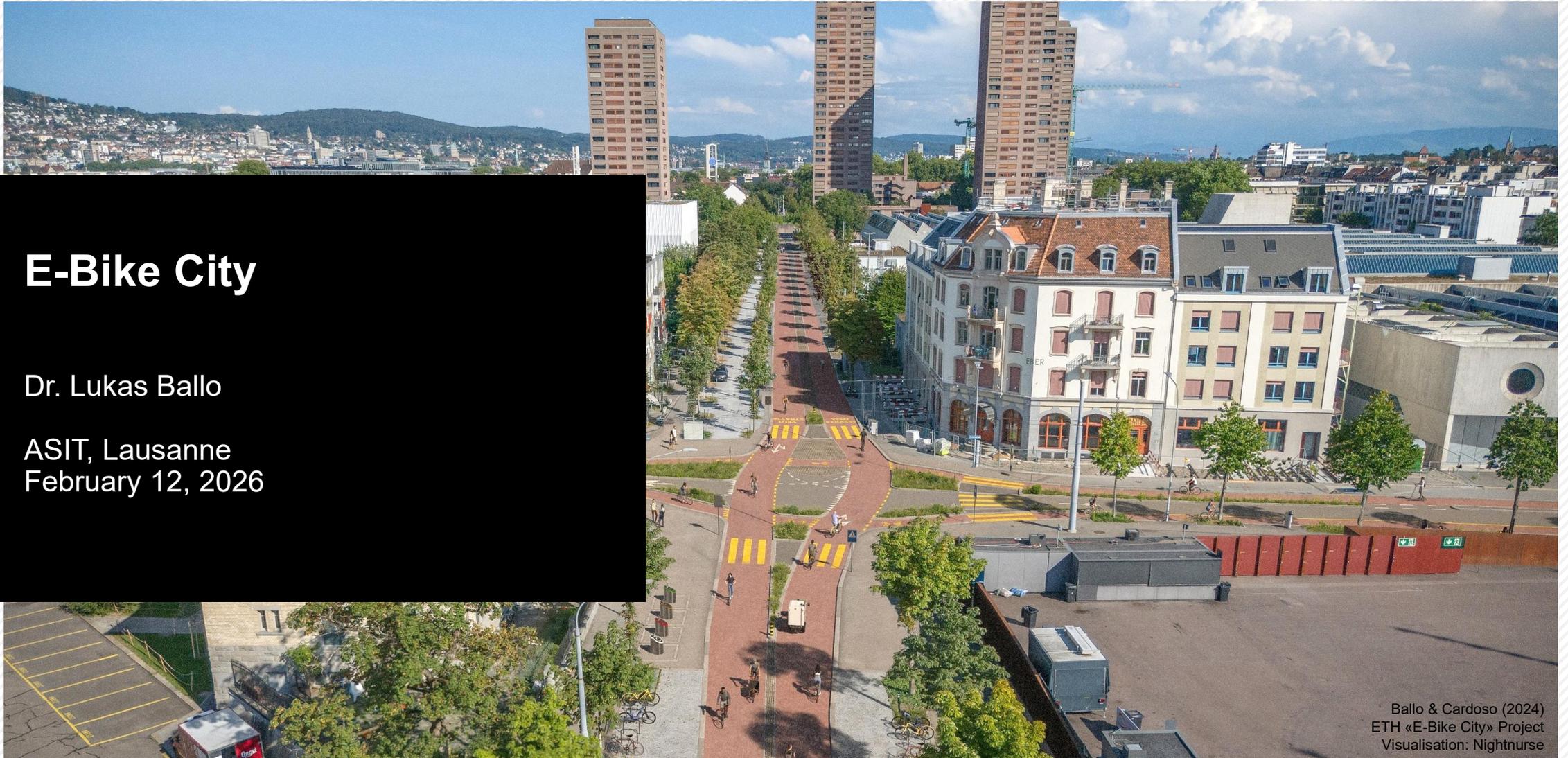


E-Bike City

Dr. Lukas Ballo

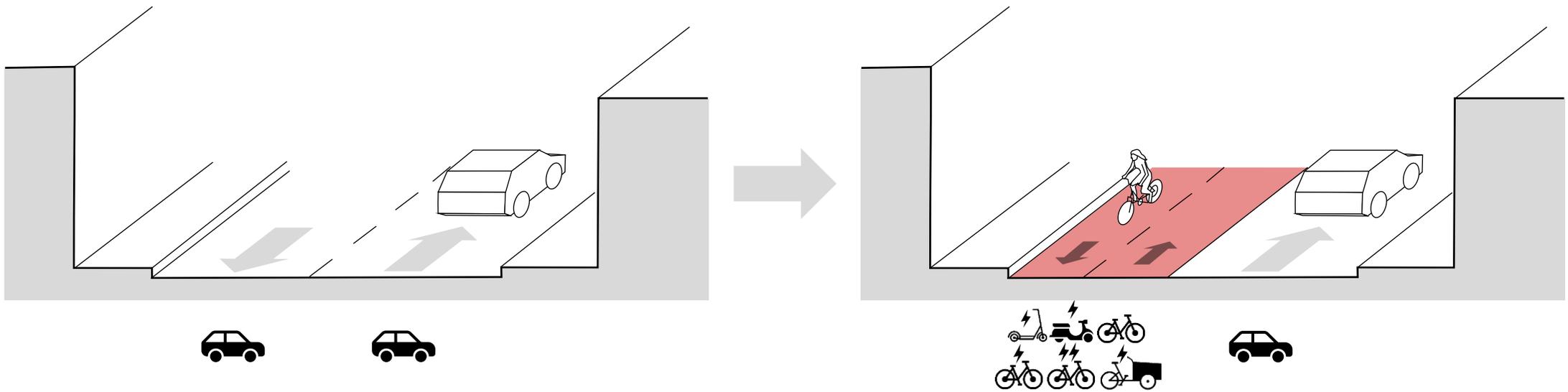
ASIT, Lausanne
February 12, 2026



Ballo & Cardoso (2024)
ETH «E-Bike City» Project
Visualisation: Nighthurse



But can it work?



Ballo, L., L. Meyer de Freitas, A. Meister and K.W. Axhausen (2023) The E-Bike City as a radical shift toward zero-emission transport: Sustainable? Equitable? Desirable?, *Journal of Transport Geography*, **111**, 103663.

Can we just let AI design it?



Leadership



Prof. Kay Axhausen



Prof. Bryan Adey



Prof. Michel Bierlaire



Prof. Francesco Corman



Prof. Stefanie Hellweg



Prof. David Kaufmann



Dr. Anastasios Kouvelas



Prof. Stephan Pfister



Prof. Martin Raubal

Research



Lukas Ballo



Florian Fuchs



Ayda Grisiute



Clarissa Livingston



Adrian Meister



Lucas Meyer de Freitas



Dr. Marco Miotti



Ying-Chuan Ni



Vanessa Schenker



Claudia Sinatra



Dr. Michael Wicki



Nina Wiedemann



David Zani

Coordination



Dr. Catherine Elliot

Press Relations



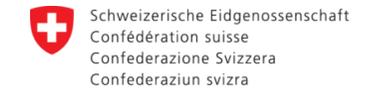
Iris Mickein

Webmaster



Patrick Scherer

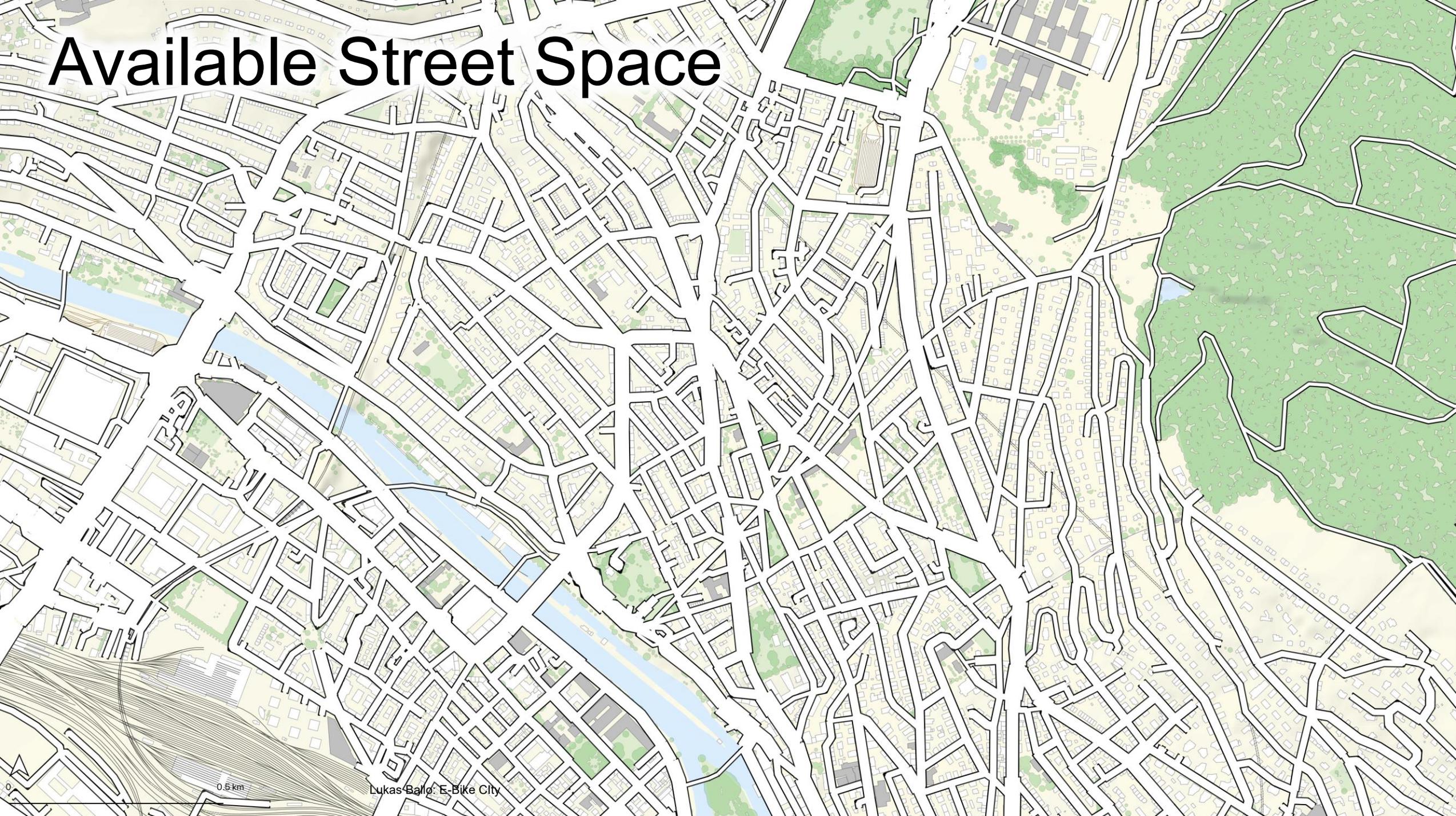
Funding



Bundesamt für Energie BFE



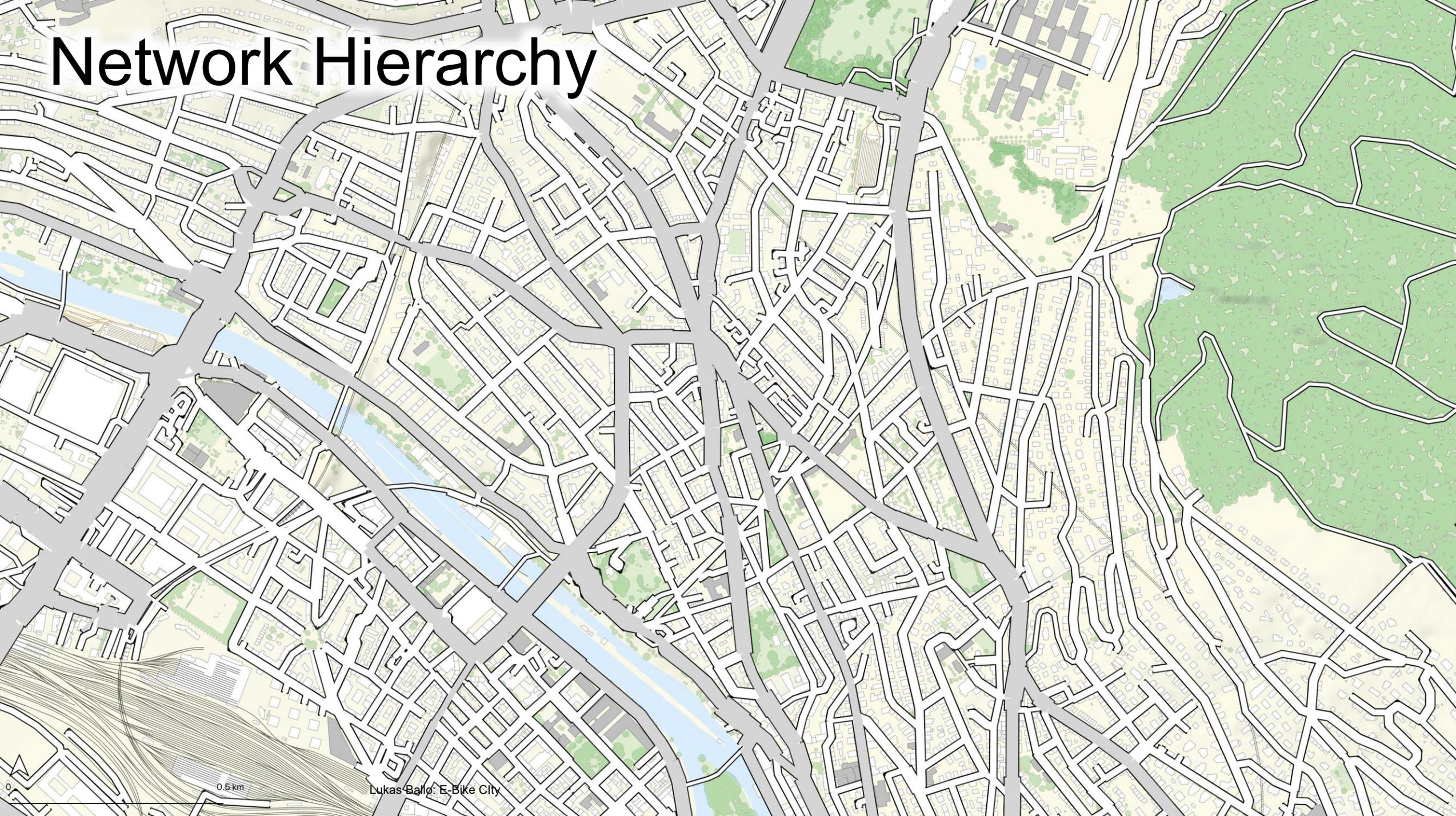
Available Street Space



0.5 km

Lukas Ballo: E-Bike City

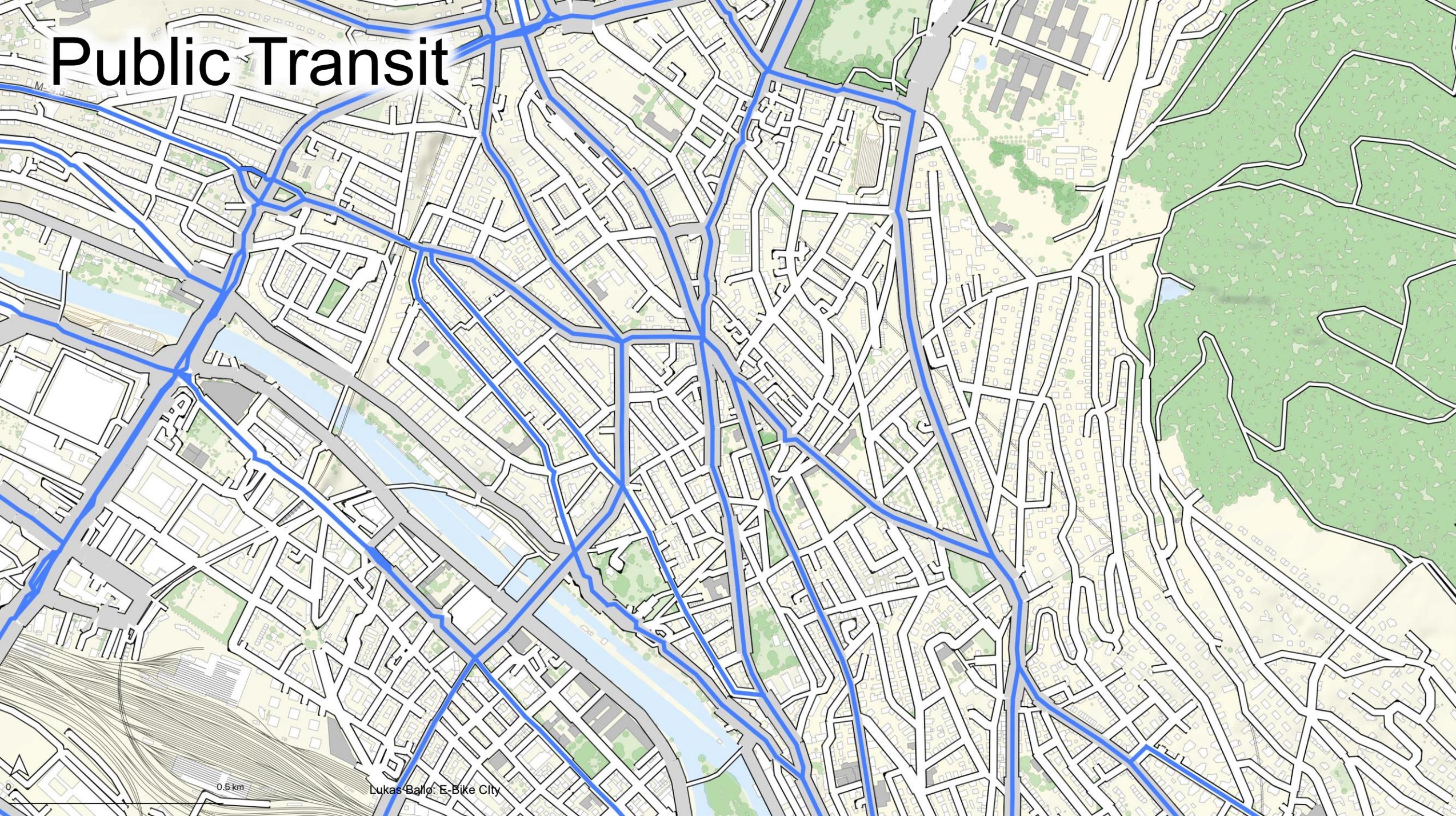
Network Hierarchy



0.5 km

Lukas Ballo: E-Bike City

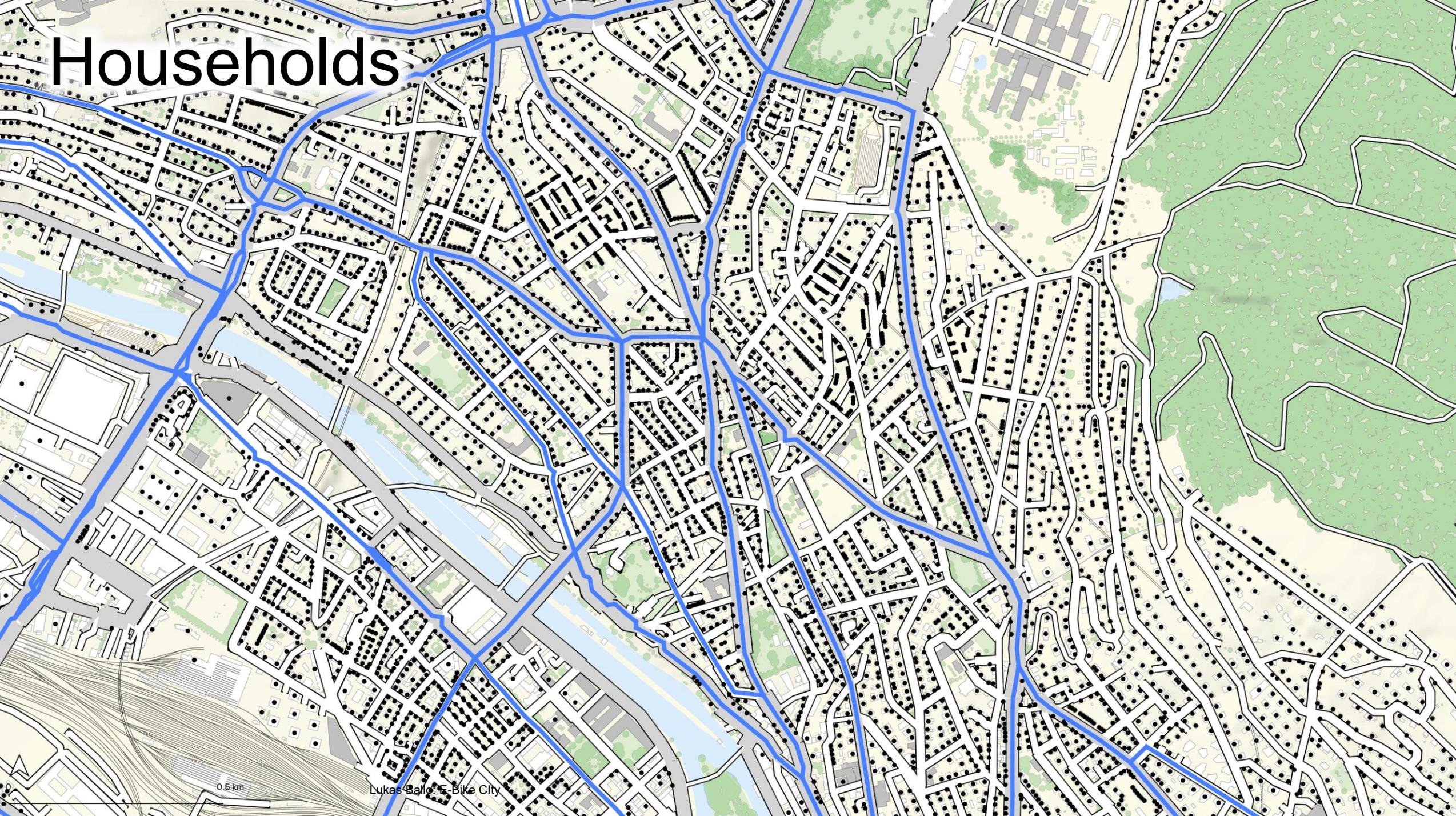
Public Transit



0.5 km

Lukas Ballo: E-Bike City

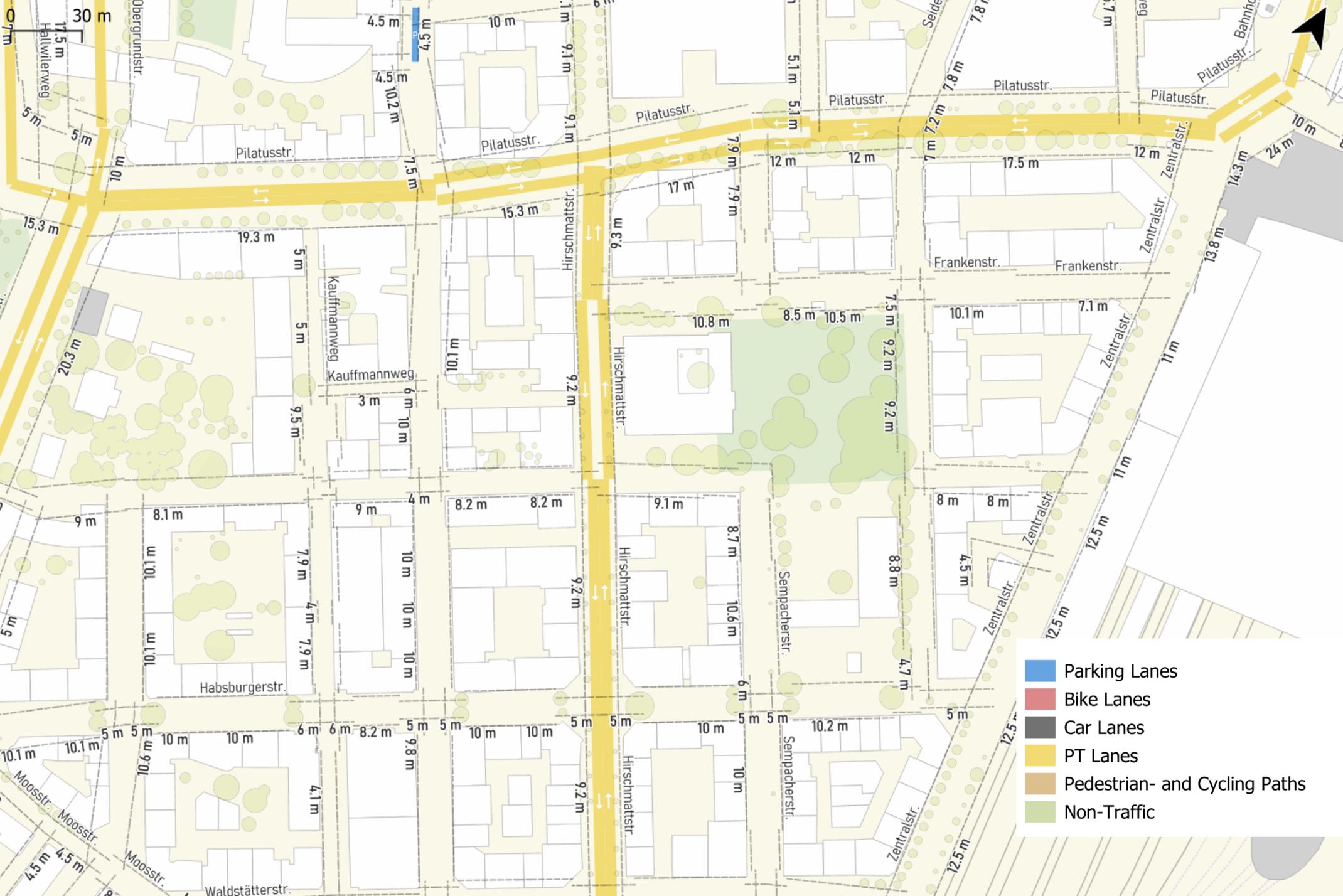
Households

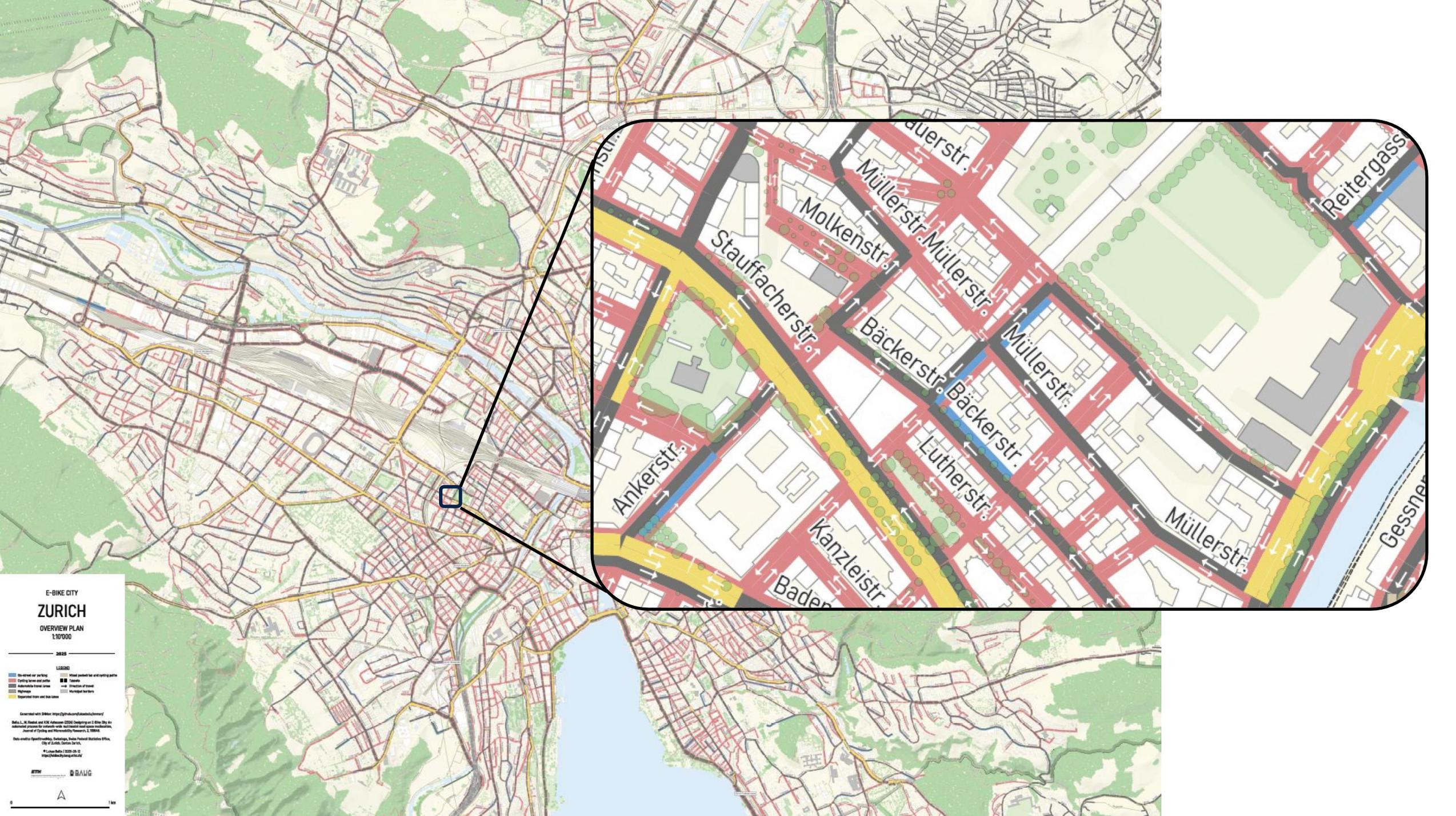


0.5 km

Lukas Baller, Bike City

Fiktive Variante zur Veranschaulichung



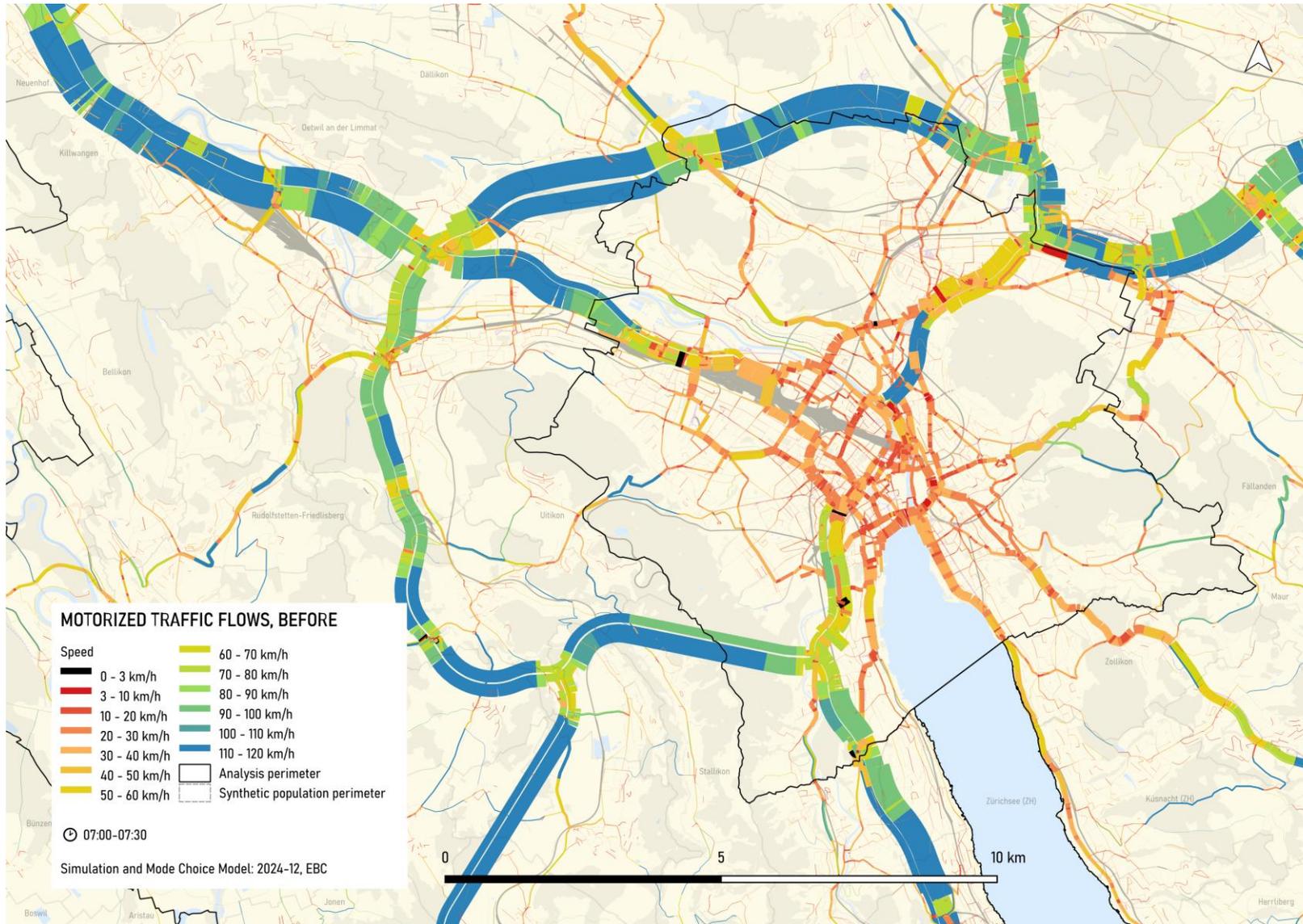


E-BIKE CITY
ZÜRICH
 OVERVIEW PLAN
 1:10'000

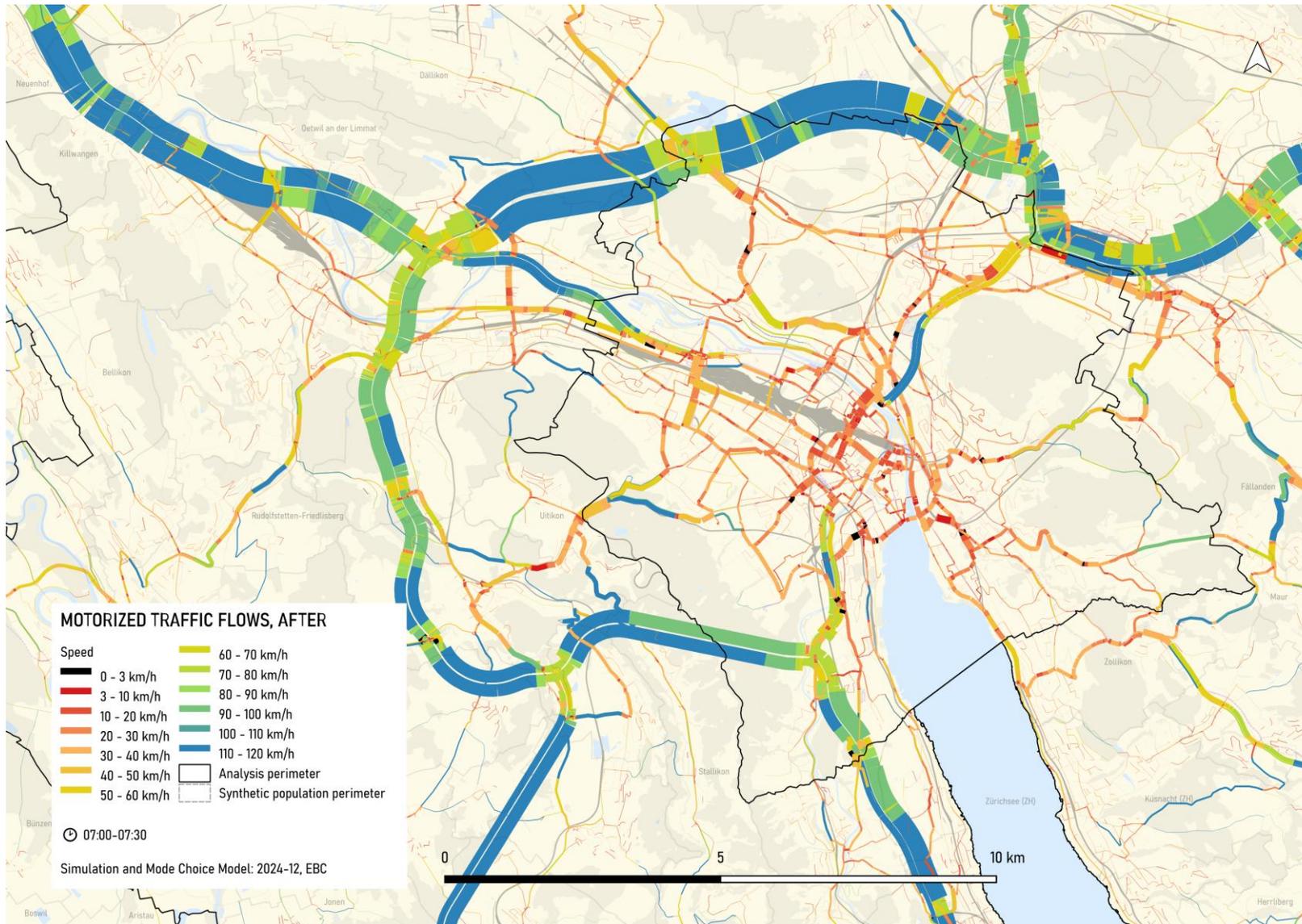
- 2023
- | | |
|-----------------------------|-------------------------------------|
| One-way car parking | Visual pedestrian and cycling paths |
| Central bus and tram | Roads |
| Administrative road zone | Direction of travel |
| Highway | Municipal barriers |
| Separated tram and bus lane | |

Generated with QGIS from <https://data.geo.admin.ch/geo.admin.ch/geo.admin.ch>
 Data: L. M. Fischer and S.M. Adenauer (2020) *Challenges on E-Bike City An*
 additional proposal for e-bike lanes with road and cycle lane reallocation,
Journal of Cycling and Micro-mobility Research, 1, 2024.
 Data source: OpenStreetMap, Swisstopo, Swiss Federal Statistical Office,
 City of Zurich, Swiss Survey,
 © L. M. Fischer | 2023-24-25
<https://mobilitylab.ch/>

Motorized traffic: Before



Motorized traffic: E-Bike City





Ballo & Cardoso (2024)
Visualization: Nightnurse



Revolutionizing Planning



ETH zürich

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

BRIDGE *IVT*

MIE lab
Mobility Information Engineering
Lab at ETH Zurich

TALENT KICK 

SMARTCITY
EXPO WORLD CONGRESS


POLIS
CITIES AND REGIONS FOR TRANSPORT INNOVATION

LSE **Cities**

 **Hackney**


teamred

 **PLANOPTIMO**
Büro Dr. Köll ZT-GmbH

 **Stadt
Luzern**

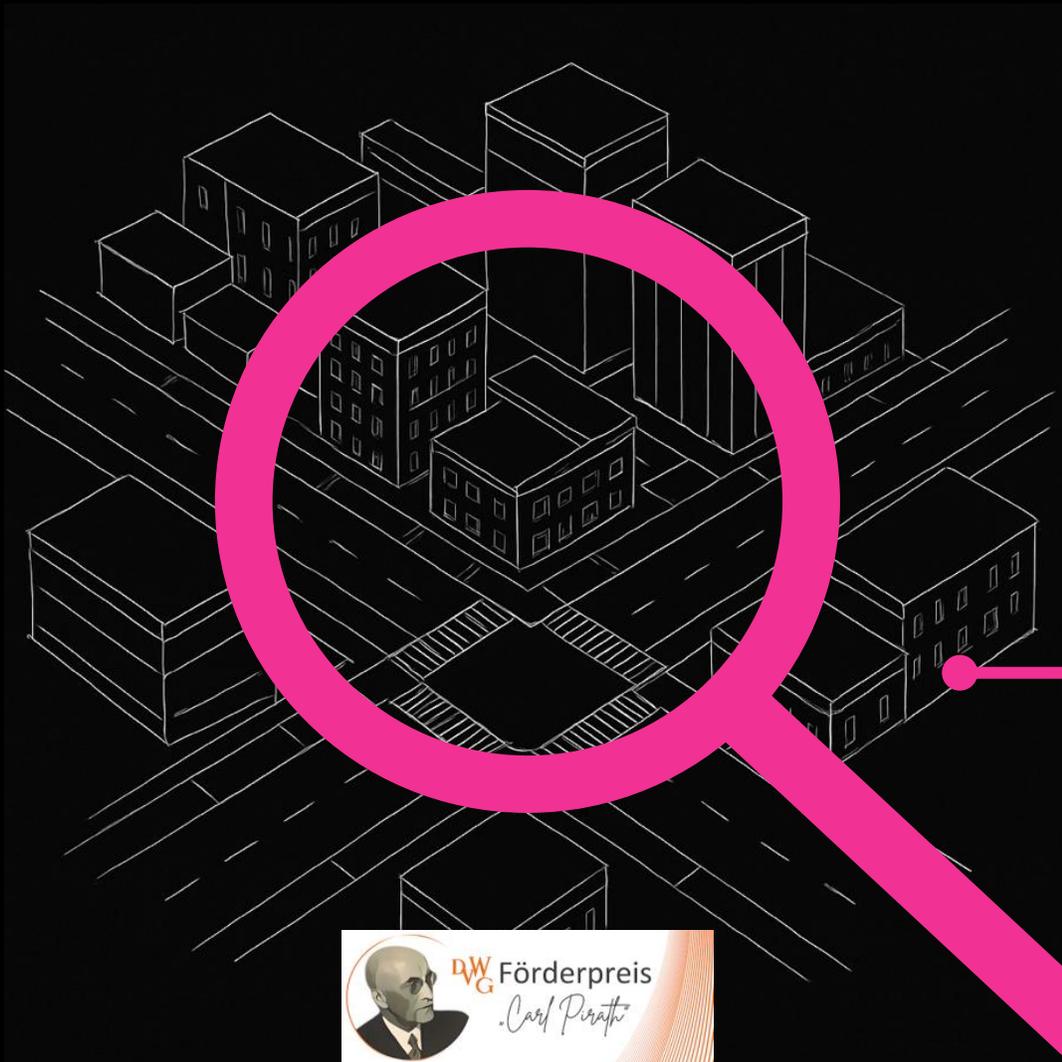
HSLU Hochschule
Luzern


venturelab
World-class startups. Sales made.

N!



Traffic calming with one-way streets



ETH zürich



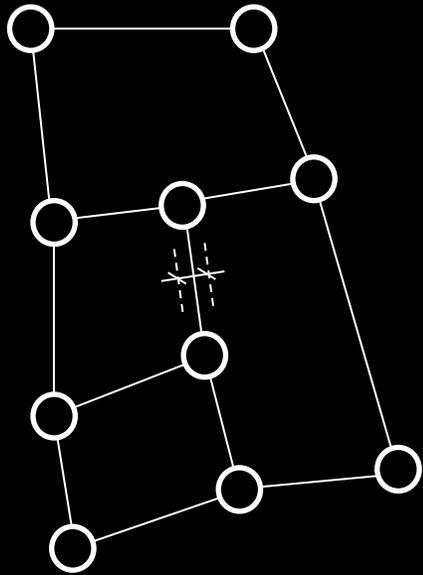
DWG Förderpreis
Carl Pirath
Für ingenieurwissenschaftliche
Dissertationen und
Forschungsprojekte

Claude  ChatGPT

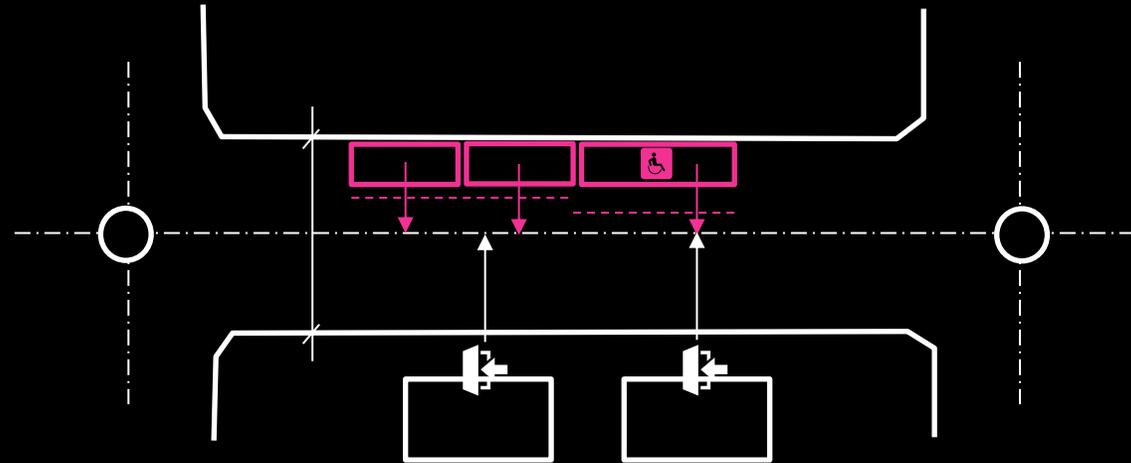


Your Question...

Key elements



Networks



Knowledge graph
(elements and relationships)

“Parking Spots must have a safety buffer of min. 1.2 meters if they are for persons with disabilities and on residential streets”

Rules



N! Agent Chat

👋 I'm N!, goNEON's AI agent for parking design. I help you design on-street parking in minutes instead of weeks.

🚗 What I can do:

Adjust parking spot widths (2.0m - 4.0m)

Modify safety margins for car doors (0.5m - 2.0m)

Visualize remaining roadway space

Currently showing **Central Zürich** with 527 parking spots. Try the suggestions below!

Try these commands:

📍 Design Design parking with 2.5m s...

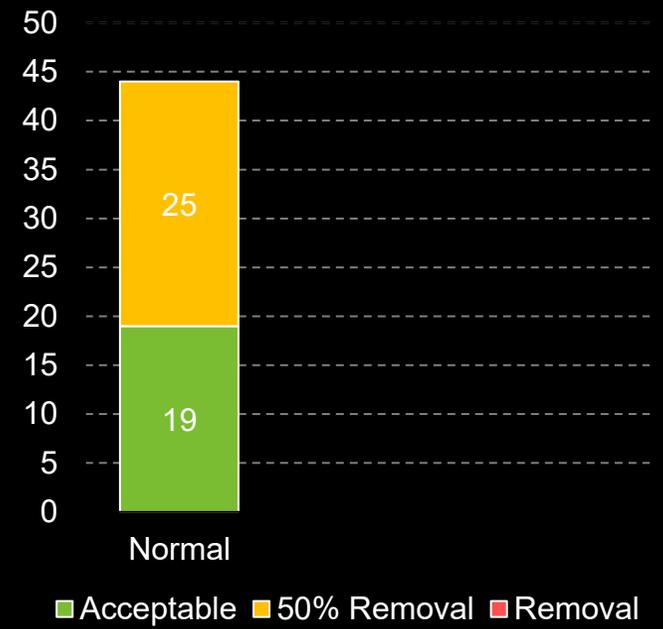
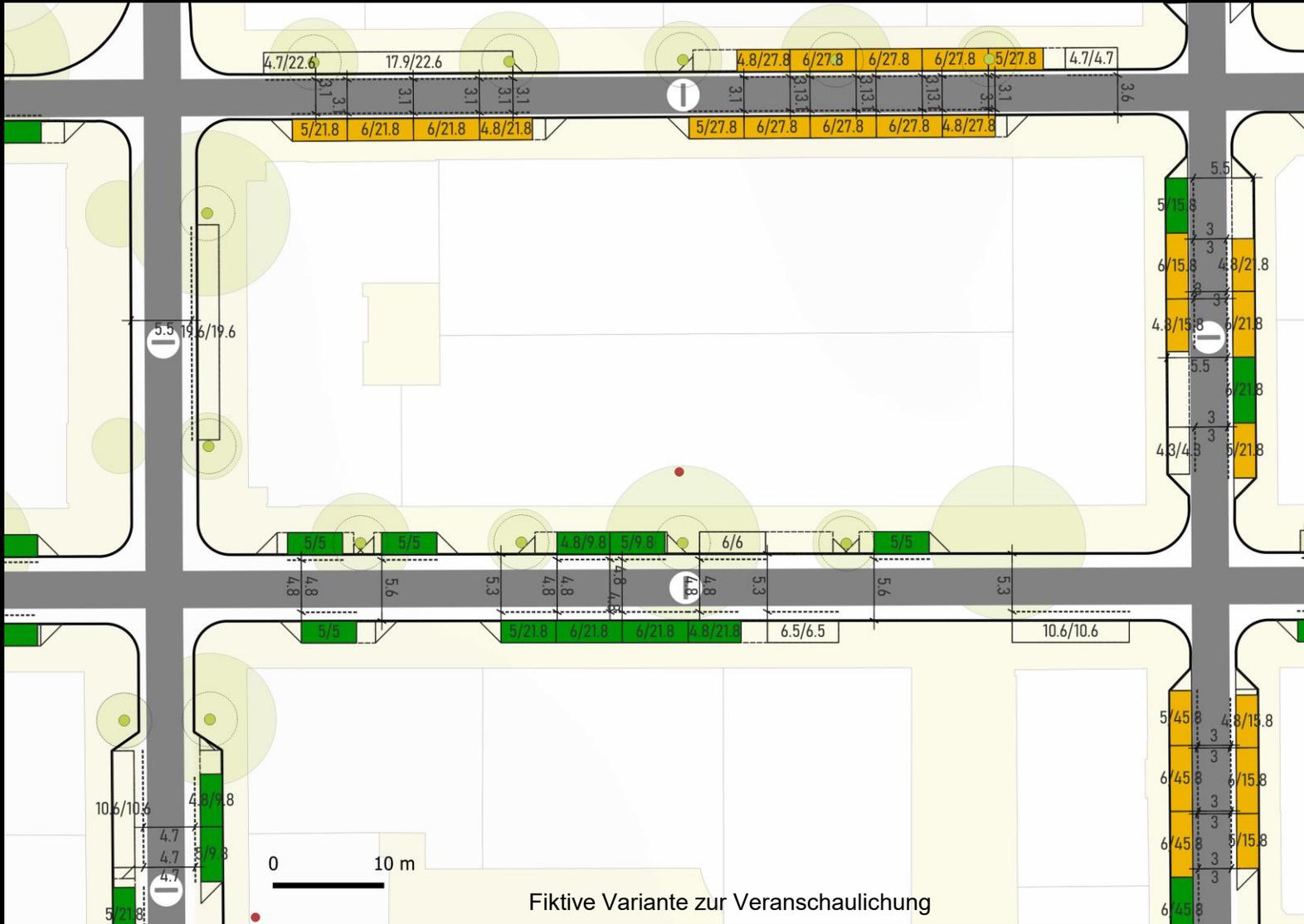
🚗 Safety

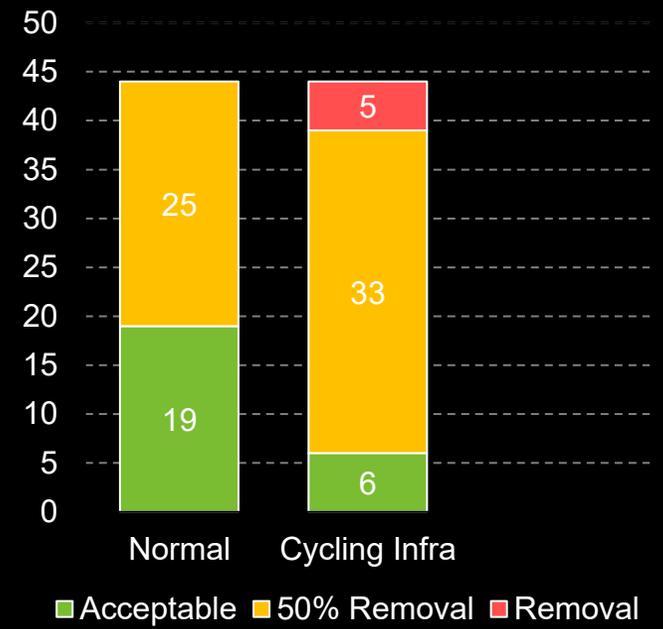
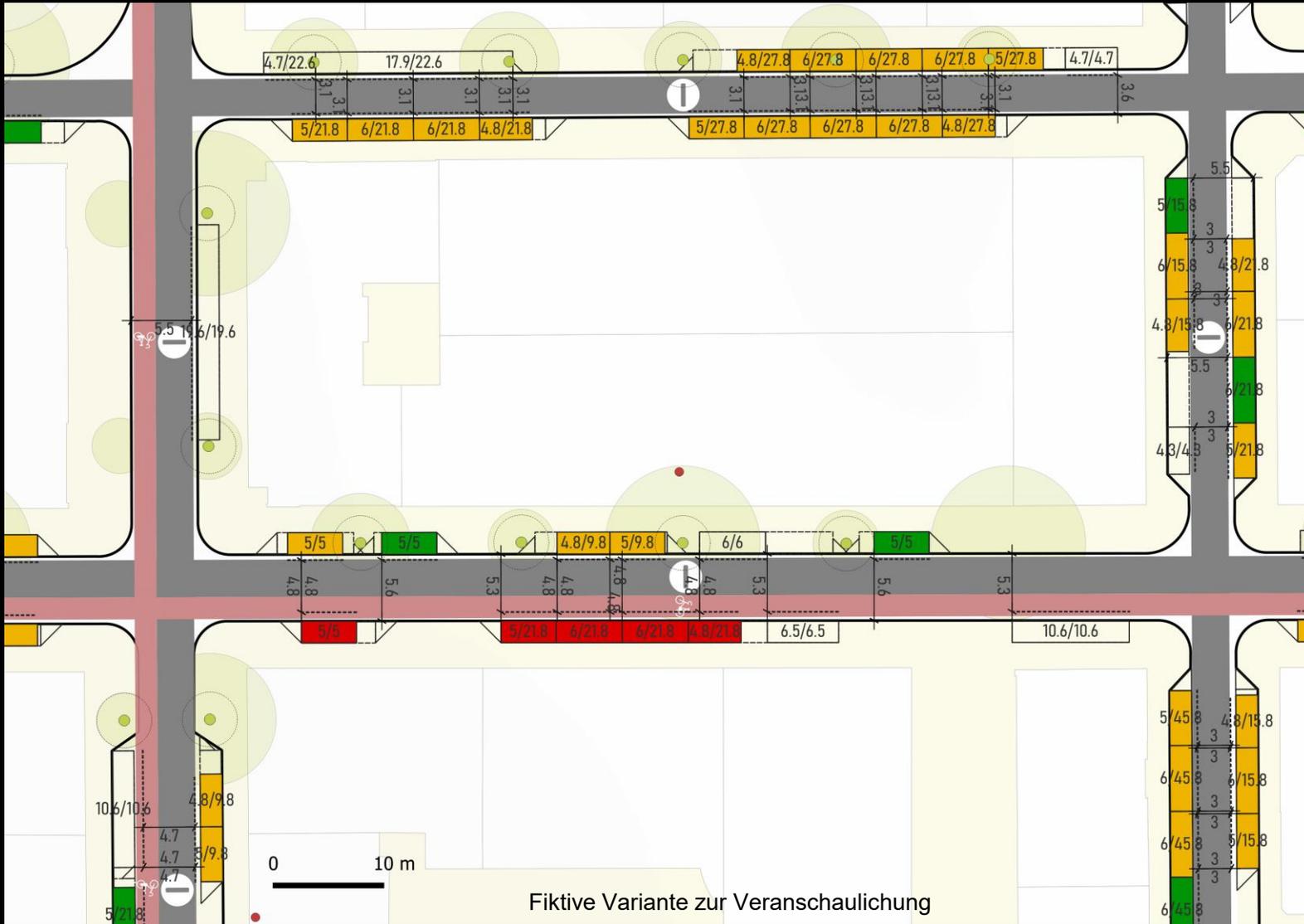
Ask me to design or modify parking spots... ➤

MAP



Zürich
Google Maps







N! (Network)

Now · +222 -3 · Opus 4.5

Rebuild the north-east part of Pinneberg: Create a one-way street system that reduces through-traffic, but ensure that every street is still open for car access.

Thought for 2s

Running command: `cd, /opt/miniconda3/envs/goneon-core/bin/python`

```
$ export DATA_PATH='/Users/lballo/Library/CloudStorage/OneDrive-
Personal/SHARED/AGIR00/PROJECTS/18 Pinneberg TR/04 DATA' && cd '/
Users/lballo/Library/CloudStorage/OneDrive-Personal/SHARED/AGIR00/
PROJECTS/18 Pinneberg TR/03 GIT/lukas/goneon_core' && /opt/
miniconda3/envs/goneon-core/bin/python << 'EOF'
import importlib.util
```

```
spec = importlib.util.spec_from_file_location(
    "agent_tools",
    "projects/18_pinneberg_tr/polis_agent/agent_tools.py"
)
```

```
agent_tools = importlib.util.module_from_spec(spec)
spec.loader.exec_module(agent_tools)
```

```
result = agent_tools.redesign_network_rebuild(
    region_names=['nord-ost'],
    removal_priority_cars='highest_centrality',
    maintain_car_access_along_streets=True
)
```

```
print(result)
EOF
```

Run Everything

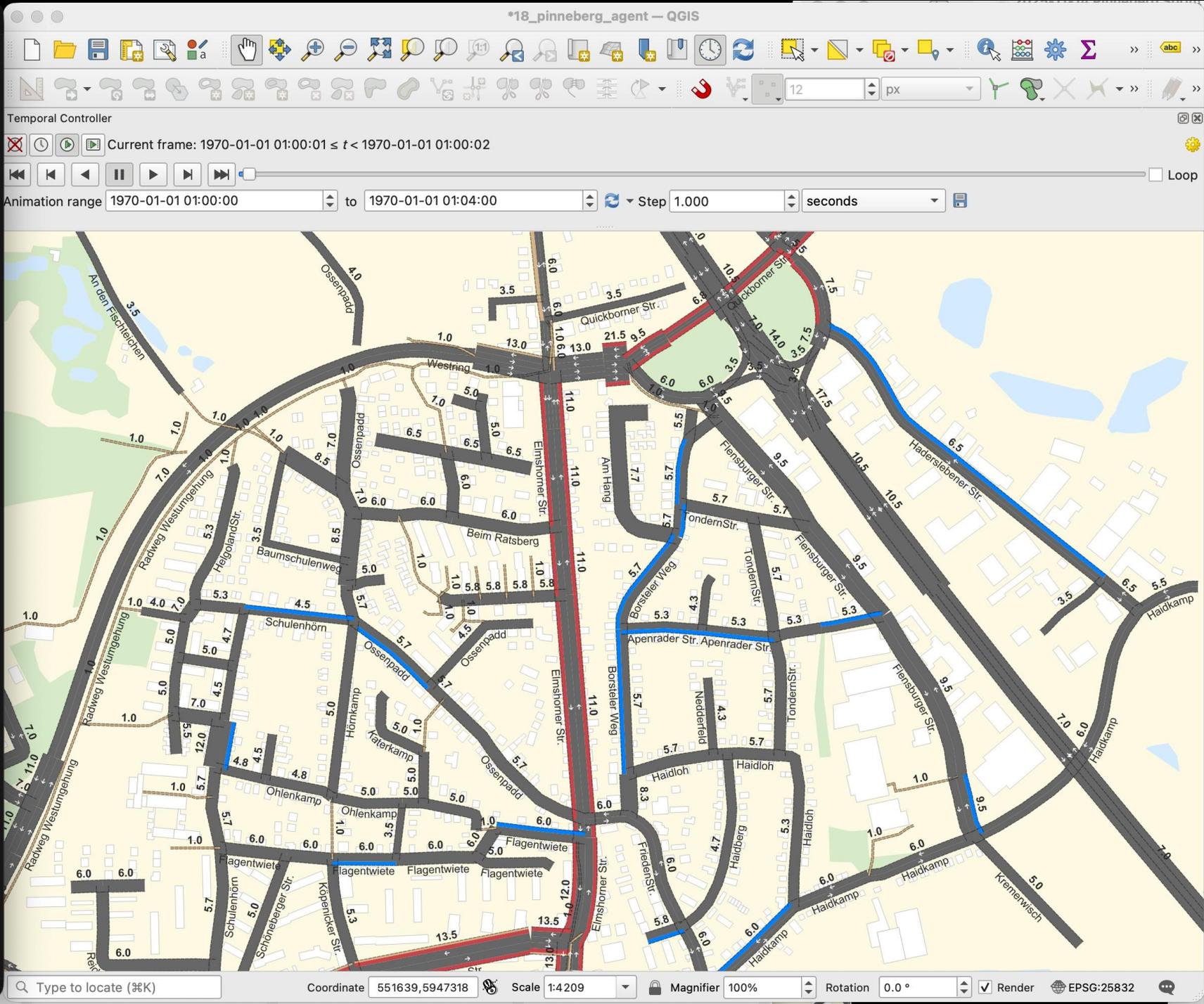
Cancel

> 2 Files

Stop Review

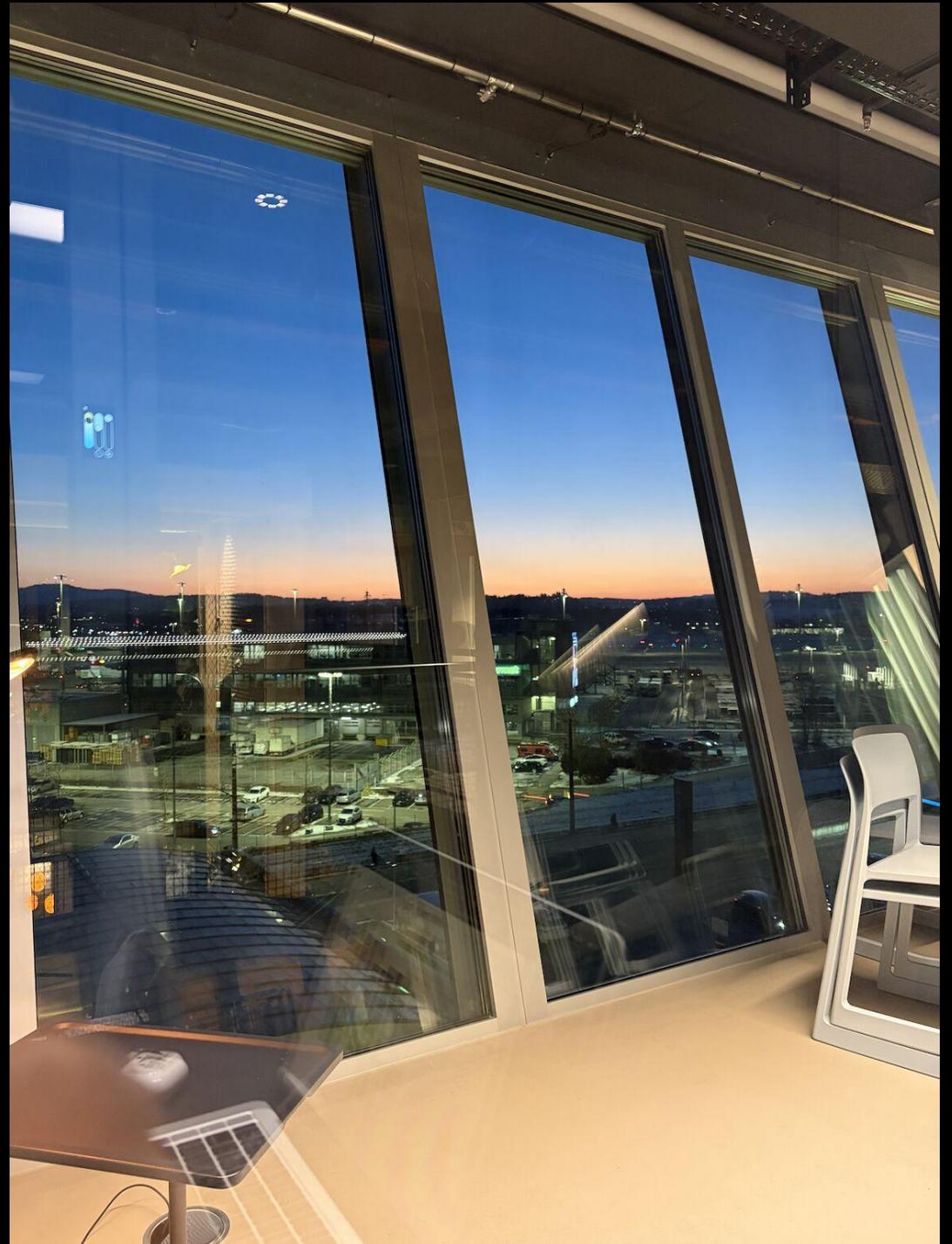
Add a follow-up

Agent Opus 4.5 1x









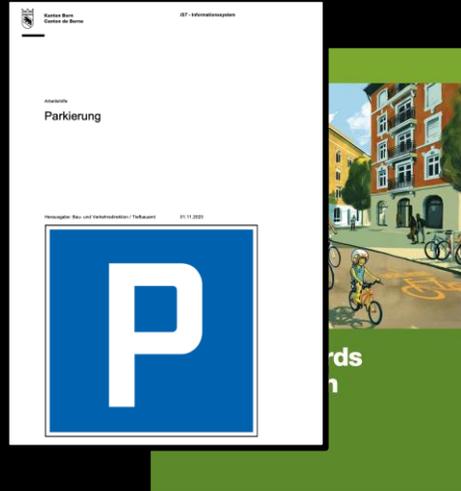
goNEON
989 Follower:innen
[Anmelden](#)
1 Monat · Bearbeitet ·

🚀 First day at our new office !!
Today, the goNEON team moved into our new home at **Novu Campus**, right in **The Circle** at Zurich Airport.
New space. New energy. Same mission: building **N!**, our agentic planning engine 🌟 turning regulatory, ... m

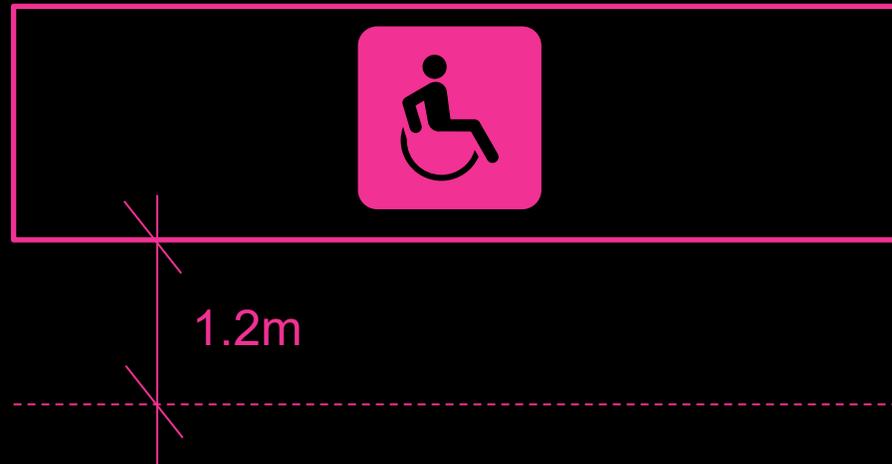
Übersetzung anzeigen



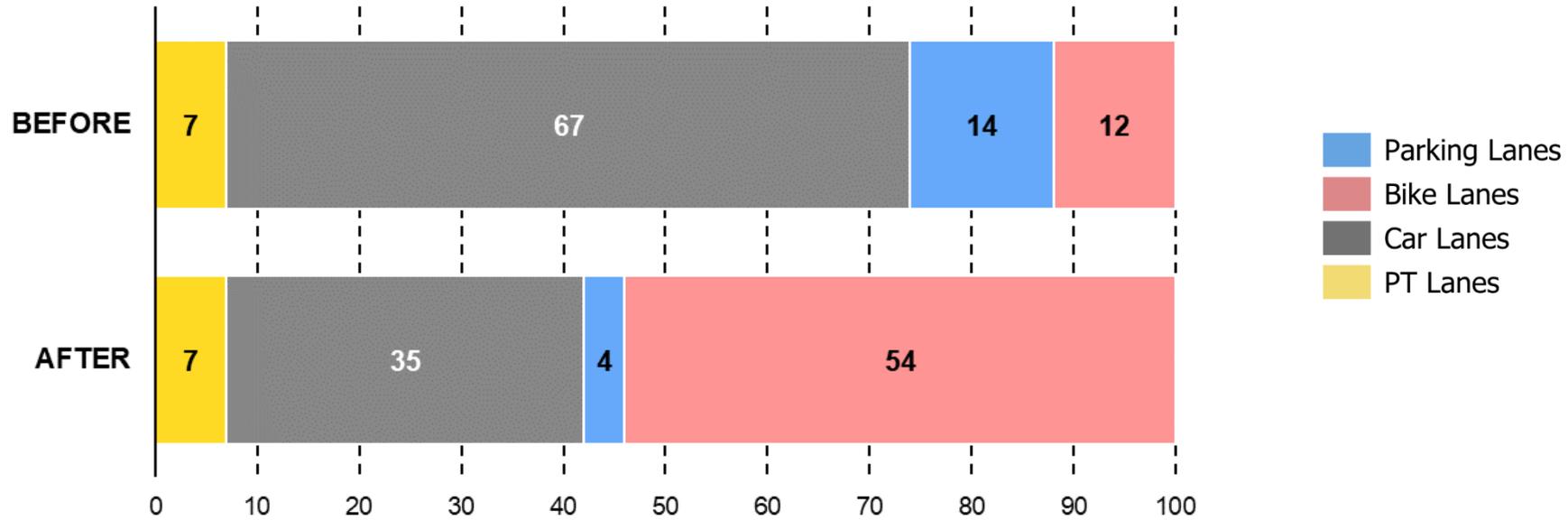
Backup



“Parking for persons with disabilities requires an extended safety margin of 1.2 meters. On residential streets, it can be part of the roadway.”



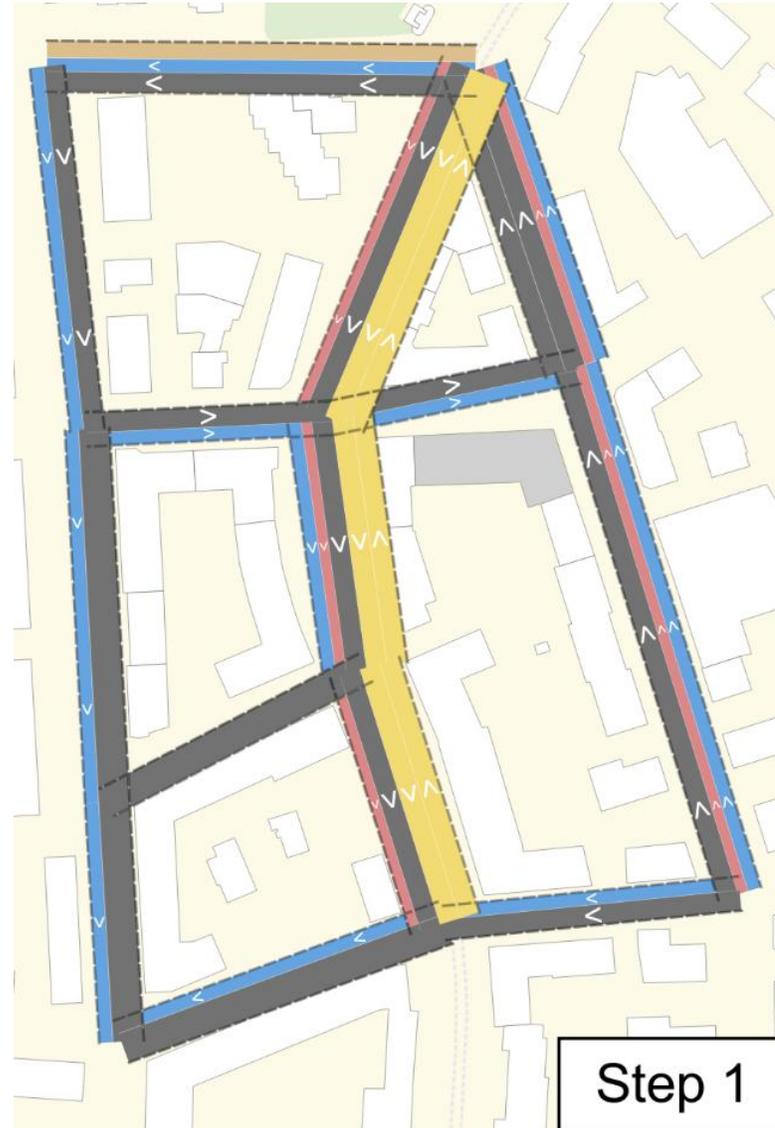
Road space allocation in %



Detours:

	Before	E-Bike City	Difference in detours
Motorized traffic	4.563	7.412	+35.7%
Cycling	5.391	5.334	-1.1%
Cycling (Comfort-Adjusted)	4.824	3.661	-24.1%

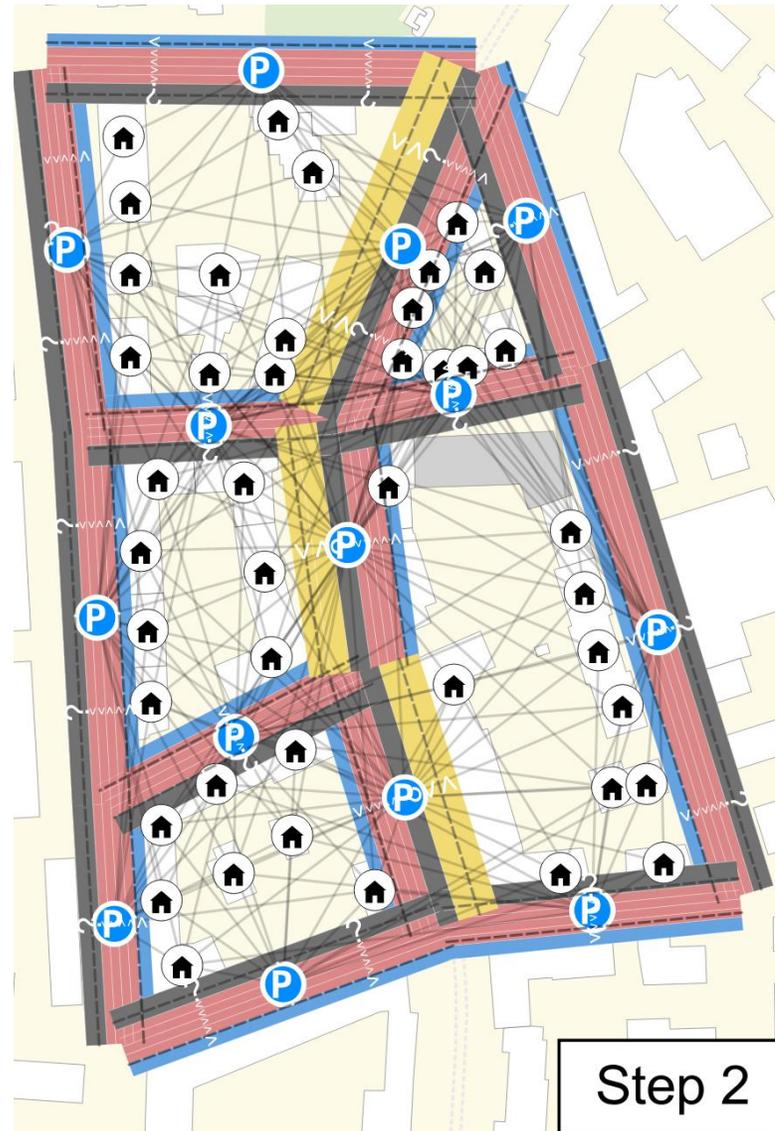
(1) Original Network



--- Road space widths

- █ Parking Lanes
- █ Bike Lanes
- █ Car Lanes
- █ PT Lanes

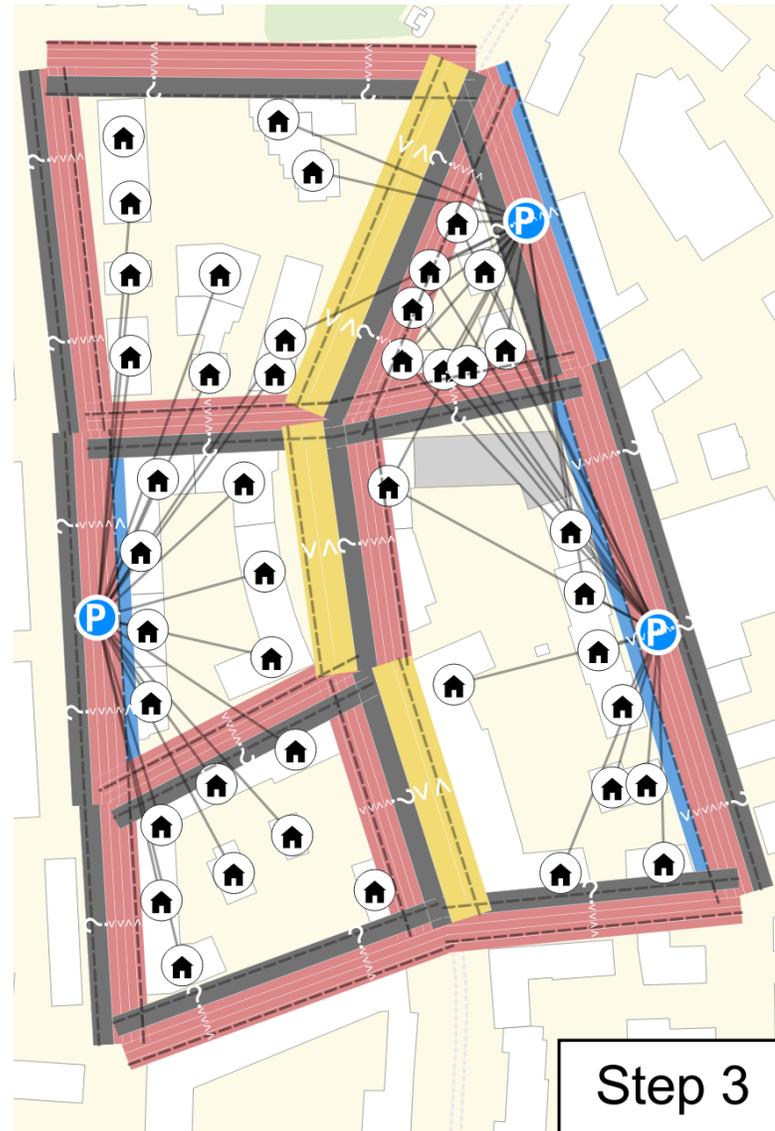
(2) Wish Lists



--- Road space widths

-  Parking Lanes
-  Bike Lanes
-  Car Lanes
-  PT Lanes

(3) Allocation of On-Street Parking



--- Road space widths

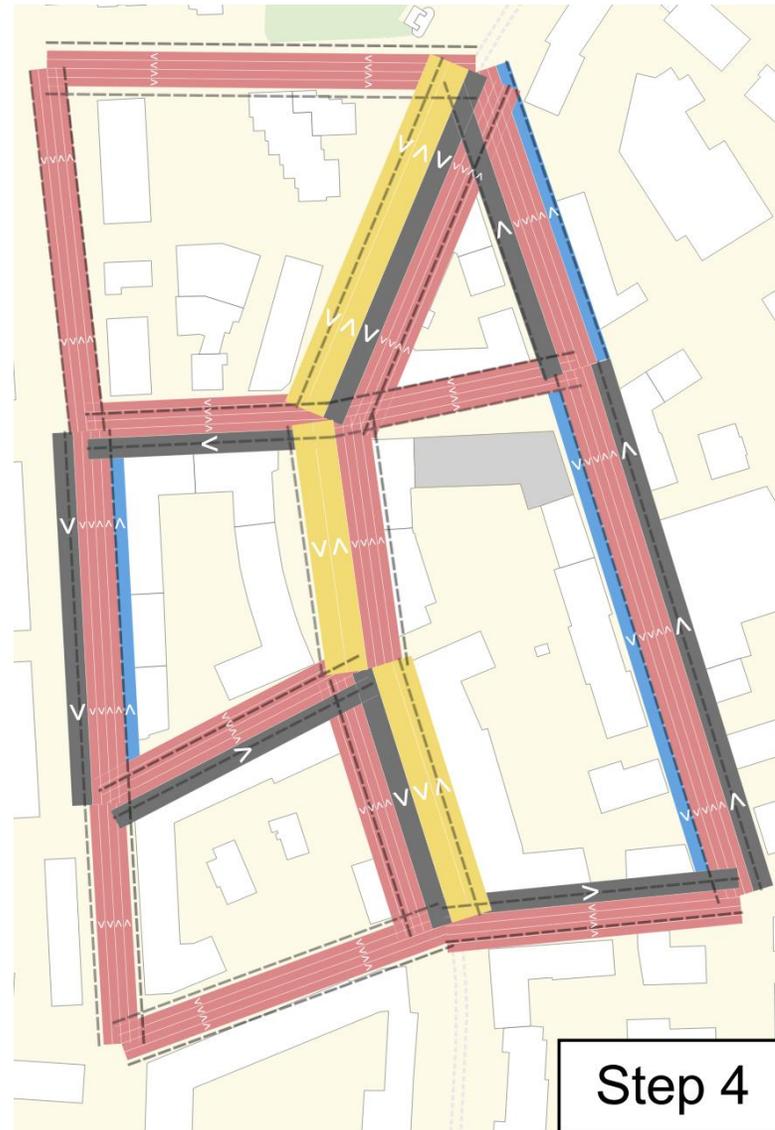
■ Parking Lanes

■ Bike Lanes

■ Car Lanes

■ PT Lanes

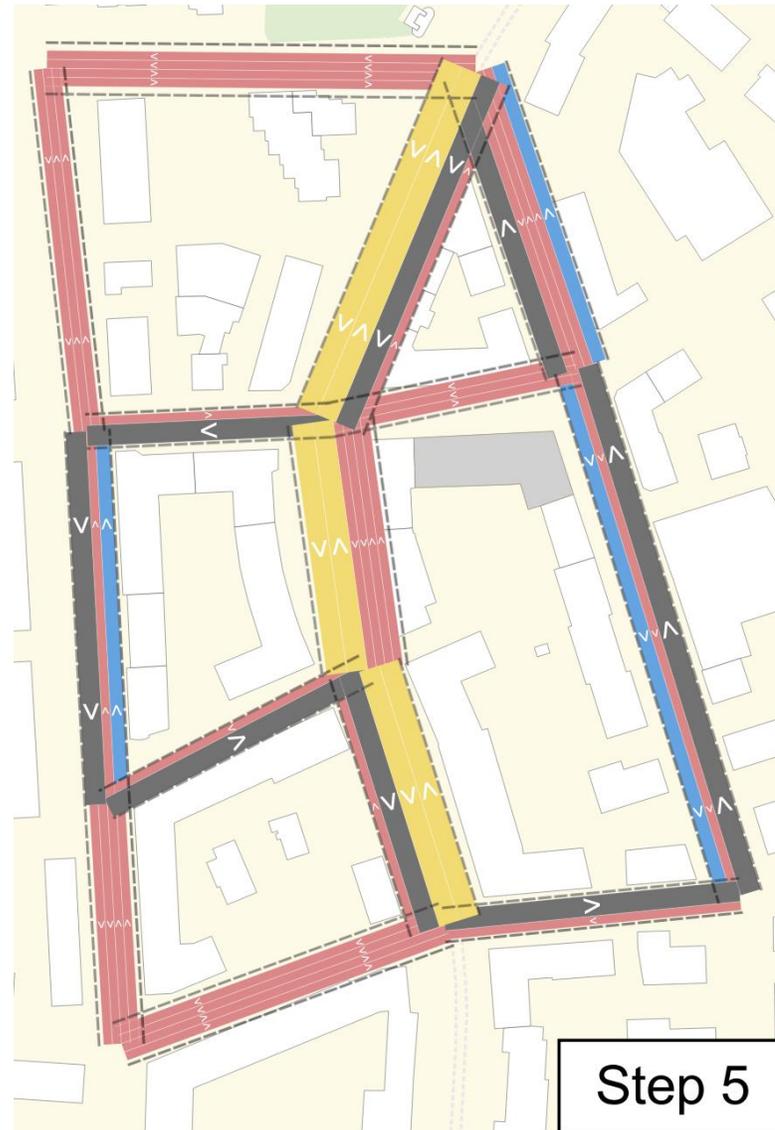
(4) Allocation of Travel Lanes



--- Road space widths

-  Parking Lanes
-  Bike Lanes
-  Car Lanes
-  PT Lanes

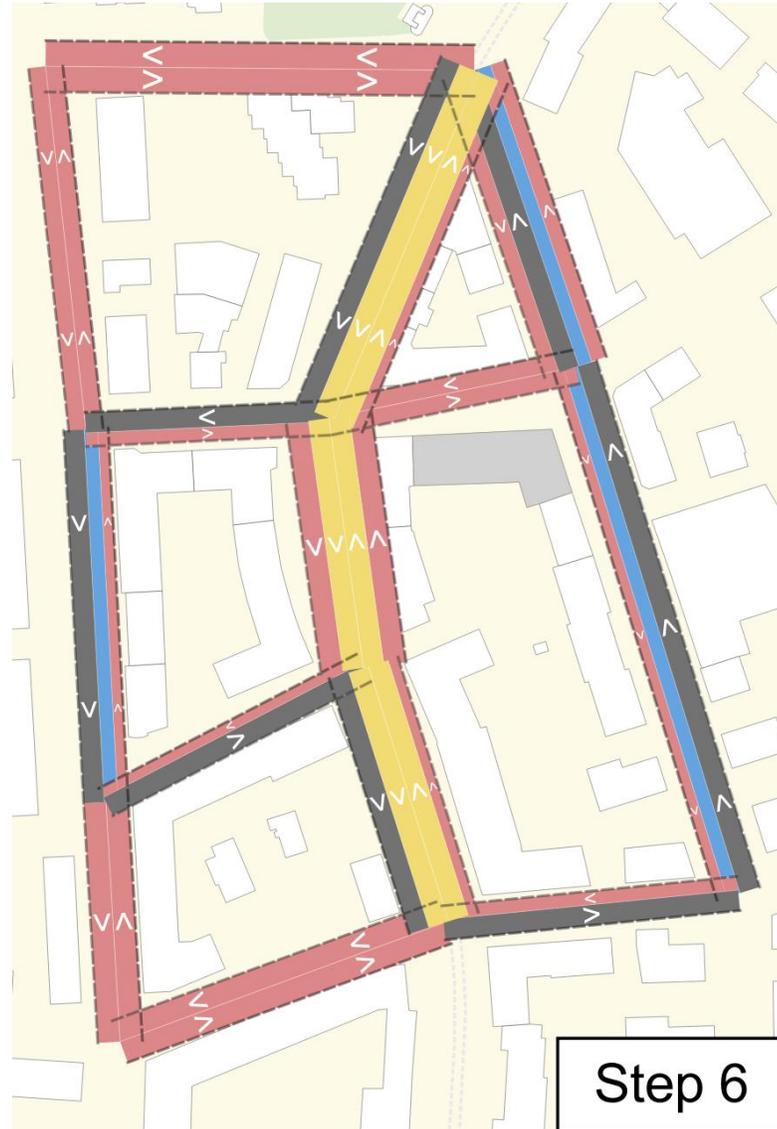
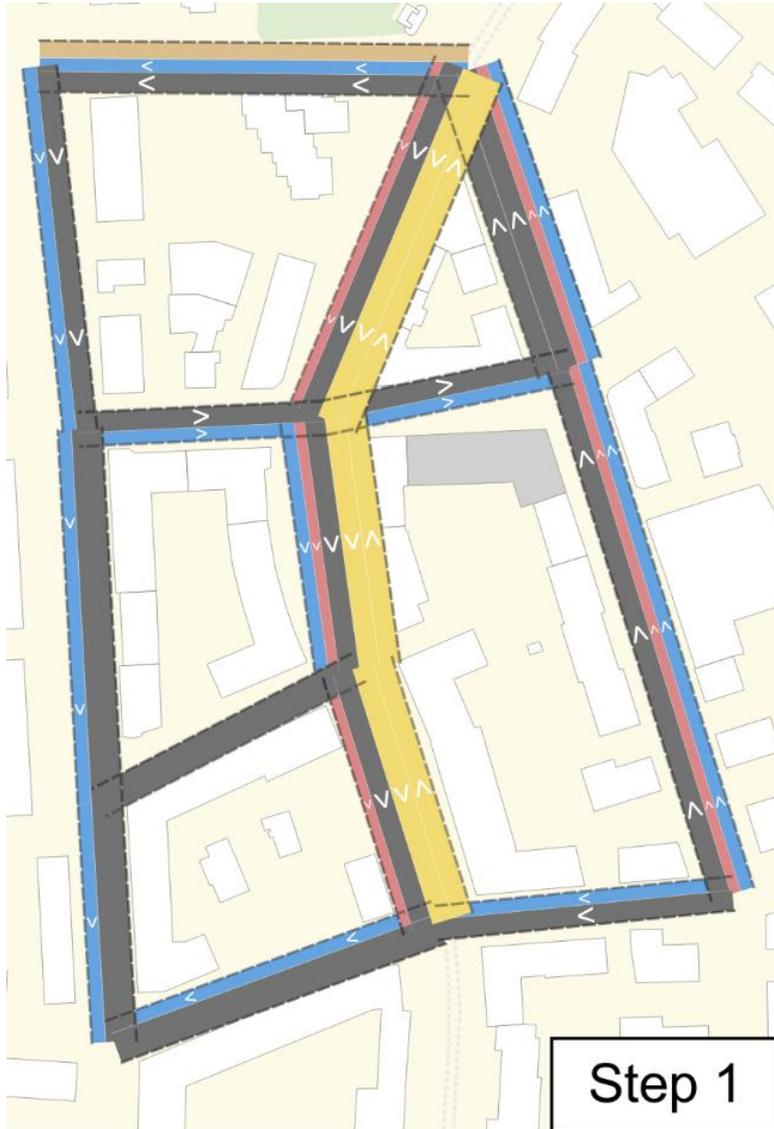
(5) Allocation of Cycling Lanes



--- Road space widths

- Parking Lanes
- Bike Lanes
- Car Lanes
- PT Lanes

(6) Finalization



--- Road space widths

■ Parking Lanes

■ Bike Lanes

■ Car Lanes

■ PT Lanes