Using Automated Data Sources to Improve the Performance of Public Transport Systems: A Framework and Applications

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12pm in the Civil Engineering Conference Room

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Abstract
Automatic data sources including automatic vehicle location systems, automatic passenger counting systems and electronic fare payment and ticketing systems are becoming ubiquitous in large public transport systems and are starting to have an impact on the quality and availability of information for both off-line and real-time functions needed for service provision. The off-line functions include service and operations planning, and performance monitoring and measurement, while the critical real-time functions include operations management and control, and customer information. While the impacts of these advances are already apparent in many systems, there is the potential for much deeper impact in the future. The power and cost-effectiveness of information technology continues to advance and will offer opportunities to develop and apply more ambitious models which should positively affect many facets of the performance of public transport systems. This talk will present a framework for assessing the various roles that automated data sources can play in public transport systems and will summarize recent applications of the resulting methods based on research at MIT for Transport for London and other transit agencies. The potential for further enhancement of critical public transport agency functions in the future making even greater use of these data sources will be discussed.

Biography
Nigel Wilson is a Professor of Civil and Environmental Engineering at the Massachusetts Institute of Technology. His research and teaching areas focus on urban public transportation, including topics related to the operation, analysis, planning and management of transit systems, and teaches MIT graduate subjects in public transport systems. Professor Wilson directs a major long-term collaborative research program with urban public transport agencies. The longest active collaboration, now in its tenth year, is with Transport for London and is focused on making better use of contactless smart card data and other automatically collected data to support decision-making throughout the agency. A second ongoing collaboration is with the Massachusetts Bay Transportation Authority which has a similar focus. He has written more than 100 articles and reports on the results of his research. He has been a visiting faculty member at Stanford University, University College London, Napier University in Edinburgh, Delft University of Technology, and the University of Minnesota. Professor Wilson received the bachelor’s degree in civil engineering from Imperial College, London and the master’s and doctoral degrees, in civil engineering and transportation systems respectively, from the Massachusetts Institute of Technology.

Light refreshments will be served.