

## Editorial

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Welcome to the June 2015 issue of *Proceedings of the Institution of Civil Engineers – Transport*. Over recent years the journal has become stronger, to the extent that there is now a steady inflow of important papers. In response to this, we have become more selective, ensuring even higher quality in the papers we publish. As a result, we are increasing the number of grouped or themed issues that we publish, where we group papers on a particular topic or subject area, reflecting the pool of papers we receive.

Since joining as an editorial board member in 2014, I have been impressed by the quality and diversity of papers we receive from all over the world. This themed issue is no exception to this, with authors from 15 different countries, on a range of topics: asphalt material, pavement design, and maintenance and material recycling. As a Proceedings journal of the Institution of Civil Engineers, we fulfil two key purposes for our readership: to showcase practitioner papers and to draw attention to advances in research. Sometimes these can seem to pull in opposite directions, and a continuing debate on this is not only inevitable but also healthy, as we strive to present an appropriate balance. Focusing on each aspect means that our readership benefits from knowing what advances have been achieved in relevant research and, also, how these are being exploited in practice.

It is my great pleasure to write editorial for the June 2015 issue of *Transport*. This themed issue covers nine technical papers, which are grouped under three main categories: four papers on material characteristics and prediction of pavement performance; four papers on maintenance and rehabilitation of pavement; and one paper in the asphalt recycling category.

The first two papers focus on asphalt material, both presenting an interesting insight into the permanent deformation (rutting) characteristics of asphalt mixtures. The first (Roy *et al.*, 2015) reports the importance of test conditions and presents a post-processing algorithm of flow number for evaluating rutting susceptibility. The second (Mansourkhaki and Sarkar, 2015) looks at the effects of waveform loading and loading pulse duration, specifically the effects of loading patterns corresponding to axle configurations (single, double and triple) on plastic deformation linked to rutting. I am sure readers will find both papers informative and valuable as reference material.

Moving to the two papers on the prediction of pavement performance – which include prediction of pavement deterioration – a complex interaction of different failure modes allied with the

influence of data quality, availability and variability over the period of time is apparent. Tackling this important issue, our third paper, by Schlotjes *et al.* (2015), offers a prediction model for the structural condition of asphalt pavement, using ‘support vector machines’, a computational software technique. Computer software techniques are increasing in popularity in pavement engineering because of their powerful ability to handle complexity and uncertainty in data. In this paper, the authors have used condition data from New Zealand’s long-term pavement performance study of state highways to develop their model. The fourth paper, by Papageorgiou and Mouratidis (2015), demonstrates the importance of defining threshold values for surface distresses, such as skid resistance, evenness and rutting, at the operational stage. These definitions are needed for the development of pavement condition under traffic, rather than setting minimum threshold requirements at the opening stage of a road.

Turning to the maintenance and rehabilitation of pavements, the fifth paper (Cülfik, 2015), presents the performance of thin asphalt overlays on a concrete base. Asphalt overlay is a popular yet challenging approach to improving the functional performance of concrete pavement. The author has evaluated ‘serviceability and structural performance’ and highlighted the significance of specifying the mixture and aggregates used in the concrete design. The initial condition of the concrete base on overall performance is also examined.

The sixth paper (Mubaraki, 2015) presents a methodology for project-level maintenance and rehabilitation strategies, in the context of high-volume urban roads in Saudi Arabia. This interesting paper presents distress-prediction models based on sigmoid functions for seven types of distress. From this, the author proposes cost-effective maintenance and rehabilitation strategies for road pavement.

Moving from project-level maintenance, the seventh paper (Yang *et al.*, 2015) offers new insight into worksite arrangements to reduce the effects of maintenance activity on road users. The authors develop a predicted traffic flow and queuing model using a network-level traffic flow model, demonstrating its effectiveness by means of a case study. In the eighth paper Kim and Lee (2015) address the rehabilitation of concrete pavements. The authors present the effectiveness of bonded concrete overlays in concrete pavement rehabilitation work for the Korean road network. In this, it is apparent that the thickness and condition of the existing concrete pavement have significant influence on the service life of a bonded concrete overlay.

The final paper (Gáspár *et al.*, 2015), in the recycled asphalt category, concerns reclaimed road material. This pan-European contribution addresses the use of reclaimed material in hydraulically bound layers. The authors provided details of the encompassing project and the research contributions of the eight contributing European countries. Several examples from countries outside the project are also provided, which serve to highlight the main trends in relevant worldwide practice (particularly in Europe). This paper is offered as a valuable resource for both researchers and practitioners working in recycling.

Finally, on behalf of the editorial board, I thank the authors for their valuable contributions to our road pavement theme. The diligent efforts of our reviewers also do not go unnoticed; and also the continuing support of our readers. We hope you find these papers useful and rewarding to read. Comments on this issue or other issues or comments related to the journal in general will be received with great interest.

#### REFERENCES

- Cülfik MS (2015) Serviceability and structural performance of asphalt overlays. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 231–238, <http://dx.doi.org/10.1680/tran.12.00058>.
- Gáspár L, Stryk J, Marchtrenker S *et al.* (2015) Recycling reclaimed road material in hydraulically bound layers. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 276–287, <http://dx.doi.org/10.1680/tran.13.00056>.
- Kim YK and Lee SW (2015) Service life of bonded concrete overlay. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 267–275, <http://dx.doi.org/10.1680/tran.12.00081>.
- Mansourkhaki A and Sarkar A (2015) Plastic deformation of asphalt mixture under waveform loading. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 200–211, <http://dx.doi.org/10.1680/tran.13.00054>.
- Mubaraki M (2015) A methodology for project-level maintenance for urban roads. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 239–255, <http://dx.doi.org/10.1680/tran.13.00065>.
- Papageorgiou G and Mouratidis A (2015) Defining threshold values for pavement surface characteristics. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 223–230, <http://dx.doi.org/10.1680/tran.12.00028>.
- Roy N, Veeraragavan A and Krishnan JM (2015) Interpretation of flow number test data for asphalt mixtures. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 191–199, <http://dx.doi.org/10.1680/tran.12.00070>.
- Schlotjes MR, Burrow MPN, Evdorides HT and Henning TFP (2015) Using support vector machines to predict the probability of pavement failure. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 212–222, <http://dx.doi.org/10.1680/tran.12.00084>.
- Yang C, Remenyte-Prescott R and Andrews J (2015) Application of network traffic flow model to road maintenance. *Proceedings of the Institution of Civil Engineers – Transport* **168(3)**: 256–266, <http://dx.doi.org/10.1680/tran.13.00067>.