



Optimizing Traffic Flow and Reducing Emissions: A Macroscopic Modeling Study

Problem description

Reducing emissions from motor vehicles is a pressing challenge that necessitates innovative and sustainable solutions. To address this issue, the project undertakes an in-depth exploration of diverse scenarios aimed at minimizing both congestion and emissions on major motorways, with a particular emphasis on areas proximate to Schiphol airport. By investigating potential strategies and interventions, the project seeks to identify effective measures that can be implemented to alleviate traffic congestion and mitigate environmental harm caused by vehicle emissions. Several use cases have been proposed as part of the TULIPS project, aiming to address this problem through traffic management measures and demand reduction strategies. These use cases include: (i) Remote check-in, (ii) Increased intercity trains, (iii) Lowering maximum speed limit, and (iv) Advanced Intelligent Transportation Systems (ITS) technologies.

Objectives & Assignment

The main objective of the project is to evaluate the reduction of emissions for each use case by setting up and applying a traffic models to evaluate the proposed use cases. This will likely include performing literature review on ways to reduce traffic emissions, preparing and calibrating a traffic model for the desired scenarios, executing the model and analysing the model results for feasibility and potential impact.

This thesis topic can include an internship at TNO

Research group

DiTTlab, Transport & Planning Department
Thesis supervisor: dr. ir. Simeon Calvert

External support

TNO

Information

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