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**Transport**

# Editorial

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Welcome to the second 2026 issue of *Proceedings of the Institution of Civil Engineers — Transport*. On behalf of the editorial panel, I hope that the research presented in this issue will offer valuable intellectual and practical insights to the global transport community—including researchers, practitioners, policymakers, students, and the wider public.

Transportation studies constitute a dynamic and multidisciplinary field encompassing numerous sub-themes and areas of specialisation. Advances in technology, evolving transportation needs, and the continuous pursuit of solutions to real-world challenges play a crucial role in fostering innovative research. In this context, the present issue brings together contributions from diverse subfields both methodological advancements and practical solutions to contemporary transportation problems. With its multidisciplinary, international, and application-oriented perspective, this issue reflects the latest developments in transportation research and aims to provide valuable insights for researchers, engineers, planners, policymakers, and students.

In the first paper of the issue, Zhang *et al*. (2026) investigates the impact of traffic infarction (defined as traffic flow breakdown) on the performance of highway confluence areas. To analyse this phenomenon, the authors developed a diagnostic model using the lane vehicle occupancy rate (LVOR) as an indicator for congestion and time headway as a measure of traffic safety. The study reveals that as the probability of traffic infarction increases toward 1, the LVOR rises—indicating deepening congestion—while the average time headway decreases, thereby reducing safety in the confluence area. To mitigate these effects, a specialized speed limit control model was proposed and verified through simulation experiments. The results demonstrate that implementing this speed limit control significantly improves throughput rates, reduces average delays, and maintains higher vehicle speeds at both merging entrances and downstream exits compared to scenarios without such controls.

The second paper by Tastemir *et al*. (2026) addresses the logistical and environmental challenges of managing solid household waste (SHW) in high-rise residential buildings by proposing a novel, patented garbage chute system designed to improve collection, sorting, and transportation efficiency. By integrating automated sorting mechanisms at the point of disposal, the study demonstrates that the system significantly enhances the recovery of recyclable materials and reduces the labour-intensive nature of traditional waste management practices. Furthermore, the implementation of this modernized system is shown to minimise environmental hazards, such as unpleasant odors and bacterial growth associated with conventional chutes, while optimising the overall spatial and economic footprint of waste disposal infrastructure in urban housing developments.

In another paper by Yang *et al*. (2026), an innovative semi-Smart Predict-then-Optimise (semi-SPO) framework designed to enhance the scheduling efficiency of electric bus (EB) fleets by addressing the uncertainty of travel times. Unlike traditional methods that treat prediction and optimisation as separate stages, the semi-SPO approach integrates a machine learning-based travel time prediction model directly into the scheduling optimisation process, significantly reducing the gap between predicted values and operational outcomes. The study demonstrates that this integrated method effectively minimizes total operational costs—including vehicle procurement, electricity consumption, and charging infrastructure—while ensuring high service reliability. Key findings indicate that the semi-SPO model outperforms conventional "predict-then-optimise" and robust optimisation techniques by providing more stable schedules that are less sensitive to traffic fluctuations, ultimately offering a more cost-effective and resilient solution for the electrification of urban public transport systems.

In their paper, Zhou *et al*. (2026) addresses the operational instability of semi-exclusive right-of-way trams caused by manual driving and intersection signal interference by proposing a robust timetable optimisation model integrated with passive signal priority. By utilising a stochastic travel time distribution and a genetic algorithm-based optimisation approach, the study aims to balance the trade-off between operational efficiency and schedule reliability through the strategic allocation of "slack time." Key findings demonstrate that the proposed model significantly enhances the robustness of tram schedules, reducing the probability of delays and the impact of traffic fluctuations on-site. Furthermore, the results indicate that integrating passive signal timing adjustments with timetable design leads to more consistent travel times and improved service quality, providing a practical framework for transit agencies to optimise urban tram systems in complex traffic environments.

In the Tao *et al*. (2026)'s study, they examine the high-quality development (HQD) of logistics parks within the Yangtze River Economic Belt (YREB) by establishing a comprehensive evaluation index system based on five dimensions: innovation-driven

growth, service quality, green efficiency, collaborative integration, and regional scale. Using spatial autocorrelation and the Tapio elasticity model, the study analyzes the spatial-temporal evolution of these parks and their coupling relationship with regional economic growth. The findings reveal a consistent upward trend in the HQD levels of logistics parks across the YREB, although significant regional disparities persist, with the downstream areas outperforming the middle and upstream reaches. Crucially, the research identifies a "weak decoupling" or "expansive coupling" relationship between logistics park development and economic growth, suggesting that while the logistics sector is expanding, its efficiency in driving high-quality economic transformation needs further optimisation through improved inter-regional coordination and greener, innovation-focused strategies.

In the Kang *et al*. (2026)'s study, the paper investigates the complex safety challenges of the Tiantai Mountain Tunnel Cluster (MTC) in China by employing an integrated approach involving N-K model analysis and Grey-interpretative structural modelling (G-ISM) to identify and decouple traffic accident risk factors. By analysing historical accident data from 2021 to 2024, the study categorizes risks into five dimensions—human, vehicle, road, environment, and management—and examines how their interactions exacerbate accident probability. The findings reveal that multi-factor coupling (the simultaneous interaction of three or more risk dimensions) significantly higher risk than single-factor incidents, with the combination of human and environmental factors identified as a critical trigger. Furthermore, the G-ISM analysis establishes a hierarchical structure of these risks, highlighting that while driver behaviour and vehicle status are direct causes of accidents, management deficiencies and environmental complexities serve as deep-rooted, underlying factors. These results provide a theoretical foundation for developing targeted safety interventions, such as enhanced monitoring and optimized traffic management, to mitigate the high accident rates in mountainous tunnel clusters.

In the last paper by Liu *et al*. (2026), they investigate the complex relationship between water level fluctuations and structural deformation in underwater tunnels by applying advanced time-series analysis and mechanical modelling to long-term monitoring data. Using the Seasonal and Trend decomposition using Loess (STL) algorithm, the study successfully separates deformation data into trend, seasonal, and residual components, revealing that seasonal deformation is primarily driven by hydrostatic pressure changes associated with water level cycles. The findings are further validated through a modified rigid ring model, which establishes a high correlation (coefficients exceeding 0.85) between theoretical mechanical behaviour and observed data. Key results indicate that while seasonal factors cause cyclical displacement, the long-term trend component highlights potential structural settlement or convergence over time. By integrating data-driven decomposition with physical mechanical analysis, this study provides a robust framework for improving the structural health monitoring and safety assessment of underwater transit infrastructure.

In summary, this issue presents a total of seven papers, each contributing to the advancement of research across diverse areas of transportation studies. The findings reported in these papers offer valuable insights for transport authorities and planners, particularly in tackling practical, real-world problems. It is anticipated that the outcomes of these studies will make meaningful contributions to future research in the field. On behalf of the editorial panel, I hope that you find this issue of our journal both insightful and engaging. I would also like to express my sincere appreciation to the authors for their valuable contributions and to the reviewers for their rigorous efforts in maintaining the high quality of the publications. Readers are welcome to share their comments or engage in discussions regarding the papers via email to support@emerald.com. Additionally, the latest transport-related articles can be accessed through the Ahead of Print section on the Transport Virtual Library homepage. Should you have any questions or comments regarding this issue, please do not hesitate to contact me.

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