Professional practices of transport professionals influencing accessible transport goals: findings from the Inclusive Streetscapes Project

Shanthi Ameratunga[1]
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The Inclusive Streetscapes investigators have established that opportunities for active travel, health and wellbeing of disabled people and older residents in Tāmaki Makaurau are strongly impacted by challenges in navigating prevailing transport systems. As a complementary research strand, the project explored the perspectives of transport professionals on opportunities and constraints to operationalise 'inclusive access' as a transport outcome.

Methods: We conducted a web-survey (N=175) and in-depth qualitative interviews (N=21) with transport professionals working at local, regional and national levels in a variety of disciplinary roles in the private, public and non-governmental sectors. The quantitative and qualitative data were analysed to identify key themes and opportunities for intervention.

Results: We identified four overarching themes: (1) A disconnect between vision and policy and how these are delivered on the ground; (2) some community groups being less likely to be heard or consulted; (3) limited responsiveness to te Tiriti with Māori considered as a group to be consulted rather than in terms of their rights as tāngata whenua; and (4) unspoken minimisation of accessibility in monitoring frameworks.

Conclusion: There is a need to implement a decolonising framework that can achieve equitable opportunities for active travel for disabled people challenged by current transport systems.

What can be done about transport-related air quality in our urban areas?

Noah Bunkley[1], Michael Hale[2], Sean Selby[2], Alistair Woodward[1]
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Transport-related air pollution causes significant morbidity and mortality in New Zealand yet effective, evidence-based policy solutions relevant to New Zealand's urban centres have not previously been reviewed and summarised. We conducted a rapid narrative review in January and February 2023 to identify effective, evidence-based policy interventions to reduce transport-related air pollution. A search of PubMed, Scopus, Cochrane Database of Systematic Reviews, Google Scholar and Google was performed to identify both academic and grey literature. Effective, evidence-based policies and recommendations that were applicable to urban centres in New Zealand were extracted and grouped into themes. Eleven policy recommendations were identified within the themes of reduction, mitigation, standards and monitoring. There are several effective, evidence-based policy solutions that could be implemented in New Zealand to address transport-related air pollution.

Knowing New Zealanders- Understanding the enduring social change of working from home

Carol Christie[1], Tom Magill[2]
[1]Waka Kotahi, [2]IPSOS

Mid-March 2020 some New Zealand businesses sensed that Covid-19 had the potential to disrupt to an extent not seen this generation, and they started trialling teams working from home. By the end of March as New Zealand locked down, all New Zealanders except essential workers had to work from home if they could.

Now as we emerge from the Covid-19 pandemic one of the most enduring transport social changes is that significantly more of paid work is now being done from home - resulting in perhaps forever changed commuter travel patterns.

Waka Kotahi with IPSOS have been tracking the transport impacts of the Covid -19 pandemic since it began. This presentation covers New Zealanders desire, capability and barriers to working from home and the levels of employer enablement.

Electrifying rideshare in New Zealand: barriers and opportunities

Ashleigh Cormack[1]
[1]Uber

Electric vehicle rideshare, along with other high kilometre use cases, present an enormous opportunity for countries to accelerate their emissions reduction targets. This is because EV rideshare drivers realise four times the emission reduction benefits when compared to average car owners. In addition, EV rideshare supports community education providing an opportunity for drivers to talk to passengers about owning an EV and how they deal with issues like range anxiety.

To understand the actions industry and government need to take to encourage high kilometre EV drivers, we built a New Zealand, rideshare specific Total Cost of Ownership model. We also surveyed NZ Uber drivers to understand their needs and behaviour change required.

This presentation will outline the model analysis, survey results and discuss four key findings:
- An interim cost gap still exists for most drivers
- At / near home charging infrastructure is vital to minimise the 'opportunity cost' of charging time
- Extending the RUC to EVs will impact the high kilometre use case
- The upfront cost of vehicles is the largest barrier.

We will then explore best practice policies to address these findings and which, from a global perspective, is allowing EV rideshare to thrive internationally.

Where to build EV charging stations? A preliminary model for Aotearoa/New Zealand.

Joao Costa

The increasing prevalence of electric vehicles (EVs) poses a challenge to the infrastructure required to keep these vehicles going: the charging stations and where to build them. The lack of chargers in connecting and rural areas might be affecting the adoption of these greener alternatives, building chargers in these remote areas might give the population a push to make the transition to EVs.
We perform an analysis on where to build EV charging stations. Te Manatū Waka's road network simulator (MONTY) models the best locations to build new charging stations. Two main goals are considered here. First, we find out the minimum number of stations necessary to cover the regions. Then, we find the best locations to build considering the volume of vehicles that use the specific roads. We simulate a few different scenarios, where we consider a maximum distance that can be reached from all existing public roads, guaranteeing that the next charging station will never be too far for the average electric vehicle.

Cultural variations in recreational boating – cross cutting insights from a qualitative study

Sandar Duckworth[2], Tom Eats[1]
[1]Maritime New Zealand, [2]Litmus

Surveys show that roughly 50% of the adult population in Aotearoa participate in recreational boating each year. But how do people approach the water? What variations and commonalities exist between different cultures, and what does this tell us about safety? Maritime NZ and Litmus worked together to develop a project to answer these questions, interviewing 90 people from four main ethnic group identities: Māori, Pacific communities, ethnic communities and provincial Pākehā. The project identified seven cross cutting insights from engagements, identified a number of key questions about how Maritime NZ as a regulator can shift the way it works and supports communities to improve safety. This presentation will focus on those cross cutting insights, which are associated with cultural values and ways of being, social dynamics and influences, place & environmental factors, personal mindsets and attitudes, access and use of the vessel and equipment, education and messaging opportunities and the role of compliance with rules and regulations. The research helps to address a knowledge gap in in recreational boating safety, and highlights social and cultural dynamics that are important to engage with in order to share knowledge and enhance the chances of people coming home unscathed.

Shared ambition: Should shared mobility feature in a transition to more equitable and sustainable transport?

Helen Fitt[1], Angela Curl[1], Cushla Dares[1], Simon Kingham[2], Anna Coppens[1], Jonathan Williman[1]
[1]University Of Otago, Christchurch, [2]University of Canterbury

At the 2021 Transport Knowledge Conference we talked about the first year of a longitudinal project exploring the outcomes of providing shared electric mobility services in a social housing community and a retirement village. We finished that presentation by noting that our baseline data were highly inconsistent with the Transport Outcomes Framework's stated aspiration of inclusive access enabling all people to participate in society through access to social and economic opportunities. A majority of respondents in the social housing community, for example, reported being unable to reliably access grocery shops, healthcare appointments, and meetings with friends and whānau because of transport difficulties or costs. In this next presentation, we will highlight what has changed since 2021, what hasn't, and what role shared mobility appears to have played in the changes. We will also reflect on the role of half-price public transport fares and concessionary bus travel through SuperGold cards and Community Connect. An effective transition to a decarbonised transport system will require all New Zealanders to have access to low-carbon transport options that allow social and economic participation. This presentation will prompt discussion about how to move our transport system towards effectively meeting that ambition.

Knowing New Zealanders - Women's Journey Experiences

Christine Fitzgerald[1]
[1]Waka Kotahi

Women travel differently. The type of paid and unpaid work many women do means the way they travel is more complex. The nature of these journeys influences how women travel and affects their experience – with journeys potentially taking longer, being inefficient, more costly, and stressful. These experiences, combined with concerns associated with personal safety, influence behaviour and decision-making regarding mode use, preference, and perceived feasibility particularly for walking, cycling and public transport.

This presentation gives an insight into women's journey experiences based on data from Waka Kotahi's Customer Journey Experience Monitor. It will encourage a consideration of the tension between developing a low carbon transport system which promotes active modes and public transport with the needs and concerns of women, and advocate for the inclusion of these perspectives in planning practices and policy development.

Understanding public transport needs and usage in New Zealand

Alexis Garland

This research sought to understand the attitudes, perceptions and behaviours around public transport across New Zealand - a key part of understanding transport choices and mode shift. This study sampled 3,128 respondents across New Zealand, with a particular focus on including a large sample of low-income respondents. What preferences and barriers drive decision-making around public transport usage? What is the distributional impact of those perceptions and challenges? Understanding these drivers can help in shaping the right public transport system for New Zealand, and informing an equitable transition to a cleaner, safer transport system for everyone.

Understanding the reasons for work travel modes among Wellington City Residents

Rajan Ghosh[1], Tessa Pocock[1], Danial Jahanshahi[1], Sandra Mandic[1]
[1]Wellington City Council

Understanding residents' work travel modes and the reasons for using a particular mode of transport is crucial for both sustainable transportation planning and improving residents' quality of life. Using data from the Pōneke/Wellington Transport Survey 2023, this research presents the reasons for the current mode of transport to work reported by 1455 Wellingtonians. In the overall sample, 29% reported they had no other options and more than 83% reported distance, convenience, and travel time as reasons for mode choice. Distance, convenience, and travel time were also most common reasons for mode choice by pedestrians, cyclists, public transport users, and private vehicle users. Physical and mental health were commonly reported by pedestrians (77% and 71%, respectively) and cyclists (87% and 82%). Cost and climate change concerns were also frequently reported by pedestrians (70% and 51%, respectively), cyclists (79% and 71%) and public transport users (82% and 56%). Carrying load was a common reason reported by private vehicle users (67%), whereas trip-end destination was frequently reported by both private vehicle users (60%) and public transport users (65%). The findings highlight the reasons for diverse modes of transport choices, enabling targeted initiatives that align with people's needs.

An Exploration of Psycho-Social and Cultural Risk Factors among New Zealand Recreational Boating Fatalities

Liam Hoselton[1]
[1]Maritime New Zealand

This study investigates the psycho-social and cultural risk factors contributing to recreational boating fatalities in New Zealand. Recreational boating is one of the fastest-growing leisure activities in New Zealand, with participation growing from 42% of the New Zealand adult population in 2017 to 51% by 2021. With such a high participation rate among New Zealanders, we must better understand what factors produce harm in recreational boating. Much of the extant literature on recreational boating has indicated “human factors” as being the leading cause of incidents, harm and fatalities. Despite this, little research has been conducted to determine what these human factors are. Utilizing inductive grounded theory, this study analysed 33 fatal recreational boating cases to identify compelling psycho-social and cultural factors in the initial development of comprehensive risk profiles. The study finds that those involved in fatal recreational boating accidents typically displayed poor preventative and situational awareness competencies, often adhered to safety cultures conducive to high-risk-taking behaviour and were rarely alone. The study’s findings present important implications for the enhancement of harm prevention strategies, communications and policy across New Zealand’s maritime domain and represents a valuable contribution to understanding risk factors among actors within the wider New Zealand transport system.

Modelling transport policy impacts on health equity and greenhouse gas emissions in Tāmaki Makaurau Auckland

Jamie Hosking[1], Melody Smith[1], Alistair Woodward[1]
[1]Waipapa Taumata Rau/the University Of Auckland

Transport systems are an important determinant of population health and health equity, and a leading contributor to greenhouse gas (GHG) emissions. We present a case study of these impacts for distance-based pricing and free public transport in Tāmaki Makaurau Auckland.

Using the Macro Strategic Model and the Integrated Transport and Health Impacts Modelling Tool, we investigated the impacts of the two policies, stratified by income.

Both policies saw gains in disability-adjusted life years (DALYs) and lower GHG emissions, with the greatest benefits from a combined scenario. Health gains for the low-income group were greatest, with the greatest income differential seen in the combined scenario. The distance-based pricing scenario saw greater reductions in car use and GHG emissions, a greater increase in public transport use, greater gains in DALYs, and a greater differential between low- and high-income groups.

These transport policies may reduce GHG emissions and improve some aspects of health equity. However, there may be unwanted effects that were not included in this modelling. Distance-based pricing seems likely to reduce disposable income most for the low-income population, and may create financial barriers to accessing important health determinants such as employment and education. These impacts would need to be adequately mitigated.

Plight of bus drivers: The role of organizational and supervisor support in mitigating psychosocial risks

Pari Irai[1], Dr. Fatima Junaid, Prof. Jim Arrowsmith
[1]Massey University

This study employs an occupation-specific approach to examine bus drivers' exposure to psychosocial risks and available resources to mitigate their effect on well-being. Drawing on the concepts of organisational and social support, the study focuses on the roles of supervisor and peer in determining psychosocial outcomes. Data was gathered from semi-structured interviews with thirty-six bus drivers, ten supervisors, and ten managers from five urban bus operators and nine trade union representatives in New Zealand (NZ). The findings show that passenger misbehaviour, long working hours, split shifts, and low pay are the primary source of drivers' psychosocial risks, leading to emotional exhaustion. Interestingly, supervisors' constraints (e.g., remote supervision, competency, workload) were also linked to increased risks for drivers and adversely influenced their perception of organisational support. Conversely, the camaraderie observed among drivers was identified as a valuable source of resources for resilience and job satisfaction. Given the role of supervisors as first-line managers, the study suggests that supervisors need adequate organisational support t

Therapeutic mobility: How the ‘act of moving through’ environments matters for low-carbon transport behaviours

Vivienne Ivory[1], Conal Smith[2], Dan Exeter[3]
[1]WSP, [2]Kōtātā Insight, [3]University of Auckland

When thinking about 'transport', our attention is typically on moving people and goods between spaces and places. But the therapeutic mobility concept suggests we can also attend to the ‘act of moving through’ environments. If mobility is to contribute to wellbeing and decarbonisation, we need to think about how the therapeutic experiences of moving through urban environments, alongside experiences with good transport infrastructure, can encourage the right behaviours.

This presentation will demonstrate how the Te Hotonga Hapori research programme is developing an evidence base on therapeutic mobility (and a wide range of other factors). It is designed to address knowledge gaps for decision-makers by identifying potential transport levers that interact with the urban environment. They include the levels of service for active and public transport modes (e.g., lighting, blue and green space, and personal security) required to encourage low mobility behaviours and promote wellbeing.

The research programme leverages a natural experiment to provide evidence and insights into what happens when urban areas are redeveloped. Integrated data sources are tracking the urban redevelopments, people's experiences, and capabilities around their everyday movements through changing environments, developing evidence for how to effectively redevelop urban environments in ways that shape transport behaviours and wellbeing.

Modelling the impact of the Transmission Gully

Lucie Jilkova

Understanding the impacts of new infrastructure, policy scenarios, or investment decisions on a transport system is challenging yet crucial. To examine the impacts of transport system changes in a unified and systematic manner and to help make informed decisions, the Ministry of Transport has been developing a national-scale, agent-based model of the New Zealand transport system, known as Monty. Monty creates a digital representation of people's movements in New Zealand by modelling individual agents and their decisions. In assembling Monty, a large amount of information about the network, infrastructure, people, and their activities is integrated into the model which enables us to access a wide variety of agent attributes and experiences. To assess Monty's ability to model changes to the transport system, we present validation results and insights from Monty about the impact of Transmission Gully on the transport system and those who use it. We validate the model by comparing its results to the Waka Kotahi Traffic Monitoring System counts on State Highways.

SPOT (Suitable Placement for On-demand Transport): A Systematic Methodology for On-Demand Transport Site Evaluation

Minh Kieu[1], Chinh Ho[2]
[1]University of Auckland, [2]University of Sydney

On-Demand Transport (ODT) services offer a dynamic alternative to traditional public transportation, particularly in regions with sparse populations or during off-peak hours. Despite its potential, the selection of suitable locations for ODT often relies on intuition or superficial analysis, leading to suboptimal service provision. This paper proposes a comprehensive, data-driven methodology for site selection and evaluation for ODT services, focusing on replacing under-performed bus routes where traditional public transport is inefficient. The first significant contribution is the formulation of an 'ODT-readiness index,' consolidating various demand and supply-side factors into a spatial measure of suitability. This index serves as a tool for decision-makers to methodically shortlist potential locations, ensuring empirically grounded decisions. The second major contribution is the development of an innovative agent-based modelling approach, tailored to evaluate potential ODT services, simulating complex dynamics and ranking sites based on key performance indicators. Through two case studies in Auckland and Sydney, this research aims to enable policy-makers to make informed, data-driven decisions on ODT implementation, contributing to the broader goal of making public transport more accessible, efficient, and user-centric.

To take the train or not to take the train – that is the question!

Gerda Kuschel[1], Jayne Metcalfe[1]
[1]Emission Impossible Ltd

The Auranga development in Drury West has been planned to support environmental sustainability and encourage walking, cycling and public transport, rather than cars. Non-car transport emits less harmful air pollution and greenhouse gases and improves public health by increasing activity levels, reducing noise and connecting communities.

In 2021, Emission Impossible was engaged to quantify the emissions and public health impacts of different locations proposed for the town centre and the train station. In the absence of regional information, we developed a preliminary model to assess critical trips in the area – shopping and commuter journeys – for which we did have data.

Costs/benefits were estimated for two station locations between 2021 and 2048 for the two trip types. Scenarios assessed active mode uptakes from 0% (all car) to 13% (typical car-oriented developments) to 50% (Auranga's transit-oriented design) and 100% (all active modes).

Our modelling confirmed that the design of an area is critical to its emissions and public health outcomes. As expected, the closer and more "attractive" facilities can be the more likely the community will be to shift gears to active modes.

Unlocking Transport Insights: Leveraging New Zealand's Integrated Data Infrastructure (IDI)

Conrad MacCormick

New Zealand's Integrated Data Infrastructure (IDI) offers researchers access to a diverse collec□on of interconnected datasets. Beyond its core focus on social services, the IDI also incorporates transportrelated
datasets: Waka Kotahi's Driver's License and Motor Vehicles Registers; ACC's motor vehicle injury claims database; and informa□on on travel to work and educa□on from the Census. These datasets encompass demographic informa□on, geographic details, license types, vehicle a□ributes, and more.

The IDI is a valuable resource for transport researchers to address cross-domain ques□ons. For instance, researchers could explore:

□ the rela□onship between driver's license a□ainment and employment outcomes for rangatahi.
□ driver's license and vehicle ownership equity and accessibility
□ the rela□onship between travel data and income and employment

We aim to highlight the poten□al of these datasets and promote evidence-based decision-making in the transport sector.

We are working towards reducing the barriers to using the IDI via the IDI Modular Coding project, which includes very high-quality code and documenta□on for driver's licences analysis.

The IDI has been underu□lised in the transport area but has great poten□al to build the understanding of travel, vehicles and licences and their interac□on with other government services and outcomes.

The Māngere ebike trial

Hamish Mackie[1], Ali Raja[1], Karen Witten[2], Simon Opit[2]
[1]Mackie Research, [2]Massey University

Aotearoa New Zealand needs a model for successful ebike use in lower-income communities so that the many benefits of e-bikes accrue to all. A three-stage trial of ebike access in Māngere is underway. Following Stage 1 'Give it a go' sessions, 40 participants were invited to participate in Stage 2 which had the purpose of exploring the outcomes, successes, and challenges of free everyday ebike access. Participants received support from Time to Thrive (TTT) a local community bike champion and used the ebikes for 2-3 months in their everyday lives. A 7-day travel diary as part of the survey showed that over a third of weekly trips were made by cycling while on the trial, and trips made by motor vehicle reduced by 25%. Kilometres travelled ranged from 36km to 1057km (median 299km). For those with few kms travelled and limited experience with cycling, occasional recreational rides often represented a significant step in their cycling journey. Overall, participants' perceptions of the trial were very positive, including examples of significant travel cost savings, and most would like to keep riding. Stage 3 is exploring incentives for ebike access, with lessons across other ebike trials nationally suggested for policy development and implementation.

Using evaluation to build evidence, momentum, and support for transport system change

Hamish Mackie, Shiven Rambarath[2], Kat Gilbert[1]
[1]Mackie Research and Consulting, [2]Waka Kotahi The NZ Transport Agency

Mode shift of the scale needed to significantly reduce vehicle kilometres travelled is required if Aotearoa is to meet transport emission reduction targets. The Transport Choices programme under the Climate Emissions Reduction Fund responds to challenge by funding a range of walking, cycling and public transport enhancement projects.

Evidencing how Transport Choices has supported the system change needed to enable behaviour change is essential for accountability, building momentum and public support for change, and informing future investment. High quality evidence to meet these needs requires careful design.

Evaluators from Mackie Research and Waka Kotahi have been working with Transport Choices project teams to plan the evaluation to be undertaken by each project. The collaborative approach has integrated multiple inputs - including an overall programme evaluation framework, existing transport performance indicators, and the evaluation expectations of different stakeholders.

The use of Waka Kotahi's existing non-monetarised benefit measures within the evaluation approach has provided for focused and credible evaluation plans. Members of the team will describe how the measures will be used to evidence individual, community, and wider system level impacts. Example plans will be used to illustrate this use and how the approach has adapted to real world practicalities.

Adolescents' School Travel and Walking to School Perceptions Before and During the COVID-19 Pandemic

Sandra Mandic[1,2], Enrique García Bengoechea[3,4], Kirsten Coppell[5], Michael Keall[5], Melody Smith[6], Debbie Hopkins[7], Susan Sandretto[8], Gordon Wilson[9], Gavin Kidd[9], Charlotte Flaherty[8], Jennifer Mindell[10], Janet Stephenson[8], Kimberley King[8], Kaisa Kentala[8], Anna Rolleston[11], John Spence[12]
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Rates of active transport to school among adolescents in developed countries declined in the years prior to COVID-19 pandemic restrictions. However, the impact these restrictions had on adolescents' school travel patterns has not yet been systematically investigated. Using the BEATS Research data, we compared school travel modes and perceptions of walking to school among adolescents 5-6 years prior to and again during the COVID-19 pandemic in Dunedin, New Zealand. Adolescents from all 12 secondary schools completed an online survey: 1,463 in 2014-2015 and 1,421 in 2021-2022. Rates of walking to school decreased from 30% before to 21% during the pandemic in the total sample and from 68% to 54% among adolescents living within walking distance (≤2.25 km) to their school. During the same 7-8 year period, the proportion of adolescents living in households with ≥2 vehicles increased from 69% to 78%. Further, adolescents' attitudes towards walking to school indicated significantly lower intentions and higher perceived barriers during the pandemic compared with pre-pandemic levels, although differences were lower among those living within walking distance to school. These findings highlight the need for continued cross-sectoral efforts to enable active transport to school among adolescents including practical policy responses to similar pandemic events.

We aren’t always going places – non-travel in the New Zealand Household Travel Survey

Jennifer McSaveney[1]
[1]Ministry of Transport

To better comprehend how our transport system works and how it can improve, we need to understand how, when, where and why New Zealanders travel. The New Zealand Household Travel Survey is our primary source of this information, looking at our travel behaviour as we go about our daily lives. But we are not always in motion, and it helps to have an understanding of when (and why) we don’t travel. In this presentation we will present the surveys latest developments, and look at some of the available information about people who haven’t travelled on their assigned travel days, and the reasons why.

Real-world air quality co-benefits from urban bus fleet decarbonisation on Wellington's 'Golden Mile'

Tamsin Mitchell[1], Hamish Clark
[1]Greater Wellington

The Golden Mile is Wellington City's prime retail, business and entertainment strip, and the main route for almost 90% of the city's public transport buses. It is also the busiest pedestrian area. Metlink's goal is for all core bus services to be electric by 2030, and to have a zero-emissions fleet by 2035. Air quality monitoring on the Golden Mile shows significant reductions in monitored levels of harmful diesel particulate matter and nitrogen dioxide (NO2) that can be attributed to the increasing proportion of electric buses relative to diesel buses travelling through the Golden Mile. This study shows that linking air pollutant monitoring data to observed bus counts by engine type, whilst accounting for impact of weather, can quantify co-benefits for air local quality following decarbonisation interventions

Presentation of Waka Kotahi Climate Assessment of Transport Investment (CATI) model

Colin Morrison

Enabling early carbon reduction decisions for transport investment
How do we incorporate carbon into investment decisions before we have any quantifiable emissions data?
Waka Kotahi has pioneered an innovative approach to support investment decision-makers: the Climate Assessment of Transport Investment (CATI) model, which has been developed and refined over the past three years. The CATI tool can be applied quickly at very early stages of investment programmes to assess their potential impact on carbon emissions. It can determine whether investment decisions might reduce or increase emissions, allowing decision-makers to shape how the spend profile might impact land transport emissions.
To guide carbon reduction investment, CATI has been integrated into the development of the National Land Transport Plan 2024-27 and has been successfully applied to early Transport Business Cases. Acknowledging that there are many carbon-related tools available to support various aspects of transport emissions reduction, CATI is providing strong cut-through to inform critical early decision making where significant opportunities to reduce future emissions exist.

Considering uncertainty when assessing long-term infrastructure needs

Peter Nunns

Infrastructure is long-lived and has persistent impacts on social, economic, and environmental outcomes. There is a need to consider long-term needs when planning infrastructure. However, the future is uncertain for many reasons, including demographics, climate, and technology. How much does uncertainty affect different types of infrastructure needs? If uncertainty is important, how can it be considered in long-term planning?

Parental perceptions of traffic and personal safety for school travel in Wellington City

Tessa Pocock[1], Rajan Ghosh[1], Danial Jahanshahi[1], Sandra Mandic[1]
[1]Wellington City Council

Parental concerns about traffic and personal safety are major barriers to active transport to school and may differ by child's age, but are often not assessed separately. Using data from the Pōneke/Wellington Transport Survey 2023, this research is the first attempt to report on parental perceptions of traffic and personal safety for school travel in primary/intermediate (n=203) and secondary (n=181) school students in Wellington City.

Parental perceptions of traffic safety were highest for walking to school in both primary/intermediate (60%) and secondary (72%) students and were significantly higher compared to perceived safety of the school route for cycling (36% and 30%, respectively) and scootering (46% and 34%, respectively). Similar findings were observed for parental perceptions of personal safety along the school route. Perceptions of traffic safety for walking (72% vs. 60%; $p=0.007$) and crossing streets (64% vs. 44%; $p<0.001$) on the school route were higher for secondary versus primary/intermediate school students, whereas no difference was observed for personal safety perceptions.

These findings emphasise the importance of separately assessing perceived traffic and personal safety for different school travel modes and in different age groups. Future analyses should also consider home-to-school distances and perceptions of different transport user groups.

Building travel personas with the New Zealand Household Travel Survey

Shrividya Ravi[1]
[1]Ministry of Transport

The "when", "where" and "how" of travel is key to understanding demands placed on the transport system as well as the potential for change. Connecting these aspects to the "who" extends the insights and nuance needed for building and communicating solid transport policy - especially around pathways to emissions reduction. However, usefully aggregating large data of individual travel behaviours from sources like the NZ Household Travel Survey (HTS) is challenging.

This talk will present a method for summarising travel behaviour from HTS data as travel typologies using unsupervised clustering algorithms. These typologies can identify high level travel behaviours e.g. Commute to Work, Home / Errands, Work from Home etc. and also discern subtleties e.g. Commute to Work followed by errands in the evening.

Along with demographic variables like lifestage, sex and age, travel typologies form the basis of travel personas and help understand and communicate the characteristics and diversity of travel behaviour.

A nudge-based intervention to improve equity of speed management

Jesse Rumball-Smith

Speeding is a leading cause of road accidents, contributing to loss of vehicle control and reduced reaction time, thereby increasing the likelihood and severity of crashes. One way to enhance speed limit compliance is through real-time auditory and visual cues alerting drivers when they exceed limits. While new cars increasingly come equipped with Intelligent Speed Adaptation (ISA) systems for this purpose, these features are predominantly found in high-end vehicles, leaving most drivers at risk.

To address this inequity, I developed a New Zealand-specific mobile app that used nudge-based intervention. The app democratizes access to speed limit information, making it available to all drivers with a mobile phone and data. Results showed a significant 35% reduction in speeding events and a, more impressive, fundamental change in driver behaviour over time.

Apart from enhancing individual compliance with speed limits and thus safety, the infringement location data can serve as a crucial resource for policy. It can pinpoint locations where speeding infractions are most prevalent, helping authorities take targeted preventative measures. My presentation will summarize the effectiveness of the mobile app in reducing speeding and its broader potential applications in contributing to a more equitable and safer road environment in New Zealand.

Road safety in sight: Baseline projection of quarterly road deaths

Hari Sharma[1]
[1]Waka Kotahi

Modelling the effectiveness of road safety interventions is critical to reducing deaths and serious injuries. We need to know what works and what doesn’t. We also need to understand the underlying demographic and economic factors that have an impact on road safety too, so we can factor them into the modelling.

In 2018 Waka Kotahi developed such a model called the Integrated Intervention Logic Model (IILM). The IILM estimates the optimum mix of road safety interventions, working together, to best reduce deaths and serious injuries. It was underpinned by a baseline economic model, the results of which were presented at this conference in 2019. This presentation updates that baseline model and tests the original assumptions.

Economic and demographic factors considered include petrol prices, young New Zealanders' population, and employment rates. Preliminary findings show a correlation between consecutive quarterly fatalities, which implies that rising petrol prices and employment rates are related to lower road trauma. However, a growing young population doesn't appear to significantly impact fatality rates. These baseline projections suggest annual fatalities would hover between 284 and 303 in the next decade. We are fine tuning our projection using Machine learning and our findings will be presented at the Conference.

Road transports emissions projections since ERP1 and the implications for our climate goals

Ainsley Smith

It has been 18 months since the first Emissions Reduction Plan (ERP) was published and two years since the Climate Change Commissions published their final advice to Government. Since this time there have significant changes to both electric vehicle (EV) uptake and vehicle kilometres travelled (VKT) in the road transport space that have impacted projected future transport emissions. This presentation looks at how road transport emissions projections have changed since the first ERP and what has caused those changes. The presentation also looks at the implications of the latest projections for transports emissions goals that were set as part of the first ERP.

Employing Machine Learning in Evidence-Based Decision Making: A Case Study Using Weigh-In-Motion Data

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In the realm of road network operations, monitoring the weight of heavy vehicles is essential, especially when considering the detrimental impact of non-compliant overweight vehicles on infrastructure and public safety. This study presents a case (part of the Commercial Vehicle Safety Programme) on the application of machine learning to weigh-in-motion (WIM) data, collected from commercial vehicle safety centres (CVSCs), aiming to detect non-compliant overweight heavy vehicles. The programme supports the Road to Zero strategy and will help create a more level playing field for the heavy vehicle industry. The primary focus lies on the deployment of automated machine learning pipelines to extract robust and statistically sound evidence, aiding in the decision-making process. Once all CVSCs are in place, we anticipate a decline in heavy vehicle overloading. This approach safeguards our roads and ensures heavy vehicle operators pay their correct rate of Road User Charges (RUCs) by detecting vehicles that are overloading and therefore non-compliant, enabling regulatory intervention, promoting a fairer system. These results underscore machine learning's role in evidence-based decision-making, offering a more efficient method to improve heavy vehicle compliance in the transport industry.

Traffic Scenarios for a Decarbonised Rail Sector

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Scenario building is a form of futures thinking which is recognised by the DPMC in the policy methods toolbox. It is helpful where there are a range of possible futures, and the future can be actively shaped by the decisions we make today. Working with KiwiRail on a business case to investigate the role rail could play in the decarbonisation of the freight sector, and the implications for its motive power, the team used scenario building as a tool to challenge the status quo and envisage more widespread change. Key parameters of the freight network which are normally considered fixed were identified as potential drivers for change, and experts were challenged to consider alternative futures where some of these parameters change. This allowed an understanding of ways in which rail could achieve a higher freight mode share and a greater contribution to reducing carbon emissions from freight. The team were able to start a conversation around how historic decisions shape our current freight network, and explored ways in which restructuring could unlock change and realise decarbonisation and other opportunities across the supply chain. Modelling allowed an understanding of the potential size of the opportunity of shifting more freight to rail.

Transport System Natural Hazards Resilience Research Highlights and Direction

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Recent natural hazards events in Aotearoa New Zealand have highlighted the vulnerability of the transport system and the impacts of loss of service on communities and the economy. These events, along with a history of strong collaboration between research and industry, has motivated a wide range of research focussing on the resilience of the transport system when exposed to natural hazard events. This presentation will provide a summary of recently completed and ongoing research across New Zealand, along with some of the future directions of this research. This summary will be presented on behalf of a large group of researchers from across the country. It will look across network components, individual networks, interactions or dependencies across networks and the socio-economic implications of losses of service.