

EROAD

EROAD is a global leader in applying telematics technologies to helping the road transport sector satisfy the letter and spirit of its regulatory requirements. A New Zealand listed company, EROAD has enjoyed significant growth in North America and has formally launched in Australia.

With around 60,000 connected vehicles, the scale and reach of our New Zealand dataset is such that we offer a unique view, both in real-time and backward looking, into how New Zealand's roads are actually used.

The data we gather support our customers in optimising vehicle maintenance, routing and use, leading to significant reductions in fuel and other operating costs. This data also enables meaningful driver and workplace monitoring and action leading to significant reductions in speeding, dangerous driving and road risk. Aggregated and anonymised, this data has supported government analysis of network pressures and investment results.

Transport Knowledge Conference 2018

Understanding and Delivering Transport Outcomes

Thursday 15 November 2018 | Rydges, Wellington

Ministry of Transport
TE MANATU WAKA
Enabling New Zealanders to flourish

CAA
CORPORATE AIRCRAFT ASSOCIATION
OF NEW ZEALAND

NZ TRANSPORT AGENCY
WAKA MATATUA

MARITIME NEW ZEALAND

KiwiRail

AA



EROAD



A WARM WELCOME TO THE TRANSPORT KNOWLEDGE CONFERENCE 2018

We are delighted to welcome you to the fifth annual Transport Knowledge Conference. We have a high calibre of presentations, and we hope you enjoy the day.

This handbook should be used in conjunction with the programme and provides greater detail of the presentations for the conference.

Please remember to follow and respond to tweets. We'd love you to share your experience of the conference on Twitter. Be sure to include the hashtag #TKC2018.

This year's conference theme is **Understanding and delivering transport outcomes**. This reflects our vision for a transport system that is inclusive, healthy and safe, and contributes to a sustainable, resilient and prosperous society; and explains how Government should work toward these outcomes through a guiding principle of mode neutrality

The Organising Committee would like to thank the Ministry of Transport for hosting this important event. We also value the important input from the New Zealand Transport Agency, Civil Aviation Authority, Maritime New Zealand, KiwiRail and the New Zealand Automotive Association.

We especially thank those who have agreed to chair sessions or present topics at the conference.

On behalf of the Transport Knowledge Hub and its partners, we hope you enjoy the day. We invite you to join us for the networking event from 4.30pm following the last presentations, kindly sponsored by EROAD.

Tim Herbert (Ministry of Transport)
Sandy Fong (Ministry of Transport)
Dan Oberhaus (NZ Transport Agency)
Stephen Evans (Ministry of Transport)
Michelle McCormack (NZ Transport Agency)

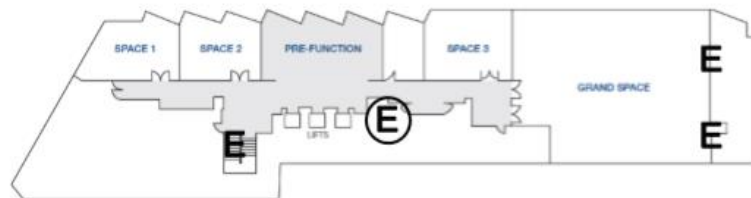
Bonita Gestro (Ministry of Transport)
Tere Scotney (Maritime New Zealand)
Jack Stanton (Civil Aviation Authority)
Judith Kitney (KiwiRail Ltd)

Conference organising committee

Emergency instructions and floor plan

Toilets: There are two sets of toilets located on Level Two. The first set is located opposite the Conference Office, and the other set is located down the end beside Space 1.

Exits: There is several fire exits located on the conference level, as marked on the below floor plan:



If an emergency situation within the hotel necessitates a full evacuation, an alarm will sound over the internal hotel sound system. Conference attendees should walk from their conference room to the central Fire Exit, which is located opposite the Conference Office on Level Two. Staff will direct guests down this stairwell to the hotel lobby, where they will be directed to the assembly point on Featherston Street.

In the event this central exit is blocked, there are three other fire exits located on the level.

The main evacuation assembly point for all staff, hotel guests and patrons is outside the hotel loading dock on Featherston Street, beside Habitual Fix.

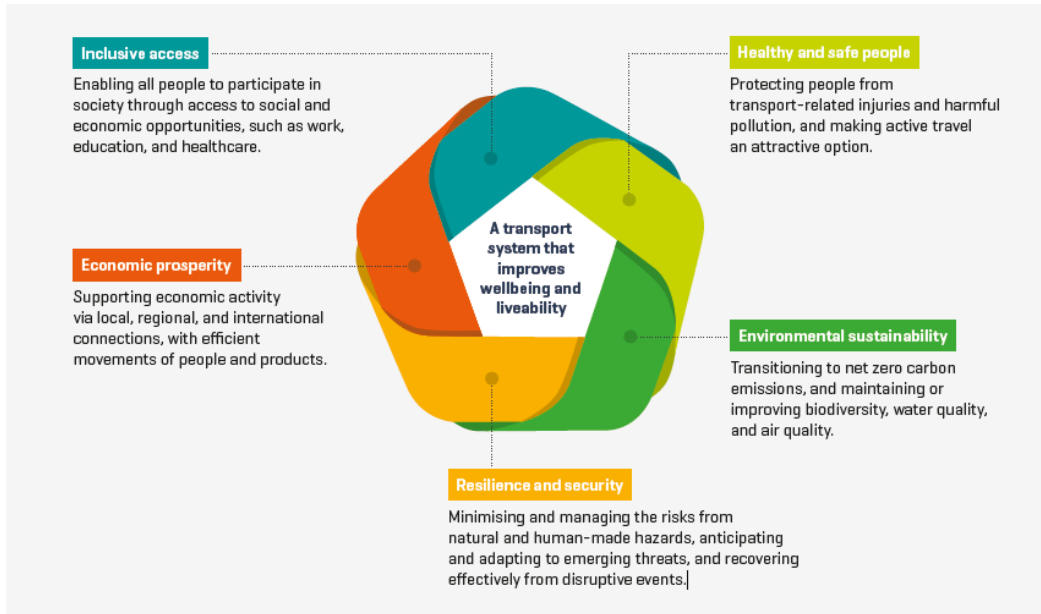
Earthquake: In the event of an earthquake, please follow the following steps; STAY INSIDE KEEP CALM – give yourself time to think TAKE COVER – get under a table and hold on to it to prevent it moving away from you Crouch beside a solid structure. It may be a wall. Keep away from glass doors or windows If you are in a lift – stop the lift at the nearest floor and get out. Once shaking has subsided, please stay inside and follow the directions of the conference staff. We request that guests do not evacuate the building unless advised to do so, due to the risk of falling masonry or glass on the street outside.

First Aid: Rydges Wellington has full first aid facilities. A number of staff members based in the centre hold practical first aid training certificates, and are available to assist if required. A first aid kit is also available from the Level Two Conference Office for any minor injuries. In the event of a serious injury or accident, please alert your conference coordinator (Conference Office) or the hotel Duty Manager (Level 1 Reception), so that the appropriate medical assistance can be provided.

More about our Conference theme: *Understanding and delivering transport Outcomes*

The purpose of the transport system is to improve people's wellbeing, and the liveability of places. It does this by contributing to five key outcomes, represented in the diagram below.

Transport Outcomes



All of these outcomes are inter-related, and need to be met as a whole to improve intergenerational wellbeing and the quality of life in New Zealand's cities, towns, and provinces. Government may sometimes prioritise some outcomes over others, depending on social/economic/environmental circumstances and the Government of the day. At a project level, transport agencies will often face tensions when deciding how to meet these outcomes, and may need to make trade-offs between different outcomes. Agencies should aim to get the best results across a range of outcomes.

Space 2	Space 3
<p>Transport Outcomes</p> <p>Transport Outcomes: Data & measures Chair: Bonita Gestro, MoT</p>	<p>Transport Outcomes</p> <p>Transport Outcomes: Aviation Chair: Jack Stanton, CAA</p>
<p>Developing a monitoring and evaluation framework for the Transport Outcomes Framework Jane Godfrey, <i>Ministry of Transport</i></p> <p>The Ministry is developing a monitoring and evaluation framework for the Transport Outcomes Framework to measure performance of New Zealand's transport system.</p>	<p>Our vision for integrating unmanned aircraft into the transport system Alec Morrison, <i>Ministry of Transport</i></p> <p>Unmanned aircraft (UA) have the potential to change the way we move goods and people, and offer numerous opportunities to improve transport outcomes. The development and adoption of these technologies can also significantly increase productivity across a wide range of sectors and critical services (for example, the surveying of property and precision agriculture).</p> <p>UA are used predominantly for activities that are too expensive, too risky or simply not possible (e.g. due to size and manoeuvrability issues) to conduct with manned aircraft (for example emergency response). Over time, UA are expected to gradually expand to other aspects of the aviation sector – including freight delivery, and eventually passenger operations.</p> <p>Given the benefits of this technology it is important that the sector has a clear understanding of the Government's role, strategic direction and priority areas to achieve the safe integration of UA into New Zealand's aviation system and broader transport system.</p>

<p>Grand Space</p> <p>Healthy and safe people</p> <p>Healthy and <u>safe</u> people 2 Chair: Tere Scotney, Maritime NZ</p>	<p>Space 1</p> <p>Transport Outcomes</p> <p>Transport Outcomes: Freight Chair: Judith Kitney, KiwiRail</p>
<p>Development of a new road safety strategy for New Zealand James Campbell, <i>Ministry of Transport</i></p>	<p>An Exploratory Study Using Big Data for Improved Safety and Operational Efficiency: A New Zealand Case Study Gareth Robins, <i>EROAD</i></p>
<p>The Government has tasked the Ministry of Transport with leading the development of a new ambitious road safety strategy for 2020-2030. The presentation will outline the context for the new strategy, some key challenges over the next decade, and an outline of the Vision Zero approach to road safety that is under consideration.</p>	<p>Transport policy is rightly concerned with reducing road deaths and serious injuries. A challenge it faces is that addressing risk in known areas of harm often just pushes the issue down the road. Traditional analysis has not had the data to try and get ahead of the problem by assessing risk across the whole network. Consequently, policy is often reduced to palliating symptoms, instead of managing down environmental risk.</p> <p>This exploratory data analysis aims demonstrate how this data can be used to understand the dynamic risk on the road, and provide a framework for route choice that is based around the accumulated dynamic risk caused by other road users.</p> <p>As such, the risk of an individual road can therefore be defined by how fatigued, frustrated, and/or familiar the users of that road are at the time they are driving. This suggests a new level of targeted safety management is possible.</p>

The conference will link presentations to each of the five transport outcomes.

Inclusive access

The transport system provides ways for people and products to move from one place to another. This enables people to access economic opportunities (e.g. work) and social opportunities (e.g. friends, family/whanau, and community services). Transport therefore plays an important role in social development. Access is also vital for economic activity, as recognised in the economic prosperity outcome.

Economic prosperity

Transport supports economic activity by connecting businesses with their workers, customers, suppliers, and other businesses. This enables each community and region of New Zealand to take advantage of their unique strengths and resources.

Resilience and security

The transport system can benefit or harm people’s health, depending on how it is designed, developed, and used.

Environmental sustainability

People and places will only be able to prosper long-term if the living systems that our society, economy, and wellbeing depend on are sustained in a healthy condition.

Healthy and safe people

New Zealand is a geologically active country, and we often experience wild or extreme weather. We therefore face ongoing natural hazard events (e.g. earthquakes and cyclones) that can cause serious damage to infrastructure and communities. Our transport system needs to anticipate both natural and human-made risks, and be prepared to recover from disruptive events.



PROGRAMME

Master of Ceremonies: Tim Herbert Ministry of Transport

AM

- 8.30-9.00 Registration: Tea and coffee upon arrival
- 9.00-9.10 **Housekeeping**
Tim Herbert, Ministry of Transport, Master of Ceremonies
- 9.10-9.30 **Welcome address**
Peter Mersi, Ministry of Transport
- 9.30-10.30 **Keynote presentations** – (see page 6)
- 10.30-11.00 Morning tea
- 11.00-12.20 **Parallel sessions 1** (see pages 7 to 14)
- PM
- 12.20-1.20 Lunch
- 1.20-2.00 **Keynote presentations** – (see page 15)
- 2.00-3.00 **Parallel sessions 2** (see pages 17 to 22)
- 3.00-3.30 Afternoon tea
- 3.30-4.30 **Parallel sessions 3** (see pages 23 to 28)
- 4.30 **Networking event**

NOTE: There may be some events that don't appear on your programme

Space 2	Space 3
 Transport Outcomes Transport Outcomes: Data & measures Chair: Bonita Gestro, MoT	 Transport Outcomes Transport Outcomes: Aviation Chair: Jack Stanton, CAA
Lessons learned from the New Zealand Household Travel Survey – 7 day online GPS Jennifer McSaveney, <i>Ministry of Transport</i>	The benefits-led approach to delivering transport outcomes in New Zealand's aviation system Scott Earley, <i>Civil Aviation Authority</i>
Every day New Zealanders move out and about in their daily lives. Knowing about where they go and their travel choices is an important evidence base on which to make policy decisions which enable them to flourish. The Ministry's New Zealand Household Travel Survey collects information about day-to-day travel in New Zealand – including how, where, when and why we travel. It has now been in the field for 3 years in the new form of a 7 day travel diary, filled in online, with the option of GPS memory jogger. In this paper we will detail our lessons learned over that time, including why, from year 4 onwards (July 2018) we have shifted back to 2 day travel diary, face to face interview, but kept the option of GPS memory jogger.	The New Southern Sky (NSS) programme is a ten-year change programme modernising New Zealand's aviation system from the ground up. NSS is delivering safety, environmental, economic and social benefits to all New Zealanders, and directly contributing to the five key transport outcomes. The introduction of performance based navigation (PBN), new surveillance and air traffic management technologies are delivering a wide range of benefits for all participants in the aviation system. Whether you are a mum and dad flyer, an airline, an airport, the general public or someone relying on an emergency management service, the NSS programme uses a benefits-led approach to collaborate with industry to deliver the best transport outcomes for the aviation system - while ensuring access for the full spectrum of airspace users, many of them new or emerging, commensurate with their respective capabilities.

<p>Grand Space</p> <p>Healthy and safe people</p> <p>Healthy and safe people 2 Chair: Tere Scotney, Maritime NZ</p>	<p>Space 1</p> <p>Transport Outcomes</p> <p>Transport Outcomes: Freight Chair: Judith Kitney, KiwiRail</p>
<p>Understanding what, how and why - Rescued Persons Research Duncan Ferner, <i>New Zealand Search and Rescue (NZSAR) Secretariat</i></p> <p>Preventing searches and rescues is not as much about keeping people safe as it is about ensuring they have what they need so they can take responsibility for their own safety. This often requires behaviour change. To better understand the common triggers for SAR services – so we can prevent them - NZSAR recently conducted its first survey of people who had been the subject of a search and rescue (SAR) response.</p> <p>The research behind this report was designed to show the:</p> <ul style="list-style-type: none"> • Preparedness of rescued persons • Behaviour leading up to and during the incident • Expectations rescued persons had of SAR • Overall satisfaction with SAR response <p>In this presentation we will discuss how we are learning by doing. The analysis, insights and patterns from this research that will help inform what the SAR sector can do collectively, to enhance personal responsibility through information, education, regulation, investigation and enforcement.</p>	<p>South Island Freight Study: Identification of the opportunity for mode shift and action plan Richard Paling, <i>Richard Paling Consulting</i></p> <p>Freight mode shift is a South Island wide-concern, especially given the South Island freight task is expected to grow from approximately 12 billion tonne-KM in 2012 to over 16 billion tonne-KM annually in 2042 placing an increasing strain on the South Island transport network. It seemed to the South Island RTC Chairs that a fundamental issue against achieving the most efficient modal mix was whether existing price and regulatory signals would result in the best planning and use of the transport network considering operational, safety, environmental, resilience and urban congestion issues.</p> <p>This paper presents progress on a study to respond to these issues, with attention being focused on selected case studies where there appears to be a real likelihood of effecting beneficial modal change.</p>

GRAND SPACE

CHAIR: Tim Herbert Ministry of Transport

Connecting to Transport Outcomes

Dan Jenkins, Ministry of Transport and Katie Mayes, NZ Transport Agency

Presenters will cover how they are working towards improving and measuring transport outcomes.

Public Transport 2045 Launch

Richard Cross Manager Strategic Policy and Innovation, Ministry of Transport

The PT2045 project aims to improve the sector’s collective understanding of the possible future developments and implications for transport policy, regulation, planning and investment. At a high-level, we look at where new technologies and business models are likely to take us as a society, and the implications for public transport.

<p>Grand Space</p> <p>Inclusive access</p> <p>Inclusive access 1 Chair: Dan Oberhaus, NZTA</p>	<p>Space 1</p> <p>Economic prosperity</p> <p>Economic prosperity Chair: Sandy Fong, MoT</p>
<p>Developing New Zealand Accessibility Metrics Ian Binnie <i>NZ Transport Agency</i> Dr Stacy Rendall, <i>Abley Ltd</i></p>	<p>Valuing freight transport time and reliability Ian Wallis, <i>Ian Wallis Associates Ltd</i> and Murray King, <i>Murray King & Francis Small Consultancy Ltd</i></p>
<p>Considering the recent Government Policy Statement (GPS), which included a strong focus on accessibility, the New Zealand Transport Agency (NZTA) is committed to developing a series of nationwide accessibility measures that can be monitored over time.</p> <p>NZTA are currently exploring a number of accessibility measures, including a survey about transport-barriers, identifying frequent Public Transport catchments, and mapping access to key social and economic opportunities. A trial study was commissioned covering the territorial authority areas of Hamilton and Timaru, measuring a simplified travel time accessibility in reaching Schools, Tertiary Education, Hospitals and Supermarkets by walking, cycling, public transport and private vehicle.</p> <p>This presentation will introduce the history of accessibility research in New Zealand, including previous NZTA research, outline accessibility as presented in the 2018 GPS, and introduce the results of the trial studies, which will feed in to future national-level analyses.</p>	<p>The presentation provides an overview of a recent research project to estimate economic values for freight travel time and its reliability (variability), for inclusion in the NZTA Economic Evaluation Manual (EEM). Current EEM freight-related values focus on operating cost savings applicable to road improvements; this research derived estimates of the additional economic benefits to freight shippers (consignors and/or consignees), applicable to both road and rail improvements. These estimates were derived through a market survey covering some one-third of total annual freight movements in NZ.</p> <p>This survey included several questions aimed at eliciting freight owners' (mainly) willingness-to-pay for improved services (in terms principally of travel times and reliability), and conversely their willingness-to-accept reduced charges for reduced services.</p> <p>This survey was complemented by an extensive review of international and local literature on freight time and reliability values, and of the unit values specified in the economic evaluation manuals of leading developed countries.</p>

<p>Space 2</p> <p>Transport Outcomes</p> <p>Transport Outcomes: Data & measures Chair: Bonita Gestro, MoT</p>	<p>Space 3</p> <p>Transport Outcomes</p> <p>Transport Outcomes: Aviation Chair: Jack Stanton, CAA</p>
<p>Using citizen science to accelerate electric vehicle uptake in New Zealand Henrik Moller, <i>Otago University</i></p>	<p>Getting the Arbor to the Harbour: Logging Transport System Safety and Increasing Wood Supply Joe Dewar, <i>Civil Aviation Authority</i></p>
<p>Flip the Fleet is a "citizen science" coalition of over 800 owners that submit monthly data on their battery electric vehicle's performance, costs and benefits to a communal database. The scientific data are combined with monthly '1-click surveys' of owners to give prospective purchasers a more personal testimony of the joys and frustrations of owning BEVs in local conditions.</p> <p>This presentation reviews the strengths and weaknesses of relying on citizen science for designing more effective policies, regulations and marketing strategies to accelerate BEV uptake. Are the data reliable enough to be used in more formal research projects to help guide New Zealand's low emission transport future? Should Flip the Fleet be funded by multiple stakeholders from government and the transport industry to enable datastreams to grow and deepen?</p>	<p>While the safety performance of the forestry sector has attracted significant regulatory and media scrutiny, less attention has been paid to the safety of the full logging transport system. With the supply of available wood expected to increase significantly over the next decade as many smaller-scale forests reach maturity, logging transport activity may be on the verge of increasing beyond its already record levels. To investigate, a collaborative, inter-agency project was undertaken to consider the implications for all aspects of logging transport.</p> <p>Based on analysis of data sourced from multiple agencies and the findings of the project, this presentation will outline the safety risks across the logging transport sector, map the harms based on transport networks, and discuss the future implications of the increase in wood supply as it is transported from forests to ports.</p>

<p>Grand Space</p> <p>Healthy and safe people</p> <p>Healthy and safe people 2 Chair: Tere Scotney, Maritime NZ</p>	<p>Space 1</p> <p>Transport Outcomes</p> <p>Transport Outcomes: Freight Chair: Judith Kitney, KiwiRail</p>
<p>Linking police motorcycle crash records and hospital trauma admissions in Midland Region of New Zealand Kaye Clark, <i>NZ Transport Agency</i></p>	<p>Framework for review and prioritisation of rail safety risks in New Zealand Chris Ballantyne, <i>NZ Transport Agency</i> and Kevin Oldham, <i>Navigatus Consulting</i></p>
<p>During 2000 to 2010 the number of motorcycle crash casualties reported to police in New Zealand increased, an increase comprised almost entirely of those over forty years of age and which has remained high ever since.</p> <p>In this study we used data linkage between police Crash Analysis System (CAS) records and Midland Trauma System (MTS) registry hospital admission records, in the Midland Region of New Zealand to assess any under-reporting of motorcycle casualties in this new, older, at risk demographic group. Only 56% of hospital records could be linked to police CAS records.</p> <p>Several factors were found to have significant effects on linkage rates including injury severity, age, self-presentation to hospital, and rurality of injury location. Identification of these factors contributes to a greater understanding of the wider extent of motorcycle related injury resulting in hospital admission, and where biases in reporting of motorcycle casualties to police may possibly exist.</p>	<p>Presentation on a research project undertaken, by Navigatus Consulting, to identify and provide evidence-based recommendations for managing priority safety risks for New Zealand rail operations.</p> <p>The project was carried out in 2015/16 in New Zealand. The primary purpose of the project was to provide a reliable foundation for future risk reduction activities by carrying out research on best and current risk practice, undertaking a risk assessment to identify priority safety risks, and identifying potential mitigation options to reduce these priority risks to an acceptable level.</p>

<p>Space 2</p> <p>Healthy and safe people</p> <p>Healthy and safe people 1 Chair: Claire Pascoe, NZTA</p>	<p>Space 3</p> <p>Environmental sustainability</p> <p>Environmental sustainability 1 Chair: Rob Hannaby, NZTA</p>
<p>Are people who already cycle and walk more responsive to an active travel intervention? Mike Keall, <i>University of Otago, Wellington</i></p>	<p>Updating and extending Vehicle Fleet Emission Model Haobo Wang, <i>Ministry of Transport</i></p>
<p>Cycling and walking are transport modes that have potential public health and environmental benefits. Various programmes and interventions have been developed and evaluated that aim to increase active travel levels, including the Model Communities Programme in New Zealand, which increased active trip rates by about 30% relative to control areas.</p> <p>Although health benefits are greater when people with low levels of physical activity increase active travel rates, behaviour change of this group has rarely been studied. Statistical models were fitted to data from face-to-face surveys that collected travel behaviour and physical activity levels collected from a cohort of respondents annually. Despite its clear successes in generating population-level behaviour change,</p> <p>The Model Communities programme does not appear to have been effective in changing the travel behaviours of the most sedentary people. Some potential changes to the programme to target this group would be merited.</p>	<p>The Ministry of Transport's Vehicle Fleet Emission Model (VFEM) can estimate and project road vehicle fleet composition, energy use and greenhouse gas emissions up to 2040. To project the uptake of electric vehicles (EVs) and to estimate fuel use of i+O21nternal combustion engine vehicles (ICEVs) are the essential parts of VFEM. An EV uptake model was developed in 2015, and real-world fuel economy of vehicles in New Zealand was studied in 2014.</p> <p>In order to analyse the impacts of policy and regulatory measures on transport greenhouse emissions more effectively, we are running a project to update and extend VFEM so that it can cover 2055 and considers the most recent information. This project includes four work streams: EV uptake, fuel efficiency of ICEVs, vehicle number and travel projections, and model structure.</p> <p>This presentation will describe these work streams, show preliminary results, and discuss likely implications.</p>

<p>Grand Space</p> <p>Inclusive access</p> <p>Inclusive access 1 Chair: Dan Oberhaus, NZTA</p>	<p>Space 1</p> <p>Economic prosperity</p> <p>Economic prosperity Chair: Sandy Fong, MoT</p>
<p>Disaster, disruption and diffusion: Personal travel planning in Christchurch Dr Jillian Frater, <i>Lincoln University</i></p>	<p>Productive work and value of travel time savings Joanne Leung, <i>Ministry of Transport</i></p>
<p>In 2016 and 2017 many organisations in Christchurch relocated back to the central city following moves out of the city following the earthquakes of 2010/2011. In 2017, the Greater Christchurch Urban Development Strategy undertook personal travel planning (PTP) with these organisations to reduce car use and increase the use of other forms of transport.</p> <p>The programme included a pre-move survey (N=834), individual interviews with staff (N=1234) and a post-move survey (N=805). Results show an increase in cycling trips of 37% and bus trips of 72% for those interviewed, and a decrease in car trips of 86%.</p> <p>Similar, but smaller changes occurred for those who were not interviewed. The percentage of trips made by walking, carpooling and 'other' forms of transport did not change much for either group. Large scale context change and disruption, diffusion and the creation of new norms are likely to influence these changes.</p>	<p>In current transport appraisal practices, travel time is considered as wasted time, representing a disutility. Based on the view that unproductive travel time saved can be converted into productive use, business travel time is traditionally valued at labour costs. There are, however, increasing evidences that travel time is not always wasted. People often report positive utilities due to activities that can be conducted whilst travelling, for example, checking work emails or carrying out leisure activities such as reading. The scope and type of non-travel activities are likely to increase with modern technologies, including the use of self-driving vehicles in the future.</p> <p>The International Transport Forum (ITF, part of the OECD) convened an international meeting in September to consider the utility and disutility of time spent travelling, whether and how they should be measured and captured in the valuation of travel time. This presentation will summarise the key findings from the discussion and related research currently underway by ITF.</p>

<p>Space 2</p> <p>Resilience and security</p> <p>Resilience and security Chair: Shelley Tucker, MoT</p>	<p>Space 3</p> <p>Environmental sustainability</p> <p>Environmental sustainability 2 Chair: Martin Dutton, MoH</p>
<p>Main North Line Resilience – Experience from the Kaikoura Earthquake Daniel Headifen, <i>KiwiRail</i></p>	<p>Te Ara Mua - Future Streets. The process of implementation and short-term lessons Dr Hamish Mackie, <i>Mackie Research</i></p>
<p>Response, Robustness and Redundancy are key factors in Resilient Transport systems. The 2016 Kaikoura Earthquake has provided a good test for the New Zealand's transport infrastructure both in how it performed in the earthquake and how it is being rebuilt post event.</p> <p>This presentation will cover some steps that KiwiRail have taken to identify and manage risks on the MNL (such as risk rating all slopes on this line pre earthquake) the tools it was able to bring to bear to effectively response to the event (utilising experience from other incidents and emergency response events, specialist personal, specific condition rating systems, mobile IT platforms and GIS based collation of damage data) and the input it has had as part of the NCTIR for looking to achieve resilient outcomes (undertaking resilience studies of the affected area, planning of future joint response, classifying robustness of new infrastructure).</p>	<p>The purpose of this presentation is to explain the underlying concepts behind Te Ara Mua - Future Streets, the process of delivering the area-wide community street retrofit, and to share key lessons to date. Despite project delivery challenges, a local transport landscape that is more user-friendly for walking and cycling now exists, evidenced through a range of measures. The initial response to the modifications from the community are generally positive although the loss of parking in favour of protected cycle lanes and inconvenience to vehicle traffic is causing concern for some.</p> <p>Nevertheless, Te Ara Mua - Future Streets is positively influencing new delivery projects. Process improvements should now be employed to make demonstration projects like Te Ara Mua - Future Streets easier. Trials that prioritise the health and wellbeing of residents of towns and cities, should continue until a more holistic set of outcomes are reflected in business-as-usual transport projects.</p>

<p>Grand Space</p> <p>Healthy and safe people</p> <p>Healthy and safe people Chair: Simon Douglas, NZAA</p>	<p>Space 1</p> <p>Inclusive access</p> <p>Inclusive Access 2 Chair: Michelle McCormack, NZTA</p>
<p>Does speeding make a difference to travel time in urban areas? Gareth Robins, <i>EROAD Ltd</i></p>	<p>Immigrants perspectives in making public transport inclusive in Auckland Waheed Ahmed, <i>Massey University</i></p>
<p>Speed and speeding behaviour are significant concerns for road safety policy: the faster you go, the bigger the mess. At the same time, pace, reliability and predictability are essential to productivity. In the popular mindset this is associated with going faster. A question for any road safety strategy is how to address the misconceptions underpinning common attitudes to speeding, i.e. that it is practical.</p> <p>As a contribution to seeing how new data sources might help answer this question, we studied 9.5 million trips that originated and terminated in Auckland, and compared them to the level of speeding, proximity to areas of impediment, and the level of congestion. The purpose of this exploratory data analysis was to understand how the decision to speed affects a driver's travel time in an urban environment where the vehicle can be impeded by a number of factors such as traffic signals, intersections, and congestion.</p>	<p>New Zealand cities have become increasingly ethnically diverse, and transport planning can benefit from making transport inclusive. The growing immigrant population in Auckland provides an opportunity to transform an automobile-dependent city into a public transport friendly city, as most immigrant communities make extensive use of public transport.</p> <p>This presentation explores opportunities for improving Auckland's public transport by studying the everyday experience and aspirations of the city's immigrant communities. This presentation reports qualitative data collected from Chinese, Indian-sub continent and Middle Eastern communities to explore their daily experience of public transport in Auckland. The research identifies expectations and perception gaps between immigrant communities and public transport planning in Auckland.</p>

<p>Space 2</p> <p>Healthy and safe people</p> <p>Healthy and safe people 1 Chair: Claire Pascoe, NZTA</p>	<p>Space 3</p> <p>Environmental sustainability</p> <p>Environmental sustainability 1 Chair: Rob Hannaby, NZTA</p>
<p>Understanding the pedestrian experience and encouraging better walking environments Jane Goulding and Samantha Watson, <i>NZ Transport Agency</i></p>	<p>Understanding the sources and trends of roadside air particulate matter pollution Dr Perry Davy, <i>Institute of Geological and Nuclear Sciences</i> and Dr Nicholas Talbot, <i>Auckland Council</i></p>
<p>Every journey taken includes an element of walking, whether as the key mode of transport or as one element of the journey, connecting to different modes or destinations. Understanding the tasks, limitations and needs of different groups of pedestrians, as well as making walking a more attractive travel option, will enhance our ability to increase the number of people walking.</p> <p>Two research reports conducted this year, by the NZ Transport Agency and by Abley for the NZ Transport Agency, have investigated the experience of people walking, and how better walking environments can be encouraged, respectively. In the first part of this presentation, Jane Goulding will discuss what we know about the pedestrian experience from international and local literature. In the second part, Sam Watson will discuss how we can make walking a more attractive travel option so people in New Zealand can enjoy the benefits it brings.</p>	<p>The Ministry of Transport's Vehicle Fleet Emission Model (VFEM) can estimate and project road vehicle fleet composition, energy use and greenhouse gas emissions up to 2040. To project the uptake of electric vehicles (EVs) and to estimate fuel use of i+O21nternal combustion engine vehicles (ICEVs) are the essential parts of VFEM. An EV uptake model was developed in 2015, and real-world fuel economy of vehicles in New Zealand was studied in 2014.</p> <p>In order to analyse the impacts of policy and regulatory measures on transport greenhouse emissions more effectively, we are running a project to update and extend VFEM so that it can cover 2055 and considers the most recent information. This project includes four work streams: EV uptake, fuel efficiency of ICEVs, vehicle number and travel projections, and model structure.</p> <p>This presentation will describe these work streams, show preliminary results, and discuss likely implications.</p>

<p>Grand Space</p> <p>Inclusive access</p> <p>Inclusive access 1 Chair: Dan Oberhaus, NZTA</p>	<p>Space 1</p> <p>Economic prosperity</p> <p>Economic prosperity Chair: Sandy Fong, MoT</p>
<p>Inclusive transport in action: policy drivers that account for the way transport decision-makers think Bridget Burdett, <i>Stantec</i></p>	<p>Land Value Uplift Effects from an Incremental Transport Network Upgrade Ben Smith, <i>University of Auckland, NZ Transport Agency</i></p>
<p>Inclusive access can improve wellbeing by providing more participation choices for the people of greatest need. However, making connections between literature, policy and outcomes for real people is a complex undertaking. This presentation will describe recent work in Waikato Region that looks to fill the gaps, providing more equity of participation through targeted investment in transport.</p> <p>The work involved review of literature linking transport, participation, health and wellbeing; surveys and focus groups of local people in South Waikato; and analyses of policy frameworks and approaches that must be changed if barriers to more equity are to be broken.</p> <p>The presentation will discuss industry habits and decision-making that result in industry 'blindspots' towards the needs of the most vulnerable. It will describe the economic sense of targeting investment towards wellbeing, with practical changes the transport industry can make to become more inclusive.</p>	<p>Transformational transport infrastructure is acknowledged to have spill-over effects not typically captured by cost-benefit appraisal. Benefits accrue to land owners through an uplift in land values, but the effort required to conduct robust ex-post analysis has limited the number of studies in New Zealand to date.</p> <p>This paper examines the land value uplift effects from electrification of Auckland's train network between 2012 and 2016. Using a difference-in-difference panel data approach, from a dataset of repeat Auckland property sales, it finds an economically significant effect for properties in the same suburb as an upgraded station, and shows that these results are as robust as those developed utilising geographic information system techniques for proximity identification. The simplified hedonic model is robust to missing data, and can be estimated using only observed characteristics of the properties in the sample. Combined, both of these techniques substantially lessen the effort, and time, required for analysis.</p>

<p>Space 2</p> <p>Resilience and security</p> <p>Resilience and security Chair: Shelley Tucker, MoT</p>	<p>Space 3</p> <p>Environmental sustainability</p> <p>Environmental sustainability 2 Chair: Martin Dutton, MoH</p>
<p>Data and decisions following the Kaikoura earthquake Geoff Parr, <i>Ministry of Transport</i></p>	<p>Inclusive Streetscapes and Transport systems promoting health and wellbeing, social participation and community resilience Prof. Shanthy Ameratunga, <i>University of Auckland</i> and Bridget Burdett, <i>Stantec</i></p>
<p>The Kaikoura earthquake in November 2016 caused significant damage to the New Zealand transport infrastructure. Rapid logistical responses by private sector businesses and cross-agency co-ordination in the recovery phase, helped mitigate the costs to the economy. But there were lessons to be learned about the role of information flows on how decisions were made following the earthquake.</p> <p>This paper reports the findings of research commissioned by the Ministry of Transport, on how data can be used better in transport system monitoring, to improve resilience in future. A stakeholder workshop and follow up interviews led to recommendations on areas to improve data and decision making in the transport system prior to future shock and stress events. These were focused on relationships between stakeholder groups, communication with sector co-ordinators and key international markets, and dealing with data inaccuracies during response and recovery.</p>	<p>There are some important interrelationships between land transport and urban development outcomes that need to be understood to inform good policy development and delivery of land transport activities.</p> <p>The NZ Transport Agency has been developing a policy framework to understand these interrelationships to ensure that land transport investment, planning and regulation makes the appropriate contribution to the Government's housing and urban development policy agenda and intended outcomes.</p> <p>This presentation overviews the elements of this emerging framework and seeks feedback from the conference audience to inform its further development.</p>

<p>Grand Space</p> <p>Healthy and safe people</p> <p>Healthy and safe people Chair: Simon Douglas, NZAA</p>	<p>Space 1</p> <p>Inclusive access</p> <p>Inclusive Access 2 Chair: Michelle McCormack, NZTA</p>
<p>Has the Christchurch Central City 30km/h Zone worked? Dr Glen Koorey, <i>ViaStrada Ltd</i></p>	<p>Cost of Transport to New Zealand Households Peter King, <i>New Zealand Automobile Association</i></p>
<p>In 2016, Christchurch introduced a 30km/h lower speed zone within a large part of the central city area, as part of the “Accessible City” transport rebuild plan. This has generated some controversy amongst residents and businesses who feel that it is greatly restricting access to and through central Christchurch.</p> <p>However, preliminary analysis of crash data before and after suggests that there have been considerable reductions in crash numbers and injuries since its implementation, despite growing numbers returning to the city. Traffic delay concerns also appear to be misplaced, although this is complicated by ongoing roadworks. This presentation will summarise the observed safety effects to date of the 30km/h zone, while also discussing some of the other related impacts identified and potential limitations of this analysis.</p>	<p>Affordability is one of the key determinants of accessibility, one of the core goals of the Government’s Policy Statement on transport. But without an index of household transport costs it would be difficult to determine whether affordability, and hence accessibility, is improving or not.</p> <p>To this end the AA Research Foundation commissioned Stats New Zealand to develop several indexes showing price change for different household transport costs based on its existing data collections for the Consumer Price Index and the Household Economic Survey. The new index covers private vehicle, public transport and cycling modes. It can also be used retrospectively based on existing data.</p>

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<p>Challenges for Encouraging Active Transport to School in Urban and Rural Areas: BEATS Study Findings Prof. Sandra Mandic, <i>University of Otago, Dunedin</i></p>	<p>What do driverless cars mean for cities, health and wellbeing? Amy L. Fletcher, <i>University of Canterbury</i></p>
<p>Active transport to school (ATS) is a convenient way to maintain/increase adolescents’ physical activity. The Built Environment and Active Transport to School: BEATS Study conducted in Dunedin in 2014-2015 found that 60% of adolescents use motorised transport to school.</p> <p>Common barriers to ATS included distance, personal barriers (e.g. heavy school bags), lack of social support, convenience of being driven to school, bad weather, built environment obstacles, traffic safety concerns, and absence of school zoning. Cycling to school was less common than walking, received less social and infrastructure support, and was perceived as less safe.</p> <p>The 2018 BEATS Rural Study conducted in Otago showed different travel to school patterns with greater rates, interest and intention of adolescents to cycle to school, less traffic-related concerns and higher walkability of school neighbourhoods compared to urbanised areas. Policies and plans to promote ATS among adolescents need to be different for urban and rural settings.</p>	<p>The impacts of place on travel behaviour and associated health outcomes are well established. It is now undeniable that places which have been planned and built to accommodate high levels of driving lead to vastly different health outcomes than those which prioritise movement by other modes. In many cases cities are attempting to encourage active travel through retro-fitting urban design features. However, correcting past mistakes can be difficult and expensive.</p> <p>As promises of shifts towards a fully driverless future seem increasingly plausible, it is important to consider how places are planned in future, with health in mind. This paper explores the potential impacts driverless vehicles could have on places and consider what can be done to ensure that the positive health and wellbeing potential of such shifts in form of mobility are realised, while mitigating further proliferation of negative consequences that have been associated with increasing car use.</p>

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<p>Developing and applying the Ministry of Transport's Framework for Social Impact Assessment Geoff Parr and Philip Caruana, <i>Ministry of Transport</i></p>	<p>At the heart of the community: creating vibrant and inclusive urban places through rail Gareth Fairweather, <i>Ministry of Transport</i></p>
<p>The Ministry of Transport recently developed a framework for the social impact assessment (SIA) of transport-related policies and measures. The framework is intended to be used internally by analysts to help them identify and assess the importance of the potential social impacts of proposed interventions.</p> <p>SIA complements cost/benefit analysis (CBA) as it involves determining how costs and benefits identified in the CBA are distributed across particular segments of the population (e.g. income, ethnicity, location, gender). SIA can clearly signal the risk that a proposed intervention will lead to a worsening of transport inequality. The presentation will describe how the framework was developed, and how it is being applied to the Ministry's package of environmental emissions reductions policy proposals.</p>	<p>Railway stations can form an essential part of the urban fabric. Increasing the connectivity of an area through rail can allow station areas to support higher development densities and mixed-use activities. If the areas around stations are planned and implemented correctly, rail investment can help revitalise local economies and create urban environments that increase social interaction, are safe, and promote healthy and active lifestyles.</p> <p>Against the backdrop of an increased emphasis on rail in New Zealand, this paper will identify the tools available to transport and urban planners that ensure rail investments deliver much more than just core transport benefits. It will present evidence to explain how land use policies and interventions, improved walking and cycling infrastructure and targeted approaches to public realm can deliver station areas which deliver against many of the transport outcomes. It will highlight how and where this could be applied in practice in New Zealand.</p>

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<p>Resilience of Transportation Systems to Natural and Anthropogenic Hazards Pathmanathan Brabhakaran and Doug Mason, <i>WSP Opus</i></p>	<p>An emerging framework for understanding the interrelationships between land transport and urban development outcomes Darren Baars <i>NZ Transport Agency</i> and Mary O'Callahan, <i>GHD Ltd</i></p>
<p>Transportation networks provide a vital lifelines function to society, and their availability is critical for emergency response and recovery after major hazard events. Resilience of transportation networks requires a combination of link resilience, redundancy and network inter-connectivity. Resilience metrics have been developed and applied to transportation networks using a geospatial platform and used to assess the criticality of resilience risks and prioritise transport links for intervention. The assessment is illustrated through a nationwide state highway resilience project.</p> <p>A more detailed regional approach to resilience enhancement is illustrated through the case of the Wellington transport network, where interventions to enhance resilience risks have been developed to achieve external access and intra-regional access and socio-economic resilience. The paper also illustrates how the resilience can be infused into new transport developments, provided there is focus on resilience from early stages of project development.</p>	<p>There are some important interrelationships between land transport and urban development outcomes that need to be understood to inform good policy development and delivery of land transport activities.</p> <p>The NZ Transport Agency has been developing a policy framework to understand these interrelationships to ensure that land transport investment, planning and regulation makes the appropriate contribution to the Government's housing and urban development policy agenda and intended outcomes.</p> <p>This presentation overviews the elements of this emerging framework and seeks feedback from the conference audience to inform its further development.</p>

<p>Grand Space</p> <p>Healthy and safe people</p> <p>Healthy and safe people Chair: Simon Douglas, NZAA</p>	<p>Space 1</p> <p>Inclusive access</p> <p>Inclusive Access 2 Chair: Michelle McCormick, NZTA</p>
<p>Driver behaviour: What's behind the numbers? Prof. Samuel G Charlton and Prof Nicola J Starkey, <i>University of Waikato</i></p>	<p>Women on the move. What we know about New Zealand women's transport and travel Roselle Thoreau, <i>Ministry of Transport</i></p>
<p>Most studies of transportation and road safety use aggregate numbers from crash reports, speed surveys, driver demographics, and questionnaires. Missing are the details of what drivers actually do behind the wheel, and why. Understanding what lies behind the numbers is the key to the Driver Behaviour Pillar of the Safe System, and is the focus of this presentation.</p> <p>We will describe recent studies, from our laboratory and elsewhere, that offer insights into driver behaviour and how research findings can be translated into practice. For example, research into speed choice and road delineation has identified which parts of the road environment drivers notice, and how we can provide road markings that result in better speed limit compliance. Research on alcohol and driving has shown that the amount of alcohol consumed is only one aspect of alcohol's effects and that drivers' self-awareness of their state of intoxication and performance is extremely poor.</p>	<p>Do women travel any differently from men? Do they travel any differently from the ways they used to? Should we care? In the past 30 years the lives of women in New Zealand has changed and this can be directly seen in their travel patterns.</p> <p>This session takes available New Zealand data including the New Zealand Household Travel Survey and explores these questions. Women have different transport needs compared to men and are often constrained more in their travel choices. The session will explore when, where, why and how women travel, looking to identify barriers and opportunities in the way in which women access and use transport.</p>

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<p>Cyclist conflict at intersections – can computer vision add to our analysis capability Simon Douglas, <i>New Zealand Automobile Association</i></p>	<p>Car sharing in New Zealand: benefits and barriers Lucia Sobiecki, <i>Ministry of Transport</i></p>
<p>The Cycle Safety Panel highlighted urban intersections as a key area of concern for cycling safety. While there was an increase in crashes in 2017, numbers are still (fortunately) relatively low in the context of developing a much deeper understanding the causes of intersection crashes. The AA Research Foundation and the New Zealand Transport Agency speculated that by using a mix of computer vision technology and specialist analyst skills, we could develop a much greater understanding all cyclists and motorists interactions, building a much richer picture that could help us better understand the pre cursors to serious incidents.</p> <p>Four busy urban intersections were studied to test a hybrid application of internationally leading computer vision technology and analyst review. In a world first, standard CCTV images were tested for suitability and found to be of sufficient quality, potentially greatly increasing the applicability and cost effectiveness of the hybrid method. While there are still challenges to overcome, the method shows considerable promise.</p>	<p>Car sharing is an emerging transport service that can contribute to multiple transport outcomes, including supporting inclusive access, economic prosperity, environmental sustainability and healthy and safe people. Car sharing offers an alternative to private vehicle ownership, enabling individuals and businesses to have access to a car without the responsibilities and costs of ownership. International research has shown that car sharing can reduce car ownership and usage, which in turn can help decrease congestion, demand for parking, carbon emissions and air pollution.</p> <p>Car sharing has become increasingly popular overseas, operating in over 1500 cities worldwide. However, it is still in the early stages of development in New Zealand. This presentation will explore data collected as part of a Master's thesis on car sharing in Wellington, as well as the wider literature on the service, highlighting the potential benefits of car sharing for New Zealand's urban centres as well as barriers facing the service.</p>

KEYNOTE PRESENTATIONS

GRAND SPACE

CHAIR: Tim Herbert Ministry of Transport

Making a difference: translating transport research into policy implementation

Simon Kingham Chief Science Adviser, *Ministry of Transport*

There is a significant body of research being done across New Zealand and/or about New Zealand transport. But how much is actually and directly informing transport policy. This presentation will examine this issue, and outline some ways the link between research and policy could be improved.

Te Ara Mua- Future Streets: negotiating a researcher-practitioner partnership

Karen Witten Professor of Public Health, *SHORE & Whariki Research, Massey University, Auckland*

Te Ara Mua-Future Streets is a street redesign intervention study set in Mangere, Auckland. A research team partnered with Auckland Transport to engage local community, and design and deliver a neighbourhood scale intervention to facilitate walking and cycling.

Critical decision points exposed differences in priorities, pressures and constraints, precipitated conflicts, and highlighted a 'cultural divide' between parties. Despite the difficulties encountered a non-business-as-usual street intervention was completed.

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