# "A Case Study on Traffic Flow Modelling, Simulation and Control"

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In our case study, we observe the traffic data (as collected by the Traffic Centre in Wilrijk) of the E17 highway in the direction of Antwerp. Interpretation of this time-series leads to the well-known fundamental diagrams from traffic flow theory (these diagrams exhibit the metastability and hysteresis phenomena). As a macroscopic traffic flow model, we use Papageorgiou's METANET model. The microscopic model is in one case based on a continuous implementation and in another case on a discrete version implemented as a traffic cellular automaton. As a control measure, we investigate the use of ramp metering using model predictive control, which outperforms the default ALINEA-algorithm.