The Network Transmission Model for larger areas

Problem description

A recent development in the field of traffic flow theory is the Network Fundamental Diagram (NFD). This diagram shows the (car-)speed in an *area* (e.g., a city center) as function of the number of vehicles. A dynamic traffic model is developed based on these principles, the *Network Transmission Model*. It is not know in which areas these modeling principles work; in particular, can the model provide a dyanmic alternative for static models used for planning purposes?

Assignment

In this study, you model a large area by the Network Transmission Model. This area is larger than the area the model is developed for; examples can be the Netherlands or the Randstad area. Can the model replace the static models for representing a typical day? In this assignment the student should compare the results of a dynamic model with zones with a static model with roads.
Main methodological questions in this assignment are the measure of performance and the goodness of fit: what is it what need to be represented, and how can that be quantified. Also extracting that from the data is expected to be a challenge.

Embedding / collaboration

There are many parties interested in the result of this study. During the thesis, work can be done at a consulting company (Grontmij) or at other international universities (Lyon, France).

Required skills and interests:

– Interests: traffic flow theory
- Interests: traffic simulation
– Good programming skills
– Good analytical skills

Supervision

Supervisor: Prof.dr.ir. Serge Hoogendoorn (Transport & Planning)
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