

The Role of the Modes (June 2006)

1. Introduction

The land transport system is made up of various modes, all with separate roles and characteristics. This chapter describes the role of each mode within the greater Wellington region and meets the requirement of section 175(2)(j) of the Land Transport Act 1998. The modes are private transport, passenger transport, freight traffic, walking and cycling.

Journey by private car remains the dominant mode choice for our region comprising nearly three quarters of all trips during the peak period and accounting for almost two thirds of our journeys to work. However, both bus and rail passenger transport modes are vital to the operation of the region's transport network, comprising around 30% of peak period trips to and from the Wellington City CBD. This is a high mode share when compared to many other cities both throughout New Zealand and internationally. The RLTS recognises the importance of improving the provision and uptake of alternatives to the private car in achieving a sustainable land transport system.

This chapter provides key measures for each mode from the region's transport model. However, it must be noted that the figures are indicative only because of the inherent uncertainty in the forecasts for population, households, employment and car ownership as model inputs and a number of other assumptions required for the modelling process.

The 2001 numbers are derived from Census data and specially commissioned surveys. The 2016 numbers assume the Regional Transport Programme (RTP) [refer chapter #] has been fully implemented.

2. The Role of Private Vehicles

Trips by private car are the dominant mode choice and account for around 76% of all weekday trips undertaken in the greater Wellington region¹. Even with rising petrol prices, it is anticipated that the private car will be the dominant mode choice for the foreseeable future.

The following table sets out the base year and forecast 2016 mode share of private vehicles for various trip purposes, along with the key strategic aims for this mode within the RLTS.

Mode	2001 (Census Year)	Outlook to 2016 (RTP)	Key Strategic Aims
Private vehicles account for:	76% ² of all region wide trips per weekday. (1,262,200 trips per day)	76% of all region wide trips per weekday. (1,379,900 trips per day)	Maintain & develop the roading network. Improve road safety.
	72% of all journeys to work region wide. (193,100 trips to work per day)	72% of all journeys to work region wide. (204,900 trips to work per day)	Reduce reliance on private vehicles, particularly for single occupant journeys and short trips.
	55% of all work trips to	52% of all work trips to	

¹ Source: Wellington Transport Strategic Model (WTSM), total region wide trips per weekday.

² Mode share does not include heavy commercial vehicles.

	Wellington City CBD. (47,100 trips to work in the CBD)	Wellington City CBD. (49,100 trips to work in the CBD)	
	47% of all trips to educational facilities region wide. (34,300 trips to educational facilities)	48% of all trips to educational facilities region wide. 34,900 trips to educational facilities)	

Source: Wellington Transport Strategic Model (WTSM).

The figures in the table above illustrate our expectation that while overall demand for travel will continue to grow, the current mode share of private cars will remain reasonably static over the next 10 years.

The flexibility and convenience a car provides in terms of trip origin and destination, time of travel, and trip distance means it is often the most attractive mode choice. Even with a passenger transport system which serves the strategic network relatively well there is a proportion of car trips which can not easily be transferred to other modes.

Some businesses and individuals rely on the private vehicle for trips during the working day which by their nature cannot be as efficiently served by passenger transport or other modes. Also, the private vehicle is often relied on to access a range of economic, social, cultural, and recreational opportunities, particularly off peak and at the weekends.

However a growing demand for travel by private vehicle in our region is having an adverse effect on environmental quality, public health and economic efficiency. Current trends of increasing petrol and diesel consumption are having an adverse impact on CO₂ levels and regional air quality. An increasing reliance on private car use is also having a detrimental affect on people's health and fitness levels. It also results in worsening congestion and level of service on our roads which can adversely affect the efficiency of our regional economy. Peak period congestion is dominated by journey to work trips, particularly on the strategic network to and from the Wellington City CBD.

The RLTS therefore seeks to provide for high value and non-transferable trips on the road network, while encouraging the use of other modes where these are a viable alternative.

Chapter # of the strategy sets out the policies relating to the road network and travel demand management. The RLTS includes a demand management strategy which seeks to influence travel behaviour, reducing the demand for car travel while maintaining accessibility. Targets and performance measures for this mode are included under Chapter # Monitoring.

3. The Role of Passenger Transport

Passenger transport (PT) includes both scheduled public transport services and other passenger services. This mode includes the region's trains, buses, ferries and taxis which all form important components of a sustainable land transport system.

Journeys on public transport services account for around 7% of the region's weekday trips³. However PT mode share is around 30% along strategic corridors during the AM peak, which compares very well against the New Zealand average.

PT has a crucial role in providing an alternative to the private car, particularly for longer journeys where active modes are less attractive. It also has a vital role in providing for people who do not own a private vehicle, are unable to drive, or cannot use active modes to access the goods or services they need. Compared to single occupant private car journeys, passenger transport trips are generally more energy efficient, generate fewer emissions and result in less congestion, particularly where those trips are well patronised and the vehicles are well maintained and tuned. Passenger transport also has safety benefits over the private car.

There is an important relationship between urban form and the PT network. The intensification of development around passenger transport nodes is recognised in the regional growth strategy as an important element in allowing people to lead a lifestyle that is not dependent on the private car.

The different types of PT modes have different characteristics and roles to play in the provision of an efficient and effective PT network. These are described below.

Passenger Rail provides key services along two main arterial corridors to and from the Wellington City CBD. Commuter services are provided from as far as Palmerston North and Masterton, with more frequent electrified services from Paraparaumu, Upper Hutt, Johnsonville and Melling. Passenger rail primarily provides access to the CBD by carrying large numbers⁴ of people along these critical corridors, particularly during peak periods when the roads along these routes are severely congested. In Wellington, the average trip length by rail is around 25 km, compared with 7 km by bus. Hence while rail accounts for a smaller proportion of trip numbers than buses, it accounts for 70% of passenger kilometres in the peak periods.

The following table sets out the base year and forecast 2016 mode share of passenger rail for various trip purposes, along with the key strategic aims for this mode within the RLTS:

Mode	2001 (Census Year)	Outlook to 2016 (RTP)	Key Strategic Aims
Passenger Transport – Rail accounts for:	3% of all region wide trips per weekday. (44,200 trips per day)	3% of all region wide trips per weekday. (50,000 trips per day)	Improve peak period mode share. Maintain & develop the rail network including park and ride facilities. Provide services that recognise the needs of the transport disadvantaged.
	7% of region wide journeys to work. (19,600 trips to work per day)	8% of region wide journeys to work. (22,500 trips to work per day)	
	15% of Wellington City CBD journey to work trips. (13,300 trips to work to the CDB)	17% of Wellington City CBD journey to work trips. (15,800 trips to work to the CDB)	

³ Source: Wellington Transport Strategic Model (WTSM)

⁴ Around 11746 people arrive at Wellington Station during the AM peak. Source: GWRC AM Peak Cordon Surveys, March 2004.

	11% of region wide trips to educational facilities. (8,000 trips to educational facilities)	11% of region wide trips to educational facilities. (8,000 trips to educational facilities)	
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Source: Wellington Transport Strategic Model (WTSM).

As demonstrated by the above table, overall passenger rail patronage is expected to continue to grow over the next ten years, maintaining its current mode share of all trips and improving peak period use. The RLTS seeks to support these outcomes, in addition to improving capacity, reliability, service frequency and accessibility of rail services.

Buses account for almost two thirds of passenger transport trips during the peak periods. Buses provide a comprehensive network of routes to and from the Wellington City CBD from the south, east and western Wellington city suburbs, along with direct services along the strategic corridors from the north such as Eastbourne, Churton Park, Newlands and Khandallah. Elsewhere in the region buses play an important supporting role for rail as a local connector network.

The following table sets out the base year and forecast 2016 mode share of buses for various trip purposes, along with the key strategic aims for this mode within the RLTS:

Mode	2001 (Census Year)	Outlook to 2016 (RTP)	Key Strategic Aims
Passenger Transport – Buses account for:	4% of all region wide trips per weekday. (63,600 trips per day)	4% of all region wide trips per weekday. (71,900 trips per day)	Improve peak period mode share. Maintain & develop the bus network including bus priority measures. Provide services that recognise the needs of the transport disadvantaged. Employ vehicles that minimise non-renewable fuel use and harmful emissions.
	11% of journeys to work region wide. (28,200 trips to work per day)	11% of region wide journey to work. (32,300 trips to work per day)	
	22% of Wellington CBD journey to work trips. (19,200 trips to work to the CBD per day)	24% of Wellington CBD journey to work trips. (22,700 trips to work to the CBD per day)	
	16% of region wide trips to educational facilities. (11,500 trips to educational facilities per day)	16% of region wide trips to educational facilities. (11,500 trips to educational facilities per day)	

Source: Wellington Transport Strategic Model (WTSM).

The RLTS seeks to support the trend shown in the table and continue to grow bus patronage and improve peak period bus mode share, through implementation of the Regional Passenger Transport Plan. This will include improving capacity, service frequency and accessibility of bus services and encouraging the ongoing development of bus priority measures to ensure bus journeys are an attractive alternative to the private vehicle.

Taxi passenger trips account for a very minor (less than 1%)⁵ mode share of all weekday trips. However taxis do form an important component of the PT network as they provide the system with flexibility where scheduled services or routes do not provide adequately for a particular trip. Taxis also provide door to door service for those with limited mobility. The region's Total Mobility scheme utilises taxis for this purpose.

The key strategic aims for this mode are:

- Commercial provision of 24/7 services
- Provision of services that recognise the needs of the transport disadvantaged.

Because taxis essentially provide their customers with the same level of mobility as the private car, there is not considered to be a case for taxis to use or benefit from public transport priority schemes such as bus lanes. However, the regulation of such facilities along with allocation of standing space for taxis, is the responsibility of territorial authorities.

Ferries' share of passenger transport trips in the region are also very minor (well below 1%)⁶ and this is not expected to change significantly over the next ten years.

The key strategic aim for this mode is:

- Maintain current ferry services.

The existing Days Bay ferry provides direct access from Eastbourne across the harbour to the Wellington City CBD with good time savings compared to the same trip by bus or car. Other ferry options may become available over time.

The RLTS aims to continue investment in the region's PT network to ensure it provides a good level of service and to encourage increased patronage. Ongoing improvements to the PT network are needed to ensure it provides a viable and attractive alternative to the private car. Chapter # of the strategy sets out the policies relating to passenger transport. The Regional Passenger Transport Plan (RPTP) forms a section under Chapter # – Implementation. Targets and performance measures for this mode are included under Chapter # Monitoring.

4. The Role of Walking

Walking forms an essential element of a sustainable transport system and comprises around 17% of the region's daily trips⁷. This mode is particularly important for short⁸ local trips, but also has a vital role in providing connections between modes and at either end of longer journeys. Walking has important health, fitness, social and environmental benefits. It is also often the most energy and time efficient means of transport for short trips.

⁵ Derived from the 2001 Household interview survey.

⁶ Deived from 2001 Household interview survey

⁷ Source: Wellington Transport Strategic Model (WTSM) region wide trips per weekday

⁸ Short trips are defined as being those less than 2km in length

The following table sets out the base year and forecast 2016 mode share of walking for various trip purposes, along with the key strategic aims for this mode within the RLTS:

Mode	2001 (Census Year)	Outlook to 2016 (RTP)	Key Strategic Aims
Walking Accounts for:	17% of all region wide trips per weekday. (274,000 trips per day)	16% of all region wide trips per weekday. (298,200 trips per day)	Improve mode share. Maintain & develop the pedestrian network.
	9% of journeys to work region wide. (24,300 trips to work per day)	8% of journeys to work region wide. (24,000 trips to work per day)	Improve pedestrian road safety. Increase walking, particularly for short trips.
	7% of Wellington City CBD journey to work trips. (6,200 trips to work to the CBD per day)	7% of Wellington City CBD journey to work trips. (6,900 trips to work to the CBD per day)	<i>[Walking and pedestrians in this strategy are defined as any person on foot on a road, and includes any person in or on any contrivance equipped with wheels or revolving runners which is not a vehicle (Land Transport Act 1998)].</i>
	24% of trips to educational facilities region wide. (17,800 trips to educational facilities per day)	24% of trips to educational facilities region wide. (17,700 trips to educational facilities per day)	

Source: Wellington Transport Strategic Model (WTSM).

The above table highlights both small increases and decreases in walking throughout the region over the next ten years, depending on trip purpose. Overall, no significant change in walking mode share is forecast. However, school and workplace travel plans and awareness campaigns proposed under this RLTS aim to improve the current mode share of walking for these trip purposes. The success of these initiatives, along with other external factors such as rising petrol prices, is likely to positively affect the outlook for this mode.

Walking as a mode of journey to work to and from the Wellington City CBD is increasing. This is largely influenced by intensification of residential development in and around the Wellington City CBD, meaning more people live within an easy walking distance of their destination. It should be noted that the model does not capture internal trips within the CBD and therefore walking trips are somewhat under represented in the above table.

Most people consider walking to be an easy way of getting around the region⁹. However, we do not walk for as many short trips as we could¹⁰ and the use of walking as a mode for trips between 1km and 2km could be increased¹¹. The RLTS seeks to encourage the increased use of walking as a transport mode through provision of a safe and convenient pedestrian environment, and by increasing people's awareness of the benefits of walking as a mode choice. This will include advocating for new development and urban form which supports walking as a transport mode. In addition, the close link between walking and passenger transport for longer journeys is recognised and this strategy seeks to ensure pedestrian access to passenger transport nodes is easy, safe, and pleasant.

⁹ Source: GWRC perception survey 2004

¹⁰ Source: GWRC perception survey 2004

¹¹ Source: GWRC active mode survey 2004

Chapter # of the strategy sets out the policies relating to walking. The Regional Pedestrian Strategy forms a section under Chapter # – Implementation, setting out the proposed actions for pedestrian improvements within the region, including the proposed funding and responsibilities for those actions. Targets and performance measures for this mode are included under Chapter # Monitoring.

5. The Role of Freight

Freight traffic refers to the movement of goods, both heavy and light, transported by road, rail, ferry, or air. Freight includes anything transported as part of a commercial arrangement from a small couriered document to the movement of logs, containers and heavy machinery.

Overall there is a positive trend in inter-regional freight traffic movement¹². Freight movement through the port and by road has shown a steady growth since 2002. Inter-regional freight movement by ferry has been steadily increasing since 2000. Conversely, rail freight has shown a continual decline since 2000.

A significant component of freight movement within the region is the strong interdependent relationship between urban centres and industrial areas, which form part of a supply chain for our regionally produced goods. Efficient and effective linkages between freight transport and industrial land use are therefore critical to the well being of the region's industrial and manufacturing base.

Most freight journeys within the greater Wellington region tend to be relatively short (less than 20km) and not easily transferred to rail (BERL, 2004). The region's key road freight priorities are Seaview/Gracefield to Petone, Petone to the port, Porirua/Tawa to the port, and Porirua/Tawa to Petone. Freight trips by Heavy Commercial Vehicle (HCV) comprise around 9% of our region's weekday vehicle trips on the road network¹³.

The following table sets out both base year and forecast 2016 trip statistics for HCV's, along with the key strategic aims for this mode within the RLTS.

Mode	2001 (Census Year)	Outlook to 2016 (RTP)	Key Strategic Aims
Freight - Heavy Commercial Vehicles account for:	8% of all vehicle trips per weekday region wide. (87,100 trips per day)	11% of all vehicle trips per weekday region wide. (132,400 trips per day)	Maintain and develop the roading network. Enhance road freight efficiency.
	8% of vehicle trips per weekday AM peak region wide. (11,600 trips during the AM peak per day)	10% of vehicle trips per weekday AM peak region wide. (17,600 trips during the AM peak per day)	

Source: Wellington Transport Strategic Model (WTSM).

The above table shows that HCV trips are forecast to steadily increase over the next ten years, including during the peak period. It also illustrates HCV trips as a proportion of all vehicle trips on the road network steadily increasing.

¹² GWRC AMR 2004/2005

¹³ Source: Wellington Transport Strategic Model (WTSM)

Freight trips on the road network are often subject to congestion and unreliable journey times. Congestion effects on freight are already a problem for the region, and with growth of freight movement volumes this problem is expected to increase. The present freight movements tend to be evenly spread throughout the day (7am – 6pm), so there is limited opportunity for re-timing of freight trips (BERL, 2004).

The RLTS recognises the effects of traffic congestion on freight and aims to provide an efficient road network and reduce congestion, particularly on the strategic network and between the key destinations identified above. This is likely to be achieved through a combination of appropriate travel demand management measures, improved passenger transport services and new roading provision.

The key rail freight opportunities within the region are between the log producing areas of the Wairarapa and the Wellington Port. Initiatives to improve rail freight viability between these locations have been identified, however investment in such initiatives are sensitive to fluctuating log prices.

For inter-regional rail freight, the predominant movement is from the north to the Wellington Port and Wellington Central Station. The viability of rail freight on the NIMT line is affected by speed, frequency and capacity limitations.

No measure is available for rail freight. The key strategic aims for rail freight within the RLTS are:

- Maintain and develop the rail freight network and associated facilities
- Support rail freight initiatives that provide viable alternatives to road freight.

While no measures are available to compare current and forecast trends in rail freight, the RLTS seeks to improve the viability of rail freight by advocating for investment in the region's rail infrastructure and by supporting viable new rail freight initiatives where they provide benefits over road freight.

The Wellington port (Centreport) is located adjacent to the Wellington City CBD and is a key link for freight between the North and South Islands. It is also the only major port in New Zealand with direct access to westward routes from New Zealand. Centreport has seen increasing freight volumes each year since 1997 (WRS, 2005). A key element of the port's freight traffic relates to the core operations of logs and containers.

Freight movement via the airport is a relatively minor component of the region's freight traffic, largely due to the restriction in aircraft size that can be accommodated by Wellington Airport. A future increase in freight movement via the airport is expected as a result of improvements to accommodate containerised airfreight and potentially through the introduction of the new Boeing 787, however as yet it is unknown how significant such growth is likely to be.

The ability of the region's transport system to ensure freight movement is both efficient and reliable is vital to the prosperity of the regional economy. The close relationship between freight movement

and regional economic growth is demonstrated by the elasticity model which shows that a 1% change in Wellington's Regional GDP results in 1.3% change in Regional Road Freight VKT¹⁴.

The RLTS seeks to ensure the efficient and reliable movement of freight within the region. This will depend on improving road network efficiency and supporting rail freight initiatives where the benefits exceed those of road freight.

Chapter # of the strategy sets out the policies relating to freight traffic. A draft Regional Freight Strategy is currently under development. The strategy will cover road, rail and sea freight and will seek to improve the efficiency of freight movement to support economic development goals for the region. Targets and performance measures for this mode are included under Chapter # Monitoring.

6. The Role of Cycling

Cycling is an important mode of transport for short and medium length trips. While comprising a relatively minor 1%¹⁵ of the region's trips over an average weekday, cycling contributes positively towards a sustainable transport system as it is energy efficient, has minimal environmental impacts, is affordable, and has associated health and fitness benefits. Cycling also contributes to reduced congestion as cycles require less road space and parking space than cars.

The following table sets out the base year and forecast 2016 mode share of cycling for various trip purposes, along with the key strategic aims for this mode within the RLTS.

Mode	2001 (Census Year)	Outlook to 2016 (RTP)	Key Strategic Aims
Cycling accounts for:	1% of all region wide trips per weekday. (17,500 trips per day)	1% of all region wide trips per weekday. (19,000 trips per day)	Maintain & develop the cycling network. Improve cycle road safety.
	1% of journeys to work region wide. (1,600 trips to work per day)	1% of journeys to work region wide. (1,500 trips to work per day)	Increase cycling, particularly for short and medium length trips.
	<1% of Wellington City CBD journey to work trips. (400 trips to work to the CBD per day)	<1% of Wellington City CBD journey to work trips. (400 trips to work to the CBD per day)	
	2% of trips to educational facilities region wide. (1,100 trips to educational facilities per day)	2% of trips to educational facilities region wide. (1,100 trips to educational facilities per day)	

Source: Wellington Transport Strategic Model (WTSM).

The above table illustrates the very minor mode share held by cycling, which is not expected to increase significantly over the next ten years. In fact, the number of cycling trips is forecast to decline slightly for journeys to work and education facilities in 2016.

¹⁴ Source: Wellington Freight Movements Study – May 2006

¹⁵ Source: Wellington Transport Strategic Model (WTSM)

A hilly terrain and windy climate in parts of the region may contribute much to the perception of many greater Wellington residents that getting around the region by cycle is not easy¹⁶. However, there are many parts of the region such as the Kapiti Coast, the Hutt Valley and Wairarapa which have the topography and climatic conditions more suited to cycling and a growth in this mode should be achievable in these areas.

Most residents also believe cycling in the region to be unsafe¹⁷. Therefore perceptions of cycling safety, along with the provision and quality of cycling facilities have an important part to play. These will need to be addressed if cycling is to become a recognised and valued transport mode in the region.

In order to achieve an increase in the uptake of this transport mode, the RLTS aims to improve the level of service for cycling throughout the region. A key action of the Regional Cycling Strategy is the identification and development of a regional cycling network, to ensure a consistent and strategic approach between the various road controlling authorities.

It will be important to ensure that new development and urban form supports cycling as a viable transport mode, particularly for shorter journeys. Cycling as part of a longer journey combined with passenger transport also needs to be recognised and adequately provided for within our region.

Chapter # of the strategy sets out the policies relating to cycling. The Regional Cycling Strategy forms a section under Chapter 7 – Implementation. Targets and performance measures for this mode are included under Chapter # Monitoring.

7. The Role of Other Modes

Modes such as mobility scooters, skateboards, segways and the like are generally confined to using the existing pedestrian network. While these modes are often important to the user, they are well below the scope of strategic regional transport planning. Therefore policies regarding their use and provision of infrastructure are best dealt with at a local community level.

8. Integration of Modes

The provision of an integrated, safe, responsive, and sustainable land transport system relies on integration between all modes which make up the regional transport network. Many journeys are multi-modal and to ensure such journeys are as quick, safe and convenient as possible, a good level of integration between the different transport modes is sought by the RLTS.

Within the passenger transport network itself, the ease of connecting between the modes such as buses and trains, and within the modes themselves will contribute to faster more reliable journeys. This is likely to make the passenger transport network more attractive for a greater range of journey purposes and destinations.

Walking often forms a component of longer trips by passenger transport or private car, so the provision of safe, direct and pleasant pedestrian access to stations, bus stops and park and ride

¹⁶ GWRC perception survey 2004

¹⁷ GWRC perception survey 2004

facilities are important. Cycling trips have the potential to be combined with other modes for longer journeys, particularly for those areas where the public transport network cannot easily be accessed by walking. In particular, safe cycling routes and cycle storage provision will be crucial to achieving good integration between cycling and other modes. The following table sets out how the RLTS proposes to address and improve the integration between and within modes:

	Rail	Bus	Ferry	Walk	Cycle
Private Car	Maintain & develop park & ride facilities	Investigate park & ride facilities where appropriate	Investigate park & ride facilities where appropriate	Direct and safe pedestrian access to parking areas	N/A
Rail	Integrated ticketing, timetable alignment and pedestrian connections	Integrated ticketing, timetable alignment and pedestrian connections	Integrated ticketing, timetable alignment and pedestrian connections	Direct & safe pedestrian connections to railway stations	Safe cycling links to train stations, cycle storage and/or bike carriage facilities
Bus		Integrated ticketing, timetable alignment and pedestrian connections	Integrated ticketing, timetable alignment and pedestrian connections	Direct & safe pedestrian connections to bus stations and stops	Safe cycling routes to bus stations, cycle storage
Ferry			Integrated ticketing, safe and easy access to ferry terminals	Direct walking connections to and from ferry terminals	Safe cycling routes to ferry terminals, cycle carriage on ferries
Walk				Direct & safe pedestrian links	Cycle storage adjacent key facilities
Cycle					Develop the regional cycling network

There are few opportunities for the integration of rail and road freight due to fundamental differences between these modes. However opportunities to achieve such coordination should continue, for example the Wairarapa Centre Port log freight proposal which seeks to move logs from a depot near Masterton via rail thereby significantly reducing heavy vehicles using SH2.