

Editorial

Chris Polack CEng, MICE

Bootham Network Solutions Limited, York, UK



Welcome to the last issue of 2020, a year that has seen great disruption to normal life and work due to the Covid-19 pandemic. In April, delivery of printed copies of the journal was halted due to reduced airmail services and delays at Customs. Readers can be reassured that purchased 2020 printed journal issues will be posted to them before Christmas.

In January 2021 we will see another change as the journal moves to an online-only format. PDF is now the most common format in which to read the journal, reflecting the preference of institutional libraries and the desktop convenience for readers of finding, receiving and sharing articles in PDF. We expect this trend to continue, with fewer subscribers opting to pay extra for issues to be printed and posted to them. If you are one of our readers who does like to receive a hard copy, these will be available to purchase on a per issue and per volume basis. Prices will be announced in the New Year.

The journal will continue to be available in accessible formats including print. For more information please contact journals@ice.org.uk.

This issue contains papers from diverse subject areas, reflecting the breadth of modes and interests addressed by the journal. From aviation to highways, and from cycling to railways – the common theme running through these papers is that of resilience, how to design and manage infrastructure and systems to reliably and robustly serve the user. Transport systems must also be able to react to changes in user requirements. We have all, in the course of this year, been using services in new and different ways, and transport systems need to be able to evolve and react to future changes.

Our first paper addresses a topic that has been very relevant as communities recover from the effects of lockdown: that of green and sustainable transport. In the UK, for example, the government has announced £250 million of funding for greener, active travel (DfT, 2020). Ul-Abdin *et al.* (2020) recognise that cycle paths must be well designed to encourage users, and propose a set of design guidelines for bicycle paths

to address radius and widening on curved alignments. The key feature of this paper is the understanding of how the dimensions of a bicycle – length, angle of fork and so on – influence the wheel tracks when negotiating a curved path.

The *Transport* journal has previously considered the problems of planning airline schedules, with a case study of an Iranian airline (Khaksar and Sheikholeslami, 2018). In our second paper, Shao and Xu (2020) propose a model for the propagation of delays in an air transport network. The authors define a series of uncertainty factors, such as weather and air traffic control issues that can introduce delay to a flight, and then test their proposed model on a network of air routes in China.

The world is traversed by a network of paved roads, and understanding how these pavements are performing is key to predicting and managing failure, so as to minimise disruption to the user. Francesconi *et al.* (2020) have identified a gap in the existing pavement testing regime and propose the use of the fast falling weight deflectometer, a development of a well-established apparatus, for accelerated pavement testing. The authors used the fast falling weight deflectometer to validate models for permanent deformation and pavement fatigue.

In Europe and Asia, and to a lesser extent in other continents, high-speed rail networks are growing in number and extent. For many networks, including HS2 in the UK, slab track is the preferred track system (Horgan, 2020). Slab track has a higher initial cost than ballasted track, but, because it has a greater degree of track fixity, is expected to require less maintenance and incur a lower whole-life cost.

Achievement of a lower whole-life cost is dependent on the slab track system reaching its design life. Defects which cause deterioration of slab track to a point where passenger comfort, or vehicle safety, is compromised will result in a shorter life and trigger costly replacement.

In ‘Effects of crack status on stability of longitudinally coupled prefabricated track slab’ (Chen *et al.*, 2020) the authors

investigate the effect of cracks of varying lengths and orientation under thermal expansion of the slab. A scale model was calibrated against a finite-element analysis and the calibrated model was then tested for different cracking scenarios. Test results indicated allowable limits on crack sizes to prevent displacement of the track slab and deterioration of track geometry.

The journal welcomes high-quality papers on subjects relevant to both practitioners and academics. In addition to issues such as this one, which contain papers on a range of subjects, the Editorial Advisory Panel intends to offer a number of themed issues each year, for which calls for papers will be made.

REFERENCES

- Chen Z, Liu X, Xiao J, Li W and Zhao C (2020) Effects of crack status on stability of longitudinally coupled prefabricated track slab. *Proceedings of the Institution of Civil Engineers – Transport* **173**(6): 410–419, <https://doi.org/10.1680/jtran.18.00014>.
- DfT (Department for Transport) (2020) See <https://www.gov.uk/government/news/2-billion-package-to-create-new-era-for-cycling-and-walking> (accessed 17/10/2020).
- Francesconi M, Stonecliffe-Jones M, Khosravifar S *et al.* (2020) Fast falling weight deflectometer as new tool to perform accelerated pavement testing. *Proceedings of the Institution of Civil Engineers – Transport* **173**(6): 396–409, <https://doi.org/10.1680/jtran.17.00077>.
- Horgan R (2020) HS2 awards £260M modular slab track contract. *New Civil Engineer*, 6 October. See <https://www.newcivilengineer.com/latest/hs2-awards-260m-modular-slab-track-contract-06-10-2020/> (accessed 17/10/2020).
- Khaksar H and Sheikholeslami A (2018) A model for incorporating robustness into flight planning. *Proceedings of the Institution of Civil Engineers – Transport* **171**(5): 275–285, <https://doi.org/10.1680/jtran.15.00119>.
- Shao Q and Xu C (2020) Air transportation delay propagation analysis with uncertainty in coloured-timed Petri nets. *Proceedings of the Institution of Civil Engineers – Transport* **173**(6): 380–395, <https://doi.org/10.1680/jtran.17.00159>.
- Ul-Abdin Z, Rajper SZ, Schotte K, De Winne P and De Backer H (2020) Analytical geometric design of bicycle paths. *Proceedings of the Institution of Civil Engineers – Transport* **173**(6): 361–379, <https://doi.org/10.1680/jtran.17.00162>.