



Designing the future: Spatial design of multimodal shared transport services in urban environments for maximum accessibility

Problem description

New emerging mobility systems offer new perspectives on a modal shift towards multimodal shared transport services, where travelers don't own their vehicles but share these with others. These shared multimodal transport services can be reserved and accessed on mobility hubs. It is expected that these mobility systems and mobility hubs can alleviate pressure on scarce space in urban environments, improving livability and accessibility. At this point cities are facing difficulties with understanding how to manage urban space to maximize accessibility. For a specific area, cities should decide which capacity should be given to each mode and mobility hubs in order to satisfy accessibility criteria while ensuring a livable environment. In this master thesis assignment the student will develop a model that optimizes this usage at an urban context applied to a case-study.

Assignment

The assignment will consist of:

- Literature study
- Propose an optimization model for different transport modes and mobility hubs in a city area by determining the capacity for each mode and locations of mobility hubs
- Compare before and after scenarios on a case-study
- Develop different objective functions and/or constraints to target the several angles of sustainable environments

Background

A student who has affinity with working with software and some willingness to program. The project time span will be 6 months and will be guided by Koen de Clercq, Maaïke Snelder, Arjan van Binsbergen and Bart van Arem. The assignment can (partly) take place at TNO.

Research group

The project can be conducted as final thesis project for MSc Civil Engineering –Transport & Planning track or MSc in Transport Infrastructures and Logistics. Other master programs can be considered as well, upon discussion with the student.

For more information, contact Koen de Clercq (G.K.deClercq@tudelft.nl); Maaïke Snelder (M.Snelder@tudelft.nl); Arjan van Binsbergen (A.J.vanBinsbergen@tudelft.nl); Bart van Arem (B.vanArem@tudelft.nl).