



# TRANSPORT INTELLIGENCE DIGEST

## Issue 5

<p>Date of issue: July 2017</p> <p>Contact:</p> <p>Stephen Evans <a href="mailto:s.evans@transport.govt.nz">E s.evans@transport.govt.nz</a>,</p>	<p><b><u>Contents</u></b></p> <p><a href="#">Transport impacts</a></p> <p><a href="#">System planning and management</a></p> <p><a href="#">User behaviours and needs</a></p> <p><a href="#">Future funding and charging</a></p> <p><a href="#">Around the world: research and statistical releases</a></p> <p><a href="#">Hub Knowledge</a></p> <p>TKC/ATRF registration (closes 22 Oct earlybird): Webpage: <a href="#">ATRE</a></p>
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## Introduction

Welcome to the 5<sup>th</sup> issue of the Transport Intelligence Digest. This issue is again a general edition highlighting recent research under the Knowledge themes and data/statistical releases here and abroad. Contributions have come from the Ministry's Financial, Economic & Statistical Analysis team (FESA), Topic Knowledge Hub members and other people who have chosen to make a contribution.

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

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### Impacts of connected and autonomous vehicles on traffic flow

*Department for Transport, Great Britain (June 2017)*  
*Contributed by: Stephen Evans, Ministry of Transport*

Driverless cars could significantly reduce delays if they become the leading mode of transport, according to this study by the DfT. The study used computer software to create virtual models of different parts of the UK road network including urban roads and a 20km motorway section.

It examined different scenarios including the level of automation, the proportion of vehicles equipped with the technology and different automated driving styles. The results show that delays and traffic flow will improve as the proportion of automated vehicles increases.

When comparing existing peak traffic data on major roads with a situation where 100% of vehicles were autonomous, journey times reduced by as much as 11%, with delays cut by more than 40%. When 75% and 50% of vehicles were 'driverless', journey times reduced by 2.2% and 1.1% respectively.

The DfT says the study is an important first step towards understanding the full range of complex effects of this technology, and paves the way for further trials and research to help ensure the transition to driverless or automated vehicles is safe and beneficial for all.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/530091/impacts-of-connected-and-autonomous-vehicles-on-traffic-flow-summary-report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/530091/impacts-of-connected-and-autonomous-vehicles-on-traffic-flow-summary-report.pdf)

### Impact of New Transport Infrastructure on Walking, Cycling and Physical Activity

*University of Leeds (Institute for Transport Studies)(June 2017)*  
*Contributed by: Stephen Evans, Ministry of Transport*

This study evaluated the effects of new transport infrastructure on active commuting and physical activity.

The Cambridgeshire Guided Busway opened in 2011 and comprised a new bus network and a traffic-free walking and cycling route. Exposure to the intervention was measured for 469 commuters, and defined using the shortest distance from each participant's home to the busway. The change in weekly time spent in active commuting between 2009 and 2012 was measured by a validated 7-day recall instrument. The results showed

-exposure to the busway was associated with a significantly greater likelihood of an increase in weekly cycle commuting time.

Providing new sustainable transport infrastructure was effective in promoting an increase in active commuting. These findings provide new evidence to support reconfiguring transport systems as part of public health improvement strategies.

<http://eprints.whiterose.ac.uk/92395/>

### Social Economic, Sustainability, and Human Factors in Transit

*Transport Research Board (TRB), United States (July 2017)*  
*Contributed by: Joanne Leung, Ministry of Transport*

TRB's Transportation Research Record: Journal of the Transportation Research Board, No. 2671 is a collection of 8 papers that explore social economic, sustainability, and human factors in transit, including the following titles:

- Accessibility scenario analysis of a hypothetical future transit network: social equity implications of a general transit feed specification–based sketch planning tool
- Public transit market research of low-income commuters using attitude-based market segmentation approach: case study of fushun, China
- Transit corridor liveability: realizing the potential of transportation and land use integration
- A multi-scale, transit-oriented development definition based on context-sensitive paradigm
- Geographically weighted regression approach to investigate spatial variations in activity space
- Decision support framework for transit-oriented development projects
- Spatial firm demographic microsimulator: development and validation for Phoenix and Tucson, Arizona, megaregion
- Global urban passenger travel demand and CO2 emissions to 2050: new model

<http://www.trb.org/main/blurbs/176278.aspx>

### **Spending by Australian households on owning and operating vehicles**

*Bureau of Infrastructure, Transport and Regional Economics (BITRE), Australia (May 2017)*  
*Contributed by: Stephen Evans, Ministry of Transport*

This study uses the latest (2009–10) data from the Australian Bureau of Statistics (ABS) Household Expenditure Survey to summarise what the average Australian household spends on owning and operating vehicles. Several elements of spending are examined, including the composition of that expenditure, the contribution of taxes and government charges, how the expenditure varies by broad region type and by key demographic characteristics, as well as the characteristics of those households which spend most on owning and operating vehicles.

Household expenditure on owning and operating vehicles averaged \$8,583 annually (or \$9,081 in 2015-16 dollars) and represented 13.4 per cent of total expenditure on goods and services.

The results presented in this information sheet provide an evidence base on the household-level costs of the current charging arrangements for the Australian road system, in terms of who faces comparatively high costs, and the locations where those costs fall most heavily. In particular, spending on fuel is of interest in this study and provides a guide to the amount of fuel excise paid by households in different locations. BITRE has also undertaken some related work on the average rates of fuel consumption of household vehicles, which will be published in a forthcoming Information Sheet. ABS has recently conducted the 2015-16 HES, with the summary results expected to be released in August 2017. When the latest data is released, BITRE plans to revisit its analysis of household expenditure, to identify whether any significant shifts have occurred in household spending on owning and operating vehicles between 2009-10 and 2015-16.

[https://bitre.gov.au/publications/2017/files/is\\_086.pdf](https://bitre.gov.au/publications/2017/files/is_086.pdf)

## **The Value of Commercial Marine Shipping to Canada**

*Bureau of Infrastructure, Transport and Regional Economics (BITRE), Australia (May 2017)*  
*Contributed by: Joanne Leung, Ministry of Transport*

The Council of Canadian Academies has released a report that investigates the social and economic value of commercial marine shipping to Canada and its regions. The research examines how global trends related to shipping may affect future shipping activity in Canada.

The report shows that at the regional and local levels, commercial marine shipping also has both positive and negative impacts on the economy, culture, environment, and security. It estimated that without shipping, Canada's long-run real GDP would be reduced by 1.8% or around \$30 billion in 2016. In Canada, marine shipping produced 6.7 million tonnes of GHG emissions in 2013, accounting for 8% of the commercial transportation total, or about 1% of total Canadian GHG emissions.

[http://www.scienceadvice.ca/uploads/eng/assessmentspublicationsnewsreleases/valuemarineshipping/valuemarineshipping\\_fullreport\\_en.pdf](http://www.scienceadvice.ca/uploads/eng/assessmentspublicationsnewsreleases/valuemarineshipping/valuemarineshipping_fullreport_en.pdf)



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### **Costs and benefits of emerging road transport technologies**

*Bureau of Infrastructure, Transport and Regional Economics (BITRE), Australia (June 2017)*

*Contributed by: Joanne Leung, Ministry of Transport*

Road transport technologies are evolving rapidly. Recent years have seen the expansion of intelligent transport systems (ITS), such as ramp metering and signal coordination, and low-level vehicle automation. In coming years, communication platforms will connect vehicles, thereby enabling Cooperative-ITS (C-ITS) technologies, such as collision avoidance systems. Car manufacturers and technology companies are actively developing fully automated vehicles. This report summarises estimates of the costs and benefits of ITS, C-ITS and automated vehicles from the existing Australian and international literature. It also provides policy makers with guidance on what further research would improve understanding of the implications of these technologies under Australian conditions.

<http://www.bitre.gov.au/publications/2017/research-report-146-emerging-road-transport-technologies.aspx>

### **Market analysis and fuel efficiency technology potential of heavy-duty vehicles in China**

*The International Council on Clean Transportation (ICCT), China (July 2017)*

*Contributed by: Joanne Leung, Ministry of Transport*

This study examines the market for heavy-duty vehicles (HDVs) in China and investigates the potential for currently available vehicles to reduce fuel consumption through the adoption of known efficiency technologies. This study analyzed 8 years of HDV registration data in China using information on registered models, including model year, vehicle manufacturer, engine manufacturer, and various vehicle and engine technical specifications. Based on the results of the analysis two representative, top-selling 2015 baseline vehicles (a tractor-trailer and a rigid delivery truck) were modelled. Technology packages were then created to represent applicable technologies that are either currently commercialized or forecast to become available during 2020–2030. The potential for reducing baseline fuel consumption from phasing in these technology packages was modelled to determine the technology potential for new HDVs in China.

[http://www.theicct.org/sites/default/files/publications/China-HDV-Market-Tech\\_ICCT-White-Paper\\_20072017\\_vF.pdf](http://www.theicct.org/sites/default/files/publications/China-HDV-Market-Tech_ICCT-White-Paper_20072017_vF.pdf)



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### **The road code: encouraging more efficient driving practices in New Zealand**

*Centre for Sustainability, University of Otago (June 2017)*

*Contributed by: Tim Herbert, Ministry of Transport*

Road transport is a significant contributor towards New Zealand's carbon emissions, mostly from light vehicles. These emissions could be reduced by an increase in more efficient driving practices, in fact reductions of 10-20% of fuel consumption are possible without increasing trip times significantly. The study aimed to understand whether people knew how to drive efficiently, whether they actually drove efficiently and how to influence people to drive more efficiently. Focus groups were conducted across New Zealand in urban and rural areas with groups of students, young professionals, parents and older people in order to cover different lifestyles and environments. These focus groups covered a wide range of topics including knowledge and practices of efficient driving, learning to drive, infrastructure and aspirations. The results show most people know the things they can do to be more fuel efficient, but they very rarely engage in these practices. When they do consider fuel efficiency, it is almost always linked to saving fuel costs whereas environmental impacts are not considered. People don't make the connection between driving and carbon emissions when they are in their cars. Better messages can be presented to drivers, linking their driving practices to carbon emissions and therefore climate change. There are a range of more efficient practices and choices that can be encouraged, depending on context, the driver and their way of life.

<https://www.researchgate.net/publication/317880644> [The road code encouraging more efficient driving practices in New Zealand?ev=prf\\_high](#)

### **Activity-Based Travel Demand Models: A Primer**

*TRID: the TRIS and ITRD database (July 2017)*

*Contributed by: Ralph Samuelson, Ministry of Transport*

This publication is a guide for practitioners that describes activity-based travel demand model concepts and the practical considerations associated with implementing them. Activity-based travel demand models portray how people plan and schedule their daily travel. This type of model more closely replicates actual traveller decisions than traditional travel demand models and thus may provide better forecasts of future travel patterns. The guide is composed of two parts. Part 1 is intended to help managers, planners, practitioners and modellers make informed decisions about activity-based model development and application. Part 2 examines the practical issues that transportation agencies face in migrating from traditional to "advanced" travel demand models, in which activity-based models are linked with regional-scale dynamic network assignments.

<http://www.trb.org/Publications/Blurbs/170963.aspx>



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### Funding the “local share” of road maintenance

*Road Controlling Authorities Forum (New Zealand) (July 2017)*

*Contributed by: Wayne Newman, Road Controlling Authorities Forum (New Zealand)*

New guidelines have been produced for Councils on equitable funding of pavement maintenance for low volume roads. The guidelines provide a method for Councils to make rating allocation formulae. The formulae are to allocate to rating units the cost of pavement maintenance (including renewals) for low volume roads necessitated by the heavy vehicle traffic generated by industrial activity, including from primary industries. The allocation method is assessed on a “user pays” basis, which is assumed to be an equitable approach. Although the principle of equitable funding will apply equally to higher volume roads, the ability to implement allocation methods in the vastly more complex situation of a high-density environment would be limited by that complexity.

[http://rcaforum.org.nz/sites/public\\_files/images/Funding\\_the\\_Local\\_Share\\_of\\_road\\_maintenance.pdf](http://rcaforum.org.nz/sites/public_files/images/Funding_the_Local_Share_of_road_maintenance.pdf)

### New diesel and petrol vehicles to be banned from 2040 in UK

*BBC news, (July 2017)*

*Contributed by: Haobo Wang, Ministry of Transport*

New diesel and petrol cars and vans will be banned in the UK from 2040 in a bid to tackle air pollution, the government has announced. Ministers have also unveiled a £255m fund to help councils tackle emissions, including the potential for charging zones for the dirtiest vehicles. Local authorities will be given direct financial support from the government, with £40m of the fund being made available immediately. They can use the funds measures such as changing road layouts, implementing new technologies or encouraging residents onto public transport. If those measures do not cut emissions enough, charging zones could be the next step - but the government says these should only be used for “limited periods”.

<http://www.bbc.com/news/uk-40723581>

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## Around the world: research and statistical releases

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### International Energy Agency Global EV Outlook 2017

*International Energy Agency (June, 2017)*

*Contributed by: Elizabeth Yeaman, Energy Efficiency and Conservation Authority (EECA)*

The International Energy Agency (IEA) has produced a document that contains global statistics for electric vehicles that can be compared with New Zealand. New registrations of electric cars hit a new record in 2016, with over 750 thousand sales worldwide. With a 29% market share Norway has the largest deployment of electric cars in terms of market share, globally. It is followed by the Netherlands, with a 6.4% electric car market share, and Sweden with 3.4%. China, France and the UK all have electric car market shares close to 1.5%. In 2016, China was by far the largest electric car producer, accounting for more than 40% of the electric cars sold in the world and more than double the amount sold in the United States. The global electric car stock surpassed 2 million vehicles in 2016 after crossing the 1 million threshold in 2015. **New Zealand looks to be well behind these leading countries, with a 0.1% market share for 2016.**

<https://www.iea.org/publications/freepublications/publication/GlobalEVOutlook2017.pdf>

### Short-term indicators – 1st quarter of 2017

*International Transport Forum (June 2017)*

*Contributed by: Tim Herbert, Ministry of Transport*

The International Transport Forum (ITF) of the OECD has released short-term indicators for the 1<sup>st</sup> quarter of 2017. These indicators cover rail transport, inland waterways transport and road transport from 2015. Of most interest will be the road transport indicators, which cover freight, vehicle kilometres travelled, vehicle registration and road fatalities data for over 40 countries (including New Zealand).

[http://stats.oecd.org/Index.aspx?DataSetCode=ITF\\_SHORT\\_TERM\\_INDIC](http://stats.oecd.org/Index.aspx?DataSetCode=ITF_SHORT_TERM_INDIC)

### 2017 Inland Transport Statistics for Europe and North America

*United Nations Economic Commission for Europe (UNECE) (June, 2017)*

*Contributed by: Stephen Evans, Ministry of Transport*

This publication brings together statistical information on all the modes of transport covered by the Inland Transport Committee (road and road safety, rail, inland waterways and oil pipelines) for all member States of the UNECE region. A short summary at the beginning of each chapter provides some key figures on each sector, followed by detailed data on each of the statistics sub-categories.

[https://www.unece.org/fileadmin/DAM/trans/main/wp6/publications/2017\\_INLAND\\_TRANSPORT\\_STATISTICS.pdf](https://www.unece.org/fileadmin/DAM/trans/main/wp6/publications/2017_INLAND_TRANSPORT_STATISTICS.pdf)



### Statistical pocketbook 2016

*European Commission (July, 2017)*

*Contributed by: Stephen Evans, Ministry of Transport*

Transport represents a crucial sector of the economy. This publication provides an overview of the most recent and most pertinent annual transport-related statistics in Europe. It covers the European Union and its 28 Member States and, as far as possible, the current EU candidate countries and the EFTA countries. The content of this pocketbook is based on a range of sources including Eurostat, international organisations, national statistics and, where no data were available, own estimates. Own estimates have mainly been produced to get an idea of the EU total. At the level of individual countries, they are merely indicative and should by no means be (mis-)interpreted as 'official' data. The publication consists of three parts:

- (1) a general part with general economic and other relevant data,
- (2) a transport part covering both passenger and freight transport as well as other transport-related data, and, finally,
- (3) an energy and environmental part with data on the impact which the transport sector has on the environment.

Most of the tables have data up to 2014; where available, more recent data have been provided.

[https://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2016\\_en](https://ec.europa.eu/transport/facts-fundings/statistics/pocketbook-2016_en)

### Speed Compliance Statistics, Great Britain 2016

*Department for Transport, Great Britain (July, 2017)*

*Contributed by: Stephen Evans, Ministry of Transport*

These 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. Overall, the figures show that since 2011, the percentages of vehicles exceeding the speed limit in free flow conditions have declined slightly for most vehicle and road types. The statistics show that during 2016, 81% of cars exceeded the speed limit on roads with a 20mph limit, with 15% exceeding the limit by more than 10mph. The statistics also show that single carriageway roads where the national speed limit (60mph) applies had the highest levels of speed limit compliance; 8% of cars exceeded the speed limit on these roads, with 1% exceeding by more than 10mph.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/623261/vehicle-speed-compliance-statistics-2016.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/623261/vehicle-speed-compliance-statistics-2016.pdf)

## Australia

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### Road Trauma Australia—Annual Summaries

*Bureau of Infrastructure, Transport and Regional Economics (BITRE) (July, 2017)*

*Contributed by: Stephen Evans, Ministry of Transport*

This report is the latest in a series of annual road crash statistical reports. It presents annual counts of fatalities, fatal crashes and injuries and standardised rates. The focus is on the last ten years.

Total deaths in 2016 were 1,295, an increase of 7.5 per cent compared with 2015. In 2016, total annual deaths were 19.2 per cent lower than ten years earlier. The estimated trend over the decade was an annual reduction of 2.9 per cent. During the most recent three years the earlier trends have reversed, with increases in all jurisdictions.

[https://bitre.gov.au/publications/ongoing/road\\_deaths\\_australia\\_annual\\_summaries.aspx](https://bitre.gov.au/publications/ongoing/road_deaths_australia_annual_summaries.aspx)

### Freight Rates in Australia

*Bureau of Infrastructure, Transport and Regional Economics (BITRE) (July, 2017)*

*Contributed by: Stephen Evans, Ministry of Transport*

This Information Sheet presents an estimate of interstate freight rates for road, rail, sea and air modes back to 1965. Models of the first three modes are also presented, allowing an understanding of the determinants of the level and movement of freight rates in Australia. The estimates and models presented show that following rapid declines in real freight rates during 1975 to 1985 for road and 1985 to 1995 for rail and sea, the trend has since been basically sideways—higher or lower due to trends in technology, fuel prices and the economy.

[https://bitre.gov.au/publications/2017/is\\_090.aspx](https://bitre.gov.au/publications/2017/is_090.aspx)

# 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.

## News

### Strategic Challenges and related actions map

The Cross Agency Governance Committee (CAGC) of the Transport Knowledge Hub has released the first version of *Strategic Challenges and related actions map: June 2017* for your reference.

These strategic challenges have been identified to help the sector:

- (a) understand what is important and what might be impeding us from having a transport system that maximises social and economic impacts and minimises harm, and
- (b) set priorities to make sure things are done in the right order to achieve the goals.

We also put together a series of Actions Maps of active or proposed activities. With inputs from you, we would like to improve and update it where possible.

Please email [knowledgehub@transport.govt.nz](mailto:knowledgehub@transport.govt.nz) if you have any ideas, additions or feedback.

You can download the *Transport Sector Strategic challenges and related actions map* from the link [here](#).

### Transport Research Register

The second edition of the Transport Research Register is being updated. The next update will be released at the end of July 2017. This publication shows what research has been done or is underway and inform on future research needs/gaps and avoid duplication. The update will feature a host of new entries and highlight recently completed and active research.

The Register can be found here:

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

## 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/>

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# Transport Knowledge Hub Calendar

June 2017

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

Email: [knowledgehub@transport.govt.nz](mailto:knowledgehub@transport.govt.nz)

	Topic hubs meetings	Decision Board meetings	Topic hub leads and Decision Board combined meetings	CAGC meetings
<b>Meeting frequency</b>	Monthly	Quarterly	Quarterly	Quarterly
<b>June 2017</b>	Initial discussion on research ideas			
<b>July 2017</b>	Further discussion on research ideas Hub Seminars and workshops			Discuss capability and IP issues
<b>August 2017</b>	Monthly Hub Seminars		<ul style="list-style-type: none"> <li>Sharing of data and information resources;</li> <li>Developing capability and transfer knowledge</li> </ul>	
<b>September 2017</b>	Monthly Hub Seminars			Communication strategy and ideas to develop capability across the sector
<b>October 2017</b>	Monthly Hub Seminars			
<b>November 2017</b>				
<b>December 2017</b>				

## Other events

Event	Registration costs & contact details	Key Dates	
<b>4<sup>th</sup> Transport Knowledge Conference (TKC)</b> <i>Grafton Campus of The University of Auckland, Auckland</i> Monday 27 November 2017	Early-bird registration (\$100 incl GST) Full registration (\$125 incl GST) Email: <a href="mailto:Conference@transport.govt.nz">Conference@transport.govt.nz</a> Webpage: <a href="#">Transport Knowledge Conference</a>	Draft programme released	Early September 2017
		Early-bird registrations close	Tuesday 10 October 2017
		Full registrations from	From Wednesday 11 October 2017
		Transport Knowledge Conference event date	Monday 27 November 2017
<b>39<sup>th</sup> Australasian Transport Research Forum (ATRF) conference</b> <i>Grafton Campus of The University of Auckland, Auckland</i> Monday 27 November to Wednesday 29 November 2017	Early-bird registration (\$800 incl GST) Full registration (\$950 incl GST) Email: <a href="mailto:t.loyd-hagemann@auckland.ac.nz">t.loyd-hagemann@auckland.ac.nz</a> Webpage: <a href="#">ATRF</a>	Research paper submission deadline	Monday 10 July 2017 (revised)
		Professional practice paper submission deadline	Monday 31 July 2017
		Draft programme released	Early September 2017
		Early-bird registrations close	Tuesday 10 October 2017
		Full registrations open	From Wednesday 11 October 2017
		ATRF event dates	27 to 29 November 2017
<b>OECD/International Transport Forum Roundtable</b> <i>The Langham Hotel, Auckland</i> Thursday 30 November to Friday 01 December 2017	Details about the Roundtable (such as venue, seats availability and registration process) will be made available soon.	OECD/International Transport Forum Roundtable event dates	30 November to 01 December 2017