



TRANSPORT INTELLIGENCE DIGEST

Issue 6

<p>Date of issue: November 2017</p> <p>Contact:</p> <p>Stephen Evans E s.evans@transport.govt.nz,</p>	<p><u>Contents</u></p> <p>Transport impacts</p> <p>System planning and management</p> <p>User behaviours and needs</p> <p>Future funding and charging</p> <p>Around the world: research and statistical releases</p> <p> </p> <p>Hub Knowledge</p> <p>TKC/ATRF registration closes 20 November Webpage: ATRF</p>
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Introduction

Welcome to the 6th issue of the Transport Intelligence Digest. This issue will coincide with the Transport Knowledge Conference (TKC), Australasian Transport Research Forum (ATRF) and the OECD/ITF Roundtable in the last week of November in Auckland. Thus, a number of articles will have an international flavour. Contributions have largely come from the Ministry's Analysis & Modelling team and Domain Strategy Economics & Evaluation team. Topic Knowledge Hub members and other people have also made contributions.

We welcome contributions from anyone who reads this Digest. We ask you to indicate which of the four knowledge themes 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.

Happy reading

Stephen

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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Transportation Research News May-June 2017: Transportation and the Economy: Interconnections, Interventions, and Interdependencies

Transportation Research Board, United States (November 2017)
Contributed by: Sandy Fong, Ministry of Transport

The full edition of the May-June 2017 Transportation Research News is now freely available. This edition summarises research that explores the role of transportation in economic development. Articles feature information about research on benefit-cost analysis, freight production models, transportation satellite accounts, and right sizing strategies.

<http://onlinepubs.trb.org/onlinepubs/trnews/trnews309.pdf>

Australia and NZ Driverless Vehicle Initiative Webinar - How can Connected and Automated Vehicles benefit future transportation

Australian Road Research Board (ARRB), Australia (October 2017)
Contributed by: Sandy Fong, Ministry of Transport

There are currently many connected and automated vehicle trials collecting data with potential to integrate into transport modelling. Connected and Automated Vehicles (CAVs) have the potential to increase safety, reduce congestion and decrease environmental impacts. This webinar discusses current research and ongoing work of the behaviour of driverless vehicles from - Interaction - with pedestrians intending to cross the road - Coordination - strategies of platoon formation - Demand-responsive transportation - next-generation smart mobility. This webinar also discussed the modelling work required to investigate the most cost effective options while still achieving the desired efficiency, safety and environmental outcomes.

Recorded ARRB hosted webinar <https://www.youtube.com/watch?v=JprlbTXa9fo>

Driving and diabetes: problems, licensing restrictions and recommendations for safe driving

University of Edinburgh, Scotland in BioMed Central, Clinical Diabetes and Endocrinology (submitted August 2015, released August 2017)
Contributed by: Stephen Evans, Ministry of Transport

Many complications of diabetes can potentially impair driving performance, including those affecting vision, cognition and peripheral neural function. Hypoglycemia is a common side-effect of insulin and sulfonylurea therapy, impairing many cognitive domains necessary for safe driving performance. This paper examines driving behaviour that may predispose to hypoglycemia while driving, and reviews guidance that promotes safe driving practice which has been provided for drivers with insulin-treated diabetes, which is the group principally addressed in this review.

<https://clindiabetesendo.biomedcentral.com/articles/10.1186/s40842-015-0007-3>

Global baseline assessment of compliance and enforcement programs for vehicle emissions and energy efficiency

The International Council on Clean Transportation (ICCT) (November 2017)
Contributed by: Sandy Fong, Ministry of Transport

As vehicle pollution and fuel efficiency regulations have become more stringent, the technologies required to mitigate emissions and reduce fuel consumption become increasingly complex. One consequence is that government agencies around the world must improve their compliance and enforcement efforts to ensure that the intended outcomes from emission-control and fuel-efficiency programs are achieved in fact. This study is the first to take stock of compliance and enforcement (C&E) practices pertaining to emission and efficiency regulations in key vehicle markets. It is based on survey data, in-person interviews, and communications with experts and stakeholders working, as well as in-depth research in the limited published research.

<http://www.theicct.org/publications/compliance-and-enforcement-global-baseline>

Lightening up: How less heavy vehicles can help cut CO2 emissions

International Transport Forum (ITF) (November 2017)
Contributed by: Stephen Evans, Ministry of Transport

The average mass of passenger cars in the European Union has increased by around 40% over the past four decades. Additional vehicle mass consumes more energy and results in higher CO₂ emissions. A reduction in vehicle mass could contribute to achieving emissions reduction goals. A new study by the International Transport Forum (ITF) finds that CO₂ emissions from passenger cars and light commercial vehicles could be cut by almost 40% (compared to 1990 levels) if their average mass were reduced from currently c. 1 400 kg to c. 1 000 kg (for passenger cars) and from c. 1 800 kg to c. 1 100 kg (for light commercial vehicles) to the year 2050. This is nearly twice the CO₂ reduction projected without a lowering of average vehicle mass. The study also finds that lighter cars are advantageous for vehicle owners in financial terms, as reduced fueling costs outweigh the increased costs for buying a lighter vehicle. Reducing the average mass of passenger cars and light commercial vehicles to the level of the mid-1970s can approximately halve the gap between the baseline scenario (in which vehicle mass remains unchanged) and the European Union's target of a 60% reduction in transport CO₂ emissions by 2050 (compared to 1990) applied to these vehicle categories. To fully reach the target, other measures will thus also need to be put into place.

Based on these findings, the report's main recommendations include:

- Consider the potential of vehicle mass reduction when designing climate policies
- Do not rely on vehicle mass reductions alone to achieve the European Union's target of a 60% reduction of transport CO₂ emissions
- Nudge consumers into buying lighter vehicles by emphasising their benefits.

<https://www.itf-oecd.org/less-heavy-vehicles-cut-co2-emissions>

The Enemy of Good: Estimating the Cost of Waiting for Nearly Perfect Automated Vehicles

RAND Corporation, United States (November 2017)

Contributed by: Jennifer McSaveney, Ministry of Transport

How safe should highly automated vehicles (HAVs) be before they are allowed on the roads for consumer use? This question underpins much of the debate around how and when to introduce and use the technology so that the potential risks from HAVs are minimized and the benefits maximized. In this report, we use the RAND Model of Automated Vehicle Safety to compare road fatalities over time under (1) a policy that allows HAVs to be deployed for consumer use when their safety performance is just 10 percent better than that of the average human driver and (2) a policy that waits to deploy HAVs only once their safety performance is 75 or 90 percent better than that of average human drivers — what some might consider nearly perfect. We find that, in the long term, under none of the conditions we explored does waiting for significant safety gains result in fewer fatalities. At best, fatalities are comparable, but, at worst, waiting has high human costs — in some cases, more than half a million lives. Moreover, the conditions that might lead to comparable fatalities — rapid improvement in HAV safety performance that can occur without widespread deployment — seem implausible. This suggests that the opportunity cost, in terms of lives saved, for waiting for better HAV performance may indeed be large. This evidence can help decision makers better understand the human cost of different policy choices governing HAV safety and set policies that save more lives.

https://www.rand.org/pubs/research_reports/RR2150.html

Economic Effects of Automated Vehicles

US Department of Commerce, United States (November 2017)

Contributed by: Sandy Fong, Ministry of Transport

Connected and fully automated or autonomous vehicles (CAVs) are becoming increasingly viable as a technology and may soon dominate the automotive industry. Once CAVs are sufficiently reliable and affordable, they will gain greater market penetration, generating significant economic ripple effects throughout many industries. This paper synthesizes and expands upon analysis from multiple reports on the economic effects of CAVs across 13 different industries and the overall economy

http://www.esa.doc.gov/sites/default/files/Employment_Impact_Autonomous_Vehicles_0.pdf



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The Economics of Sub-optimal Policies for Traffic Congestion

Journal of Transport Economics and Policy, Volume 51, Number 4, October 2017, pp. 225-248(24)
Contributed by: Joanne Leung, Ministry of Transport

Economics prescribes a congestion tax to alleviate the negative effects of traffic congestion. However, traffic congestion is a pervasive problem in cities and a tax is seldom applied. Why? To answer this question, we estimate and simulate the welfare and traffic effects of a congestion tax and a licence plate restriction — a less attractive policy for economists, but far more used in practice. The tax performs better on aggregate. However, while the tax spreads its burden more evenly across the population, the restriction concentrates losses on a smaller group, and has little effect on the rich. These results support both a majority voting and an 'elite capture' argument in favour of the licence plate restriction.

<http://www.ingentaconnect.com/contentone/lse/jtep/2017/00000051/00000004/art00002;jsessionid=204dfk2tcv4ia.x-ic-live-03>

Guiding cities to pursue a smart mobility paradigm: An example from vehicle routing guidance and its traffic and operational effects

Research in Transportation Economics (Available online 16 October 2017)
Contributed by: Joanne Leung, Ministry of Transport

The concept of 'smart cities' is rooted on the approach taken by cities to reconcile the three often conflicting objectives of economic efficiency, environmental quality and social equity. The expectation that smart cities may promote the adoption of scalable solutions that take advantage of information and communication technologies (ICT) to increase their effectiveness, reduce costs and to improve the quality of life is great among academia, business and governmental stakeholders. Traffic management systems in its multiple applications (including re-routing) are an example of ICT solutions that can expectably lead to the purpose pursued by 'smart cities'. This paper develops a performance evaluation of re-routing for passenger and commercial vehicles with a case study in the city of Lisbon, Portugal. The paper examines how the provision of guidance information to drivers affects traffic performance, operational costs and environmental conditions at different spatial references, namely route level and urban network level. The simulation results indicate that the re-routing can not only reduce travel times, but also enhance the efficiency of roads in the city network and as well the traffic performance at the route level of analysis. The improvement at local route levels (such as corridor/route) is more significant than at the city network level. For the urban network level, simulation results suggest that re-routing can bring variations in travel and delays that may reach 2% and 6%, respectively, when a 10% drivers' compliance rate is considered. Individual drivers are more likely to comply to deviate than urban logistics drivers and bus drivers.

<http://www.sciencedirect.com/science/article/pii/S0739885917301932>

The key principles of cyber security for connected and automated vehicles

Department for Transport, England (August 2017)

Contributed by: Stephen Evans, Ministry of Transport

The British Government published this guidance as part of plans to make sure the next generation of internet-connected cars are better protected from hackers. The measures to be put before Parliament are designed to ensure that modern vehicles provide protection for consumers if technologies fail. The new guidance was accompanied by a call for manufacturers to help combat the threat posed by would-be hackers.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/624302/cyber-security-connected-automated-vehicles-key-principles.pdf

Using behavioural insights to improve project management

Department for Transport, England (July 2017)

Contributed by: Sandy Fong, Ministry of Transport

The Department for Transport Exploratory commissioned some exploratory research to support and improve its project delivery processes. Conducted by the Behavioural Insights Team (an innovation charity funded by the United Kingdom government), the research was designed to:

- review the current evidence of behavioural biases and heuristics in judgement and decision-making in project delivery
- understand current departmental processes and systems in order to assess how particular behavioural biases could be manifest in Department for Transport project delivery and assurance
- generate ideas and processes that could potentially manage and reduce identified behavioural biases

<https://www.gov.uk/government/publications/using-behavioural-insights-to-improve-project-management>

Assuring the safety of automated vehicles

National Transport Commission, Australia (November 2017)

Contributed by: Sandy Fong, Ministry of Transport

This policy paper sets out the high-level design of a safety assurance system for automated vehicles in Australia based on mandatory self-certification until the development of international standards for automated driving systems. This paper identifies key steps to implement the safety assurance system by 2020, including legislative and registration changes and the development of administrative functions.

[http://www.ntc.gov.au/Media/Reports/\(A19CA1B2-EDEE-7167-23AC-F1B305100F30\).pdf](http://www.ntc.gov.au/Media/Reports/(A19CA1B2-EDEE-7167-23AC-F1B305100F30).pdf)



Deep interventions for a sustainable transport future

University of Otago (New Zealand) & University of Oxford (England) (September 2017)

Contributed by: Dr Janet Stephenson, University of Otago

New Zealand's transport system, like many others internationally, is still dominated by high levels of private vehicle ownership, near-complete reliance on fossil fuels, sprawling urban areas, and other characteristics of what Urry (2004) calls the 'system of automobility'. Unsustainable consequences include environmental impacts, (e.g. greenhouse gas (GHG) emissions (Hopkins and Higham, 2016)), social impacts (e.g. social exclusion and isolation (Lucas, 2012)), and economic impacts (e.g. the cost of congestion (Wallis and Lupton, 2013)). Shifting to more sustainable transport systems may be aided by market based solutions such as shared mobility businesses and the increasing cost-competitiveness of electric vehicles, but the scale and rate of the transition required is unlikely to occur without carefully designed and integrated government interventions (Geerlings et al., 2012). This paper explores potential interventions for a more sustainable transport future for New Zealand.

<https://www.journals.elsevier.com/transportation-research-part-d-transport-and-environment>

Future funding and charging



Future funding and charging
How do we fund and charge for transport into the future as technologies and needs are changing over time?

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Congestion and Reliability Review

Austrroads, Australia (October 2017)

Contributed by: David Ryan, Ministry of Transport

Traffic congestion is a major problem for urban Australia and New Zealand. While some of this reflects Australia's unprecedented economic success and growing population, congestion has also increased where infrastructure provision has lagged growth, and where land use, public transport and road developments have not been integrated into city plans. Congestion is, of course, not a new problem. To resolve the traffic problems of ancient Rome, Julius Caesar outlawed the use of private vehicles on the city streets during the first 10 hours of the day. This early demand management intervention appears to have been successful, with Roman populace adjusting their travel patterns.

Austrroads commissioned this Congestion and Reliability Review to leverage the data provided by Google to allow road agencies to understand road network performance and the causes of congestion, using a consistent methodology across Australia and New Zealand. In addition, the available interventions to road agencies have proliferated and new capabilities will be required in future to continue the evolution from the traditional role of road builder to a manager of the future road network and regulator of the embedded technology.

Zero congestion is not a realistic goal for a modern city in Australia and New Zealand. The technology that will become embedded in vehicles, roads and the road network will, however, help optimise the use of limited road corridors to both reduce the burden of congestion and make journeys safer. This report provides a baseline for how our road networks perform today, and practical frameworks to help road agencies to improve that performance in future.

http://www.transport.tas.gov.au/_data/assets/pdf_file/0013/152320/AP-R534-16_Congestion_and_Reliability_Review_Full_Report.pdf

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Transparent Data Use in New Zealand

Data Futures Partnership, New Zealand (August 2017)
Contributed by: Jennifer McSaveney, Ministry of Transport

The Data Futures Partnership wants New Zealand to embrace the opportunities presented by data. For this to happen, organisations must work with personal information in ways that are trusted. Many people understand the benefits of data use, but have key questions they expect to be answered before they are comfortable sharing their personal information.

<https://trusteddata.co.nz/>

Air Freight Volumes Increase Since the Second Quarter of 2016

International Transport Forum (ITF) (October 2017)
Contributed by Tim Herbert, Ministry of Transport

International trade related air freight volumes moved back above the pre-crisis level of June 2008 both in the EU area and in the United States in the first half of 2017, according to the latest available data collected by the ITF. Surface freight volumes show signs of slowing down in the EU, while recovering in China.

<https://www.itf-oecd.org/air-freight-volumes-increase>

International Road Safety Comparisons—Annual

Bureau of Infrastructure, Transport and Regional Economics (BITRE), Country (October 2017)
Contributed by: Stephen Evans, Ministry of Transport

This report presents tabulations of road deaths and road death rates for Organisation for Economic Co-operation and Development (OECD) nations and Australian states and territories. The rates allow for a comparison of Australia's road safety performance with that of other OECD nations by accounting for the differing levels of populations, motorisation and distances travelled.

<https://bitre.gov.au/publications/ongoing/files/International%20road%20safety%20comparisons%202015.pdf>

Europe

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National Travel Survey England – 2016

Department for Transport, England (August 2017)

Contributed by: Jennifer McSaveney, Ministry of Transport

The National Travel Survey (NTS) is a household survey of personal travel by residents of England travelling within Great Britain, from data collected via interviews and a one week travel diary. The NTS is part of a continuous survey that began in 1988, following ad-hoc surveys from the 1960s, which enables analysis of patterns and trends. Some key uses of the data include describing patterns patterns, for example how different groups of people travel, monitoring trends in travel, including sustainable modes; assessing the potential equality impacts of transport policies on different groups; and contributing to evaluation of the impact of policies.

The 2016 annual edition shows that three in five journeys between one and two miles in distance were made by car or van in England during 2016. The annual survey shows that just 31% of journeys between the aforementioned distances were made by foot, and 2% by bicycle, compared to 60% by car or van, either as a driver or passenger. Looking at journeys under a mile in length, 17% were made by car or van, compared to 80% by foot and 1% by cycle. In total, the average person made 954 trips in 2016, a slight increase from the 2015 figure of 914 which was the lowest on record. With 16,000 individuals taking part, the NTS is published to provide a consistent source of data on personal travel behaviour across England. The 2016 edition shows that the car continues to dominates travel in England, accounting for 62% of trips made and 78% of distance covered. These figures are similar to 2015, when 64% of trips made and 78% of distance covered were by car.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/633077/national-travel-survey-2016.pdf

Reported road casualties in Great Britain: Estimates for accidents involving illegal alcohol levels: 2015

Department for Transport, England (August 2017)

Contributed by: Stephen Evans, Ministry of Transport

This publication by the Department for Transport (DfT) presents the final estimates of casualties arising from reported accidents involving at least one motor vehicle driver or rider over the legal alcohol limit for driving, in Great Britain in 2015. While the number of people killed in drink drive related collisions fell in 2015, the number of killed and seriously injured (KSI) casualties and drink drive collisions both rose. DfT's final estimates for 2015 show that 200 people were killed in collisions in Great Britain where at least one driver was over the drink drive limit. While the number of fatalities fell year-on-year by 40 (17%), the DfT says although the central estimate for 2015 is lower than the figure for 2014, the difference is not statistically significant and continues a period of stability recorded since 2010.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/635345/road-accidents-illegal-alcohol-levels-2015-final.pdf

British social attitudes survey: 2016

Department for Transport, England (August 2017)

Contributed by: Stephen Evans, Ministry of Transport

This annual statistical release from the Department for Transport (DfT) in England is part of a series of surveys measuring people's attitudes towards transport since 1996. The surveys include issues such as willingness to change current travel behaviours, attitudes to the environment and transport, congestion, and views on road safety. This report covers changes in long-term trends up to 2016. In 2016:

- the percentage of respondents that agreed that "speed cameras save lives" was 56%
- 14% of respondents expressed a strong willingness to walk short journeys less than 2 miles, rather than go by car
- 50% of respondents agreed that all use of mobile phones while driving, including hands-free phones, is dangerous

<https://www.gov.uk/government/statistics/british-social-attitudes-survey-2016>

Australia

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Road Trauma Involving Heavy Vehicles—Annual Summaries

Bureau of Infrastructure, Transport and Regional Economics (BITRE), Country (October 2017)

Contributed by: Stephen Evans, Ministry of Transport

This report presents counts and rates of fatal crashes, fatalities and hospitalised injuries from road traffic crashes in which one or more heavy vehicles were involved.

https://bitre.gov.au/publications/ongoing/files/Road_Trauma_Involving_Heavy_Vehicles_2016_III.pdf

HubKnowledge

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Sharing transport data, information, research, evidence, knowledge and ideas

The Transport Knowledge Hub has been set up for providing a channel for people and agencies that generate, supply, and demand transport data, information and research to communicate, collaborate and share research of interest. The Hub strives to encourage collaboration and raise awareness of related work and future opportunities or needs.

General websites

Knowledge Hub webpage: <http://www.transport.govt.nz/research/transport-knowledge-hub/>

Stocktake of Information and Data Sources:

<http://www.transport.govt.nz/assets/Uploads/Research/Documents/Domain-Plan-Stocktake-March-2017.pdf>

The Transport Domain Plan: <http://www.transport.govt.nz/research/transport-domain-plan/>

The Transport Research Strategy 2016-2020: <http://www.transport.govt.nz/research/transport-research-strategy/>

The Transport Research Register:

<http://www.transport.govt.nz/assets/Uploads/Research/Documents/Transport-Research-Register.xls>

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Webpage: <http://www.transport.govt.nz/research/transport-knowledge-hub/>

Email: knowledgehub@transport.govt.nz

Upcoming events

Hub events

Event, venue and dates	Topic & Speakers	Contact details
An invitation to presentations by international researchers on the future of mobility Ministry of Business Innovation and Employment, 9am to noon, Monday 4 December 2017	New Mobility – beyond the car era , Arie Bleijenburg, Business Director Infrastructure, the Netherlands Is shared mobility the answer to congestion, emission and access issues? Dr Jari Kauppila, Head of Statistics and Modelling, International Transport Forum, OECD Modelling methodology for understanding the impact of shared mobility , Luis Martinez, Transport Analyst, International Transport Forum, OECD	knowledgehub@transport.govt.nz Seating for this event is full, we may release pdf's of the presentations

Conferences

Event	Registration costs & contact details	Key Dates	
4th Transport Knowledge Conference (TKC) <i>Grafton Campus of The University of Auckland, Auckland</i> Monday 27 November 2017	Full registration (\$125 incl GST) Email: Conference@transport.govt.nz Webpage: Transport Knowledge Conference	Transport Knowledge Conference event date	Monday 27 November 2017
39th Australasian Transport Research Forum (ATRF) conference <i>Grafton Campus of The University of Auckland, Auckland</i> Monday 27 November to Wednesday 29 November 2017	Full registration (\$950 incl GST) Email: t.lloyd-hagemann@auckland.ac.nz Webpage: ATRF	ATRF event dates	27 to 29 November 2017
OECD/International Transport Forum Roundtable <i>The CORDIS Auckland</i> Thursday 30 November to Friday 01 December 2017	Restricted to invitees only.	OECD/International Transport Forum Roundtable event dates	30 November to 1 December 2017
GEN Conference 2018 <i>Te Papa Museum, Wellington</i> Friday 8 December 2017	Standard Registration - \$450.00 + GST https://gen.org.nz/tiki-index.php?page=Conference%20Programme	Early-bird registrations close	Tuesday 31 October
IPENZ Transportation Group (IPENZ TG) conference 2018 <i>Millennium Hotel, Queenstown</i> Wednesday 21 to Friday 23 March 2018	Early-bird registration (\$1,075 incl GST) Full registration (\$1,175 incl GST) Late registration (\$1,300 incl GST) http://www.ipenztgconference.co.nz/	Registrations open	Friday 8 December
		Early bird registration deadline	Monday 12 February 2018
		Late Registration deadline	From Monday 5 March 2018

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