

Cite this article

Kaewunruen S (2020)

Editorial.

Proceedings of the Institution of Civil Engineers – Transport **173(5)**: 297–298,

<https://doi.org/10.1680/jtran.2020.173.5.297>

Editorial

ICE Publishing: All rights reserved

Transport

ice Publishing

Editorial

Sakdirat Kaewunruen BEng (Hons), MEng, PhD, MBA, FIEAust, CPEng, NER, RPEQ, FHEA, IntPE(Aus)

Associate Professor in Railway and Civil Engineering, School of Engineering, The University of Birmingham, Edgbaston, UK



Covid-19 has demonstrated an urgent need for transport systems to be more adaptive and resilient in order to respond promptly to any disruption so that their value and supply chains can still be enabled safely and efficiently. Transport systems are the critical urban infrastructure systems, which are the heart and veins of our nation's economy, security, and health. Their operations play an important role in sustainability, resilience, and people's quality of life, which represent the foundation for emerging 'smart cities'. Current and future generations of transport engineers and practitioners are demanded to build new capabilities by way of life-long learning, in order to manage disruptions and emerging risks (Kaewunruen *et al.*, 2016). Importantly, they will also need to strike the balance among societal needs, business consequences, engineering capacity and environmental impacts in accordance with the United Nations' Sustainable Development Goals (UN, 2019). Imagine what would happen to our food security and supply chains if road, rail and maritime systems were disrupted during Covid-19. You will see the clear evidence of the criticality of our transport systems. The scale, scope and significance of our transport systems for the ability to respond to any crisis pave the pathway to impact for this issue of *Transport*.

It is my great honor to welcome you to this issue of the Institution of Civil Engineers' (ICE) *Transport* journal. This *Transport* issue will highlight new findings and lessons learnt from diverse perspectives of transport safety, capacity and system management in order to enhance transport resilience for coping with uncertainties (such as Covid-19, natural hazards, etc.). I am profoundly grateful to ICE and the editorial advisory panel members for giving me the opportunity to welcome you to this issue. On behalf of the editorial advisory panel, I hope that the published materials are useful and provide new reference nodes for our transportation community, including researchers, engineers, planners, policy makers, students and the public.

This October 2020 edition offers six articles on a variety of transportation issues, including road, rail and the network system. A brief overview of all papers can be found below.

The first paper, by Esmaeili *et al.* (2020), tackles a classic problem in the railway industry on 'Numerical investigation of railway transition zones stiffened with auxiliary rails'. The authors numerically assessed the railway track zone, which has abrupt changes of track stiffness. They adopt auxiliary rails in the transition zone as an option for gradually increasing track stiffness. Using a case of the Tehran–Isfahan high-speed railway line in Iran, the results show that auxiliary rails can improve the dynamic behaviour of stiffness transition zones.

The second paper, 'Prospects in elongation of railway transition curves' by Chrostowski *et al.* (2020), presents an analysis of the elongation of transition curves. The analysis is based on analytical computations for a wide range of parameters describing a typical railway geometrical layout with transition curves using theoretical assumptions. In this study, the indicators for process evaluation and the constraints determining the feasibility of the design variants are defined.

The third paper, 'Calibration of traffic stream models on high-speed urban roads with heterogeneous traffic' by Kumar *et al.* (2020), identifies best-fitting traffic stream models on high-speed urban roads. The authors collected traffic data on ten-lane, eight-lane and six-lane divided roadways for traffic modelling. The outcome of this research may be useful for the development of correct trends of speed–flow relationships for similar kinds of roadway facilities in the Asia-Pacific nations.

The fourth paper, 'Examining failure rate dynamics to estimate capacity of bus rapid transit system corridor' by Kathuria *et al.* (2020), highlights the capacity of a bus network from the bottom up in. The authors demonstrated the use of simulations to identify a failure rate for a bus rapid transit system (BRTS) station with two loading areas. This research will be useful to planners and municipal engineers to estimate the capacity of BRTS corridors.

The fifth paper, 'Multi-criteria decision-based safety evaluation using microsimulation' by Bayrak and Bayata (2020), proposes a new model to derive the choice of intersection type in a road

network. The analytic hierarchy process (AHP) has been used as a multi-criteria decision approach to take into account safety and costs. A case study using three intersection types is modelled and tested using Vissim software to demonstrate the application of the chosen selection for road intersections.

The last piece of this issue is a book review – of *Switch & Crossing Maintenance*, published by the Permanent Way Institution – by Chris Polack. He reports that this book provides a unique combination of knowledge and experience, and is an essential handbook for all those responsible for the specifying and execution of switch and crossing maintenance.

It is very clear that all of the papers in this issue contribute towards transport resilience and safety. I sincerely hope that you all find these papers beneficial to your work anyhow. The mission of the journal is to attract high-quality papers that extend our reach internationally. Therefore, further dissemination by either word of mouth or other means will be deeply appreciated. Any comments on this issue's articles are most welcome.

In addition, please note that European Commission organises the largest competition in Europe that recognises and celebrates leading researchers who are or have recently been contributing to excellence in transport research and development in road, rail, waterborne, airborne, and cross modality transport. The awards for both young and senior researchers, equivalent to mini-Nobel prizes or Fields Medals in transport, showcase the very best research and recognise the brightest talents and

leaders in the transport industry. The prestigious TRA Visions competitions run every 2 years and the next one will be in 2022 (EU, 2020). You all are highly encouraged to take part in TRA Visions.

REFERENCES

- Bayrak OÜ and Bayata HF (2020) Multi-criteria decision-based safety evaluation using microsimulation. *Proceedings of the Institution of Civil Engineers – Transport* **173(5)**: 345–357, <https://doi.org/10.1680/jtran.18.00004>.
- Chrostowski P, Koc W and Palikowska P (2020) Prospects in elongation of railway transition curves. *Proceedings of the Institution of Civil Engineers – Transport* **173(5)**: 309–320, <https://doi.org/10.1680/jtran.17.00097>.
- Esmaili M, Heydari-Noghabi H and Kamali M (2020) Numerical investigation of railway transition zones stiffened with auxiliary rails. *Proceedings of the Institution of Civil Engineers – Transport* **173(5)**: 299–308, <https://doi.org/10.1680/jtran.17.00035>.
- EU (European Union) (2020) *TRA Visions 2020*. See <https://www.travisions.eu/TRAVisions/> (accessed 10/08/2020).
- Kaewunruen S, Sussman JM and Matsumoto A (2016) Grand challenges in transportation and transit systems. *Frontiers in Built Environment* **2**: article 4, <https://doi.org/10.3389/fbuil.2016.00004>.
- Kathuria A, Sekhar CR and Parida M (2020) Examining failure rate dynamics to estimate capacity of bus rapid transit system corridor. *Proceedings of the Institution of Civil Engineers – Transport* **173(5)**: 333–344, <https://doi.org/10.1680/jtran.17.00161>.
- Kumar P, Arkatkar S and Joshi G (2020) Calibration of traffic stream models on high-speed urban roads with heterogeneous traffic. *Proceedings of the Institution of Civil Engineers – Transport* **173(5)**: 321–332, <https://doi.org/10.1680/jtran.17.00122>.
- UN (United Nations) (2019) *Sustainable Development Goals*. UN, New York, NY, USA. See <https://www.un.org/sustainabledevelopment/sustainable-development-goals/> (accessed 10/08/2020).