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Analysis of parking reliability guidance of urban parking variable message sign system.
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Summary: Operators of parking guidance and information systems (PGIS) often encounter difficulty in determining when and how to provide reliable car park availability information to drivers. Reliability has become a key factor to ensure the benefits of urban PGIS. The present paper is the first to define the guiding parking reliability of urban parking variable message signs (VMSs). By analyzing the parking choice under guiding and optional parking lots, a guiding parking reliability model was constructed. A mathematical program was formulated to determine the guiding parking reliability of VMS. The procedures were applied to a numerical example, and the factors that affect guiding reliability were analyzed. The quantitative changes of the parking berths and the display conditions of VMS were found to be the most important factors influencing guiding reliability. The parking guiding VMS achieved the best benefit when the parking supply was close to or was less than the demand. The combination of a guiding parking reliability model and parking choice behavior offers potential for PGIS operators to reduce traffic congestion in central city areas.

MSC:

90B25 Reliability, availability, maintenance, inspection in operations research
60K10 Applications of renewal theory (reliability, demand theory, etc.)
90B20 Traffic problems in operations research

Cited in **1** Document

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