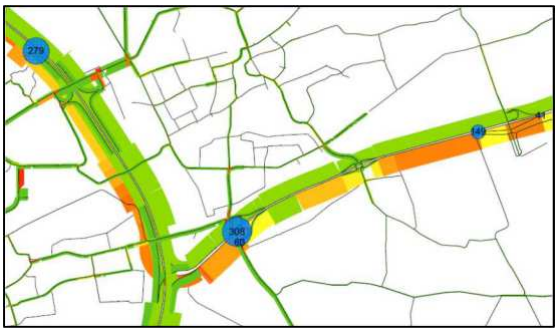
Comparison of Macroscopic Dynamic Assignment Models



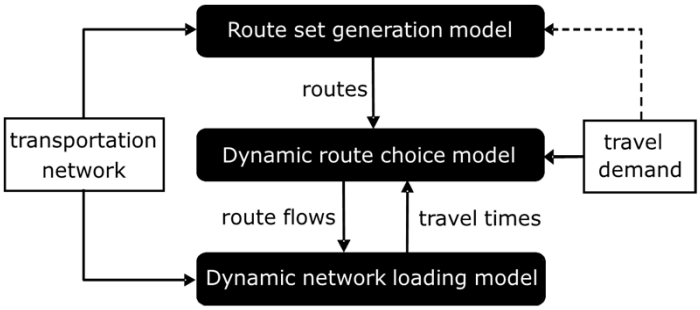
Problem description

Recently, the interface between the dynamic traffic assignment (DTA) model MARPLE and the OmniTRANS transport planning software was updated. This interface also provides a framework for the usage of models or components written in MATLAB (such as MARPLE) together with OmniTRANS data (e.g. matrices, networks), components (e.g. demand models, junction modelling, matrix calibration) and functionality (e.g. the GUI). This gives the opportunity to compare different DTA models on functionality, results, computing time and other aspects and to evaluate them for their suitability for certain applications.

Assignment

Most DTA models consist of three components, as visualized in the figure below. In this assignment the focus is on the dynamic network loading model. The goal is to compare the Link Transmission Model (LTM) with the MARPLE network loading model, using the OmniTRANS interface. This allows for a direct comparison of the functionality and properties of both propagation models. The most important points of interest are the behavior of the models with respect to spillback effects and the effect of intersections in urban areas.
The comparison should be done in two steps. In the first step a methodological comparison using theoretical test networks should be conducted to isolate and qualitatively describe the individual differences. In the second step a (small) case study, using a realistic network from an existing strategic transport model combined with (big) data (traffic counts and observed travel times and speeds from floating car data), should be done to quantitatively describe the differences between the models in a realistic setting.

If time allows, the comparison could be extended to include also the 2nd order Cell Transmission model (MADAM) and/or the event based Generalized Link Transmission Model (eGTLM), that are also available in OmniTRANS.



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