



Research School for Operations  
Management and Logistics

**Dynamic traffic control through road infrastructures**

Anna Oblakova – UT

The growing urbanization concentrated in large cities poses enormous challenges to the society. The efficient use of available infrastructure, logistics planning and control frameworks are among the main challenges. Our research focuses on logistics and mobility, and seeks to reconcile economic, social and ecological objectives. That is: transport and logistics should be maximally efficient, with minimum delay and limited adverse impact on the environment (carbon and particle emission, noise, etc.). In particular, we focus on the use of massively available planning and routing car data in addition to data from roadside equipment to enable dynamic control of both freight and passenger flows. In addition, we are going to extend existing mathematical models for road traffic so as to study interacting bottlenecks while capturing the essential characteristics of road traffic dynamics. In an urban area optimal control for smooth traffic flow requires an integrated approach, i.e. simultaneous control of a network of intersections. Besides the "network view" our research is also innovative in accurate traffic modeling.