

TRANSPORT INTELLIGENCE DIGEST



Issue 17

<p>Date of issue: February 2021</p> <p>Contact: Transport Knowledge Hub E knowledgehub@transport.govt.nz</p>	<p>Contents</p> <p>Inclusive Access</p> <p>Economic Prosperity</p> <p>Resilience and security</p> <p>Environmental sustainability</p> <p>Healthy and safe people</p> <p>Around the world – statistical releases</p> <p>Hub Knowledge</p>
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Introduction

Welcome to the 17th issue of the Transport Intelligence Digest.

There's a good assortment of papers in this edition plus a couple of dissertations. There's still a good number of papers covering Covid19 due to the emergence of Covid19 variants and the rollout of vaccines now occurring.

The Events calendar has been updated, with several conferences that were postponed now moved to new dates and a small number offering in-person attendance. A link to the latest calendar on the Knowledge Hub website is available at the end of this edition.

Happy reading

Transport Knowledge Hub

We welcome contributions from anyone who reads this Digest. We ask you to indicate which of the 5 transport outcomes your contribution would fall under. The contribution should be a recent release. Contributions don't have to be about research: we have a section devoted to statistical releases and we're happy to receive contributions for that area as well.

Disclaimer:

This Digest references a wide range of third party articles. Reference to these articles does not constitute endorsement by the Ministry.

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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.

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Accessibility and Transport Appraisal

International Transport Forum (ITF), (December 2020)

Keywords: Accessibility

This report identifies the success factors for accessibility-based approaches to transport project appraisal. It explores the role of cost-benefit analysis as an appraisal tool and how it could better address distributional issues. Finally, it reviews the case for aligning accessibility metrics more closely with policy objectives and how they can be communicated via accessibility mapping. The report summarises discussions of an ITF Roundtable held in Paris, France, in October 2019.

https://www.itf-oecd.org/sites/default/files/docs/accessibility-transport-appraisal_0.pdf

Connecting Remote Communities

International Transport Forum (ITF), (January 2021)

Keywords: Accessibility, International

This report explores the accessibility challenges that people face in remote areas. It demonstrates how state support can ensure access to essential services and reduce social and economic isolation where private markets fail to provide adequate transport connections. It provides a classification of policy interventions in different countries and reviews common design and implementation challenges. Finally, it analyses different approaches to determine the appropriate level of state support for transport in remote communities.

<https://www.itf-oecd.org/sites/default/files/docs/connecting-remote-communities.pdf>

Future transport: understanding what Australians want

Aurecon, Australia, (February 2021)

Keywords: Accessibility, Freight & trade, Modelling and forecasting, Safety, Vehicle technologies & standards

By 2035 Australia will look different. Very different.

Faced with a population nudging 32 million, increasing demand from trading partners and rapidly evolving technologies and consumer behaviour, moving people and goods around Australia will undoubtedly remain one of the biggest infrastructure challenges. Against this backdrop, creating a future ready roadmap that responds to today and tomorrow is complex. How do we make our cities and regional areas great places for people to live and work? How can we balance sustained economic productivity and quality of life when faced with the ever-changing challenges presented by evolving consumer demands thanks to new technologies? Is it even possible?

While those involved in the freight and logistics ecosystem all play their role, a crucial part of any future solution lies in knowing what people want when it comes to moving themselves and their goods around. People don't seek mobility for the sake of mobility, they seek it to fulfil a purpose. To explore this we asked more than 1300 people (from the general public and industry) to imagine themselves in 2035 and tell us about where they had chosen to live, work, how they commute, what foods and goods they purchase and how they prefer things to be delivered.

<https://www.aurecongroup.com/markets/transport/future-of-transport/australia>

Note: They are also doing a New Zealand survey. To complete the survey:

<https://www.aurecongroup.com/markets/transport/future-of-transport/new-zealand>

Leveraging transport disruption to influence change

Mackie Research (November 2020)

Keywords: Accessibility, Active modes, Covid19, Human behaviour

The COVID-19 pandemic has intensely disrupted many aspects of travel patterns and behaviours in New Zealand. This literature review examined academic and grey literature of previous disruptive events from around the world with a focus on behaviour change and policy developments. The aim of the review was to identify the value of leveraging transport policy change from a disruption and to understand potential approaches. The review found that people's travel behaviours rapidly change to adapt to a disruptive situation, with the type and extent of behaviour change being directly related to the nature and longevity of the disruption. In most cases, once 'normal' conditions resume so too do pre-existing travel behaviours, particularly if there is no change to underlying conditions or a concerted effort to foster long-term change. Transport disruptions can be opportunities to advance policy goals and contribute to long-term transport behaviour change. To achieve this, the literature suggests that a careful, fine-grained system-level response is needed, which rapidly and proactively identifies and acts on appropriate opportunities at the right time. The research identifies 10 key lessons or considerations, which can help inform the approaches taken to advance New Zealand's transport policy goals in the context of COVID-19. Key examples include: a clear vision for the disruption and post-disruption response leveraging existing policy, proactive engagement with vulnerable groups, balancing strong government leadership with community engagement, and synergy between transport solutions, economic recovery, safety and health, inclusivity, climate change and resilience goals. Most importantly, don't go backwards.

This is a Waka Kotahi NZTA funded research project.

<https://www.nzta.govt.nz/resources/research/reports/672>

Mode shift to micromobility

Beca; Micromobility Industries (February 2021)

Keywords: Accessibility, Active modes, Human behaviour

Micromobility - the use of lightweight electrically powered transport such as e-bikes, e-scooters and mobility devices - is growing rapidly. What are the likely trends for micromobility, and what is required to support its growth? In this study, the researchers forecast that by 2030, New Zealanders may use micromobility for between 3% and 11% of all urban trips. They also developed six context-related factors so transport practitioners can identify where the greatest potential for this growth is likely to occur. Meanwhile, the number of people using micromobility on active transport infrastructure could be three to eight times the number of traditional cyclists, which will have a significant impact on project evaluation. The growing use of micromobility could also contribute to an additional increase in public transport use of up to 9% by 2030, so practitioners need to consider the related public transport vehicle and network design. The growth of micromobility has both positive and negative impacts on transport outcomes. The researchers evaluated these using the five key outcomes in the New Zealand Ministry of Transport's Transport Outcomes Framework. Twenty-one key interventions were identified that will help deliver wellbeing and liveability outcomes.

This is a Waka Kotahi NZTA funded research project.

<https://www.nzta.govt.nz/resources/research/reports/674>

Transport Innovation for Sustainable Development: A Gender Perspective

International Transport Forum (ITF), (February 2021)

Keywords: Accessibility, Active modes, Covid19, Human behaviour

This compendium assembles voices from the transport sector that highlight positive examples of how women as transport users can benefit from the innovations that are transforming the transport sector. They show that the future of mobility can be more inclusive and sustainable where mobility services use technology and other innovative solutions adapted for women's needs and where innovative approaches enhance women's professional opportunities in transport.

<https://www.itf-oecd.org/sites/default/files/docs/transport-innovation-sustainable-development-gender.pdf>

Why do people walk? role of the built environment and state of development of a social model of walkability

Auckland University of Technology; The University of Auckland in Travel Behaviour and Society, 20, 181–191 (July 2020)

Keywords: Accessibility, Active modes, Human behaviour

The built environment is known to influence walking behaviours, but the mechanisms still isn't clear. A variety of tools and scales have been proposed to measure "walkability". It is interesting to note that these tools and scales might relate to diverse metrics and usually don't consider individual characteristics such as disability.

This paper takes a step back to examine what matters, and it varies across populations. This review of review examines published evidence to identify how the links between built environment and walking are understood, what roles individual characteristics play, and what understanding gaps are outlined.

It is shown that the notion of walkability is diversely understood, with a lack of consensus regarding certain characteristics, such as the quality of walking environments.

The Social Model of Walkability is developed, the name being an intentional reference to the Social Model of Disability: like the latter, the developed model examines how the environment can enable and encourage diverse people to walk, or on the contrary represent barriers. The model stresses the importance of the quality of walking environments; people's perceptions of how environments satisfy their walking needs; and individual characteristics such as disability or availability of transport options. The established model encourages investigating existing infrastructure both through measures and through the inputs of those who use them.

<https://www.sciencedirect.com/science/article/abs/pii/S2214367X19301152?via%3Dihub>



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.

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Congestion persona research: Insights into how road users might respond to the proposition of a congestion charge being implemented on Auckland roads

The Navigators Ltd (January 2021)

Keywords: Congestion

Understanding how a congestion charge might impact on the wellbeing of road users is an important input into the consideration and design of any potential congestion charging programme. The purpose of this research was to introduce the concept of a congestion charge to a diverse sample of road users and to explore and identify their reactions, the likely impacts on their transport choices and the potential for any adverse wellbeing outcomes as a result of congestion charging. The results are to be used as part of The Congestion Question (TCQ) project's overall social assessment.

<https://www.transport.govt.nz/assets/Uploads/Paper/PersonaReport.pdf>
for more information about the Congestion Question project please go [here](#)

Estimating the effect of online shopping and collection-delivery points on shopping travel in New Zealand

Ashu Kedia, University of Canterbury – final Ph.D thesis (February 2021)

Keywords: Economics, Human behaviour

Online shopping might reduce consumers' shopping trips. However, consumers might visit the shops to check and/or inspect products before buying them online. Also, a huge number of parcels containing items sold online must be transported to end-consumers' doorsteps, using light vehicles. A clear understanding of the travel implications of online shopping is essential to help estimate the demand for shopping travel and goods' transport. This study investigated the effect various socio-demographic, travel and shopping-related factors, on in-store shopping travel and goods' last-mile travel. Data from 355 consumers residing in Christchurch were obtained through an online survey.

<https://ir.canterbury.ac.nz/handle/10092/101117>

Impact of COVID-19 on petrol prices in Australia

Bureau of Infrastructure and Transport Research Economics (BITRE) (December 2020)

Keywords: Covid19, Economics

Australian retail petrol prices are primarily determined by international world oil prices and overseas refined petroleum prices, and variations in exchange rates. As a result of COVID-19 restrictions imposed around the world, demand for crude oil and refined petroleum products decreased significantly from mid-March 2020 onwards, and led to sharp decreases in crude oil and refined product prices.

The analysis presented in this paper outlines the principal components of Australian retail petrol prices, the impact of COVID-19 on weekly petrol prices and also the typically observed time lag between international refined petroleum product prices and domestic retail petrol prices.

https://www.bitre.gov.au/sites/default/files/documents/bitre-is111-petrol_prices.pdf

ITF Impact Report 2018-20

International Transport Forum (ITF), (December 2020)

Keywords: Covid19, International

The ITF has published its first Impact Report. This report reviews where the ITF has contributed to better solutions, set in motion useful debates, helped to answer pressing questions in the quest for safer, more sustainable, inclusive transport solutions that improve the lives of citizens. The report is across several topic areas such as: Decarbonising Transport; Digitisation; Safety & Security; Connectivity; Access and Inclusion; and finally the Covid-19 challenge. You'll also learn a bit more about what the ITF does. So, there's a bit here for everyone.

<https://www.itf-oecd.org/sites/default/files/docs/itf-impact-report-2020.pdf>

Pre-Covid-19 sea and road freight volumes show continued growth

International Transport Forum (ITF), (December 2020)

Keywords: Covid19, Freight & trade

While most regions saw minimal change in rail freight flows since 2010, rail tonne-kilometres declined in the large majority of ITF countries with available data between 2010 and 2019. Rail freight trends from 2010 to the latest data have remained quite stable in Europe, Japan and Korea, the People's Republic of China and North America, all of which have compound annual growth rates for the data shown of less than one percent (Figure 1). The Russian Federation visibly increased rail tonne-kilometres between 2010 and 2019, with a compound annual growth rate of 3%. Rail freight grew at an even faster rate in Australia and New Zealand (8%), although data are only available through 2016 for those countries. Argentina and Chile have seen a stronger decline in railway freight movements than the any other region or country in the graph between 2010 and the latest 2017 data (-4% compound annual growth rate). In terms of the percentage of increase in rail tonne-kilometres between 2010 and the latest data shown, there was mainly growth in Australia and New Zealand (+59%) and Russia (+29%), as well as a decline in Argentina and Chile (-24%).

<https://www.itf-oecd.org/sites/default/files/docs/pre-covid-19-sea-road-freight-growth.pdf>

Turning hope into reality

OECD (December 2020)

Keywords: Covid19, Economics, Modelling and forecasting

The Covid-19 pandemic is causing one of the worst crises in recent history. The economic outlook looks brighter for 2021, thanks to the prospect of vaccines. Still, the recovery will be gradual, so governments should not let up on their efforts to support health systems, vulnerable people and hard-hit firms. Faster vaccine deployment and better cooperation for its distribution would boost confidence and strengthen the pickup but continued uncertainty risks further weakness. Vaccination campaigns, concerted health policies and government financial support are expected to lift global GDP by 4.2% in 2021 after a fall of 4.2% this year. The recovery would be stronger if vaccines are rolled out fast, boosting confidence and lowering uncertainty. Delays to vaccination deployment, difficulties controlling new virus outbreaks and failure to learn lessons from the first wave would weaken the outlook. The bounce-back will be strongest in the Asian countries that have brought the virus under control but even by the end of 2021, many economies will have shrunk from 2019 levels before the pandemic.

The report includes an economic forecast for New Zealand. After a rebound in the second half of 2020 from the COVID-19 slump, economic growth in 2021 will average around 2¾ percent, with rising unemployment weighing on private consumption and high uncertainty holding back business investment.

https://read.oecd-ilibrary.org/view/?ref=616_616660-2g1rg8exeg&title=Country-profile-New-Zealand-OECD-Economic-Outlook-Volume-2020-2

For the report

http://oecd.org/economic-outlook?utm_source=Adestra&utm_medium=email&utm_content=digital-report&utm_campaign=ecooutlookdec2020&utm_term=eco



The transport system can benefit or harm people's health, depending on how it is designed, developed, and used. Minimising and managing the risks from natural and human-made hazards, anticipating and adapting to emerging threats, and recovering effectively from disruptive events.

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Cybersecurity challenges in vehicular communications

University of North Dakota, USA; Argonne National Laboratory, USA (June 2020) in Vehicular Communications, Volume 23, (June 2020)

Keywords: Security, Vehicle technologies & standards

As modern vehicles are capable to connect to an external infrastructure and Vehicle-to-Everything (V2X) communication technologies mature, the necessity to secure communications becomes apparent. There is a very real risk that today's vehicles are subjected to cyber-attacks that target vehicular communications. This paper proposes a three-layer framework (sensing, communication and control) through which automotive security threats can be better understood. The sensing layer is made up of vehicle dynamics and environmental sensors, which are vulnerable to eavesdropping, jamming, and spoofing attacks. The communication layer is comprised of both in-vehicle and V2X communications and is susceptible to eavesdropping, spoofing, man-in-the-middle, and sybil attacks. At the top of the hierarchy is the control layer, which enables autonomous vehicular functionality, including the automation of a vehicle's speed, braking, and steering. Attacks targeting the sensing and communication layers can propagate upward and affect the functionality and can compromise the security of the control layer. This paper provides the state-of-the-art review on attacks and threats relevant to the communication layer and presents countermeasures.

<https://www.sciencedirect.com/science/article/pii/S221420961930261X>

Lack of resilience in transportation networks: Economic implications

Engineer Research and Development Center, USA; Regional Economic Models Inc – in Transportation Research Part D: Transport and Environment Volume 86 (September 2020)

Keywords: Resilience

Disruptions to transportation networks are inevitable. When road networks are not resilient, or in other words, do not recover rapidly from disruptions, unpredictable events can cause significant delays that may be disproportionately greater than the extent of the disruption. Enhancing transportation system resilience can help mitigate the consequences of disruptions; however, required investments are difficult to justify given the low probability of such events. This paper calculates economic implications of unmitigated random disruptions in urban road systems. We modeled delays in transportation networks and demonstrated how resilience can be integrated into macroeconomic modeling via the transportation planning model, REMI TranSight. The model was applied to 10 cities in the United States to forecast the impact of disruptions on gross domestic product (GDP). Different disruption scenarios were modeled and the magnitude of disruption was used to calculate additional delays in transportation networks, which were then integrated into the TranSight model. The results were compared to a baseline case, where economic impact was assumed to be proportional to the magnitude of disruptions. Results show that losses in GDP were far more pronounced in the case scenario as compared to the baseline. The losses tended to be higher in wealthier and more economically productive cities. The economic output tends to rebound one to two years after a disruptive event. We conclude that different topology in transportation networks in different cities requires explicit consideration and quantification of resilience to support investment decisions designed to improve transportation networks in cities.

<https://www.sciencedirect.com/science/article/abs/pii/S1361920920306064>

Resilience in railway transport systems: a literature review and research agenda

Taylor & Francis Online, Transport Reviews Volume 40, 2020 (February 2020)

Keywords: Resilience

Critical infrastructure networks, such as transport and power networks, are essential for the functioning of a society and economy. The rising transport demand increases the congestion in railway networks and thus they become more interdependent and more complex to operate. Also, an increasing number of disruptions due to system failures as well as climate changes can be expected in the future. As a consequence, many trains are cancelled and excessively delayed, and thus, many passengers are not reaching their destinations which compromises customers need for mobility. Currently, there is a rising need to quantify impacts of disruptions and the evolution of system performance. This review paper aims to set-up a field-specific definition of resilience in railway transport and gives a comprehensive, up-to-date review of railway resilience papers. The focus is on quantitative approaches. The review analyses peer-reviewed papers in Web of Science and Scopus from January 2008 to August 2019. The results show a steady increase of the number of published papers in recent years. The review classifies resilience metrics and approaches. It has been recognised that system-based metrics tend to better capture effects on transport services and transport demand. Also, mathematical optimization shows a great potential to assess and improve resilience of railway systems. Alternatively, data-driven approaches could be potentially used for detailed ex-post analysis of past disruptions. Finally, several rising future scientific topics are identified, spanning from learning from historical data, to considering interdependent critical systems and community resilience. Practitioners can also benefit from the review to understand a common terminology, recognise possible applications for assessing and designing resilient railway transport systems.

<https://www.tandfonline.com/doi/full/10.1080/01441647.2020.1728419>



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. Transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality, and air quality.

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Corporate social responsibility awareness and performance: the case of Chinese airports

International Journal of Productivity and Performance Management (October 2020)

Keywords: Environment

This study examines the corporate social responsibility (CSR) awareness of major Chinese airports during the 2013 – 2017 period as well as its influence on the airports' performance. We found that the CSR awareness varies among airports and over time; however, an increasing concern about this issue is found in the Chinese airport industry. Particularly, Chinese airports tend to focus more on customers and the society and that increase of CSR awareness could improve the airports' performance.

<https://www.emerald.com/insight/content/doi/10.1108/IJPPM-07-2019-0336/full/html>

Costs and emissions: Comparing electric and petrol-powered cars in New Zealand

Ministry for the Environment; Victoria University of Wellington – in Transportation Research Part D: Transport and Environment - Volume 90, January 2021 (January 2021)

Keywords: Environment, Vehicle technologies & standards

In New Zealand, the average age of a light vehicle in 2018 was 14.09 years. Despite having an old light vehicle fleet, no study has been conducted so far to calculate the per-kilometre cost of ownership (PCO) for old used cars. Therefore, this study attempts to identify the PCO of a new and a used light duty EV and light duty petrol-powered car over a 12-year period. The emissions reduction potential of EVs is also investigated. Findings are that the PCO for a used EV is the lowest (25.5 NZ cents) followed by the PCO for a used petrol-powered car (31.5 NZ cents). Most importantly, replacing a light petrol-powered ICEV by a light EV can reduce GHG emissions at the user level by 90% if New Zealand could maintain its low emission grid electricity. The findings have policy implications for countries that are considering rapid emissions reduction through EVs.

<https://www.sciencedirect.com/science/article/pii/S1361920920308567>

(may require a log in to download the free paper, any difficulties please email knowledgehub@transport.govt.nz for an electronic copy)

Decarbonising Azerbaijan's Transport System

International Transport Forum (ITF), (January 2021)

Keywords: Environment, Vehicle technologies & standards

This paper reviews opportunities and challenges for mitigating greenhouse gas emissions from Azerbaijan's transport sector. It provides an overview of Azerbaijan's transport system and reviews the country's existing policies and future plans for reducing CO2 emissions from transport. The paper also provides an overview of the data on transport activity and emissions available for Azerbaijan, and the tools used by government agencies for assessing them. Finally, it proposes options for further action in the context of ITF's "Decarbonising Transport in Emerging Economies" (DTEE) project.

<https://www.itf-oecd.org/sites/default/files/docs/decarbonising-azerbaijan-transport-system.pdf>

Future Vehicles 2030

Austrroads (June 2020)

Keywords: Environment, Vehicle technologies & standards

Australian and New Zealand vehicle fleets may be entering a period of significant change due to the emergence of Automated, Connected and Electric Vehicles and new models of vehicle ownership and use such as ride sharing services. This report provides forecasts for the uptake of selected technologies in new Australian passenger vehicles up to 2030 and the penetration of these technologies into the vehicle fleet. Discussions also cover how uptake and penetration may differ in New Zealand and for heavier vehicles, as well as for possible differences between urban and rural areas. These forecasts are made available to assist future planning of Austrroads Future Vehicles & Technology (FV&T) program, and will be useful for transport agency planners and others who assess the impacts of changes in the vehicle fleet for research purposes or to predict the direction of future transport and network operations.

<https://austrroads.com.au/publications/connected-and-automated-vehicles/ap-r623-20>

(may require a log in to download the free paper)

How Urban Delivery Vehicles can boost electric mobility

International Transport Forum (ITF), (December 2020)

Keywords: Environment, Vehicle technologies & standards

This report presents policies and private sector initiatives for the electrification of urban delivery vehicles. Electric vehicles have low operational costs and the high mileage of delivery vehicles maximises net savings from converting a fleet. Insights on the total cost of ownership and the environmental footprint of electric fleets highlight broader benefits of electrification programmes for commercial vehicles.

<https://www.itf-oecd.org/sites/default/files/docs/urban-delivery-vehicles-boost-electric-mobility.pdf>

Land use transport integration in Auckland: rhetoric or reality?

Frederick Smithers, Research Dissertation, The University of Auckland (February 2021)

Keywords: Active modes, Environment, Travel & mobility

This thesis was a study into densification in Auckland and its anticipated effect on car travel, public and active transport, travel distances and times, and GHG emissions. The study found that a 10% increase in an Auckland suburb's (population-weighted) density (controlling for median income and educational attainment) is associated with

- 1.7% increase in active mode share
- 2.4% public transport commute mode shares
- 2% reduction in commute distances
- 1% reduction in travel times
- 1.2% decrease in per capita commuting GHG emissions (CO₂e).

The analysis of the National Policy Statement for Urban Development (NPS UD) found that despite the policy's stated objectives – to integrate land use and transport planning – it is unlikely to catalyse the step-change needed. The NPS UD does not align the two critical components of land use (densification) and transport (public/active transport infrastructure). This is owing to poor legislative integration of the RMA and Land Transport Management Act (LTMA) in New Zealand. Densification alone will not promote mode shift and reduce travel demand to sufficiently lower GHG emissions to meet mitigation targets. Instead, densification, along with diverse land uses, must be integrated with fast, frequent and reliable public transit, and safe, convenient and comprehensive walking and cycling paths.

Frederick Smithers received a Ministry of Transport scholarship to undertake this study.

<https://drive.google.com/file/d/10RW-Fqs9TsxjvUDfg0ggEDZ3QN6rkEb4/view>

Navigating Towards Cleaner Maritime Shipping: Lessons From the Nordic Region

International Transport Forum (ITF), (November 2020)

Keywords: Environment, Maritime

This report analyses future energy-use in the shipping sector of the Nordic region. It centres on pathways that could allow the Nordic shipping sector to meet energy and environmental policy goals, including energy diversification, cutting air pollution and reducing greenhouse gas emissions. It details the feasible technology options currently available, the status of their adoption and government plans aimed at influencing future developments in this sector. Finally, it assesses implications for policy making for a rapid transition to cleaner maritime shipping. The Nordic region is pioneering efforts to reduce the environmental impact of maritime shipping, making the findings of this report relevant around the globe.

<https://www.itf-oecd.org/sites/default/files/docs/navigating-cleaner-maritime-shipping.pdf>



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

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Clearing the path to transcend barriers to walking: Analysis of associations between perceptions and walking behaviour

Auckland University of Technology; The University of Auckland in Transportation Research Part F: Traffic Psychology and Behaviour, 77, 197–208 (February 2021)

Keywords: Active modes, Safety, Human behaviour

This paper examined how Aucklanders' perceptions of their environments, use of public transport and individual characteristics associate with walking behaviour.

We examined the data of over 4,000 participants to the Auckland Transport Active Modes Survey. The data contains a range of perceptions (e.g. are destinations too far, is the terrain too hilly, or how safe is it to walk), motivators (e.g. fitness) and other characteristics (e.g. age, gender, use of public transport). Number of pairwise associations was identified within the 33 variables chosen as potential predictors to walking. Machine learning was used as a tool allowing to try to predict walking levels despite the noted associations. First, we examined if the knowledge of the responses to the 33 selected questions allows to predict walking levels (coded as "low" – no trips walked in the previous week; or "high" – 5 and more trips walked). Having been able to fit models that predict walking with reasonable accuracy, we examined the relative importance of different questions in the prediction of walking levels.

The biggest predictors of walking levels were:

1. The use of public transport;
2. Walking perceived as cheaper and/or more convenient than driving;
3. Age group; and
4. Overall satisfaction with the state of walking in Auckland

Surprisingly, the importance of perceived availability of destinations or internal motivations such as fitness were null in the general model.

These findings suggest that walking should be considered in a holistic way, as a sub-system of the broader transport system. The findings also emphasise the importance of perceptual qualities beyond the pure availability of destinations. A limitation of this study is related to the cohort of participants, constituted of non-disabled adults. It is important to better understand how environment associates with walking behaviour for those living with disability.

<https://www.sciencedirect.com/science/article/pii/S1369847821000036>

Driverless Cars Implications: A Literature Review

Moayad Shammut, Massey University – Ph.D Thesis (December 2020)

Keywords: Safety, Vehicle technologies & standards

AVs are promising technologies that could possibly address road transport problems and also change cities' landscapes, economies, and the way people live their lives. However, safety risks of AVs remain a barrier to adopting them widely. The arguments narrated today about the positive impacts of AVs (particularly improving safety) are 100 years old, and planners are currently adopting a "wait and watch" approach, which indicates the necessity to conduct further research in this area. This article reviews the wider benefits and implications of AVs in various dimensions (society, planning and policy, technology, and economy). It also highlights the complexity of implementing AVs and demonstrates that the issue of their safety is not merely a technological one. Investigating and resolving the safety risks of AVs is expected to result in a largescale adoption and greater benefits.

<https://www.transportationgroup.nz/wp-content/uploads/Driverless-Cars-Implications-Moayad-Shammut-2020.pdf>

Collection of case studies for projects led by the Centre for Connected and Autonomous Vehicles (CCAV)

Department for Transport, United Kingdom (September 2020)

Keywords: Environment, Vehicle technologies & standards

The Centre for Connected and Autonomous Vehicles in the UK has published a collection of case studies on CAV's.

- [5StarS: developing a security framework for autonomous and connected vehicles](#)
- [Aurrigo makes breakthrough in driverless pods technology](#)
- [CAVForth: creating Europe's first full-sized autonomous bus](#)
- [Humandrive: vehicle completes 230 mile, self-navigated drive across the UK](#)
- [MuCCA: government-backed collision avoidance system achieves world first](#)

<https://www.gov.uk/government/collections/connected-and-autonomous-vehicles-projects-case-studies>

Driving for work: A strategic review of risks associated with cars and light vans and implications for policy and practice

UCL Centre for Transport Studies & Agilysis (United Kingdom) (December 2020)

Keywords: Safety

This report identifies new trends and risks for occupational drivers and other road users involved in accidents, in order to inform policies and interventions to encourage safer driving. It shows that a third of road deaths and a fifth of serious injuries are sustained in accidents involving a working driver or rider. Of 520 fatalities recorded by the police in 2018 from road collisions involving a working driver/rider, 432 (83%) of these were other road users. Working drivers and their passengers accounted for 88 fatalities (17%). Between 2011 and 2018, 39% of pedestrians killed in Great Britain were hit by a working driver (someone who is driving as part of their job, rather than commuting to work).

They make several recommendations in their report, including:

- bringing van drivers under the same strict regulations as HGV, bus and coach drivers.
- accountability for health and safety should be at company board level and there was support from interviewed stakeholders for the Health and Safety Executive (HSE) to put occupational road risk within their scope.
- casualty data should be strengthened to identify work-related collisions.

https://www.ucl.ac.uk/civil-environmental-geomatic-engineering/sites/civil-environmental-geomatic-engineering/files/final_report_ward_christie_walton_dec_2020.pdf

Electric scooter injuries at Auckland City Hospital

DS Civil in New Zealand Medical Journal Vol 132 No 1505 (February 2021)

Keywords: Micro Mobility devices, Safety

Since the introduction of shared electric scooters to Auckland in October 2018, there have been multiple reports of injuries. We aim to examine the pattern of injuries sustained while riding electric scooters in patients presenting to hospital. This study highlights the significant number of electric scooter-related injuries, including severe head injuries. While the majority of presentations are categorised as minor trauma, these cases have placed additional demand on health system resources. This mode of transport would benefit from greater regulation, including a zero blood alcohol limit, night-time curfews, reduced speed limits and consideration of mandatory helmet use.

<https://www.nzma.org.nz/journal-articles/electric-scooter-injuries-at-auckland-city-hospital>

Equality of restraint: Reframing road safety through the ethics of private motorised transport

Edinburgh Napier University & University of Edinburgh in: Journal of Health & Transport, Vol 19, December 2020 (December 2020)

Keywords: Covid19, Safety

Motoring is an emancipation. It is both an individual freedom and a collective freedom with car ownership at 30, 491, 000 vehicles by 2019 in Great Britain. Yet, as the evidence of the impacts of road transport accumulates and the health and environmental aims of sustainable travel become clearer, demand for an ethical analysis also intensifies. The paper draws on a previous limited ethics-based literature on road transport. Key tenet of liberalism, of 'freedom from' as well as 'freedom to', are highlighted. This includes Edmund Burke's concept of 'equality of restraint' in meeting common needs. Freedom from fear of road traffic danger forms part of an individual's rights. Equality of rights and freedom from fear in road use have not been key considerations for reducing risks to vulnerable road users. Indeed, ethical issues have largely been ignored. The emergence of Vision Zero within the road safety field with its focus on zero deaths and serious injuries has brought an ethics-based approach to the mainstream although it appears to be struggling to gain traction in neo-liberal societies. The Covid-19 pandemic has led to UK governments promoting the use of walking and cycling. These modes have hitherto been left to fend for themselves in an environment where road safety has been measured by casualty reduction while fear has suppressed walking and cycling with the consequence losses to physical and mental health. We ask whether an ethics-based contribution, and lessons from Covid-19, can help re-set the direction of UK road safety policy and practice.

<https://www.sciencedirect.com/science/article/pii/S2214140520301742>

The Impact of COVID-19 on Traffic Safety and Mobility Education

European Transport Safety Council (ETSC) (January 2021)

Keywords: Covid19, Safety

Road safety education should evolve to reflect changes in mobility that have been accelerated by the Covid-19 pandemic, such as a preference for walking and cycling to school, according to this report.

In March 2020, in response to the COVID-19 pandemic, most European governments put in place unprecedented restrictions on travel and movement, including lockdowns affecting most of the population and the closure of kindergartens and schools. While the restrictions had gradually been lifted over the summer, by the end of 2020 governments had re-imposed restrictions, including the closure of schools in some countries.

An expert panel looked how the restrictions imposed in relation to the virus had affected the provision of traffic safety and mobility education in their country. ETSC also asked them how it had affected their work as well as how they had responded and adapted to it – serving perhaps as inspiration for actions and activities that others can do during the remainder of the pandemic and afterwards.

<https://etsc.eu/wp-content/uploads/LEARN-Flash-1-The-Impact-of-COVID-19.pdf>

Road traffic accidents recorded by neighbourhood deprivation decile in London (2019): Trust for London and London Road Safety Council

Trust for London and London Road Safety Council (December 2020)

Keywords: Safety

New analysis shows that people living and working in London's most deprived neighbourhoods are twice as likely to be injured in a road traffic collision than the least deprived areas. The analysis, produced for London's Poverty Profile by WPI Economics on behalf of Trust for London and the London Road Safety Council (LRSC), explored the relationship between deprivation and the area in which road collisions occur.

The study found that there are more road traffic collisions recorded in the most deprived neighbourhoods in London than the least deprived. The 10% of areas with the highest deprivation saw nearly 3,000 casualties in 2019, more than double the 1,400 in the 10% of areas with the lowest levels of deprivation. A similar pattern is seen on roads where the speed limit is below 30mph. However, the trend is even more extreme when looking only at collisions involving pedestrians – which are nearly three times as common in the most deprived neighbourhoods compared to the least.

The relationship between road collisions and deprivation can be seen most clearly in collisions involving slight injuries, according to the analysis.

<https://www.trustforlondon.org.uk/data/road-traffic-collisions/>

Vehicle speed compliance statistics for Great Britain: January to June 2020

Department for Transport (DfT) (December 2020)

Keywords: Covid19, Safety

Official figures from the UK show the proportion of cars exceeding the speed limit rose on all road types during the initial Covid-19 lockdown. The statistics measure speed and compliance at sites where the road conditions are free flowing – for example roads with no junctions, hills, sharp bends, speed enforcement cameras or other traffic calming measures.

They show that during Q2 2020 (April to June), 63% of cars exceeded the speed limit on 30mph roads – compared to 56% during the same period in 2019. There was also a 7% rise in the percentage of cars exceeding the speed limit on NSL (national speed limit) single carriageway roads – up from 10% in Q2 2019 to 17% in Q2 2020. Meanwhile the percentage also rose slightly on motorways, up 1% to 53%.

After very little variation year-on-year, differences emerged as road traffic levels reduced sharply in late March after the lockdown was introduced on 23 March. As restrictions eased later in quarter 2 (April to June), road traffic began to return to normal levels, and speed limit exceedance also started to return to levels more similar to 2019.

<https://www.gov.uk/government/statistics/vehicle-speed-compliance-statistics-for-great-britain-january-to-june-2020>

2019 Annual fleet statistics

Ministry of Transport (December 2020)

Keywords: Data, Fleet

The Ministry has released annual fleet statistics to the end of 2019. In 2019 there were over 4.4 million registered motor vehicles in New Zealand that were driven almost 49 billion kilometres. This report presents a trend analysis what and how New Zealanders driving of motor vehicles has changed since the early '00s. These broad trends of what and how can be used to understand underlying mechanisms (e.g. driving behaviours, mediating factors, externalities) and help discern the contribution of the road fleet to transport outcomes.

<https://www.transport.govt.nz/statistics-and-insights/fleet-statistics/sheet/2019-annual-fleet-statistics>

Annual New Zealand crash statistics

Ministry of Transport (December 2020)

Keywords: Data, Safety

The Ministry has released annual crash data up to the end of 2019. The number of road deaths for 2019 (352) fell by 7% to compared to 2018 despite increases to population, registered motor vehicles and vehicle kilometres travelled. The New Zealand crash data presented in this annual publication is extracted from the information stored in the Crash Analysis System (CAS). Information is presented within Tableau dashboards - please note we recommend you use Microsoft Edge, Google Chrome or Mozilla Firefox when downloading data from Tableau.

<https://www.transport.govt.nz/statistics-and-insights/safety-annual-statistics/summary/>

Bi-annual road trauma data tables for the Australia New Zealand Trauma Registry

Bureau of Infrastructure and Transport Research Economics (BITRE) (December 2020)

Keywords: Data, Safety

The Australian Trauma Registry (ATR) was first launched in 2011 under the auspices of the Australian Trauma Quality Improvement Program (AusTQIP), a program that brought together in-hospital trauma data from all major trauma centres in Australia through the AusTQIP Collaboration Agreement. The ATR focusses on monitoring trauma care, from the time of incident to discharge from definitive care, in order to reflect and act upon emerging trends and demands on the trauma system across Australia and New Zealand. The ATR has been operating since 2012 (first full calendar year data availability) and has now been joined by New Zealand . It collates data from Australia (since 2010), and from 2019 includes data from New Zealand.

<https://www.bitre.gov.au/publications/ongoing/severe-injury>

Geographical trends in Vulnerable Road User Killed & Seriously Injured (KSI) stats 2015-2019 (United Kingdom)

Motorcycle Action Group (MAG), United Kingdom (December 2020)

Keywords: Safety

In the UK there are four road user groups defined as vulnerable road users (VRUs): motorcyclists, pedal cyclists, horse riders and pedestrians. These groups are not protected by a vehicle body in the same way car users, etc. are. They tend to be harder for other drivers to see on the road. They are, therefore, particularly vulnerable to injuries and accidents. Motorcyclists in particular have the highest accident and injury rates per mile travelled of all road user groups.

This report provides trends in absolute counts for motorcycles, pedal cycles, pedestrians and horse riders on a regional level. Trends for motorcycles, pedal cycles and pedestrians are presented for local authority level. The data analysis is presented in graphical format with brief commentary.

[https://wiki.mag-uk.org/images/a/af/Geographical Trends in Vulnerable Road User Killed and Seriously Injured Statistics 2015 - 2019.pdf](https://wiki.mag-uk.org/images/a/af/Geographical_Trends_in_Vulnerable_Road_User_Killed_and_Seriously_Injured_Statistics_2015_-_2019.pdf)

Northern Ireland 2020 fatal casualties

Police Service of Northern Ireland (PSNI) (January 2021)

Keywords: Safety

New Zealand and Australia are not the only countries that can quickly provide up to date road deaths statistics. Provisional figures for Northern Ireland released by the Police Service of Northern Ireland (PSNI) show that in 2020 there were 56 deaths on roads in Northern Ireland as a result of road traffic collisions. This compares to 56 in 2019 and 55 in 2018.

In 1931, the first year of recording, there were 114 road deaths and this number increased over the years before peaking in 1972 at 372 deaths. The number of road deaths then gradually reduced during the late 1970s and the 1980s before levelling off at around 155 deaths per year during the 1990s. Road deaths then decreased during the 2000s, dropping from 148 fatalities in 2001 to 115 in 2009 before the numbers more than halved in 2010 (55 fatalities) with similar numbers recorded in 2011 (59 fatalities).

<https://www.psni.police.uk/inside-psni/Statistics/road-traffic-collision-statistics/>

Transport and transport technology: public attitudes tracker

Department for Transport, United Kingdom (January 2021)

Keywords: Covid19, Data

In 2017, the Department for Transport (DfT) commissioned Kantar's Public Division to conduct six waves of research to track public attitudes and behaviours relevant to transport and transport technology in England including:

- car ownership and connectivity
- electric vehicles
- automated vehicles and driver assistance features
- drones
- Mobility-as-a-Service (MaaS)
- ride-sharing
- space tourism and flying taxis

The reports summarise 6 waves of research undertaken by Kantar on behalf of the Department for Transport. Waves 1 to 5 were collected prior to the coronavirus (COVID-19) pandemic; Wave 6 data was collected in August 2020.

<https://www.gov.uk/government/publications/transport-and-transport-technology-public-attitudes-tracker>

HubKnowledge

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Transport Knowledge Hub Webinar series

Monday 30 November to Friday 4 December 2020

Unfortunately we have had to cancel the Transport Knowledge Conference (TKC2020) last year due to ongoing COVID19 issues and alert level changes. Instead, we replaced this event with a series of short webinars hosted by the TKH Topic Hubs (Data, Economics, Environment, Health, Forecasting & Aviation, Safety, Urban and our newest Hub, Māori) during the week of Monday 30 November – Friday 4 December.

To access the presentations for the week-long series please go [here](#) and scroll down to Transport Knowledge Hub Webinar Series 2020

General websites

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Transport Knowledge Hub: <https://www.knowledgehub.transport.govt.nz/>

On the Ministry of Transport's new website:

The Transport Evidence Base Strategy (TEBS): <https://www.transport.govt.nz/area-of-interest/strategy-and-direction/transport-evidence-base-strategy/>

The Transport Research Register: <https://www.transport.govt.nz/assets/Uploads/Research/Transport-Research-Register.xlsx>

Events calendar

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To view a full calendar of upcoming events please go [here](#)

Webpage: <https://www.transportknowledgehub.govt.nz/> (not yet live)

Email: knowledgehub@transport.govt.nz

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