D-BAUG Lighthouse Project: E-Bike City Subproject C

Designing the New Network & Its Capacity

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Introduction

We envision a novel approach to urban transport policy – the E-Bike City. Rather than focusing on the free flow of car traffic, its goal is to incentivize sustainable travel behavior. The key concept is a road space allocation giving priority to sustainable modes such as public transport and cycling. While car travel will suffer accessibility losses, higher safety and travel speeds of cyclists will increase their accessibility. An agent-based model will be used to show the resulting effects and accessibility patterns, considering the needs and capabilities of each person.

The Concept

As a starting point, roughly 50% of today's road surface for motorized traffic will be allocated to safe cycling. The network for private cars will be limited to mainly one-way and dead-end streets, providing essential access.

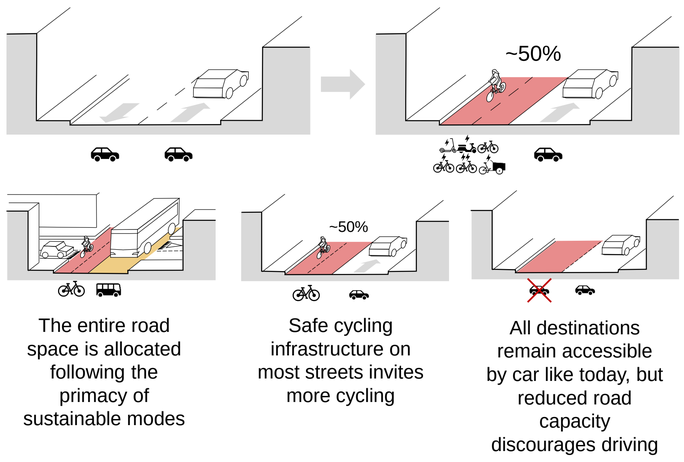

Fig. 1 Design principles

Overview and Outlook

This work is part of a three-step process, consisting of design (network and street level) and evaluation. Results from the latter will be used for an iterative improvement of the design, as well as showing, how will the E-Bike City change urban mobility.

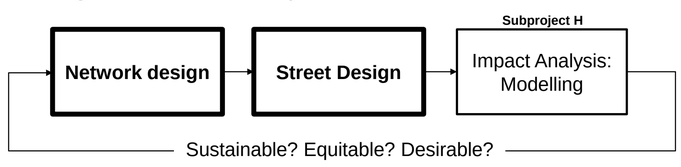

Fig. 2 Process overview

Further Reading

Ballo, L., L. Meyer de Freitas, A. Meister and K.W. Axhausen (2022)
Introducing the e-bike city: Sustainable mobility through urban design?, Arbeitsberichte Verkehrs- und Raumplanung, 1770, ETH Zurich, Zurich

Meister, A., M. Felder, B. Schmid and K.W. Axhausen (2022)
Route choice modelling for cyclists on dense urban networks, Arbeitsberichte Verkehrs- und Raumplanung, 1764, ETH Zurich, Zurich.

First Sketches of Design Ideas

Fig. 3 Arterial street with tramway tracks

Fig. 4 Residential street

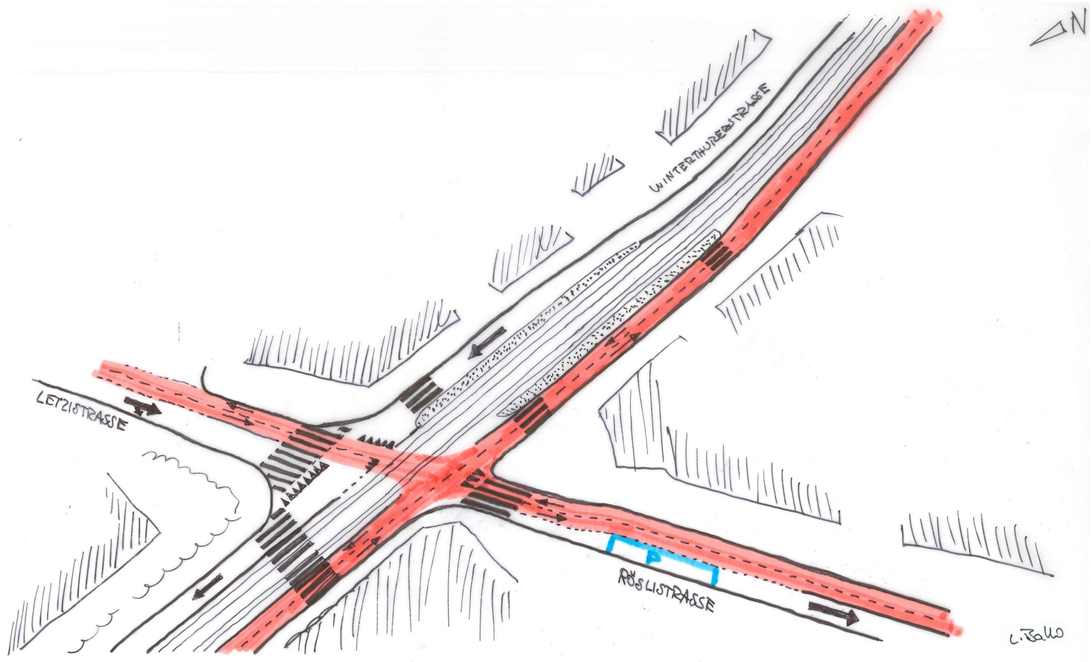

Fig. 5 Intersection with full cycling and public transport priority

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