Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Raumentwicklung ARE
Office fédéral du développement territorial ARE
Ufficio federale dello sviluppo territoriale ARE
Uffizi federal da svilup dal territori ARE

Which instruments does the Federal Office for Spatial Development work with, what is missing?

06.12.2023, ETH Zürich

Content

- Overview
- Strategies
- Data
- Tools
- Needs for better and more integrated planning

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Federal Office for Spatial development (ARE)

Duties of the ARE:

The ARE is the federal government's specialist authority on issues concerning:

- spatial development
- mobility policy
- sustainable development.

It works alongside Switzerland's cantons and communes, and also takes the lead on international cooperation in spatial planning matters.

In its work, the ARE pursues the vision that space in Switzerland should be managed sustainably, and that the ARE should play a key part in guiding this development.

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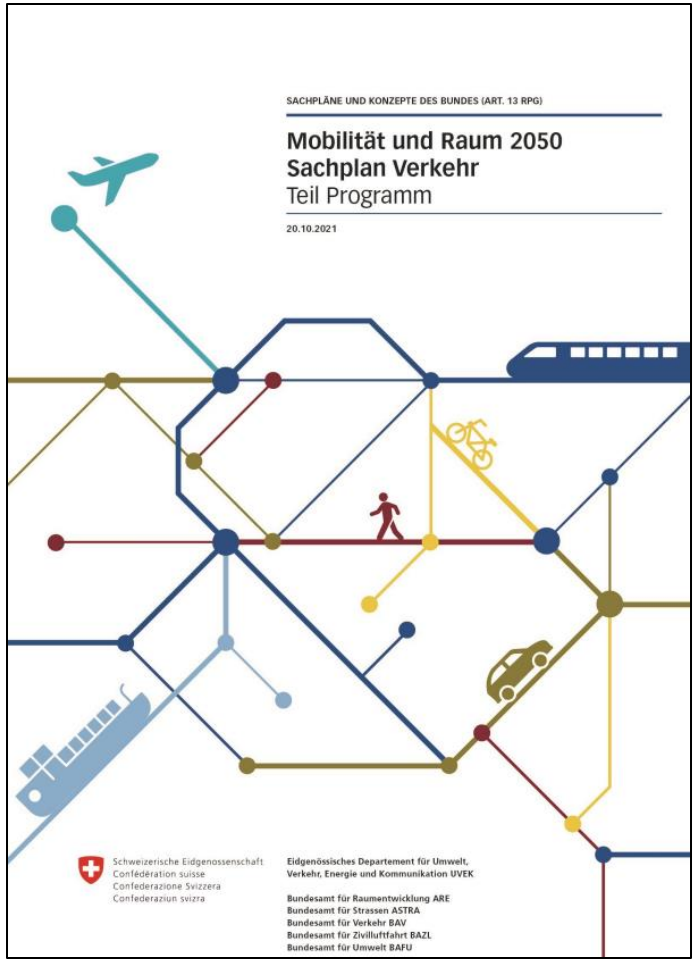
Spatial and mobility conceptions for Switzerland



Mobility and Space 2050, the programme section of the Transport Sectoral Plan, provides the framework for the long-term development of the Swiss transport system as a whole in harmony with spatial and environmental considerations.

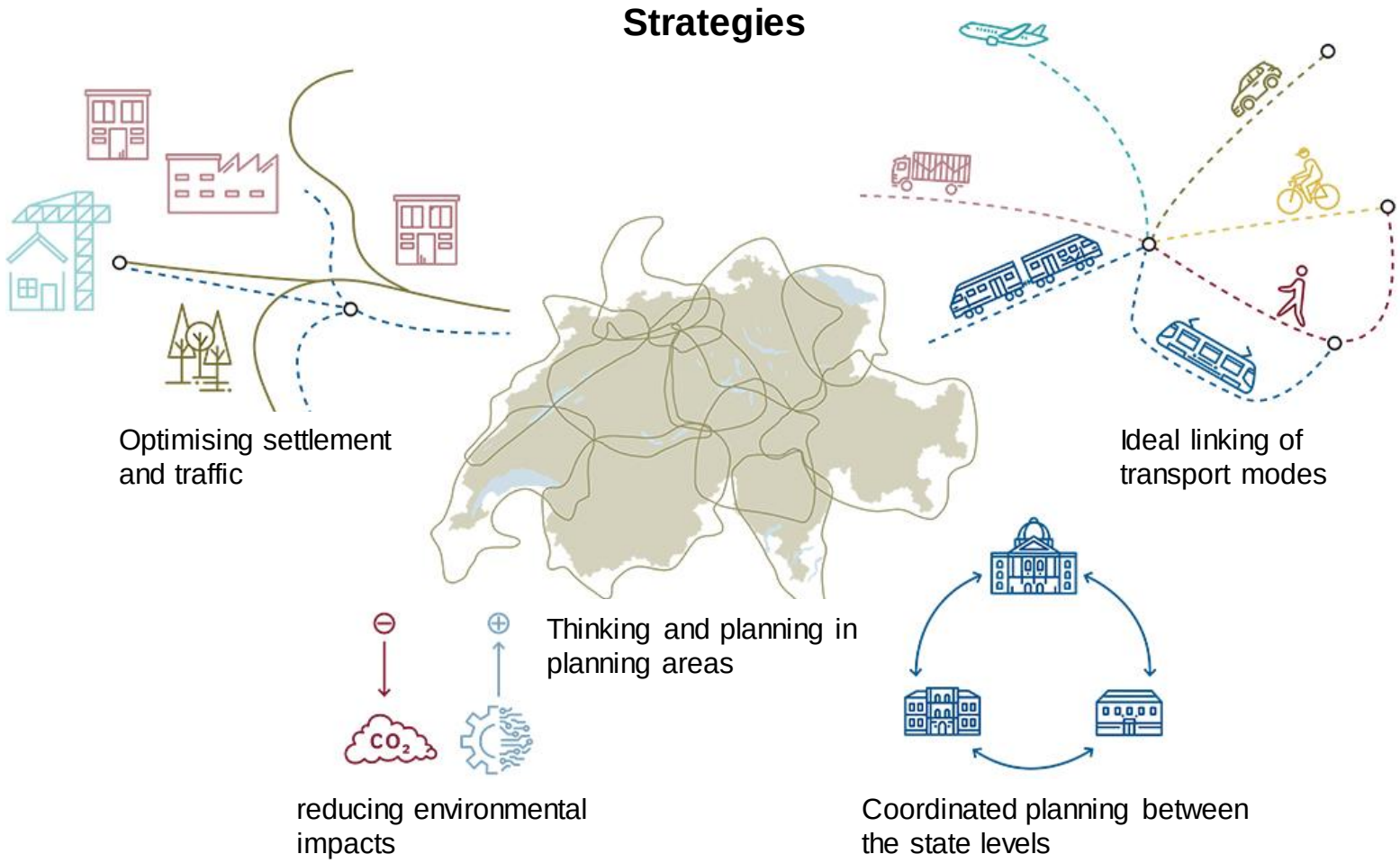
Sachplan Verkehr, Teil Programm, 2021

Transportation Sectoral Plan (Sachplan Verkehr) I

The transportation sectoral plan

- is the federal government's cross-modal coordination instrument and thus the Federal Council's mobility strategy.
- is the planning instrument that forms the basis for coordination between spatial development, the environment and transport infrastructure of national importance.
- is taken into account in the long-term perspectives for the railway and national roads.
- is a basis for examining the cantonal structure plans (Richtplanung).
- helps the Confederation, the cantons and the municipalities to coordinate space, the environment and transport together and in the best possible way.

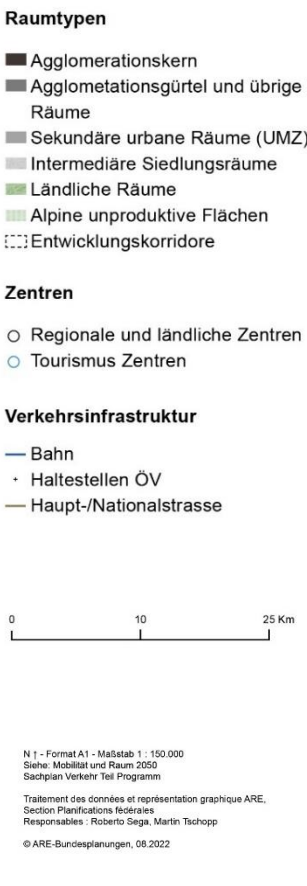
Transportation Sectoral Plan (Sachplan Verkehr) II

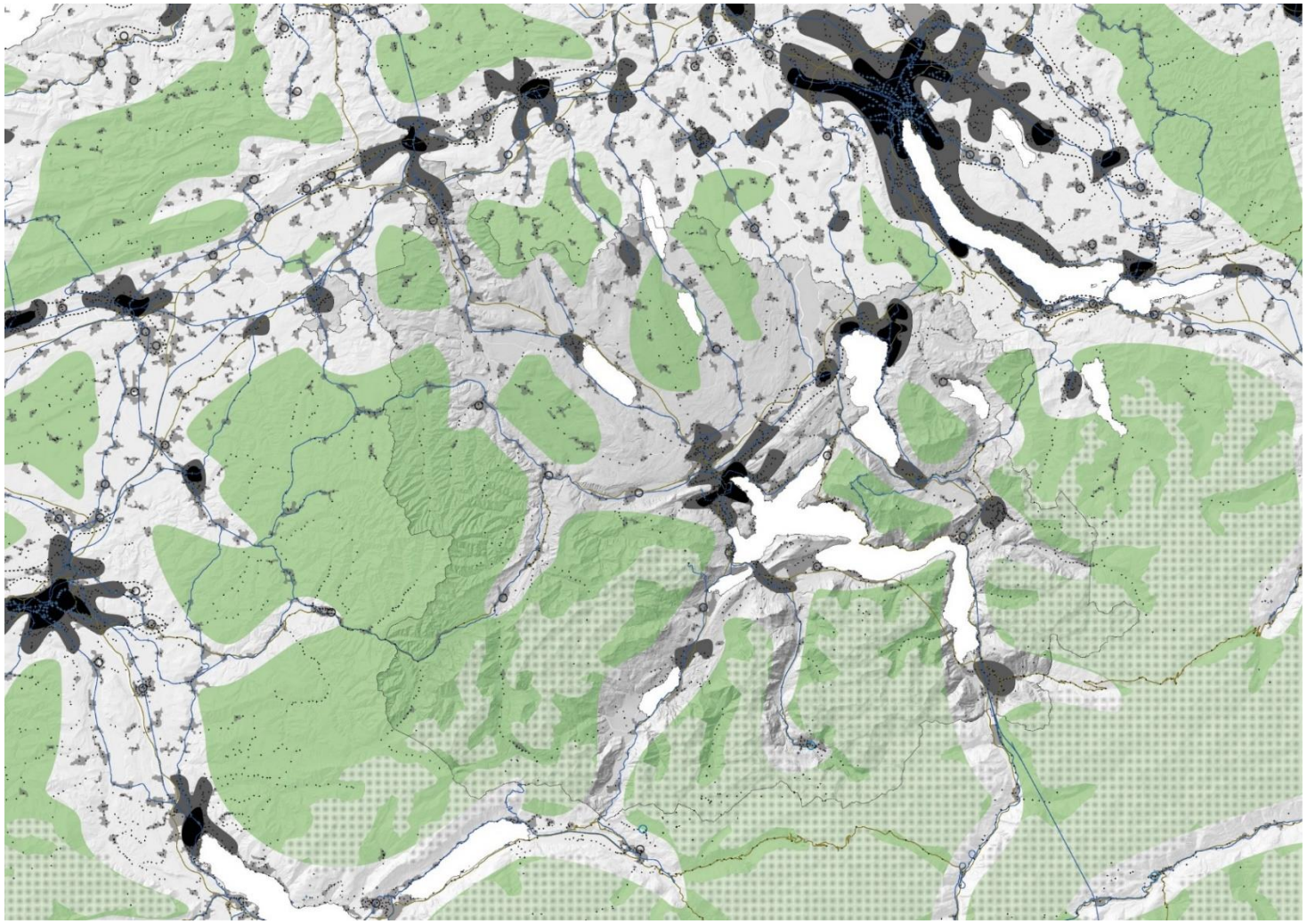


Transportation Sectoral Plan (Sachplan Verkehr) III

Sachplan Verkehr, Teil Programm, 2021

Base map for the desired spatial development





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Microcensus Mobility and Transport I

Statistical survey of travel behaviour of the Swiss population.

It contains information about:

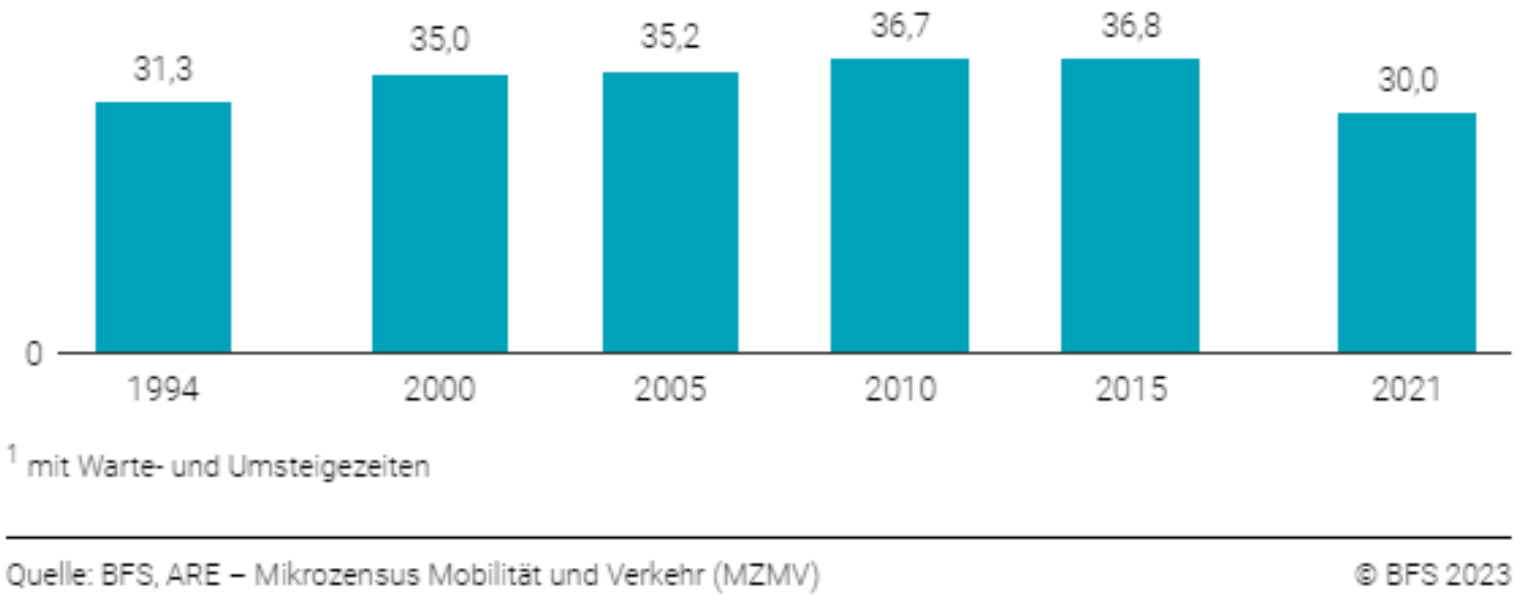
- the socioeconomic characteristics of households and individuals
- mobility tools (vehicles and public transport season tickets)
- daily mobility (trips on a given reference day)
- occasional journeys (day trips and trips with overnight stays)

- usually every 5 years - joint project of FSO and ARE
- 55,018 people surveyed in 2021

BFS / ARE – are.admin.ch

Microcensus Mobility and Transport II

Average daily distance per person in km (domestic)
1994 – 2021



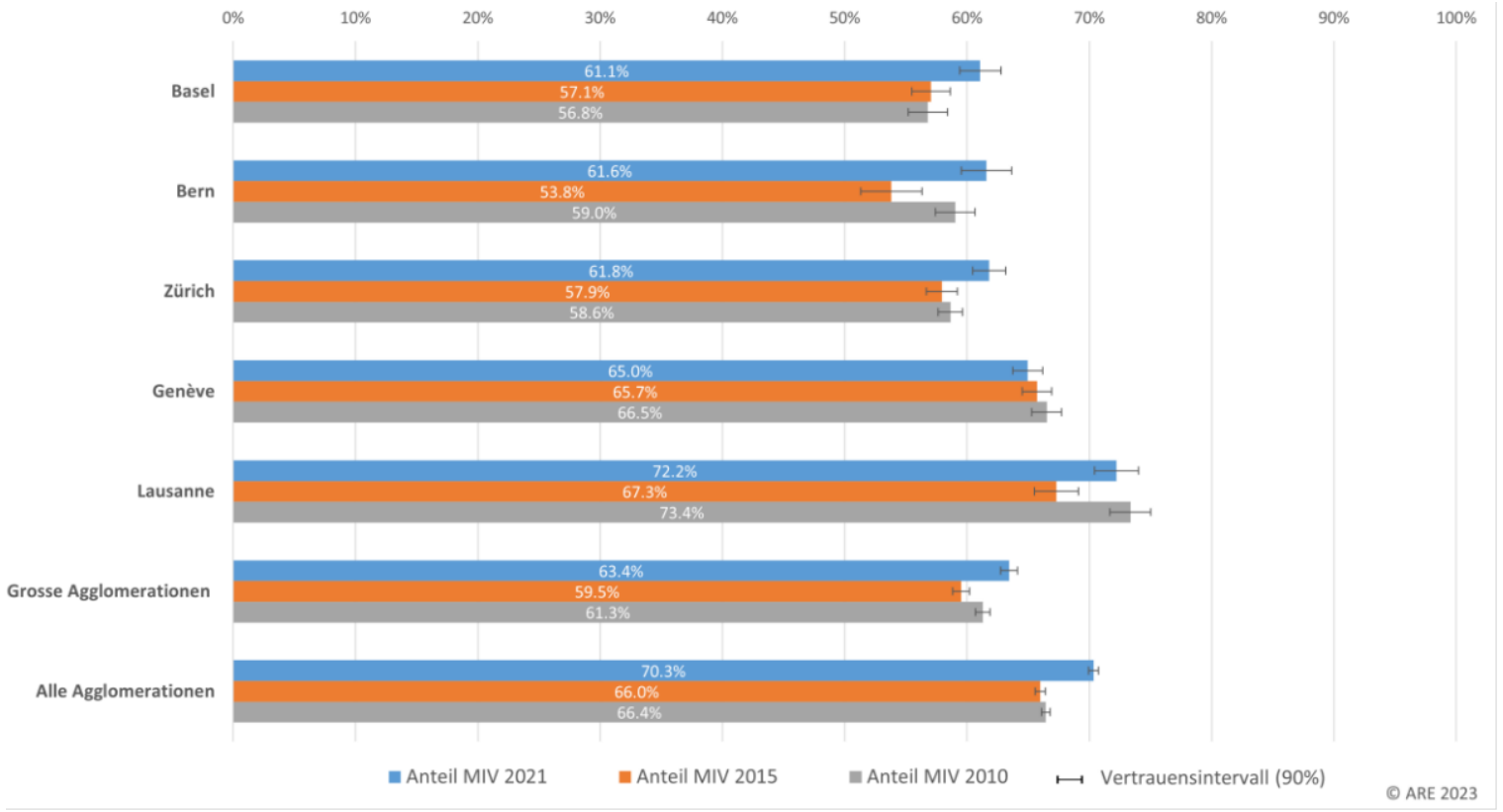
[1] mit Warte- und Umsteigezeiten

Quelle: BFS, ARE – Mikrozensus Mobilität und Verkehr (MZMV)

BFS / ARE: MZMV 2021

Microcensus Mobility and Transport III

Share of motorised private transport by agglomeration



Grünfelder und Giezendanner: Monitoring Agglomerationsprogramme, ARE 2023

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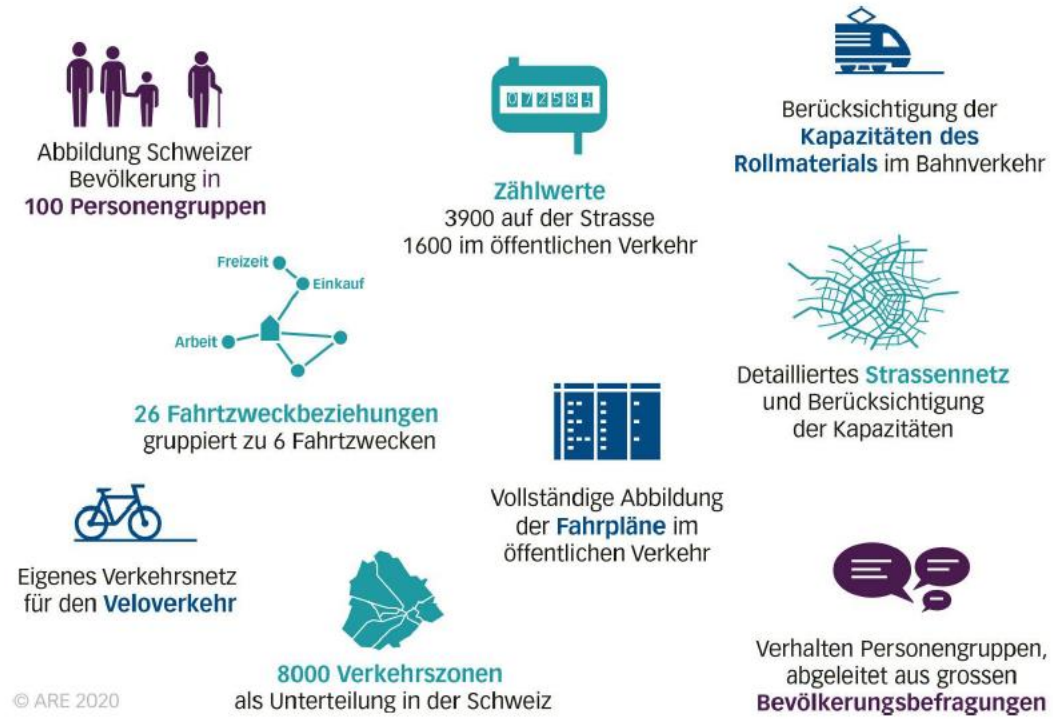
National Transportation Model I

principal characteristics

aggregated or macroscopic model implemented in PTV VISUM

covers 4 modes: car, public transport, walking, cycling

models swiss internal traffic



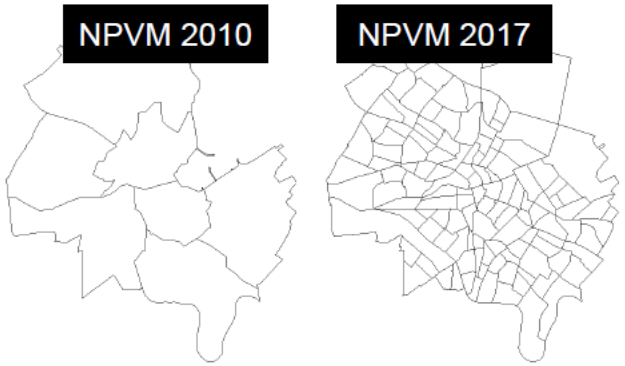
National Transportation Model II

traffic zones

7'978 zones inside CH

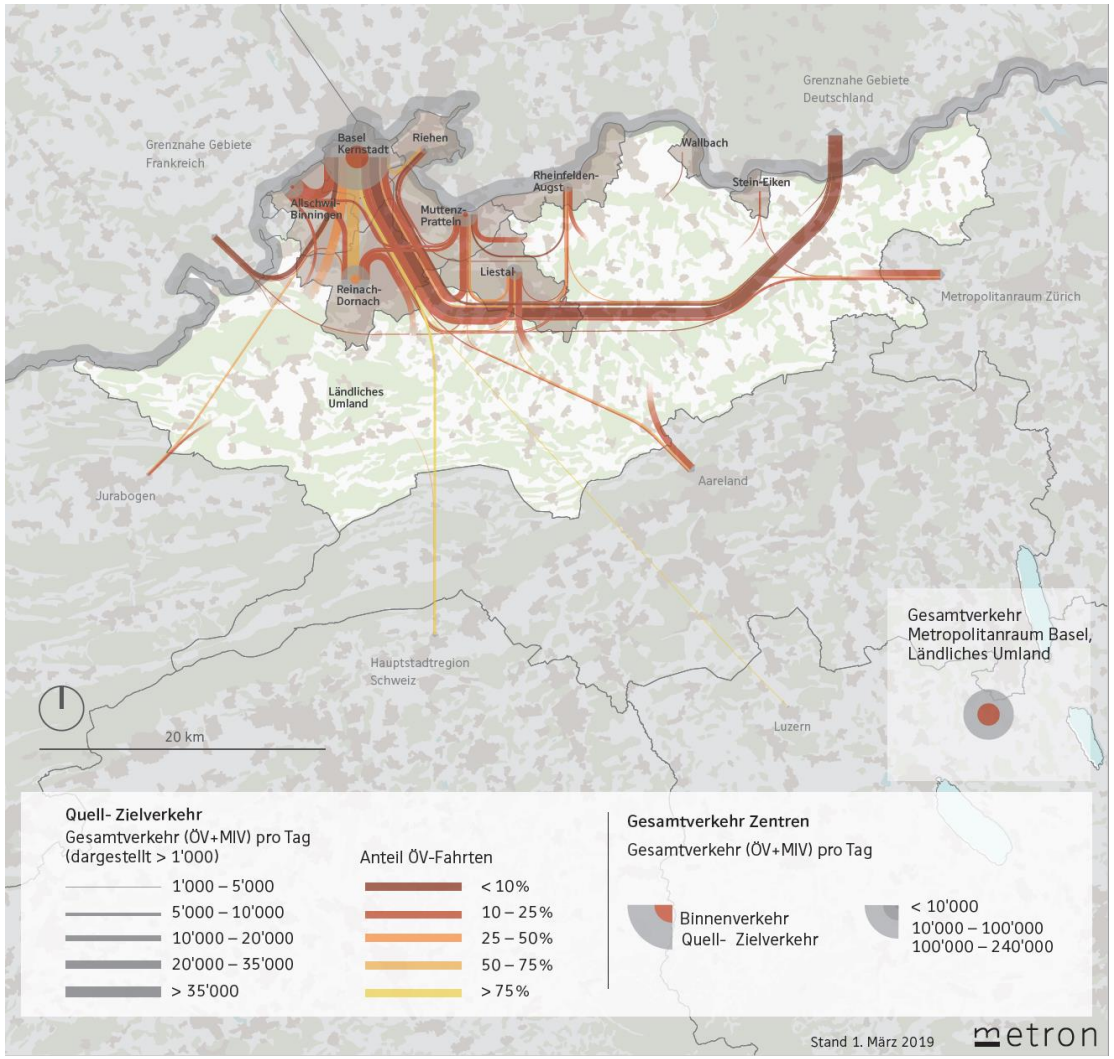
710 foreign zones

86 cordon points



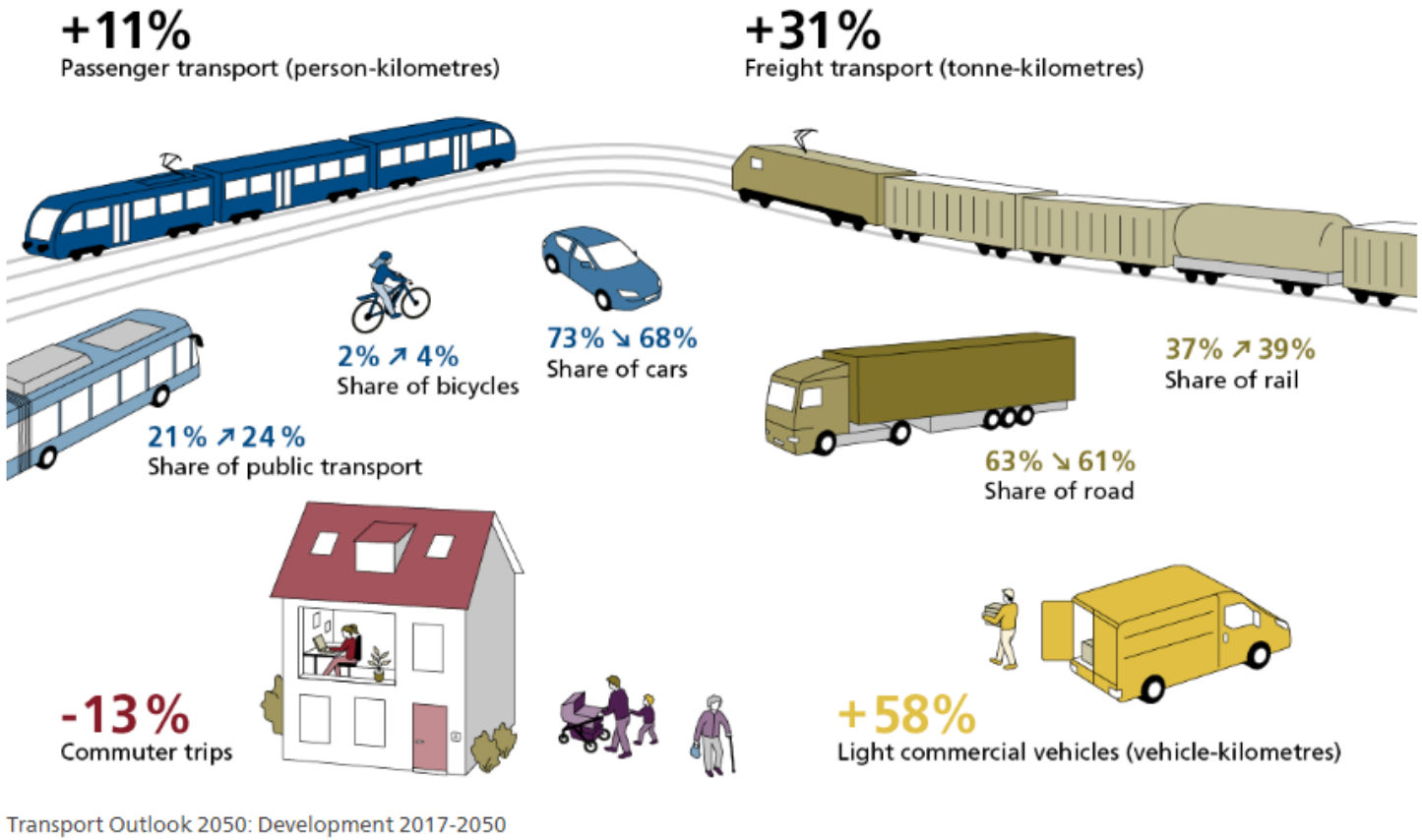
www.are.admin.ch

Traffic flows / modal split Handlungsraum



Metron / NPVM

Transport Outlook 2050



Transport Outlook 2050: Development 2017-2050

ARE: Verkehrsperspektiven 2050

Spatial development 2050

Demographic development2017-2050 BASIS scenario

Relative percentage change compared with the national average in the number of inhabitants in MNTP traffic zones

- < -40
- -40 / -30
- -30 / -20
- -20 / -10
- -10 / 0
- 0 / 10
- 10 / 20
- 20 / 30
- 30 / 40
- > 40

Alpine unproduktive Flächen

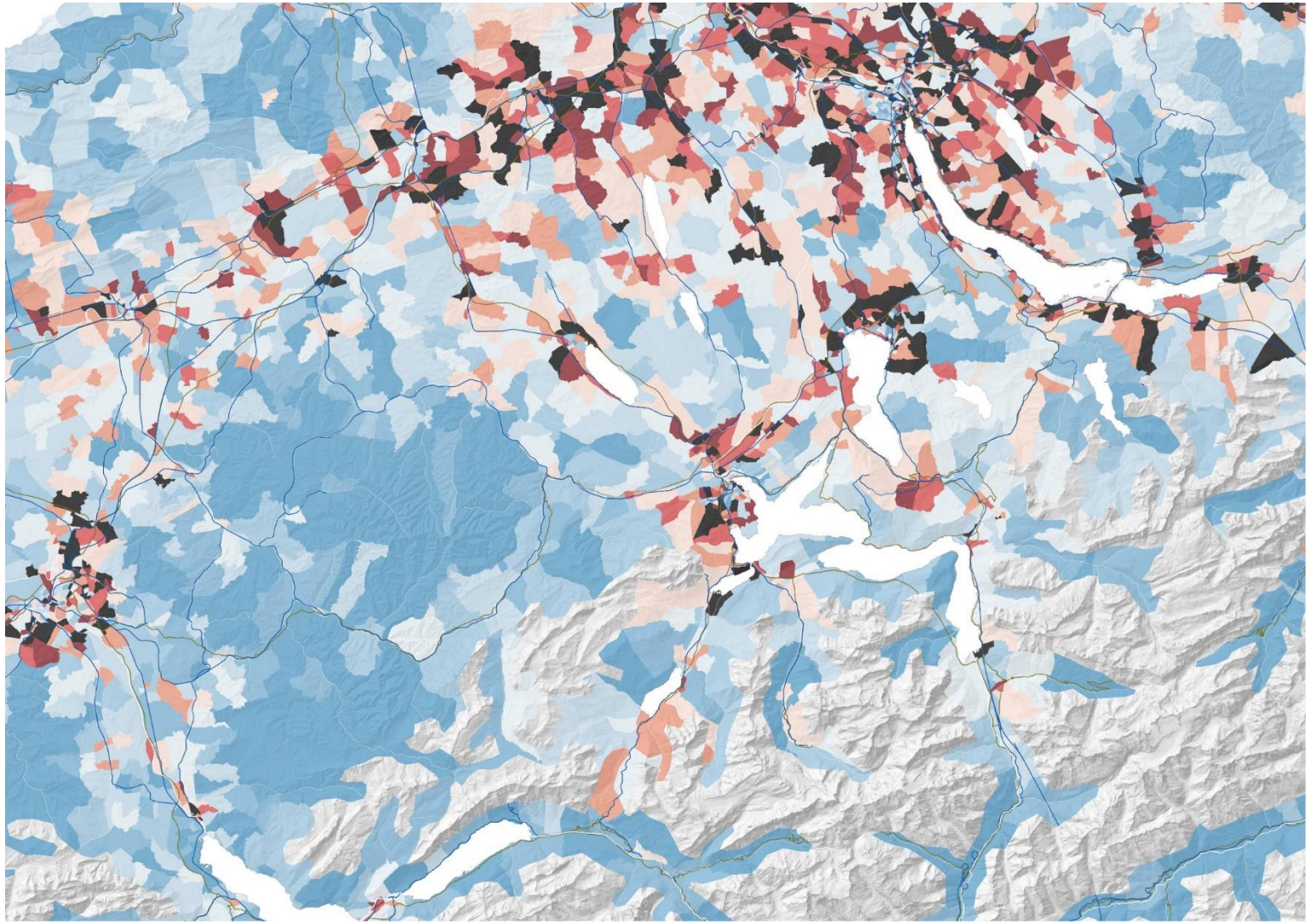
Verkehrsinfrastruktur

- Bahn
- Haupt-/Nationalstrasse

0 10 25 Km

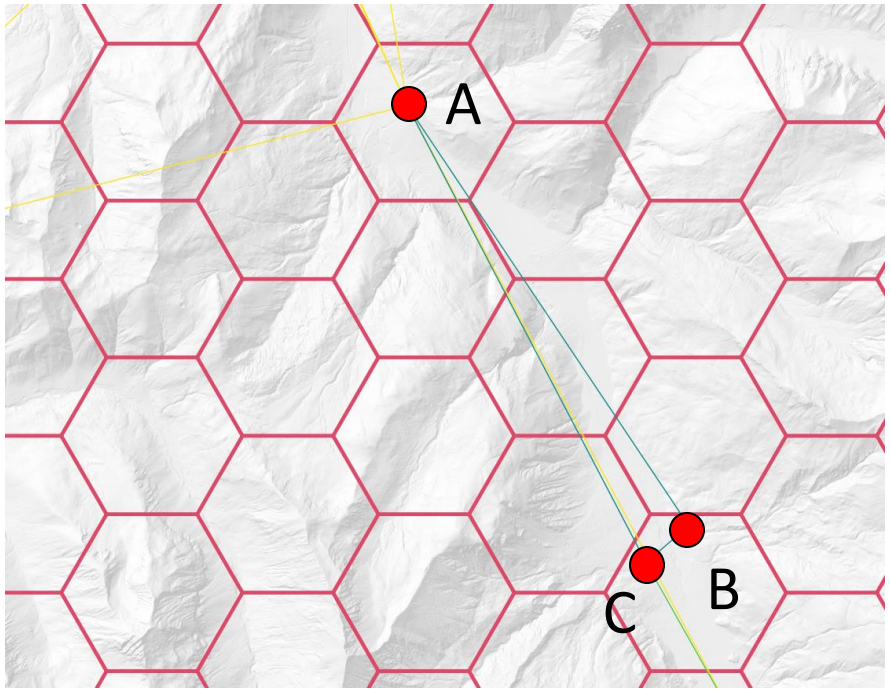
N ↑ - Format A1 - Maßstab 1 : 150.000
Quellen: Verkehrsperspektiven 2050
Strukturdaten-Variablenbeschrieb, Scenario BASIS
ARE

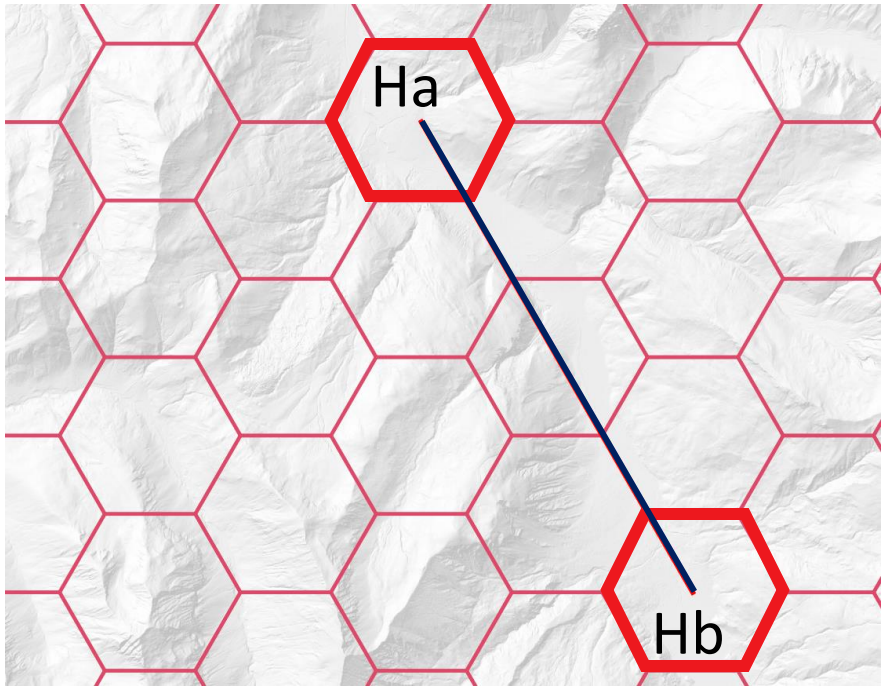
Traitement des données et représentation graphique ARE,
Section Planifications fédérales
Responsables : Roberto Sega, Martin Tschopp



Excursus calculation basis

Proposal for data aggregation (radius of the hexagon 500 m)





A-B = 104,110
A-C = 174,171
B-C = 175,711

→ Ha-Hb = 278,28

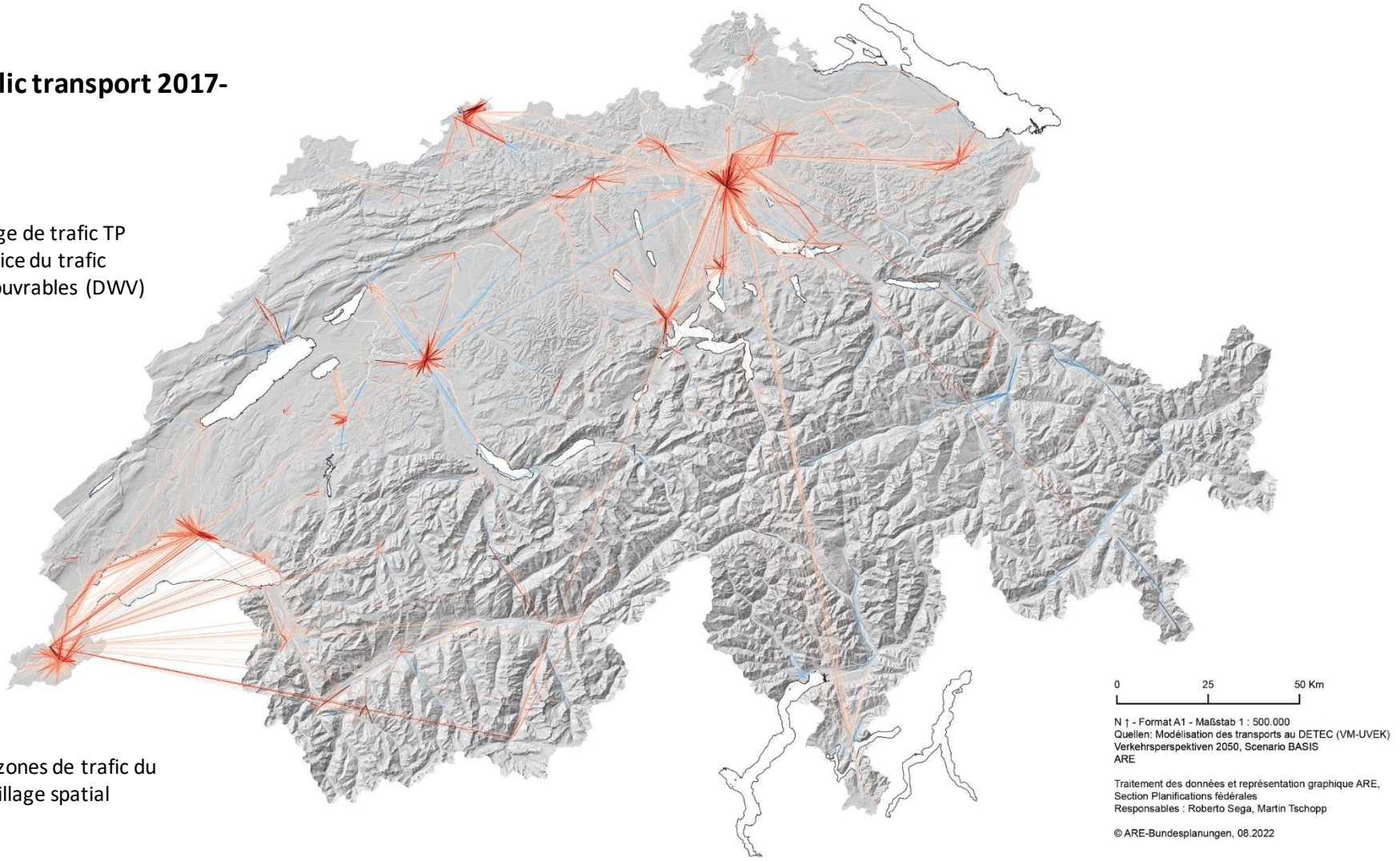
Quellen: Verkehrsperspektiven 2050
Strukturdaten-Variablenbeschrieb, Scénarios WWB / BASIS ARE

Traitement des données et représentation graphique ARE, Section Planifications fédérales
Responsables : Roberto Sega, Martin Tschopp

Development of spatial interactions I

Development of public transport 2017-2050 BASIS scenario

Variation absolue de la charge de trafic TP (Train + Tram) selon la matrice du trafic journalier moyen des jours ouvrables (DWV)

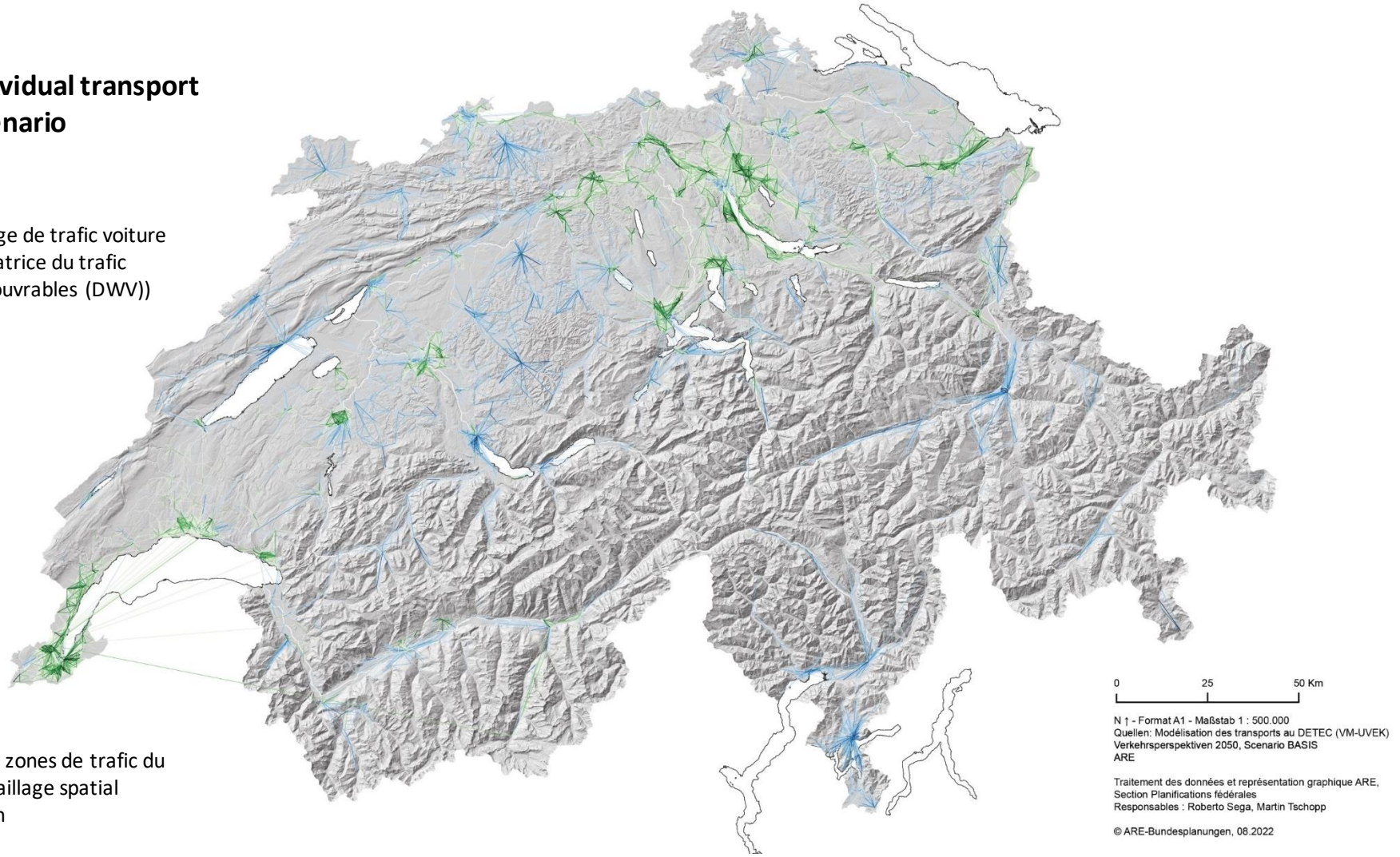


Agrégation des données des zones de trafic du MNTP effectuée selon un maillage spatial hexagonal de 500m de rayon

Development of spatial interactions II

Development of individual transport 2017-2050 BASIS scenario

Variation absolue de la charge de trafic voiture particulière (PW) selon la matrice du trafic journalier moyen des jours ouvrables (DWV))



Agrégation des données des zones de trafic du MNTP effectuée selon un maillage spatial hexagonal de 500m de rayon

Development of spatial interactions III

Développement du transport public 2017-2050 Scénario BASIS

Absolute variation in public transport traffic load (train + tram) according to the average daily on average working days (DWV)

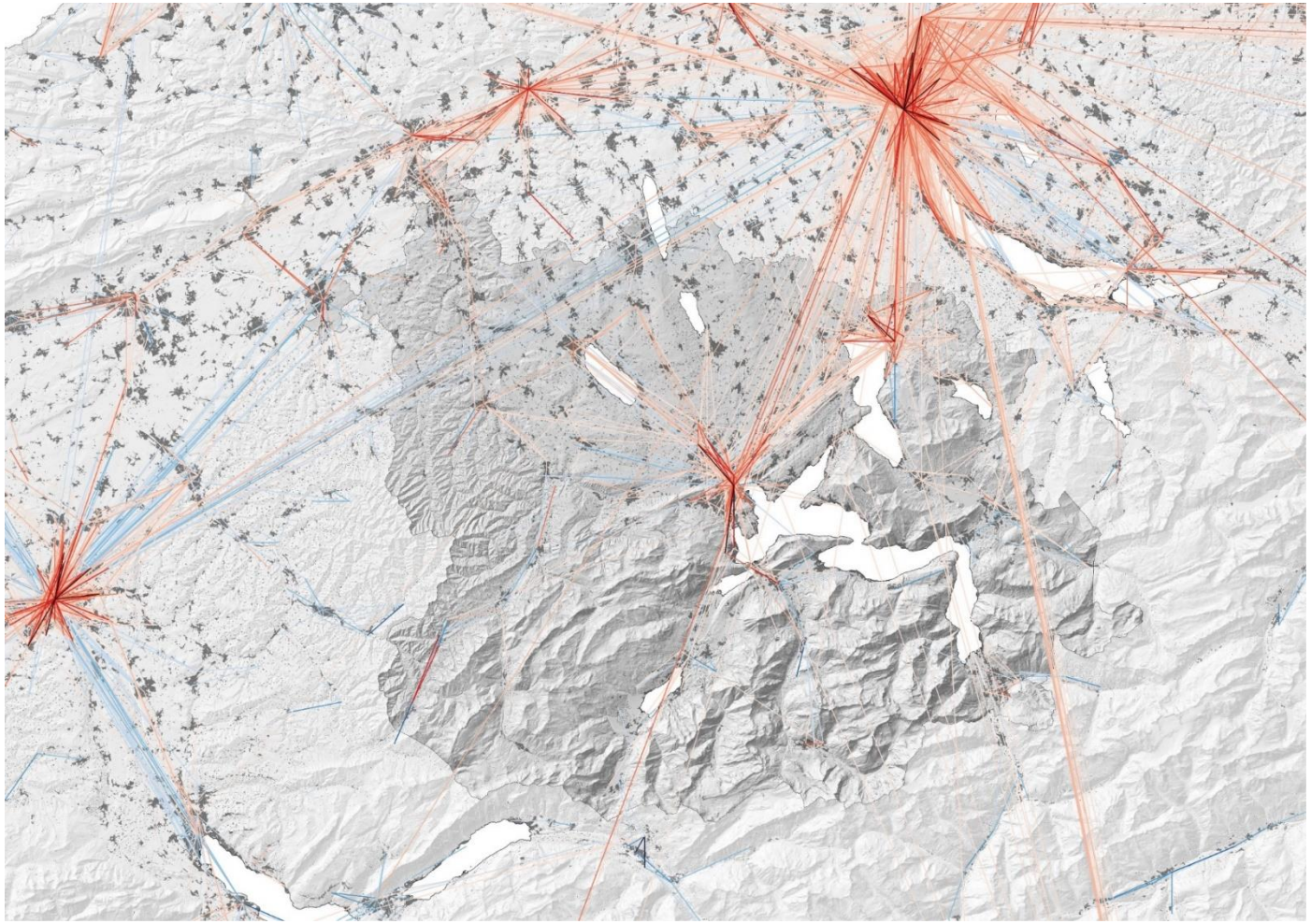
- 237 / 111
- 61 / 111
- 32 / 61
- 17 / 32
- 10 / 17
- -10 / -20
- -20 / -37
- -37 / -66
- -66 / -118
- -118 / -202

Espace bâti

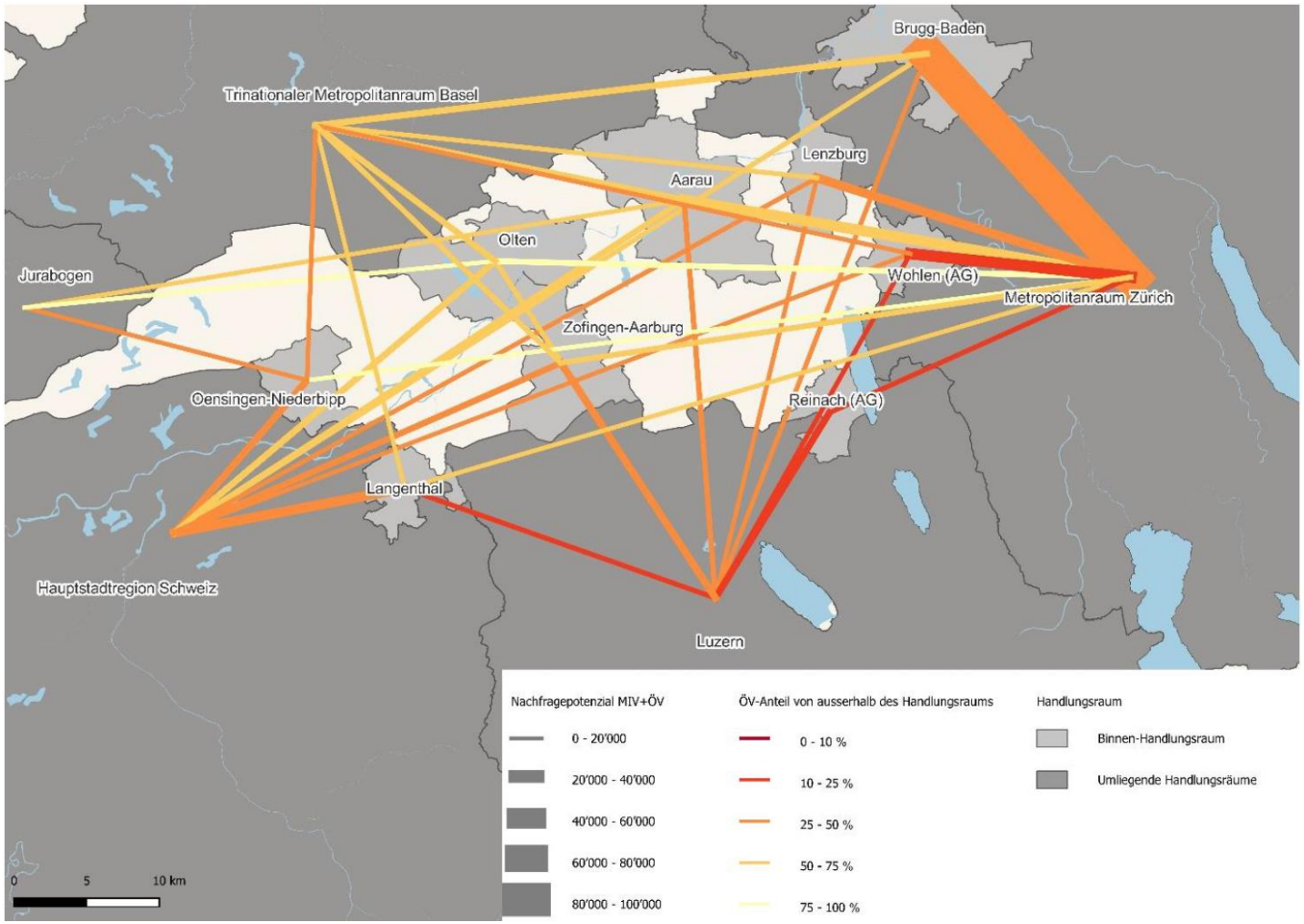
Aggregation of MNTP traffic zone data using a hexagonal grid with a radius of 500m

N ↑ - Format A1 - Maßstab 1 : 150.000
Quellen: Modélisation des transports au DETEC (VM-UVEK)
Verkehrsperspektiven 2050, Scenario BASIS
ARE

Traitement des données et représentation graphique ARE,
Section Planifications fédérales
Responsables : Roberto Sega, Martin Tschopp



Traffic demand: predicitons 2050



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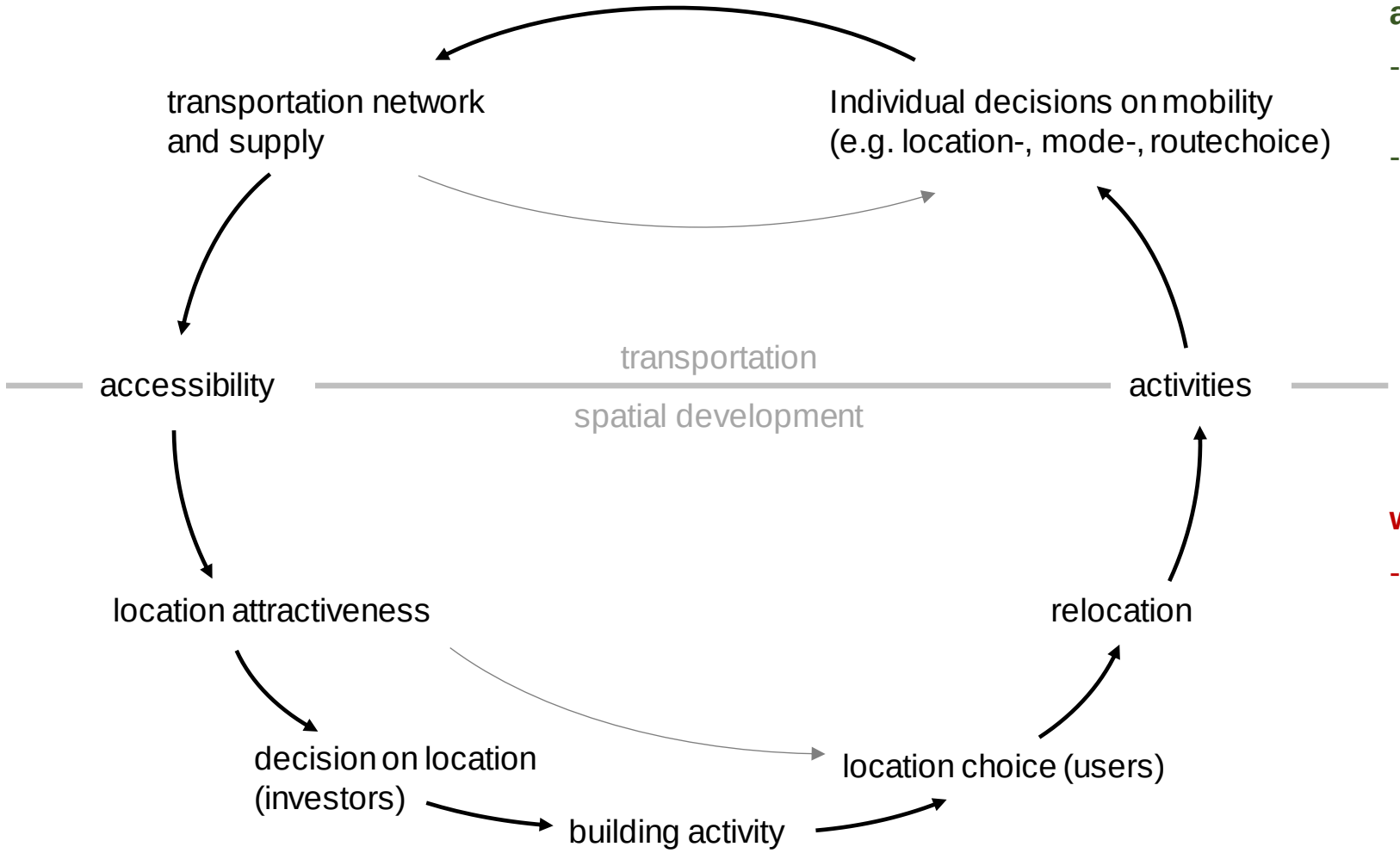
Interaction transportation and spatial development



Wegener and Fürst, 1999 (adapted)

assets:

- **disaggregated data**
- **Transportation Model**

weakness:

- **Lack of a proven integrated land use- and trans-portation model**

Strenghts and weaknesses

strenghts:

- detailed spatial and travel behaviour data (time series, forecast)
- detailed transportation model
- measuring direct effects of changes in transportation network
- measuring effects of changes in transportation network on accessibility changes

weaknesses:

- isolation and separation of transport related effects from other spatially relevant impacts
- separation from cause and effects

➔ lack of a «rough» integrated transport- and land-use model (modelling the «full circle»)

Meta-level

Chairs who:

- understand the needs and requirements of planning at administrative level
- can communicate the latest methods and research approaches for practical application

this requires that the administration:

- does not lose sight of basic research
- tries out new approaches and test their practical suitability.