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Committee Regional Transport
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Travel demand management in the Wellington region

1. Purpose

This report presents an outline of the travel demand management programme in the Wellington region, progress to date, and the opportunities to further develop this approach.

2. Background

2.1 What is travel demand management

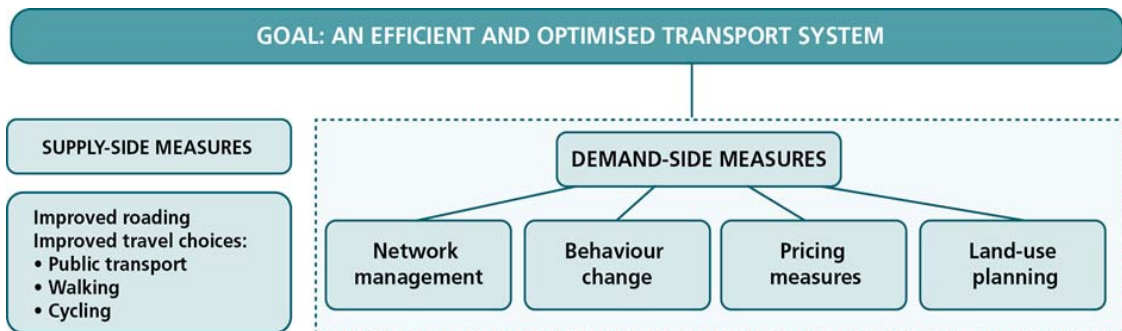
Travel demand management is a collection of measures used to optimise use of the existing network, reduce peak transport network demand and the reliance on private motor vehicles. This includes greater use of more efficient modes such as public transport, walking or cycling as well as more efficiently managing the use of existing road space.

Demand management measures can be used as a complimentary activity alongside, or as an alternative to, infrastructure improvements to address pinch-points or congestion hotspots as they cost less to implement and have less impact on communities and the environment.

Demand management in our region could help to ensure that:

- The reliability, travel time and de-congestion benefits of the RoNS projects are maintained for as long as possible
- The transport network is optimised through increased use of public transport as a more efficient way of moving large numbers of people at peak times
- Congestion is reduced or maintained at current levels (especially at peak hours) to provide effective access to markets and services and to maintain the 'liveability' of our regional centres

- The energy consumed and the harmful emissions generated from the region's transport are minimised
- There are incentives to use other modes including walking and cycling
- Space is available on the road network for high value trips such as freight
- Information is provided to help travellers make smart travel choices
- More people live in areas with good access to public transport and where walking and cycling are practical options.



2.2 Policy framework

The RLTP 2015 vision is ‘to deliver a safe, effective and efficient land transport network that supports the region’s economic prosperity in a way that is environmentally and socially sustainable’.

As part of achieving this vision, the RLTP seeks to:

- Increase the use of public transport, walking and cycling
- Reduce severe road congestion
- Improve the reliability of the strategic road network
- Improve the resilience of the transport network
- Improve road safety
- Reduce harmful transport emissions
- Increase private vehicle occupancy

Demand management tools are part of a suite of interventions and measures that will contribute to these goals and assist in achieving a balanced overall approach. In addition these tools seek to ensure that the transport network is optimised and operates in an effective and efficient manner with. That the region’s transport users are well informed and have real journey choices and that the investment made in transport infrastructure is realised in extended life and efficient use.

The RLTP sets out a number of policies that relate to travel demand management. These are provided in **Attachment 1**.

There are also a number of policies that specifically support the use of public transport, walking and cycling.

2.3 The Wellington transport network context

The transport network and urban development in the Wellington region is geographically constrained and is generally focussed along a few key linear corridors.

North of Wellington City, a core ‘Y’ shaped strategic road and rail network serves the region, and connects with the regional CBD. The geography through the city itself and to the south, west and eastern parts of the city also traverse a relatively narrow corridor. This leads to a high demand for the available road space and results in congestion.

Just under 60% of the region’s jobs are located in Wellington City (primarily in the CBD) so a large proportion of journeys to work are focused to and from this regional centre. There are also a number of major regional facilities such as Wellington International Airport, regional hospital, regional stadium, and CentrePort located within Wellington City.

Relatively modest population growth rates and a relatively high public transport mode share means that the region’s traffic congestion problem is less significant than Auckland’s. However, severe congestion on some sections of the network does occur where pinch-points in the strategic road network exist and where demand significantly exceeds available capacity with limited alternative routes. This congestion is most severe during peak periods (although it can occur off-peak at weekends and public holidays in some locations) and can have a significant adverse impact on public buses and freight.

2.4 Proposed strategic transport network improvements

A number of road improvement projects are now underway or proposed as part of the Wellington Roads of National Significance (RoNS) to address issues along SH1 through the region such as safety, resilience, pinch-points and limited alternative routes. These projects include the Kapiti Expressway, Transmission Gully motorway, Mt Victoria Tunnel duplication and Ruahine St widening and the Petone to Grenada Road.

These highway improvements will ensure people and freight travelling to and through the region on our strategic roads, can do so on a modern network designed to accommodate current and future traffic volumes safely and effectively. They are expected to reduce journey times on the road network, particularly at peak times. They will also be crucial to ensure the strategic road network is resilient and can cope reasonably well with events such as a traffic incidents or impacts of a major storm, which have increasingly tested the transport network in recent years and caused significant disruptions for the region.

However, while these improvements will have significant travel time, safety and resilience benefits for existing users, they are also expected to lead to an increase in the number of commuter car trips on the network and travelling into Wellington City as a result of quicker and more reliable journey times on the road network. This is likely to increase congestion in the central city.

The majority of growth in trips will be generated by population growth and the need for people to travel to access new job opportunities in Wellington CBD. The remaining private vehicle trips can be attributed to new or induced trips driven by the impact of infrastructure improvements to improve reliability and journey times for users.

Analysis completed using the Wellington Transport Strategy Model (WTSM) as part of developing the RLTP 2015 provides trip forecasts under an 'RLTP expected future' scenario for 2031¹. This scenario involves significant improvement in public transport infrastructure and services as well as the Wellington RoNS projects.

Forecast car trips to Wellington City during the morning peak period are forecast to increase by 11,500 trips or 16% between 2011 and 2031. An increase in public transport trips of 5,200 or 22% is also forecast over the same timeframe. The increase in total trip numbers is around 16,700 over this period.

3. Types of travel demand management tools

There are a range of tools, programmes and policies that make up the 'demand management' suite of interventions. These different travel demand management mechanisms are described below in six broad categories.

3.1 Influencing travel behaviour

Travel behaviour change programmes are used to influence people's travel choices through promotion, education, information, training and events. They also often involve the identification of barriers to walking, cycling, public transport and carpooling and look for ways to address these. Programmes are often delivered through schools and workplaces to target journeys made during peak periods.

For example – school and workplace travel plans, walking school buses, bike buddies, cyclist skills programmes, walk to work day events, journey planning tools, and car pool websites.

3.2 Network management

Traffic management and technology based tools are used to maximise existing network capacity, improve traveller information, improve journey reliability, and smooth traffic flows.

For example – intelligent transport systems (transport systems responsive to changing traffic conditions including traffic signal phasing, variable speed and message signs), peak only traffic lanes, ramp metering of on ramps, high occupancy vehicle lanes, and specific intersection design.

3.3 Technology and innovation

Evolving technologies and lifestyle trends are expected to increasingly influence travel demand and the way that we access goods and services in the

¹ Regional Land Transport Plan Working Paper 4 – Development of Future Scenarios (GWRC) <http://www.gw.govt.nz/assets/Transport/Regional-transport/RLTP-2015/WP4-Development-of-Future-Scenarios.pdf>

future. New technologies can improve travel efficiency and reduce the need for travel.

For example - video-conferencing facilities, online shopping, home deliveries, 3D printing, real time travel information, integrated fares and ticketing, smart ticketing technologies, car-share schemes, and electric bicycles.

3.4 Land use policies

Land use and urban form can have a significant influence on travel demand. Compact urban form and higher densities around centres and along transport corridors make public transport, walking and cycling an attractive and feasible choice for more trips. This can also reduce trip lengths to access goods and services, reducing overall travel demand.

For example – land use and transport integration policies in regional and district land use documents (e.g. Regional Policy Statement, District Plans), growth strategies or spatial plans, structure plans, subdivision design guides and car parking provision rules.

3.5 Economic pricing measures

Pricing measures are economic tools that are used to influence travel choice. There are a range of different ways of charging for road use as a demand management intervention, some of which are available under current legislation and others which are not currently allowed for. They can include charging for using existing roads or charging for use of new roads. They can involve network wide charges (fuel or distance based) or charges targeted to certain trips (time and location).

For example – regional fuel tax, cordon or congestion charges on existing roads, tolling on new roads.

3.6 Parking policies

Parking supply, management and cost can be used to influence the demand for car use. An efficiently managed supply of short-stay parking (for shoppers and visitors) is important to a competitive economy and is primarily in public ownership. However, much of long stay commuter parking is in private ownership and additional parking charges could be applied to manage demand and generate revenue to be put towards public transport improvements. District plan requirements for parking can have a significant influence on transport patterns.

For example- a targeted rate (for ‘parking’ as a land use type) or a parking levy (a specific charge for each parking space), or maximum parking requirements for development.

4. What are we currently doing?

4.1 Utilising network management tools and new technologies

Intelligent transport systems have been used throughout the Wellington region for a number of years. The Wellington Transport Operations Centre (WTOC) opened in 2011 and coordinates monitoring of the strategic road network and allows real time information to be communicated, including via message

boards on the state highway network. It also allows traffic light phasing to be adjusted to be responsive to real time conditions.

WTOC is staffed and managed in partnership between the Transport Agency, Wellington City Council, Greater Wellington Regional Council and other councils in the region. Its objective is to provide around the clock service to help travellers get where they're going as smoothly, safely and quickly as possible.

A project currently underway is the Johnsonville to Terrace Tunnel 'Smart Motorway' which is due to open in early 2016. This project will use the existing road shoulder space to create an additional northbound peak lane. It will also be fitted with a network of detection equipment (radars, loops and cameras) and electronic signs that are programmed to respond automatically to manage the flow of traffic. As the volume of traffic increases, the smart motorway automatically adjusts the speed limit to reduce congestion and get as many vehicles as possible through the area. This piece of work has been undertaken by the Transport Agency's Highway and Network Operation division with the final smart motorway to be managed by the WTOC.

The use of technology such as video-conferencing is being increasingly used in the region to reduce travel for business meetings. Car share schemes such as 'CityHop' are available in Wellington City to allow inner city residents' access to a car on a casual basis when needed.

The new mobile application for RealTime public transport information will enhance the accessibility and flexibility of public transport as will future ticketing applications on smartphones. Video conferencing is now becoming increasingly used by major employers within the region whilst mobile phone applications such as those for public transport real time information and for car sharing schemes such as those promoted by GWRC are seeing regular increased usage annually.

4.2 Land use planning

The RLTP includes a set of policies that advocate for improved land use and transport integration and compact urban form. This policy direction is also included in the Regional Policy Statement (developed under the Resource Management Act) and increasingly through the local growth strategies and District Plans developed and managed by councils in the region. Advocacy for these policies and principles is progressively taking place through plan change and consent processes. Rules for parking provision in Wellington City's central area and major centres were amended some time ago so that no parking is required for new residential developments.

Inner city apartment living has seen a significant increase over recent years in Wellington City CBD, supporting good increases and walking and cycling mode share in Wellington City. Outside of the CBD, achieving higher residential densities around public transport nodes and corridors and in centres has been less successful and may require additional structural or legislative changes to encourage this type of development.

4.3 Travel behaviour change programmes

A regional programme to coordinate and deliver travel behaviour change programmes has been in place since 2006. Many councils have School Travel Plan Coordinators who work with schools to encourage active modes uptake and improve road safety around the schools. GWRC delivers regional behaviour change programmes which ensure consistency of campaigns and messaging across the region. This programme is an important component of a wider suite of demand management tools working in partnership with local councils, schools, universities, workplaces, police and health agencies to deliver these behaviour change initiatives.

The regional programme includes a number of major initiatives outlined below. The scale of the programmes is constrained by the limited availability of funding at a national level.

Active modes

- **Active a2b** - a behaviour change programme from January-March, promoted through an extensive network of businesses and workplaces, encouraging people to take up active modes on their journey to work. It targets those people who drive alone to work three or more times a week and offers them personalised support to determine their goals, barriers and support opportunities. Three major health partners - Regional Public Health, Cancer Society and Compass Health - have provided additional funding to the programme over recent years.
- **Region-wide schools programme** – training new travel planners, evaluation and monitoring of data submitted by TA travel planners, running the Movin'March active travel week promotion, and working with EnviroSchools to develop curriculum resources on sustainable transport options that can be used in any school participating in the EnviroSchools programme.
- **Provide and support active transport events** - provides information and tools which encourage walking and cycling and integration of active transport with public transport as options for transport journeys. This includes Go By Bike Day, Walk to Work Day, Cyclovia and Big Bike Fix Ups. It also includes promotion of non-competitive cycling events through summer with a regional cycling events guide.
- **Navigational tools** – dissemination of information about walking and cycling times to train stations through the development of time radius maps; cycling and walking route planning tools facilitate mode shift towards active modes by informing users of the most efficient route options; web-based information including regional cycling maps.
- **Active transport forums** - quarterly regional active transport forums enable attendees to share their activities and best practice examples and encourage greater uptake of initiatives.

All modes

- **Let's Carpool** - improving vehicle occupancy rates in the region is the aim of the carpooling programme. It is targeted towards those who drive alone to work, those who are not well-served by public transport routes, and those who are unable to commute by active modes (due to distance or car requirements). Carpooling is also promoted as an option for public transport users who drive to the station, thus minimising pressure on Park & Ride facilities.
- **New movers transport options** - targeted travel awareness at a "change moment" such as moving into the region, starting a new job, university or school, provides opportunities to reduce the number of cars on the road and improve the mode share of walking, cycling, public transport and carpooling. Purchasing NZ Post data about new movers into or within the region enables us to send out welcome packs including complimentary bus tickets where available. For tertiary institutions and large workplaces the offer of personalised travel planning, cyclist skills training, workplace specific carpooling administration tools and public transport trials, spreads the knowledge and opportunities for new transport options.
- **Workplace and business forums** - quarterly regional workplace forums enable attendees to share their activities and best practice examples and encourage greater uptake of initiatives.

Active modes/road safety

- **Pedal Ready** – a regional cycle skills training programme. It currently delivers cycle skills training to schools and adults in every TA of the region through a team of qualified instructors. The training creates an inviting atmosphere to learn and develop bike-handling skills and traffic management skills in a well-supported environment conducive to the needs of the participants.
- **Bus/cyclist workshops** - Quarterly workshops held with major bus companies and cyclists. This initiative raises 'share the road' awareness, with drivers going for a bicycle ride (with Pedal Ready cycling instructors) and cyclists trying their hand at driving a bus.

5. What results are we currently achieving?

Measuring the effects of individual travel demand management measures against high level transport and community outcomes such as congestion, mode share, and emissions is difficult and this is acknowledged internationally. Isolating the impact of travel behaviour change measures is particularly difficult because of the wide range of factors that influence travel choice and travel patterns.

Network management tools optimise traffic flows in order to get more capacity out of the existing road corridor and have shown to be particularly effective in

situations where a small amount of additional capacity is needed. These techniques often seek to give better reliability and efficiency for existing journeys and modes rather than fundamentally changing habits and behaviours.

The impact of technology as a demand management intervention is likely to be increasingly significant, although there is uncertainty around the timing, development and uptake of new technologies.

From a land use policy perspective, there is evidence that an increase in inner city living in and around Wellington City CBD is resulting in an increase in walking and cycling mode share. Census journey to work statistics show a strong growth in active modes in Wellington City that is not reflected elsewhere in the region. The Wellington City CBD Cordon survey found that the total active mode count increased between 2000 and 2015 by 42.0%. This growth in active mode use is considered to be influenced largely by more people living within closer distances to jobs in the CBD, making walking and cycling more feasible.

Monitoring of the different activities that make up the regional travel behaviour change programme has shown how successful these programmes can be in influencing people's mode or travel choices. For example:

- There has been a 25% increase in active travel trips to school (from 32% to 40%) for those schools participating in the School Travel Plan programme.
- Through the Pedal Ready programme, 4063 children and 560 adults received cycle skills training in the last year.
- During Kiwi Carpool Week 40 new people registered on the Let's Carpool website. The average weekly number is between 8 and 11.
- Between the 2006 and 2013 Census there has been a 49% increase in cycle commuting in Wellington region.

A 1% reduction equates the following number of vehicles on these sections of the strategic road network time:

Waikanae to Paraparaumu with 1800vph at Mackays crossing, 1% = 18
Ngauranga to Aotea Quay with 5500 vph, 1% = 55
Mt Vic tunnel inbound with 1400 vph, 1% = 14
Petone to Ngauranga with 3800 vph, 1% = 38

In 2015 car trips for the Active a2b Plus group (those who drive alone to work three or more times a week), decreased significantly from 91% to 69%. It's estimated that the Active a2b programme removed between 50-60 cars off the road approximately the same as 1% volume on Ngauranga to Aotea Quay.

Whilst the region's travel behaviour change programme has demonstrated positive results and represent good value for money, at current levels of

investment it is likely to have a relatively minor influence on our overall strategic outcomes.

6. What else could the region do?

There are a number of things we could do more of, or examine further, to ensure that all the potential demand management tools to influence efficient and optimised use of the region's transport network are explored.

6.1 Build upon existing tools and measures

- An ongoing measure will be to support the uptake of new technologies and respond to changing lifestyle trends as these things evolve. The region could also look for opportunities to pilot new technologies that make travel and transport more efficient.
- There is potential for extension of the smart motorway concept throughout the region and a 'managed motorway' approach to be considered to address congestion hot-spots in the region. Though such techniques often seek to give better reliability and efficiency for existing journeys and modes rather than fundamentally changing habits and behaviours.
- An urban development authority and/or local land development agencies could assist with progressing higher densities and mixed use development around public transport nodes and corridors by work with developers to address barriers and constraints to developments in identified areas. For example, facilitating and coordinating the amalgamation of separately owned land parcels to allow comprehensive housing development. This is being currently investigated by WCC and the NZ Productivity Commission.
- A proposal to advance work towards a regional spatial plan is currently being considered by the Chief Executives Forum and the Mayoral Forum. If agreed, this work has the potential to significantly support improved land use and transport integration as a demand management tool.
- Scaling up of travel behaviour change programmes to compliment other travel management measures if additional national and local funding sources could be identified.

6.2 Potential pricing tools

A key tool currently under-utilised is pricing. Pricing tools can be particularly effective in influencing transport mode choice, particularly where good alternatives to the private car are available.

Tolling of new roads is a tool available under existing legislation, but has not been used in the Wellington region to date. Tolling has been considered for planned new roads in the region such as Transmission Gully (primarily as a revenue gathering tool) and the proposed Petone to Grenada Road. However, no tolling schemes have been confirmed to date. Tolls apply to a single section

of the road network and therefore tend to push some trips onto alternative routes rather than having demand management benefits.

Charging for the use of existing roads, such as congestion charges or cordon charges, is not currently provided for under legislation. However, analysis has shown that these are likely to be one of the more effective tools to manage demand and achieve a range of strategic objectives and outcomes. Legislative changes are needed before such tools can be considered.

Most long stay commuter parking in Wellington City CBD is privately owned and pricing is currently determined by the market and supply. The use of targeted rates as an indirect charge on car parking land uses is available under existing legislation, but not used at present. Direct parking levies are not available under existing legislation and will require further investigation.

For commuter trips, the relative difference between the cost of travelling by car (fuel, travel time, congestion, journey reliability, parking cost/supply) and public transport (fares, travel time, journey reliability, journey experience) are key factors. Changes to these costs can result from local or national policy decisions, external factors and new services or infrastructure, and can affect the modal split between car, public transport and active modes. Applying a charge for road use or parking is a policy intervention that can increase the cost of car travel relative to public transport and result in associated mode shift to public transport.

Analysis carried out to look at different future scenarios as part of developing the RLTP 2015 provided some useful information about the likely impact of road pricing tools. Three different conceptual pricing scenarios were tested using the Wellington Transport Strategic Model as part of a 'Managed Highway Future'. These were:

- A parking levy (a targeted rate for land used for parking²)
- A congestion charge (a central Wellington City cordon charge at peak times)
- Tolling of new strategic roads (Transmission Gully and Petone to Grenada Road)

These scenarios were all shown to increase public transport use, reduce car trips and reduced delays on the road network compared with the 'RLTP expected future' scenario.

Based on the modelling analysis, the 'congestion charge' scenario would have the most significant impact on these outcomes, particularly for trips to and from the Wellington City CBD. For example, around 4 million additional annual public transport trips to Wellington City CBD were forecast for 2031 under a 'congestion charge' scenario, and around 4 million less car trips, compared with the 2031 'expected future'. For most indicators, the 'parking levy' scenario was the next most effective, followed by 'tolling of new roads'.

² Assumes cost is passed on to car users in most cases – not absorbed by businesses

The ability to use a congestion charging tool or direct parking levy is currently limited by lack of supporting legislation. Lobbying central government is the appropriate next step in relation to these potential tools. However, the Local Government Act 2002 and/or Local Government (Rating) Act provides for targeted rates - where a differential rate is placed on land that is used for car parking. This tool could be examined further.

Two key actions are underway in this area:

- Advocate to central government, in collaboration with Auckland Council, for legislative change to provide for more pricing options (i.e. existing roads and direct parking levies).
- Progress a joint project (WCC and GWRC) called 'Travel demand in Wellington CBD' to investigate options for managing demand in Wellington City, including potential parking charging and supply tools.

7. The decision-making process and significance

The matters requiring decision in this report have been considered by officers against the requirements of Part 6 of the Local Government Act 2002 (the Act). Part 6 sets out the obligations of local authorities in relation to the making of decisions.

7.1 Significance of the decision

Part 6 requires Greater Wellington Regional Council to consider the significance of the decision. The term 'significance' has a statutory definition set out in the Act.

Officers have considered the significance of the matter, taking the Council's significance and engagement policy and decision-making guidelines into account. Officers recommend that the matter be considered to have low significance.

The decision relates to endorsing additional demand measures for further investigation and is therefore of low significance.

Officers do not consider that a formal record outlining consideration of the decision-making process is required in this instance.

7.2 Engagement

Community views and feedback obtained as part of developing the Wellington RLTP 2015 highlighted the importance of examining and utilising travel demand management measures in the Wellington region.

This report updates the Committee on current and planned demand management measures, and endorses further investigation. In accordance with the significance and engagement policy, no engagement on the matters for decision is required.

Further detailed work to develop and refine additional demand management options will involve engagement at a level that aligns with the significance of any decision to be made at each stage.

8. Recommendations

That the Committee:

1. **Receives** the report.
2. **Notes** the importance of demand management measures as part of an overall package of measures to address regional transport issues and optimise the transport network.
3. **Notes** the range of demand management measures currently being utilised in the region and the potential areas for further work.
4. **Endorses** the proposed additional demand measures proposed in this report for further investigation.

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Attachment 1: RLTP TDM Policies