Dutch Cycling Innovations: A Blueprint for Munich's Ostbahnhof

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Abstract

‚Bike and Ride' offers numerous social and environmental benefits including reduced energy use, air and noise pollution, as well as lower congestion levels on specific corridors and access routes to public transport stops (1). Furthermore the combined use of bicycle and public transport may also increase public transport ridership on specific lines, thereby strengthening the economic performance of these services (1). The Dutch experiences shows that promoting bike-and-ride in cities with a less well-developed bicycle infrastructure such as Munich could be a good start to shift the car oriented mentality of the people to a sutainable mobility culture. Through our project we try to address the question - how might we create a Bike and Ride (BnR) offer so that more people commute ‚Bike+Train+Bike' in Munich? Munich Ostbahnof is a major transportation hub serving approximately 300,000 residents within a 20-minute cycling radius. As studies have shown that bicycle use in access trips can be promoted by simply providing attractive bicycle parking facilities and infrastructure, our project proposes two solutions - 1) An intermodal mobility hub with secure bike parking and bike sharing system at the east entrance of Ostbahnof 2) Redesigning the car oriented Friedenstraße into a bicycle street (Fahrradstrasse).

Problem definition

Munich Ostbahnof is a major transportation hub serving approximately 300,000 residents within a 20-minute cycling radius. Even though the bike ownership in Munich is 83%, only 17% of all the trips made in an year is contributed by cycling. This is partially due to the lack of safe and convenient bike infrastructure and inadequate bike parking facilities around the Ostbahnof.

Parameters	Utrecht	Munich
Population	361,700	1.47 million
Bike ownership	93%	83%
Modal share of bike	27.6%	17%
Population share of daily bicycle users	51%	25%

How might we create a B+R offer so that more people commute Bike+Train+Bike in Munich?

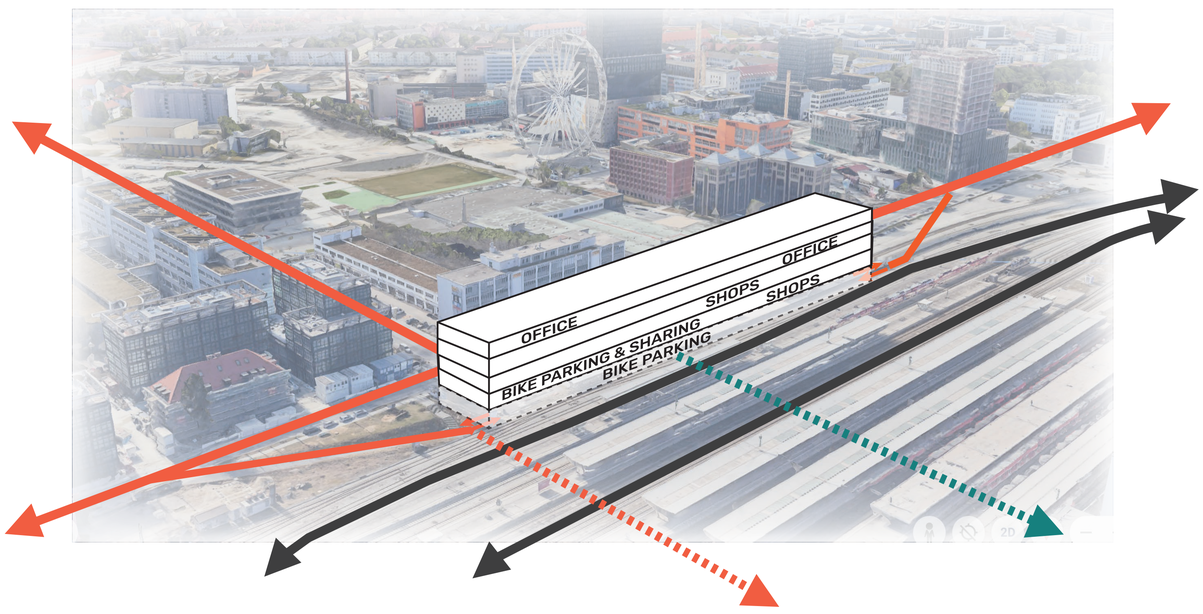
Establishing an intermodal mobility hub with secure bike parking at Friedenstraße.

Inspired by the Utrecht station, the intermodal mobility hub at Friedenstraße will feature a bike parking garage with a capacity of around 4,000 spaces, a bike-sharing system, and additional space for information and leisure activities. To fully realize the benefits of this hub, it is essential to improve the surrounding cycling infrastructure.

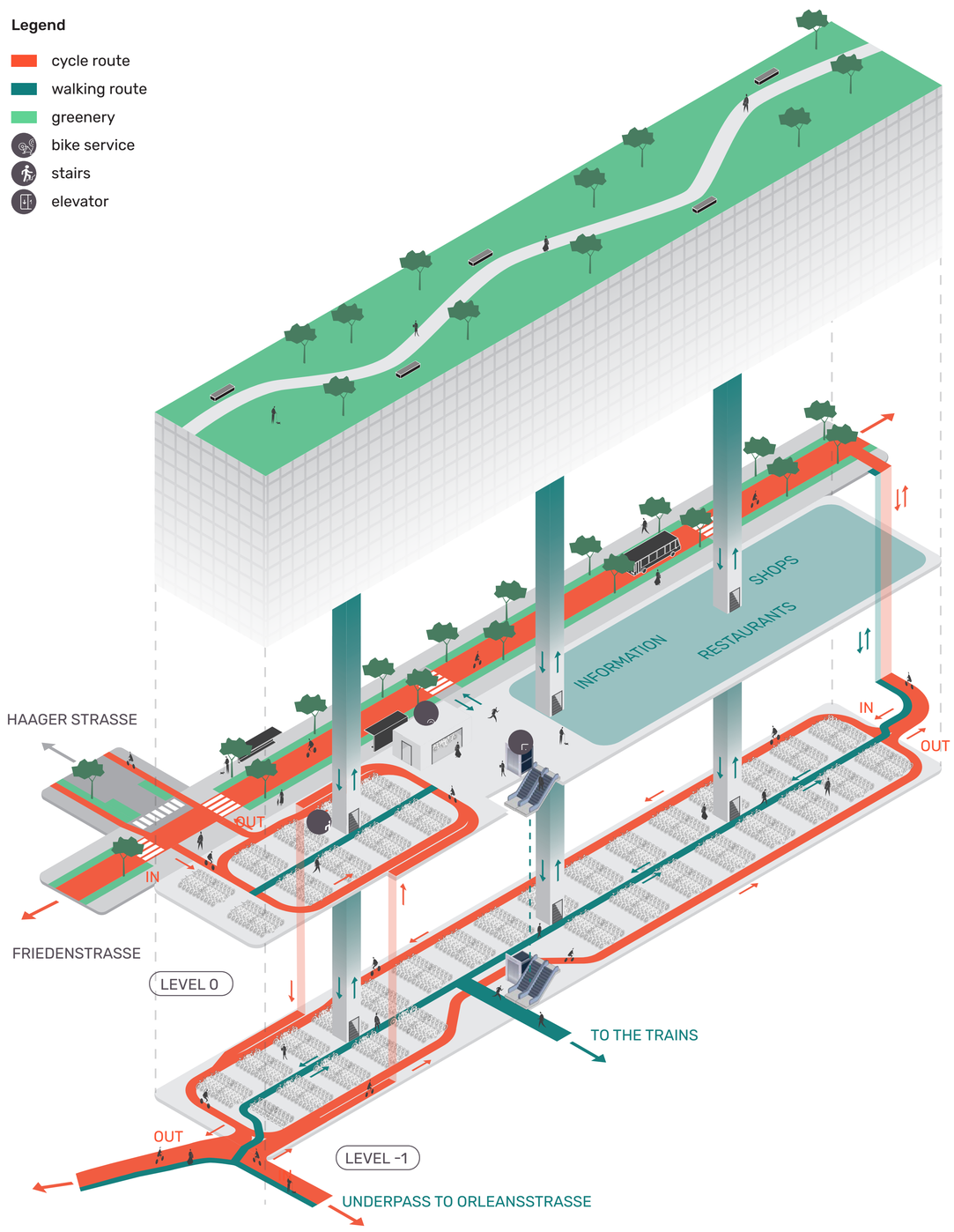
Redesigning the car-friendly Friedenstraße into a bike and pedestrian-oriented street.

Currently, Friedenstraße is a car-oriented street lacking convenient and safe bikeways. Our proposal aims to transform the Friedenstrasse into a ‚Fahrradstraße,' creating a car-free street that prioritizes cyclists, pedestrians, and bus passengers.

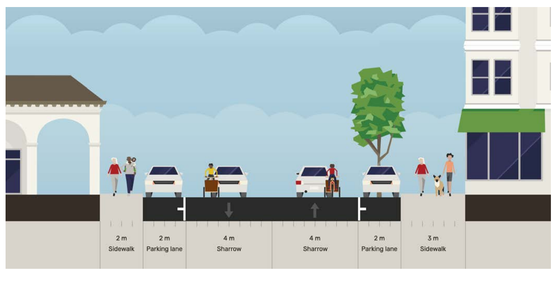
Sketch of the Mobility HUB

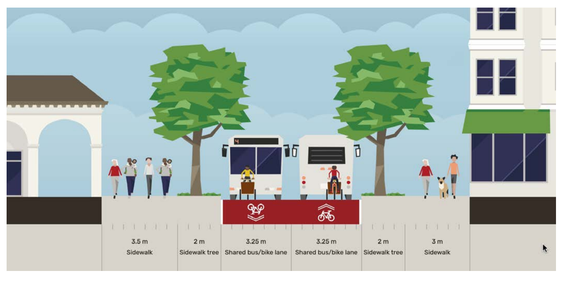


Model of the Mobility HUB



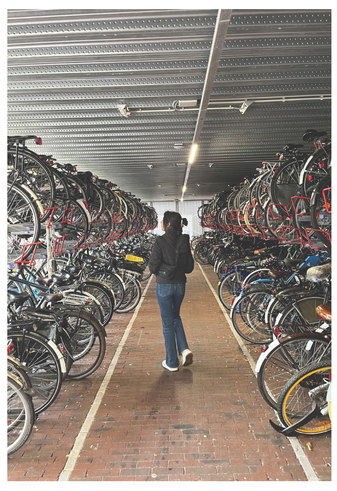
Redesign of Friedenstraße





Dutch solutions as inspiration

The Netherlands is well-known for its extensive cycling infrastructure. Through our 9-day excursion within the Randstad region in the Netherlands, we were particularly inspired by the Utrecht bike parking garage, the world's largest bike parking that offers secure and convenient facilities for thousands of bicycles along with its impressive bike network design. We experienced the convenience and safety of parking bikes at the stations and the smooth transition to public transport. Additionally, Dutch cities emphasize pedestrian and bike-oriented street design, prioritizing wide, dedicated bike lanes, traffic-calming measures, and safe crossings to create a seamless and enjoyable cycling experience. The OV-fiets bike-sharing system further enhanced this by providing an easy-to-use bike-sharing service integrated with public transport, encouraging multi-modal commuting.



Impacts and Conflicts

Impacts

- Possibility of modal shift from cars to cycling: 15% of the car trips were replaced by BnR by the provision of better bike parking garages and bike infrastructure (Survey in the Netherlands)
- Reduction in energy use, air and noise pollution, as well as lower congestion levels on specific corridors and access routes to public transport stops
- Increase in user satisfaction (more convenience
- Increased economic performance of the PT Services contributed by increased PT ridership.

Conflicts

- Less ingrained cycling culture and car oriented mindset of the people in Germany.

Sources:
(1) Martens, Karel (2007): Promoting bike-and-ride: The Dutch experience. In Transportation Research Part A: Policy and Practice 41 (4), pp. 326–338. DOI: 10.1016/j.tra.2006.09.010.

(2) Population Munich and Utrecht (Census 2019)

(3) Data in the table: Civitas, MiD, EU urban mobility observer

(4) Modal split Munich : Civitas

(5)Modal split Utrecht : Rad Entscheid Bonn

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