Dynamic queuing transmission model for dynamic network loading - DTU Orbit  
(11/12/2018)

Dynamic queuing transmission model for dynamic network loading

This paper presents a new macroscopic multi-class dynamic network loading model called Dynamic Queuing Transmission Model (DQTM). The model utilizes ‘good’ properties of the Dynamic Queuing Model (DQM) and the Link Transmission Model (LTM) by offering a DQM consistent with the kinematic wave theory and allowing for the representation of multiple vehicle classes, queue spillbacks and shock waves. The model assumes that a link is split into a moving part plus a queuing part, and p that traffic dynamics are given by a triangular fundamental diagram. A case-study is investigated and the DQTM is compared with single-class LTM, single-class DQM and multi-class DQM. Under the model assumptions, single-class models indicate that the LTM and the DQTM give similar results and that the shock wave property is properly included in the DQTM, while the multi-class models show substantially different travel times for two vehicle classes. Moreover, the results show that the travel time will be underestimated without considering the shock wave property.

General information

State: Published
Organisations: Department of Transport, Department of Management Engineering, Transport DTU, Traffic modelling and planning
Contributors: Raovic, N., Nielsen, O. A., Prato, C. G.
Pages: 146-159
Publication date: 2017
Peer-reviewed: Yes

Publication information

Journal: Transport
Volume: 32
Issue number: 2
ISSN (Print): 1648-4142
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.26 SJR 0.402 SNIP 0.953
Web of Science (2017): Impact factor 1.267
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.18 SJR 0.382 SNIP 0.983
Web of Science (2016): Impact factor 1.163
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 0.77 SJR 0.371 SNIP 0.64
Web of Science (2015): Impact factor 0.594
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 0.91 SJR 0.327 SNIP 0.984
Web of Science (2014): Impact factor 0.553
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 0.82 SJR 0.383 SNIP 0.653
Web of Science (2013): Impact factor 0.529
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 1.06 SJR 0.427 SNIP 0.697
Web of Science (2012): Impact factor 1.081
ISI indexed (2012): ISI indexed no
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): CiteScore 1.64 SJR 0.473 SNIP 0.873
ISI indexed (2011): ISI indexed no
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.466 SNIP 0.787
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.337 SNIP 1.133
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.199 SNIP 0.583
Scopus rating (2007): SJR 0.194 SNIP 0.841
Scopus rating (2006): SJR 0.197 SNIP 1.021
Scopus rating (2005): SJR 0.189 SNIP 0.689
Scopus rating (2004): SJR 0.195 SNIP 0
Scopus rating (2003): SJR 0.196 SNIP 0
Original language: English
Keywords: Dynamic network loading, Dynamic queuing transmission model, Link transmission model, Kinematic wave theory, Queue spillbacks
DOIs:
10.3846/16484142.2015.1062417
Source: FindIt
Source-ID: 2279747221
Research output: Research - peer-review › Journal article – Annual report year: 2016