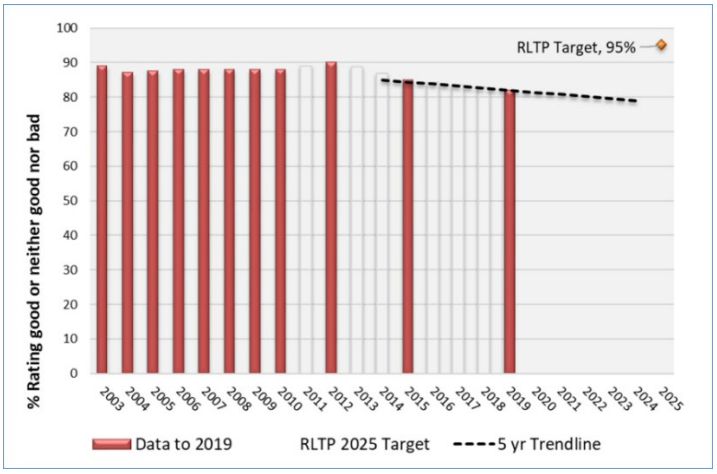
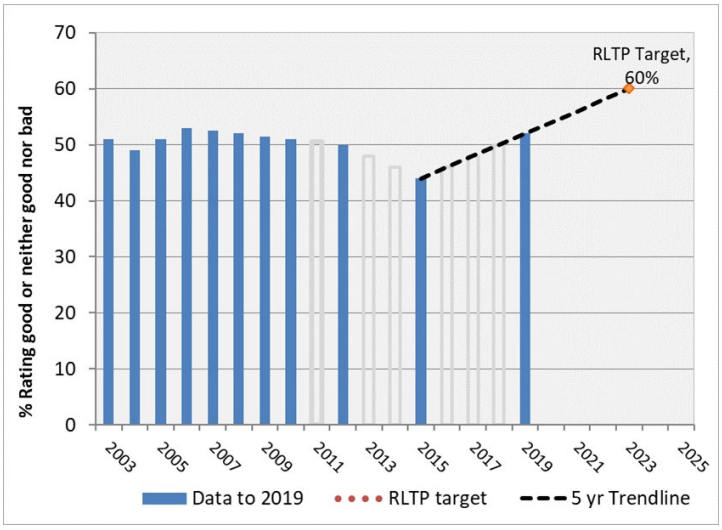


FIGURE 21: Perception of level of service for cyclists



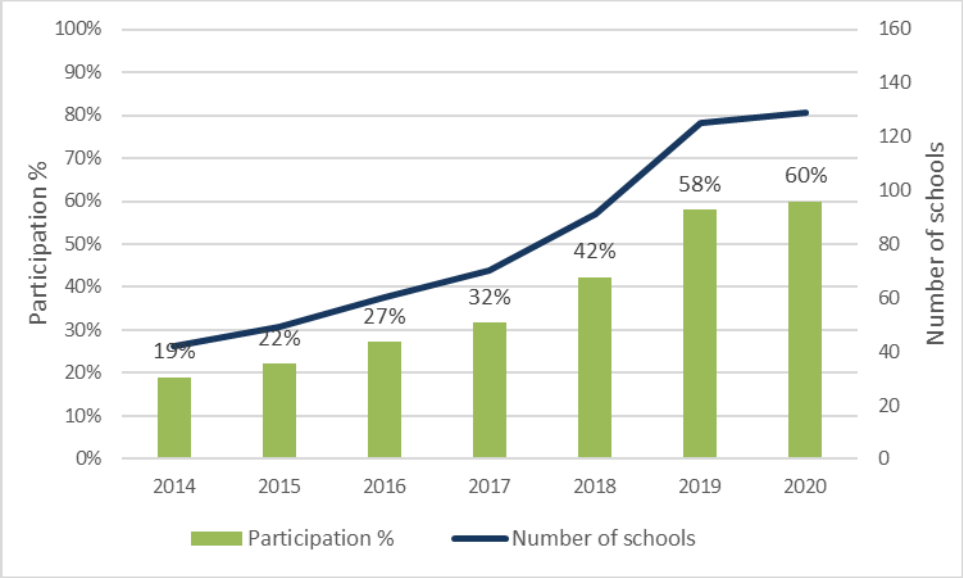
Increased use of active modes for journeys to school

Waka Kotahi is currently developing a Student Travel Data tool (Te Haerenga o Ngā Tamariki) to capture data around school travel across the country, and will be working with schools to pilot the programme early in 2021.

Movin'March is a region-wide initiative that aims to increase active travel to school. Movin'March is an annual month-long campaign delivered in partnership with local councils throughout the Wellington region. It is open to all Year 0-8 primary schools (ages 5-13yrs), and provides a range of competitions, incentives and resources to encourage and celebrate active travel modes to school (walking, biking and scooting).

Movin'March is in its twelfth year and the campaign emphasises normalising active modes by encouraging walking or "wheeling" (biking, scooting) together as a family, or suggesting that parents *let* their older children walk or bike safely to school, building their confidence and independence. **Figure 22** shows participation by schools in Movin'March since 2014. In 2020, 60% of primary schools in the region participated in Movin'March, a total of 129 schools.

FIGURE 22: SCHOOL PARTICIPATION IN MOVIN'MARCH



An efficient & optimised transport system that minimises the impact on the environment

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

Reduced harmful emissions from transport

Carbon dioxide (CO_2) 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 information[22]. The RLTP target is for a 15% reduction in annual per capita CO_2 emissions by 2025.

This measure provides an indication of whether the transport system is becoming more efficient, in relation to emissions, by producing less emissions on a per person basis.

The annual results for fuel consumption, and therefore CO2 emissions, were affected by reduced travel demand during the Covid-19 Level 3 and 4 lockdowns. The annual results show:

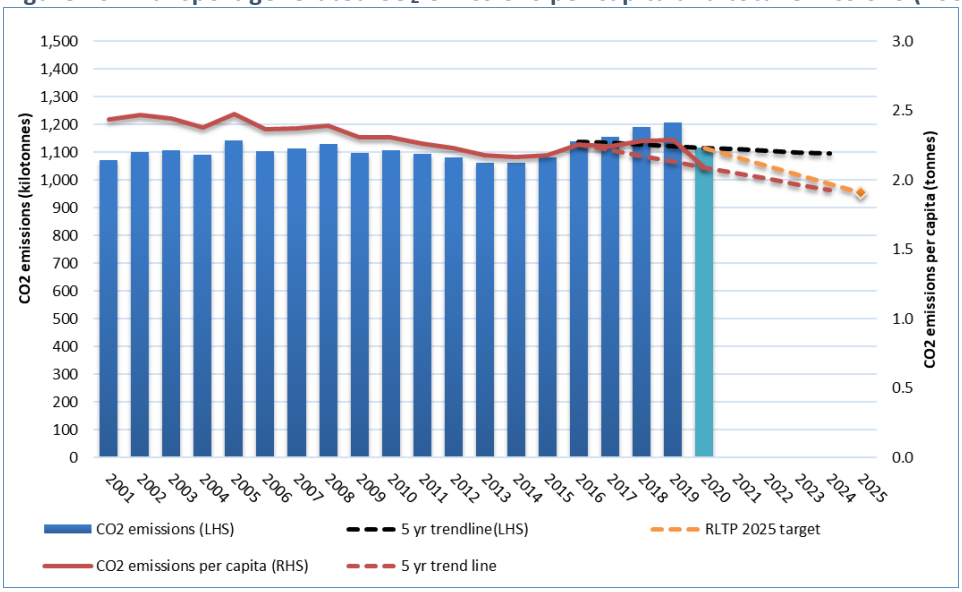
- Fuel consumption dropped in March to June 2020 by 26% for diesel and 27% for petrol (compared to the previous year).
- In 2020, CO_2 emissions were 1,101 kilotonnes shown as the turquoise bar in **Figure 23.** Emissions have decreased by 3% in the last five years and 9% in the last year.
- The red line in **Figure 23** shows per capita emissions. In 2020, these were 2.03 tonnes per capita. This is 6.8% below the 2015 result and 11% below last year.

Indicator trends

Per capita transport emissions	↓
Transport emissions (absolute)	↔
Harmful pollutants (NO2)	↓
Private vehicle occupancy	↓

The CO_2 emissions per capita trend-line (red dotted line) shows a downward trend mainly due to the reduced fuel usage during COVID-19 months and increase in population. The total emissions (black) line shows a neutral trend due to a drop in annual fuel consumption. There is some progress toward the RLTP target for per capita emissions due to reductions in the current year.

Figure 23: Transport generated CO_2 emissions per capita and total emissions (2000-2020)



[22] Carbon dioxide emission levels have been calculated 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.

Data source: GWRC

To assess how emissions were tracking **Pre-COVID**, the fuel consumption figures for **8 months** (July to February) for the last two years were compared. This shows:

- Diesel consumption rose by 3% and petrol consumption fell by 2.0% in 2019/20.
- There was a small reduction in total emissions of 0.5% for the eight months of the current year compared to the previous year.
- CO_2 emissions levels per capita were 2.22 tonnes; emissions were reduced by 3% compared to the previous year.

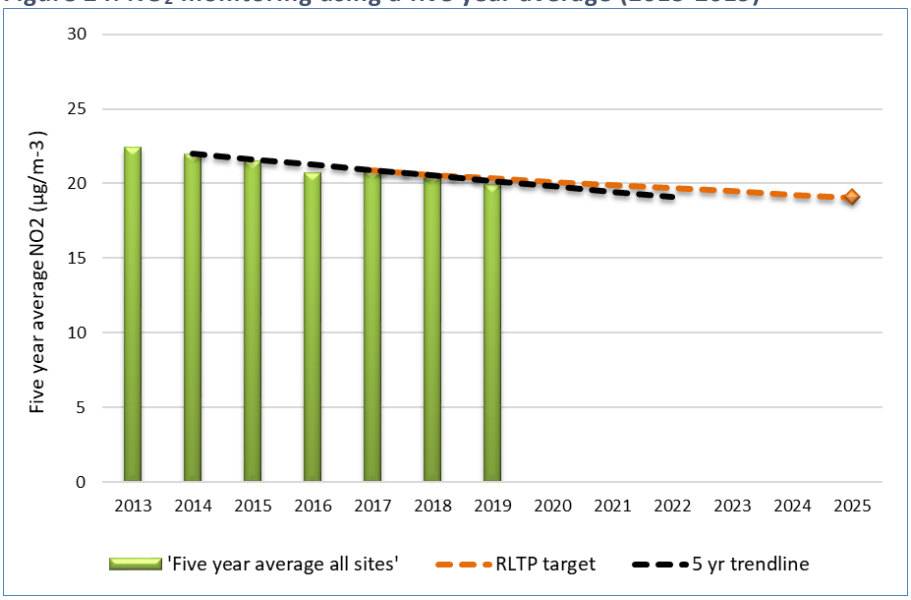
Therefore, without Covid-19, there would have likely been little to no change in overall transport generated harmful emissions compared to the previous year which is against the trend.

Regional air quality monitoring

The current measure for concentrations of harmful transport-generated pollutants is based on levels of nitrogen dioxide (NO_2), a harmful pollutant arising from vehicle emissions. The data currently used to track trends in traffic-related air pollutants is from Waka Kotahi's national NO_2 monitoring network and is collected by passive samplers[23] at multiple sites across the region (except the Wairarapa). The Waka Kotahi sites are mostly along the state highways, but include a small number of local roads.

Figure 24 shows the results from NO_2 monitoring sites. The level is calculated using a five-year moving average (calendar years). From 2013 to 2019, there has been a downward trend in the level NO_2; overall there has been an 11% reduction in NO_2 during this time.

Figure 24: NO_2 monitoring using a five year average (2013-2019)



Data source: Waka Kotahi

One of the aims of this RLTP objective is to improve the long term reporting and monitoring framework to inform a regional indicator of trends in traffic-related air pollutants which can be linked to trends in traffic intensity and changes in the vehicle fleet.

Future air quality monitoring will report on trends in traffic-related air pollution based on a region-wide network of passive diffusion tubes that measure nitrogen dioxide – a marker of harmful emissions from transport.

[23] Waka Kotahi 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. Pg. 24.

Monitoring will be undertaken in Wellington City, Karori, Johnsonville, Porirua, Lower Hutt, Upper Hutt, Kāpiti Coast and Masterton. Measuring trends in roadside pollutants is needed to check that expected reductions in emissions from our vehicle fleet, as more stringent emission standards are introduced, are realised.

The roadside monitoring site(s) in each of these urban areas are selected based on NIWA modelling, and past monitoring data to represent long term traffic trends and fleet composition.

Increased private vehicle occupancy

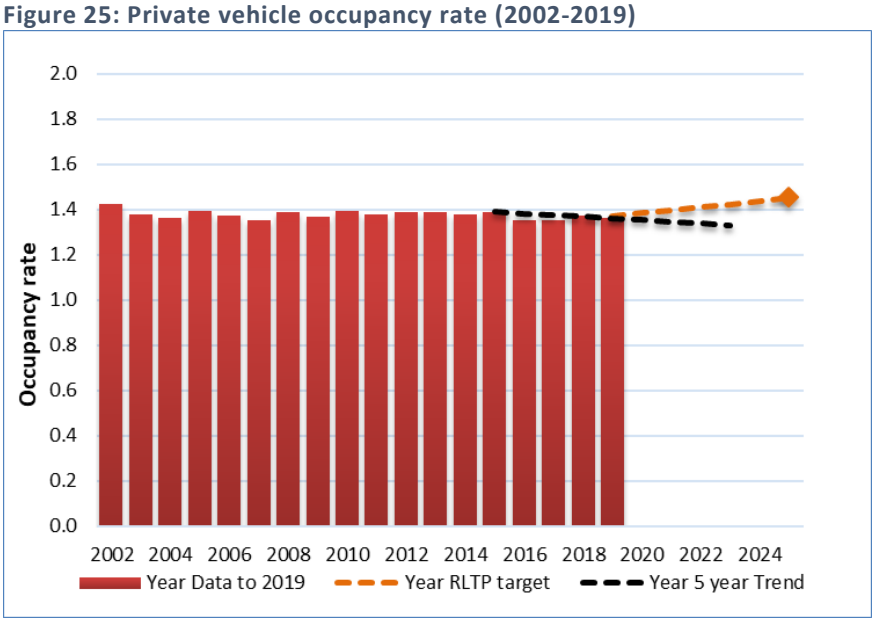
Multiple occupancy vehicle trips (including buses) contribute to the efficient usage of the region's roads, as they raise the average number of people per vehicle, which in turn reduces the number of vehicles on the road. Given that capacity on the road network is limited, increasing average vehicle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

The Wellington City Council cordon survey measures motor vehicle occupancy crossing the Wellington City CBD between 7am and 9am (PT vehicles are not included). This year the survey coincided with the beginning of the national response to Covid-19 which reduced the number of commuters travelling into the CBD in March (see page 5). Due to the impact on commuter activity this year's results are not reliable and will not be assessed.

Motor vehicle occupancy can be summarised as:

- In 2019, vehicle occupancy was 1.36 people per vehicle
- Vehicle occupancy has fluctuated between 1.33 and 1.42 since 2002 (see **Figure 25**)
- The direction of the five-year trend line is showing a neutral trend to the RLTP target.

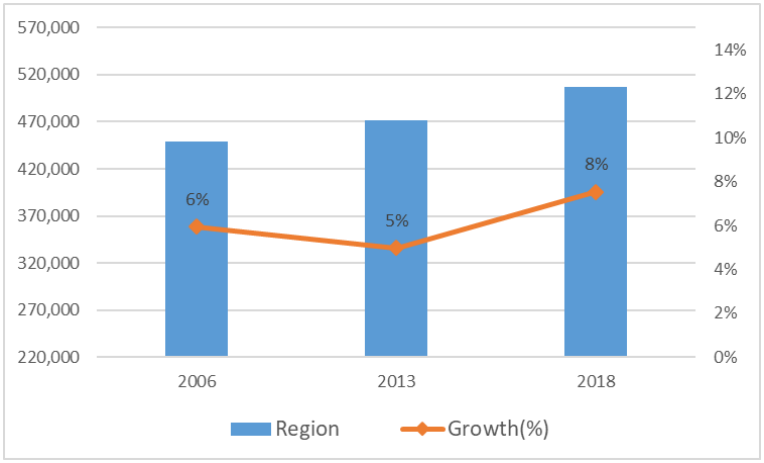
Figure 25: Private vehicle occupancy rate (2002-2019)



Data source: Wellington CBD Cordon survey

Wellington region 2018 census results

Population growth (Census URP)



Average annual population growth was 1.4% from 2013-2018.

The regional full-time employment rate (shown in the table below) has been between 50-52% since 2006, with a small dip in 2013.

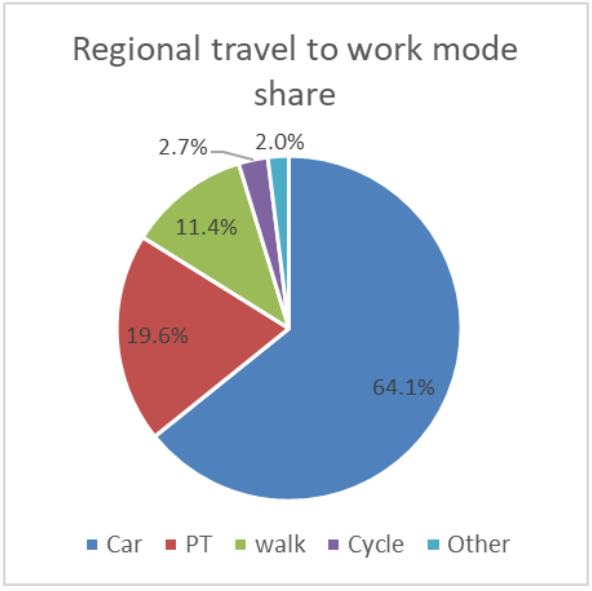
Ethnic groups for people in Wellington Region and New Zealand, 2018

Category	Wellington Region (%)	New Zealand (%)
European	74.6	70.2
Māori	14.3	16.5
Pacific peoples	8.4	8.1
Asian	12.9	15.1
Middle Eastern/Latin American/African	1.9	1.5
Other ethnicity	1.4	1.2

Work and labour force status 2006-2018

Category	2006 (%)	2013 (%)	2018 (%)
Employed full-time	52.7	50.8	52.6
Employed part-time	14.6	14.1	14.2
Unemployed	3.7	5	4.4
Not in labour force	29	30	28.8

Wellington region: mode share for travel to work and travel to education 2018



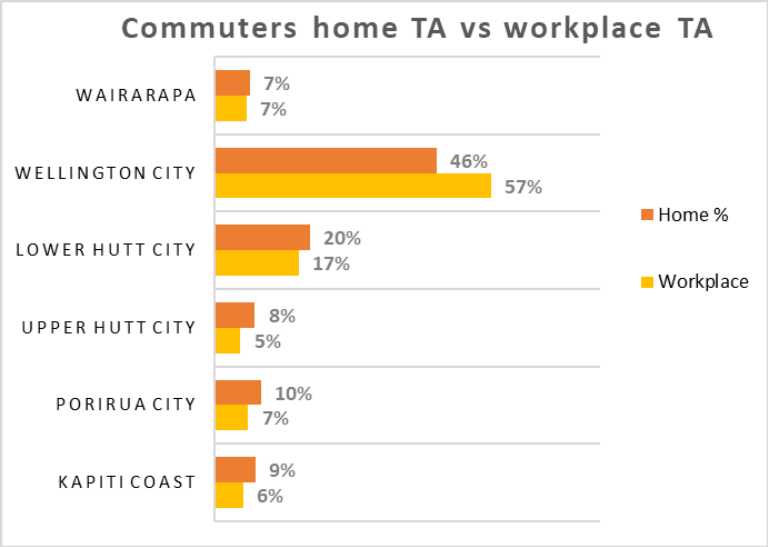
Mode share - comparing 2001 to 2018

The proportion of commuters travelling by car to work (car mode share) has decreased by 5 percentage points to 64% since 2001.

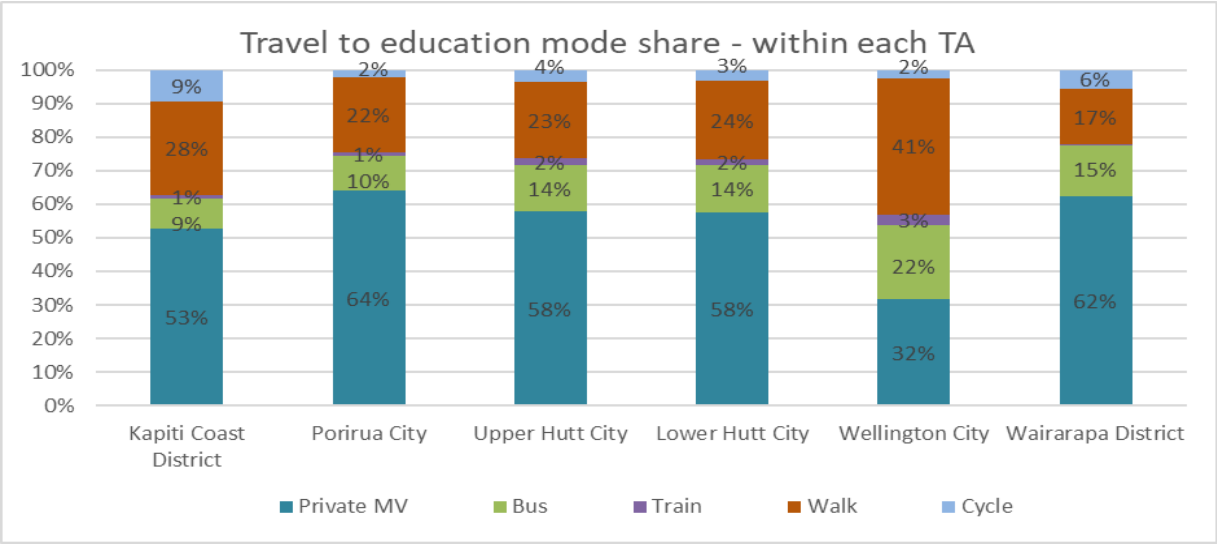
Public transport mode share has increased from 16% to almost 20%.

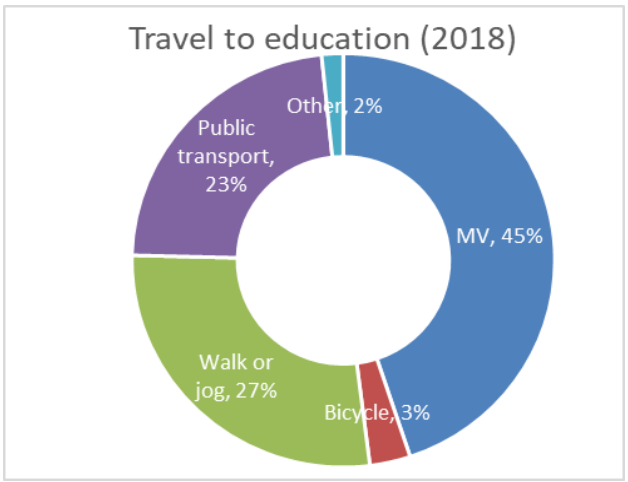
Active travel mode share has increased from 12.5% to 14%

In 2018, 9% of people in the region work at home, compared to 12% nationally.



Travel to work (2018): The chart on the left shows the home TA for commuter's home vs workplace destination in the region. In Wellington City, unlike other TAs, a greater proportion of commuters work in the city than live in the city. 74% of the Wellington city workforce are residents; the remaining 25% travel from elsewhere in the region. The largest group are from Lower Hutt City, 11%.

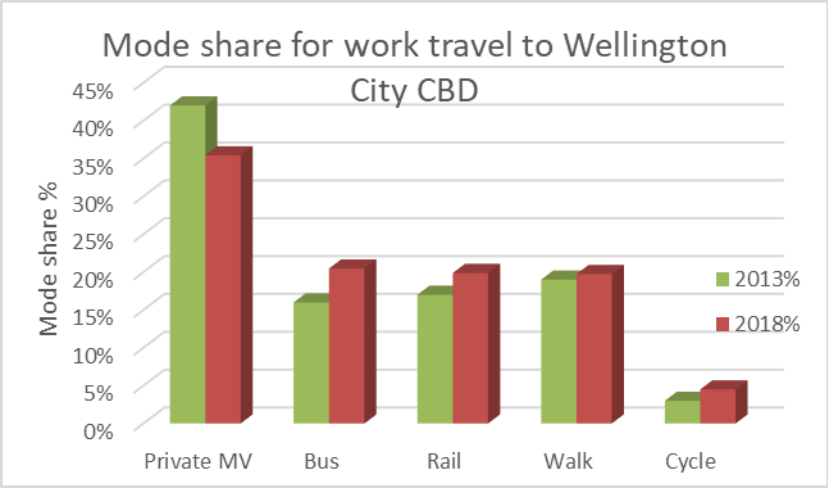




Travel to education within each TA (graph above) is the mode share for internal travel within each TA to educational institutions (all sectors). Cycling mode share is highest in Kāpiti, and bus and walking mode share is highest in Wellington City.

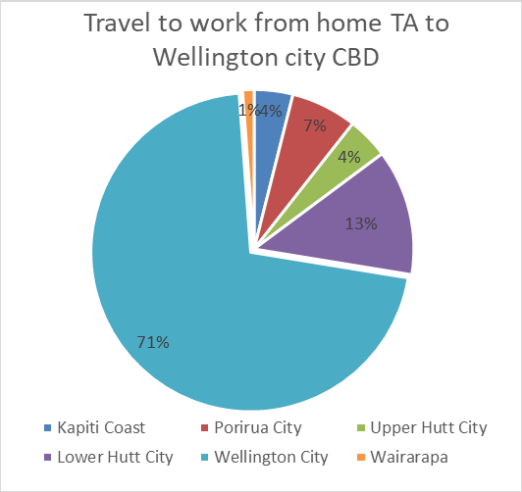
Pie chart to the left: The share of students taking public transport is 23%. This includes school-bus, public-bus, train and ferry journeys. The national average for PT travel to education is 19%. The major differences in travel mode (the region vs nationally) are in mode use of trains and school buses. In Wellington, a larger proportion use trains, whereas nationally on average more students use school buses to get to educational locations.

Wellington City – travel to work (census 2018)

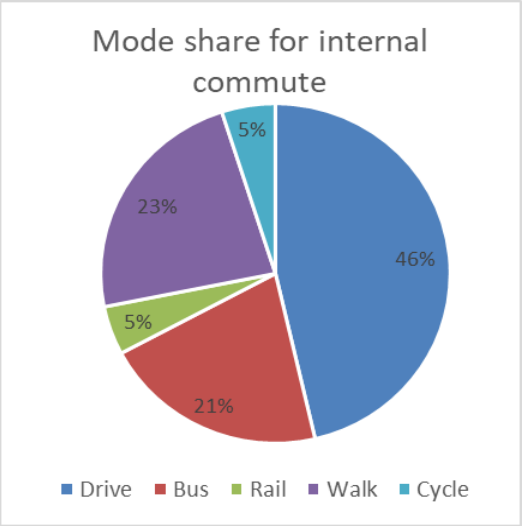


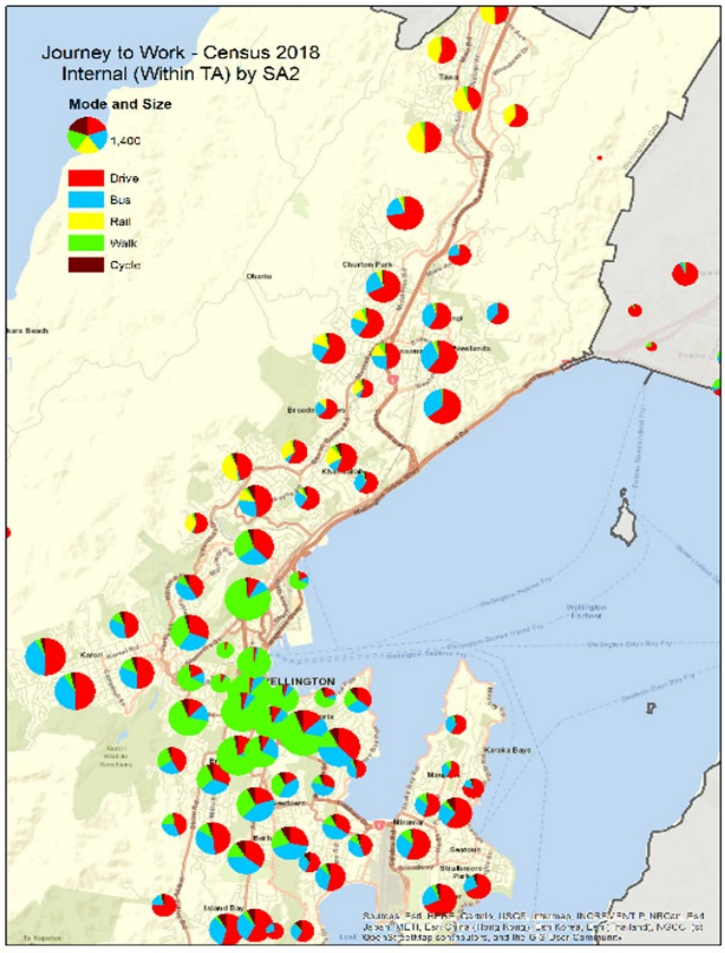
The figure on the left compares the mode share for work travel to the Wellington City CBD in the 2013 and 2018 censuses. Since 2013, private car share (MV) has decreased by 5% points, and public transport (PT) and active travel (walk or cycle) have increased by 7% and 2% points respectively.

Those that drive include those in private or work vehicles and passengers in cars.

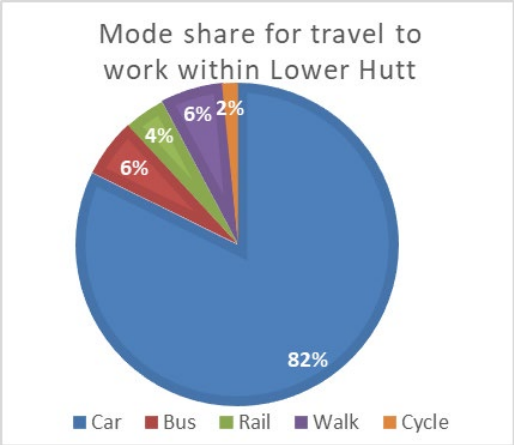


71% of travel to work to the Wellington CBD originates from Wellington City with the second largest group 13%, travelling from Hutt City. Approximately 20,000 commuters travel to Wellington City from other TAs daily. The map below shows those people living and working in the same TA.





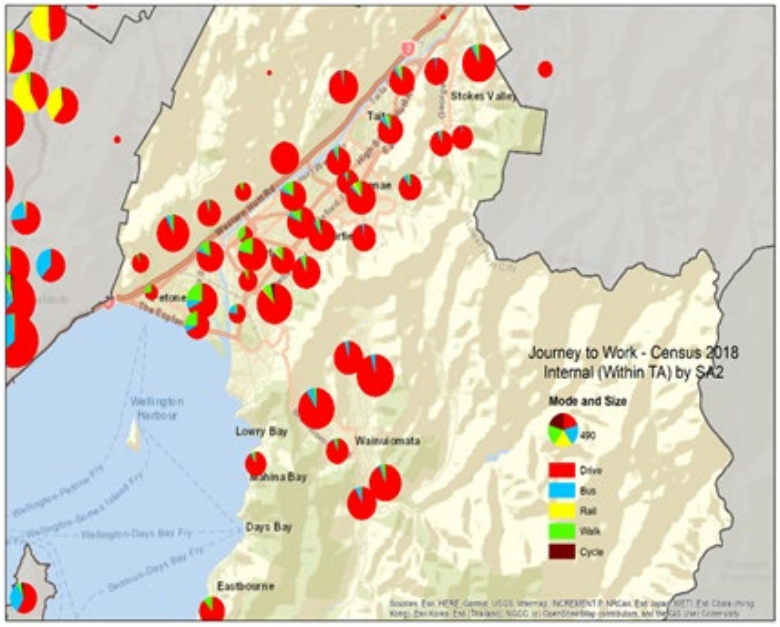
Hutt City - travel to work (census 2018)

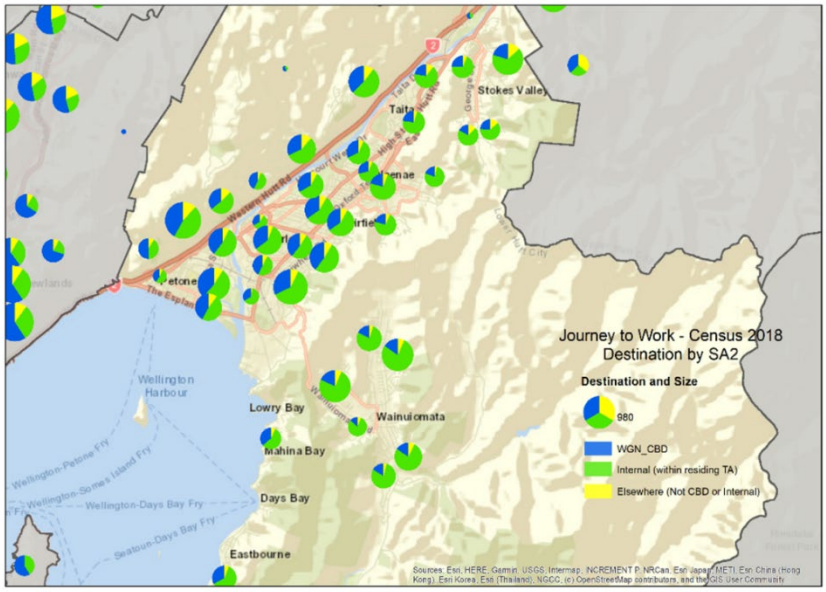


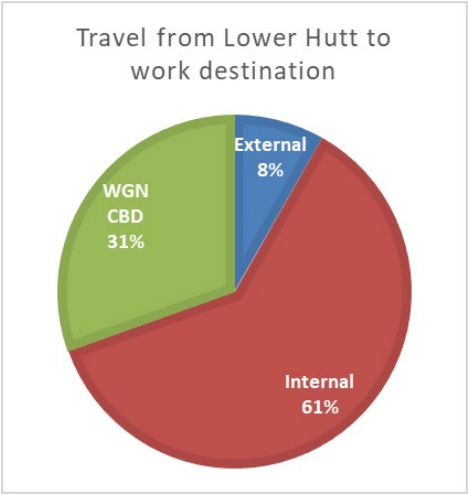
The majority of travel to work for those people who live and work in Hutt City is by car (82%). More commuters used public transport in 2018 (10%) compared to 8% in 2013. Active transport accounted for 8% for internal trips in 2018. Those areas with high active mode use were Hutt Central and Petone.

The map to the right shows travel to work for those that live and work in Lower Hutt. Commuters in Petone are more likely to use alternatives to cars for travel to work, 12% walking, 12% rail and 14% travelling by bus.

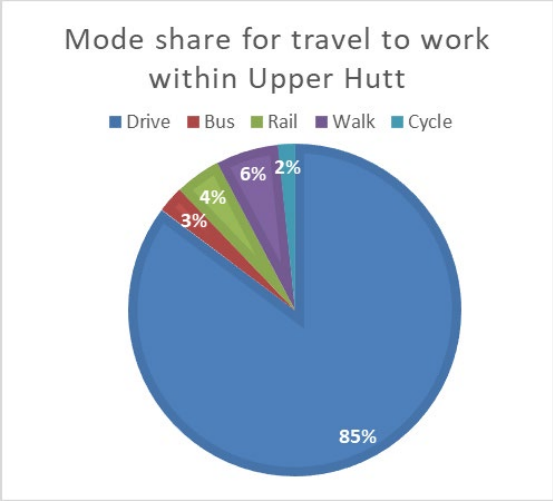
The Map below shows the home area and work destination. 30% of trips are to the Wellington CBD, 61% are to Hutt City and 8% are to other work destinations outside Hutt & Wellington Cities.







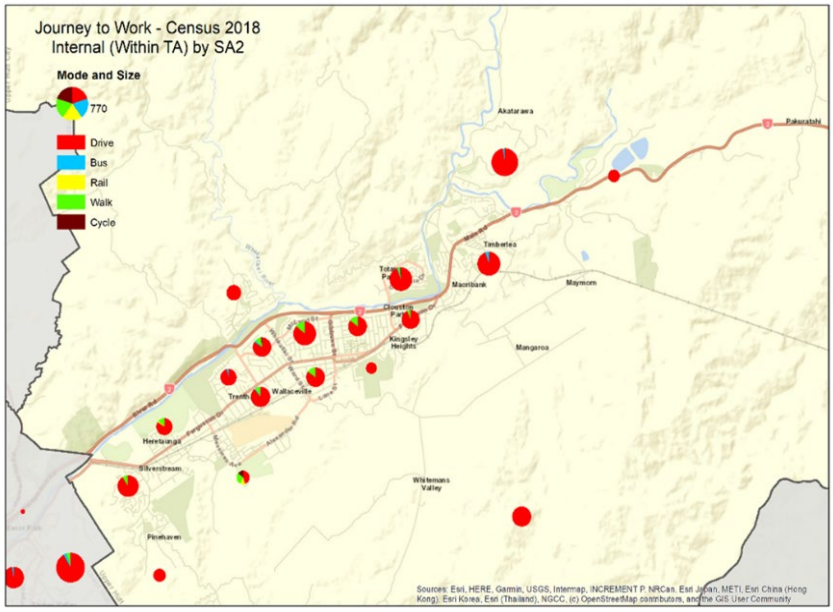
Upper Hutt city - travel to work (Census 2018)

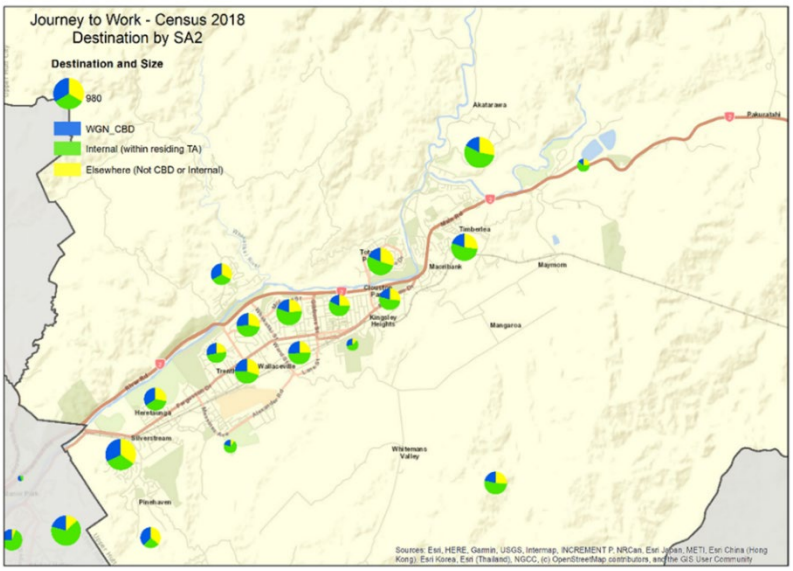


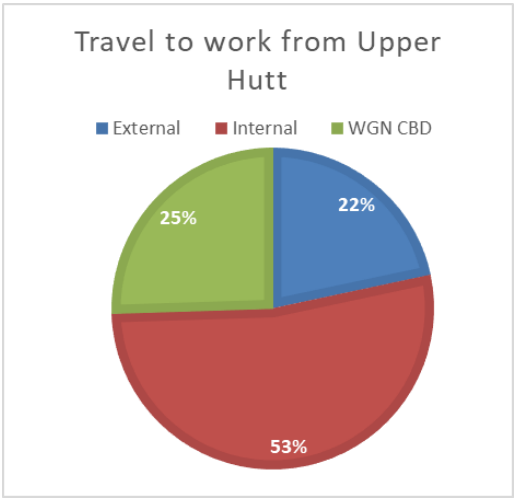
The main mode for travel to work for people who live and work in Upper Hutt is by car (85%) and walk (6%), shown in the pie chart on the left. Travel to work trips within the TA (for Upper Hutt residents) are just over half of the journey to work trips (53%), 25% are travelling to Wellington City and 22% are travelling to areas in the region (shown in the pie chart below right).

The map (RHS) shows travel to work for those that live and work in Upper Hutt. Commuters close to the city centre are more likely to use alternatives to cars for travel to work; 6% walking, 4% rail and 3% travelling by bus.

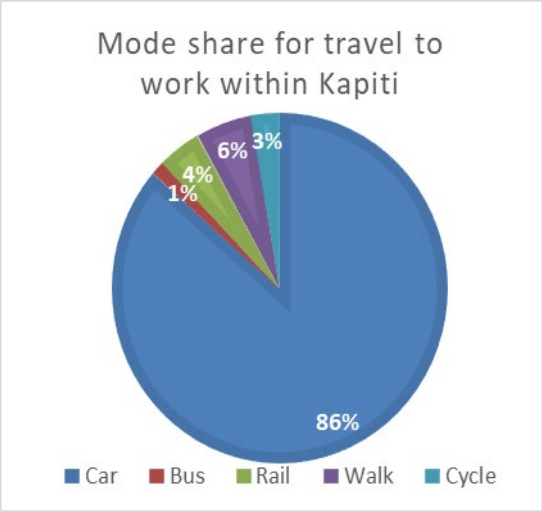
The map below shows the work destination for UH residents. The likely destination for work trips that are not to Wellington city or internal, are Lower Hutt and Porirua.







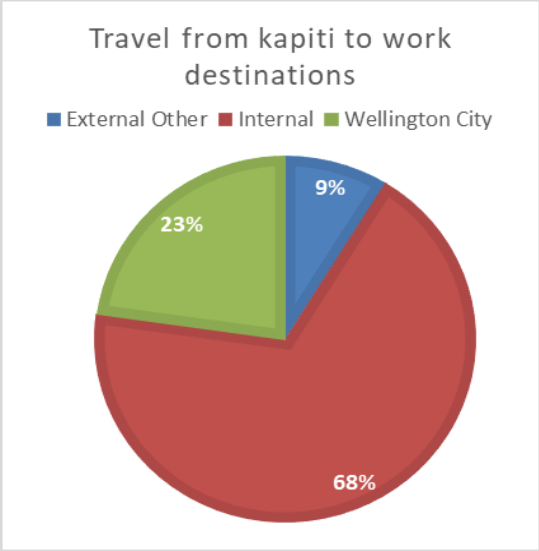
Kapiti Coast District - travel to work (Census 2018)

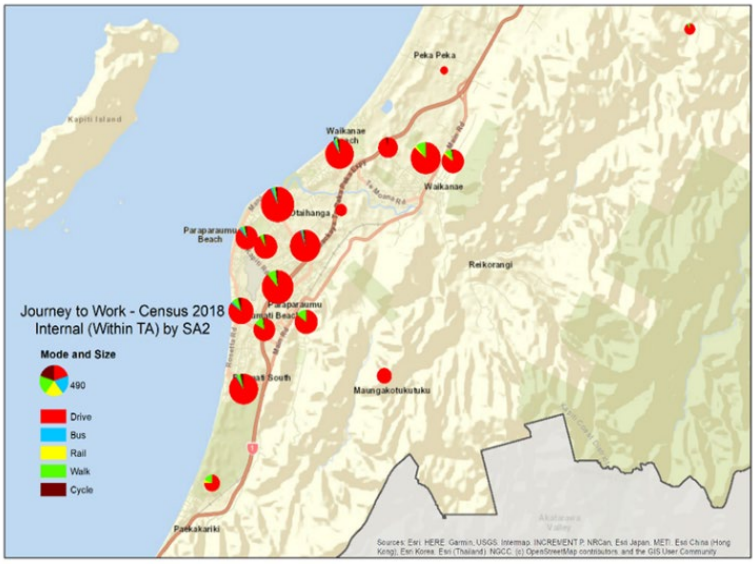


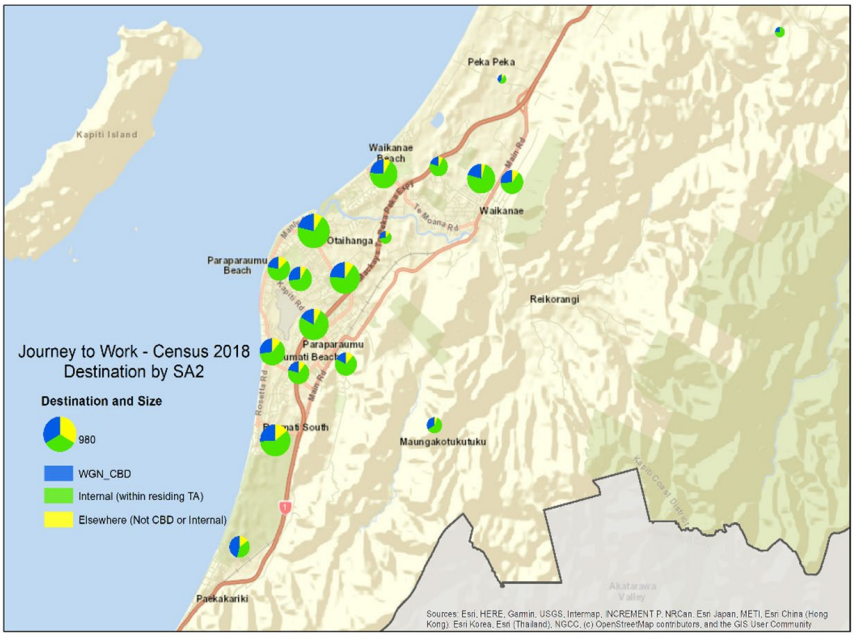
Mode share for travel to work, for people who live and work in the Kāpiti District is mainly by car 86%, with active travel 9% and public transport 5%.

The map (below RHS) shows mode share for travel to work within Kāpiti. Most people are travelling by car with walking also evident in Waikanae and other urban centres.

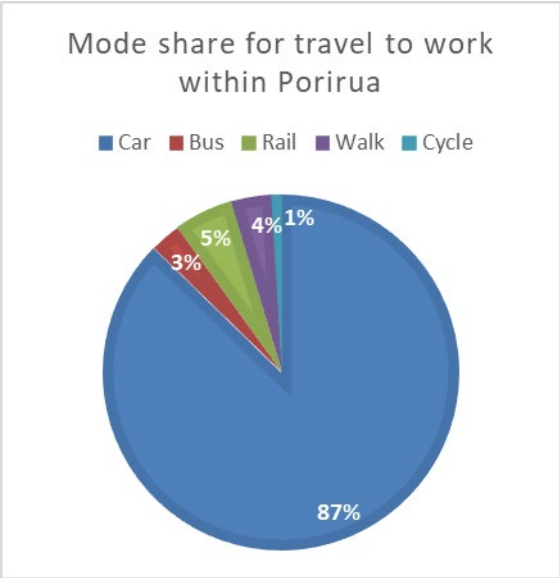
The second map (LHS), shows the workplace destination for Kāpiti residents. Overall 68% work in Kāpiti, 23% travel to Wellington City & 9% to other areas.



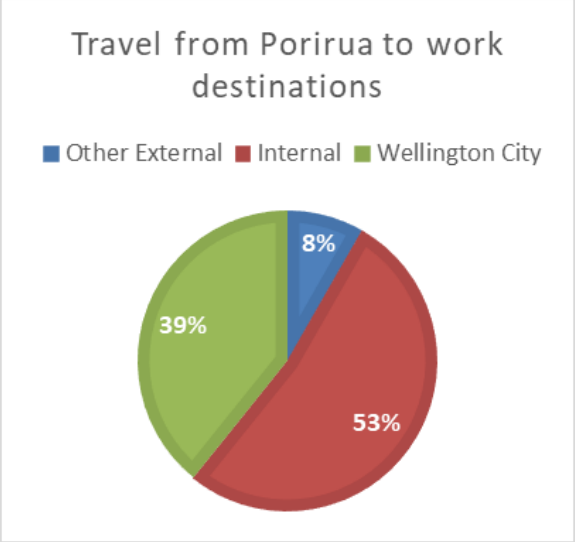


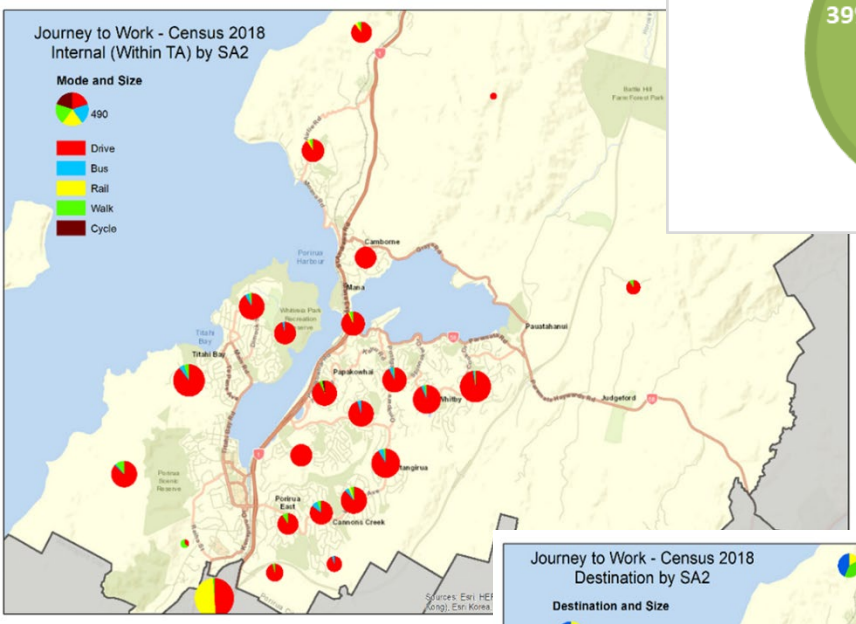


Porirua City – travel to work (census 2018)



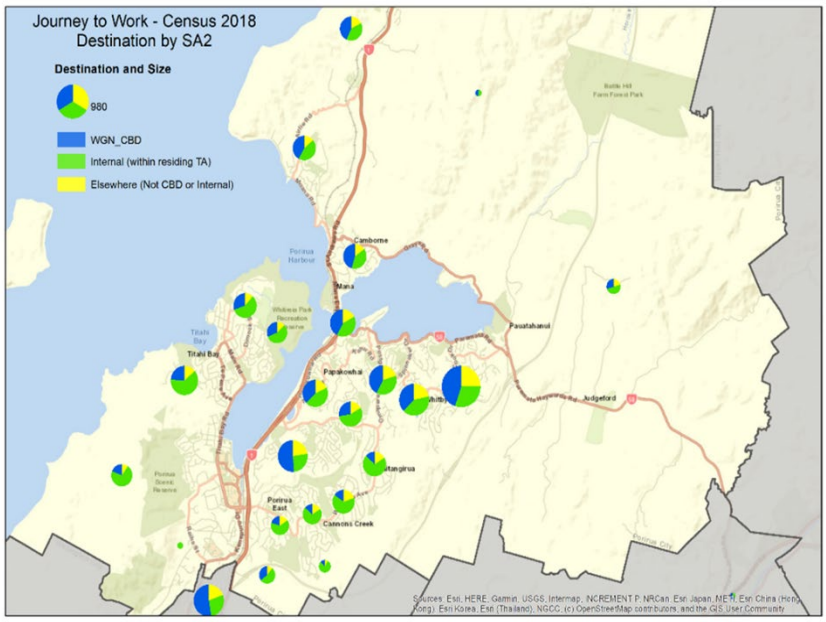
Travel to work for people who live and work in Porirua is mainly by car (87%). This is shown in the pie chart (LHS). 8% of internal commuter travel is by bus and train. PT mode share has increased since 2013 from 5.4% to 8% in 2018.



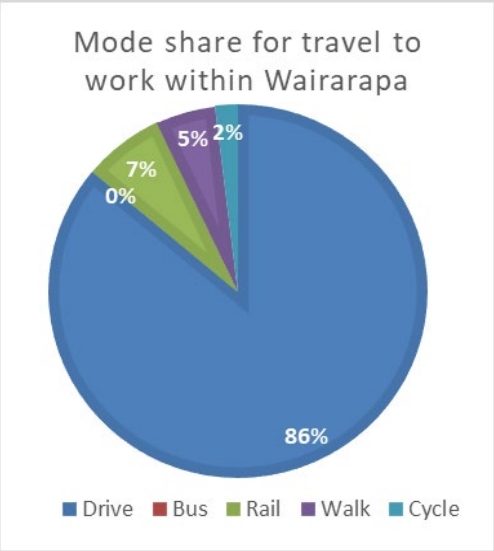


The map above shows mode share for travel to work. Of the 10,000 commuters leaving Porirua for work, 29% are travelling by train and 69% by car.

The map on the right shows the workplace destination for Porirua residents based on their residential address. 39% of residents work in Wellington City and 53% work in Porirua.

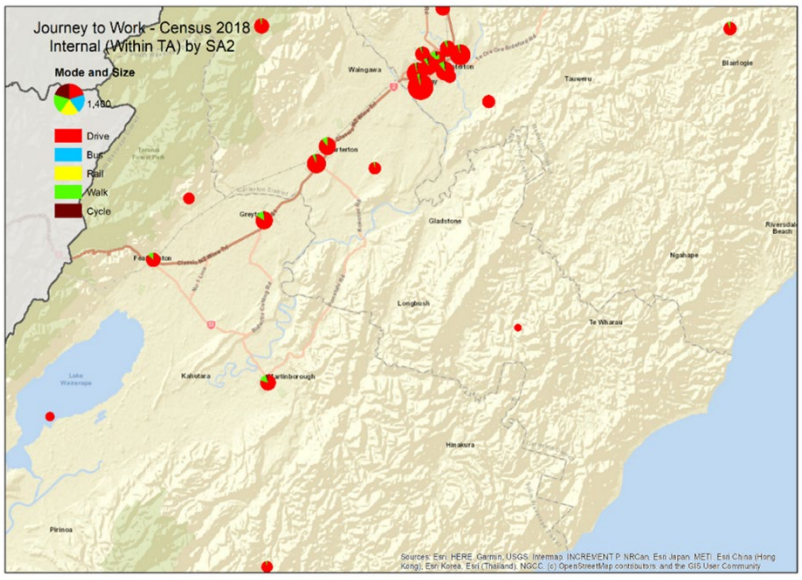


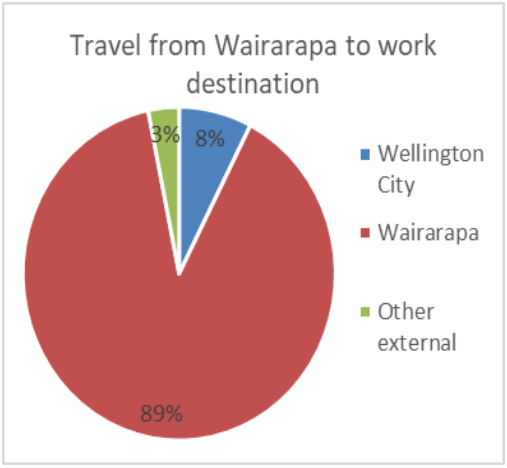
Wairarapa District – travel to work (census 2018)

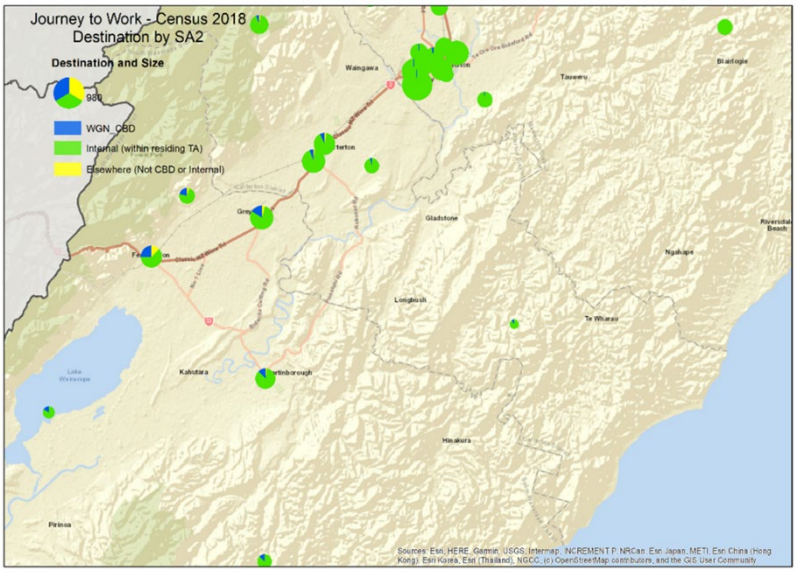


Travel to work in the Wairarapa is mainly internal travel, 89% of residents live and work in the district. Travel by car is 86% with 7% by train and 5% walking to work.

The map below left shows mode share within the Wairarapa district. Red indicates travel by car, blue is bus, yellow is rail and green is walking. For travel to work destinations outside the Wairarapa, 54% (900 commuters) use the train and the rest drive (770).







The map to the left shows the workplace destination. Most employment occurs within the district in the green. Those travelling out of the Wairarapa (shown as blue for Wellington City and yellow, other external) account for 11% of commuter travel. A higher proportion of commuters who live between Greytown and Featherston, travel to external work locations.

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October 2020
Publication
number:2020-68

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