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Federal Department of
the Environment, Transport, Energy and Communications DETEC

Federal Office for Spatial Development, ARE

Land use modelling – Swiss spatial planning perspective and requirements

SustainCity Conference 17.04.2013

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Director ARE

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2. Studies on how land use and transport interact: the past
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1. The Swiss context
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The ARE

The Federal Office for Spatial Development, ARE, is the federal government's centre of expertise

- on issues concerning spatial development
- on transport policy
- and on sustainable development

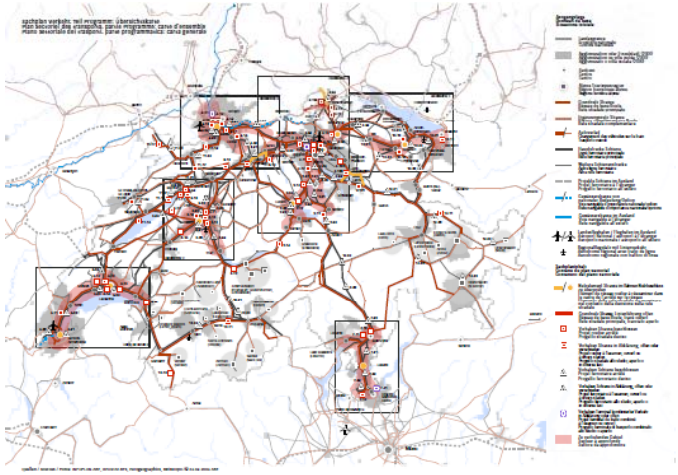
→ coordinated spatial and transport planning

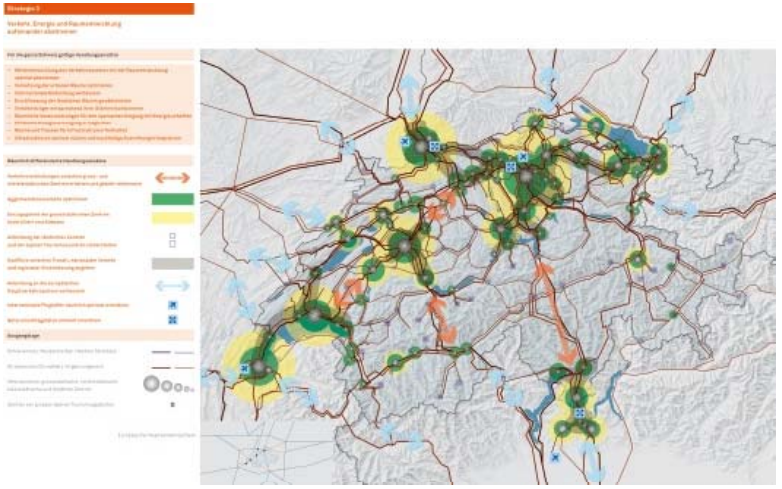
→ coordination between different modes of transport

Planning at the national level

The ARE is primarily concerned with national issues

- such as the tripartite strategy and continued evolution of the Spatial Strategy for Switzerland, and
- drawing up the federal government's sectoral plans.

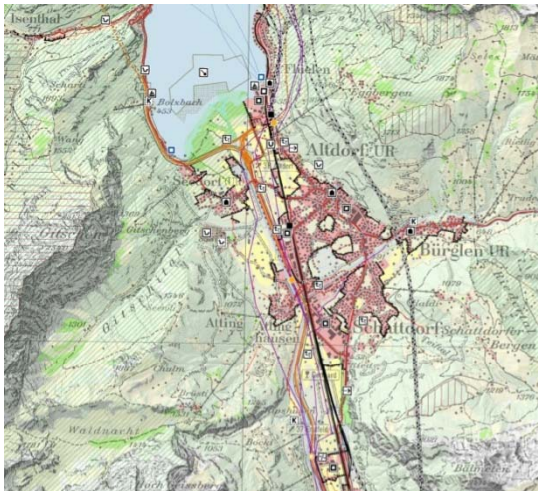


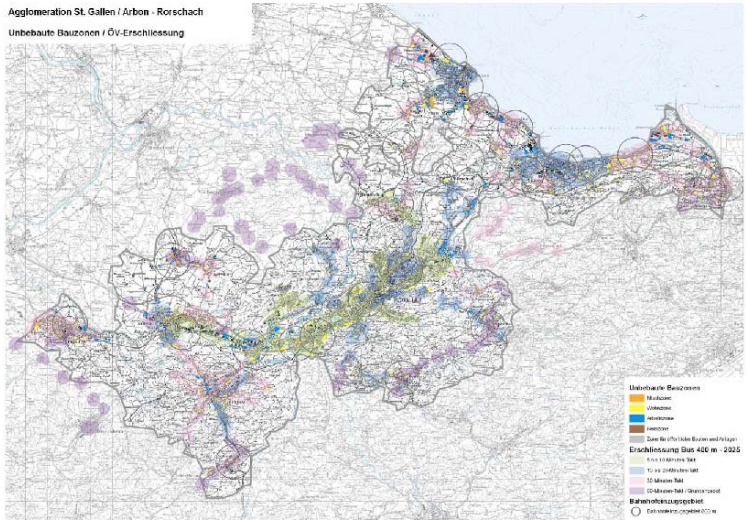


Planning at the cantonal/regional level

However, the ARE is also concerned with

- reviewing regional plans
- reviewing agglomeration plans





Political challenges (1)

- Revision of the Spatial Planning Act (*Raumplanungsgesetz*)

  followed by the issues of building zoning, denser urban development, and containing urban sprawl

→ Impact on land use patterns, land prices and locational appeal?

Political challenges (2)

- Long-term financing for transport infrastructures (rail, roads, agglomeration traffic)
- Expansion of railway infrastructure
- Completion of and relief measures for the national highway network

→ Impact on land use patterns, land prices and locational appeal?

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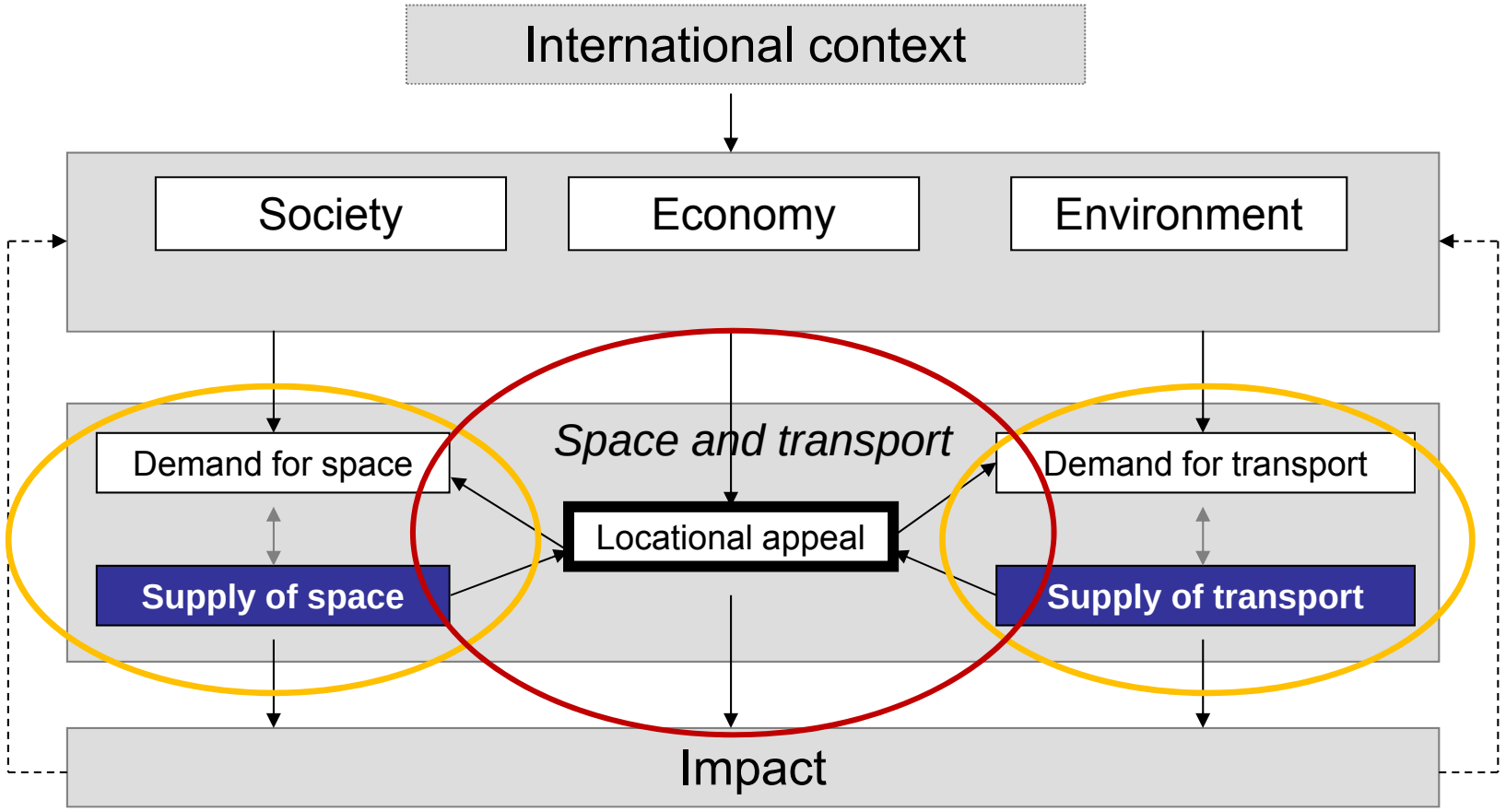
Coordinated spatial and transport planning



The DETEC transport model

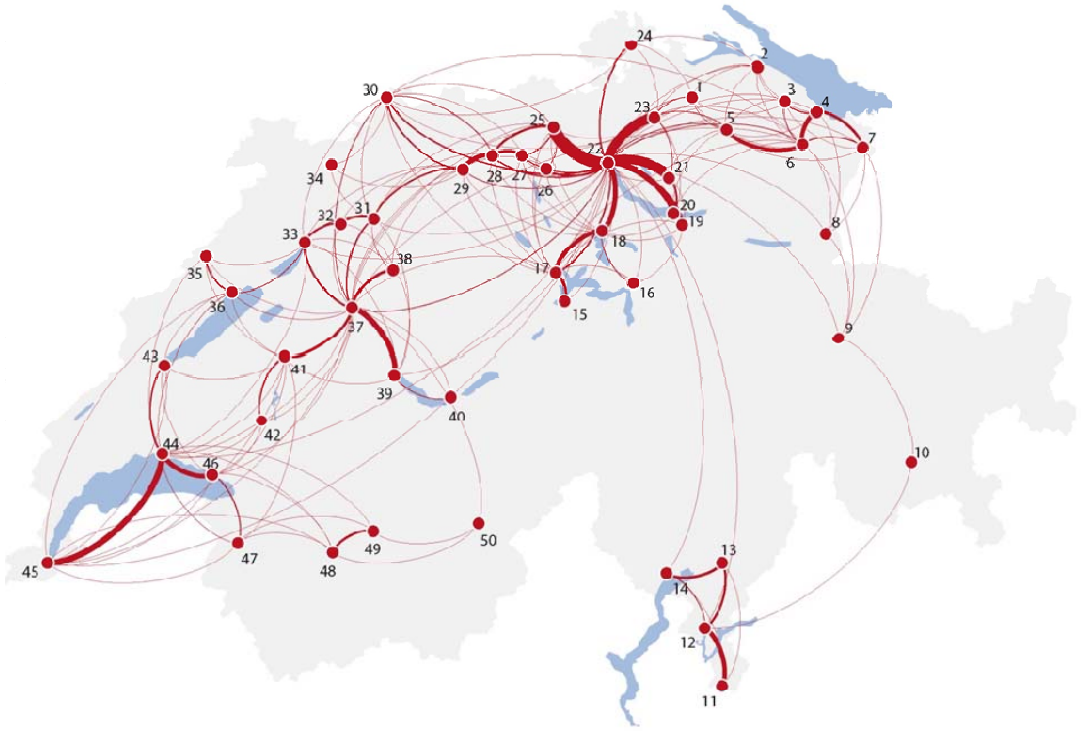
The ARE employs a bimodal, four-level, state-of-the-art transport model developed by the Federal Institute of Technology, ETH

Analyses of:

- changes in traffic flows as a result of infrastructure measures

- changes in traffic volumes as a result of changing land use patterns

The DETEC transport model: interaction within Swiss territory (agglomerations, motorised private transport)



Passenger journeys between Swiss agglomerations using motorised private transport

2005

Passenger journeys, average workday traffic

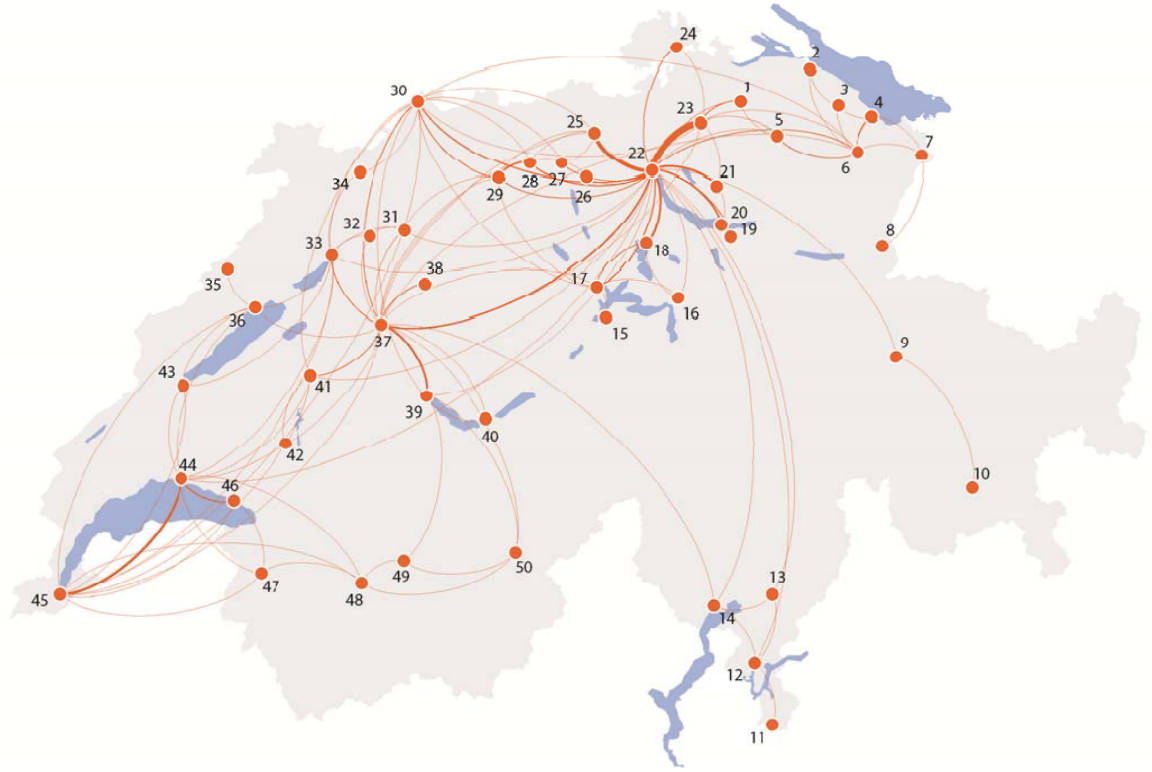
Max: 91'894 (Zürich <-> Baden/Brugg)

Min: 300

1 Frauenfeld, 2 Kreuzlingen, 3 Amriswil, 4 Arbon, 5 Wil, 6 St. Gallen, 7 Heerbrugg, 8 Buchs, 9 Chur, 10 St. Moritz, 11 Chiasso, 12 Lugano, 13 Bellinzona, 14 Locarno, 15 Stans, 16 Schwyz, 17 Luzern, 18 Zug, 19 Lachen, 20 Rapperswil, 21 Wetzikon, 22 Zürich, 23 Winterthur, 24 Schaffhausen, 25 Baden-Brugg, 26 Wohlen, 27 Lenzburg, 28 Aarau, 29 Olten, 30 Basel, 31 Solothurn, 32 Grenchen, 33 Biel, 34 Delémont, 35 La-Chaux-de-Fonds, 36 Neuenburg, 37 Bern, 38 Burgdorf, 39 Thun, 40 Interlaken, 41 Fribourg, 42 Bulle, 43 Yverdon, 44 Lausanne, 45 Genf, 46 Vevey, 47 Monthey, 48 Sion, 49 Sierre, 50 Brig.

Hinweise:
Besetzungsgrad MIV: 1.42 Personen
Berechnung: ARE (2012)
Kartographie: GeoI.0.8.1 beta

The DETEC transport model: interaction within Swiss territory (agglomerations, public transport)



1 Frauenfeld, 2 Kreuzlingen, 3 Amriswil, 4 Arbon, 5 Wil, 6 St. Gallen, 7 Heerbrugg, 8 Buchs, 9 Chur, 10 St. Moritz, 11 Chiasso, 12 Lugano, 13 Bellinzona, 14 Locarno, 15 Stans, 16 Schwyz, 17 Luzern, 18 Zug, 19 Lachen, 20 Rapperswil, 21 Wetzikon, 22 Zürich, 23 Winterthur, 24 Schaffhausen, 25 Baden-Brugg, 26 Wohlen, 27 Lenzburg, 28 Aarau, 29 Olten, 30 Basel, 31 Solothum, 32 Grenchen, 33 Biel, 34 Delémont, 35 La-Chaux-de-Fonds, 36 Neuenburg, 37 Bern, 38 Burgdorf, 39 Thun, 40 Interlaken, 41 Fribourg, 42 Bulle, 43 Yverdon, 44 Lausanne, 45 Genf, 46 Vevey, 47 Monthey, 48 Sion, 49 Sierre, 50 Brig

Passenger journeys between Swiss agglomerations using public transport

2005

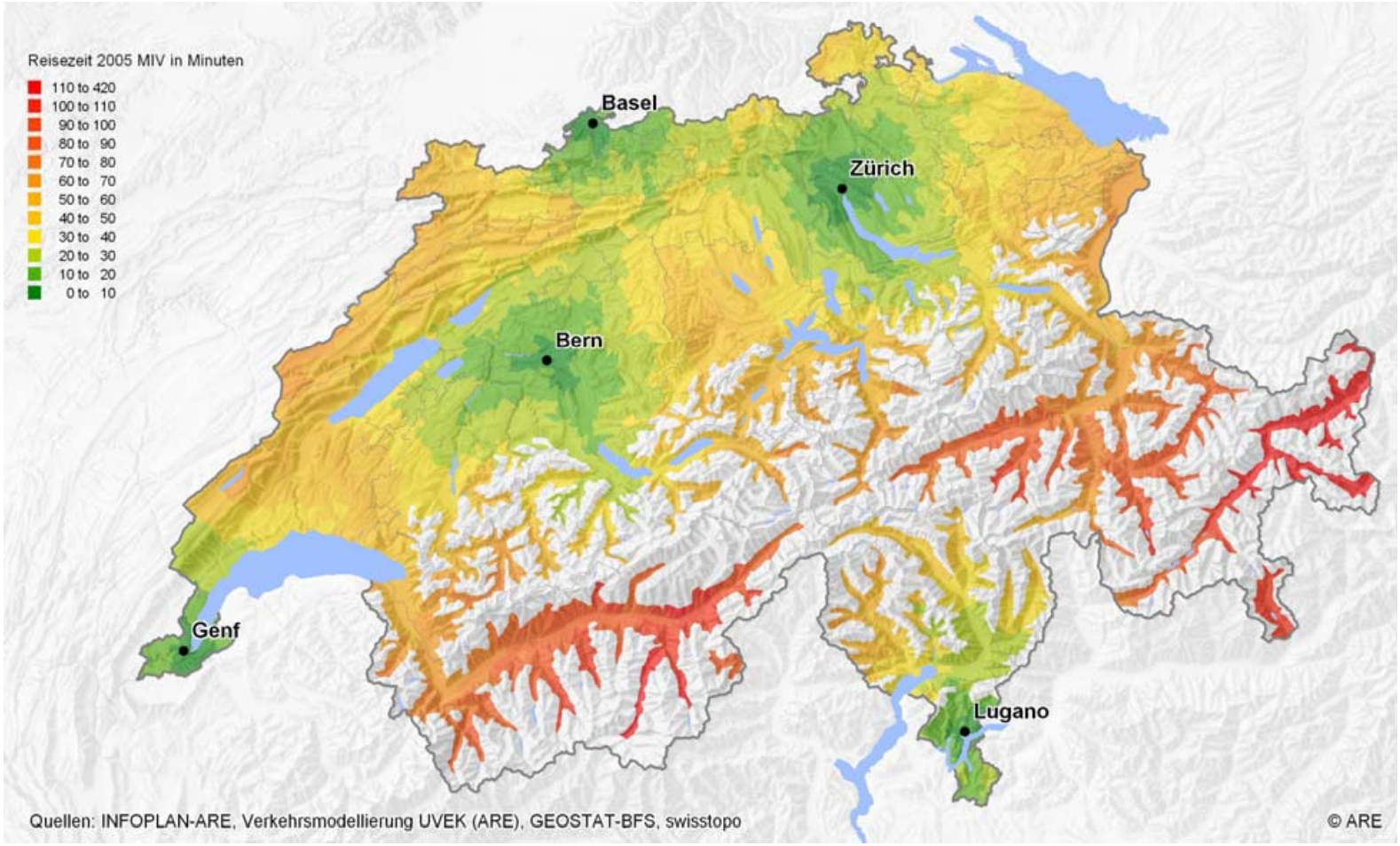
Passenger journeys, average workday traffic

Max: 44'579 (Zürich <-> Winterthur)

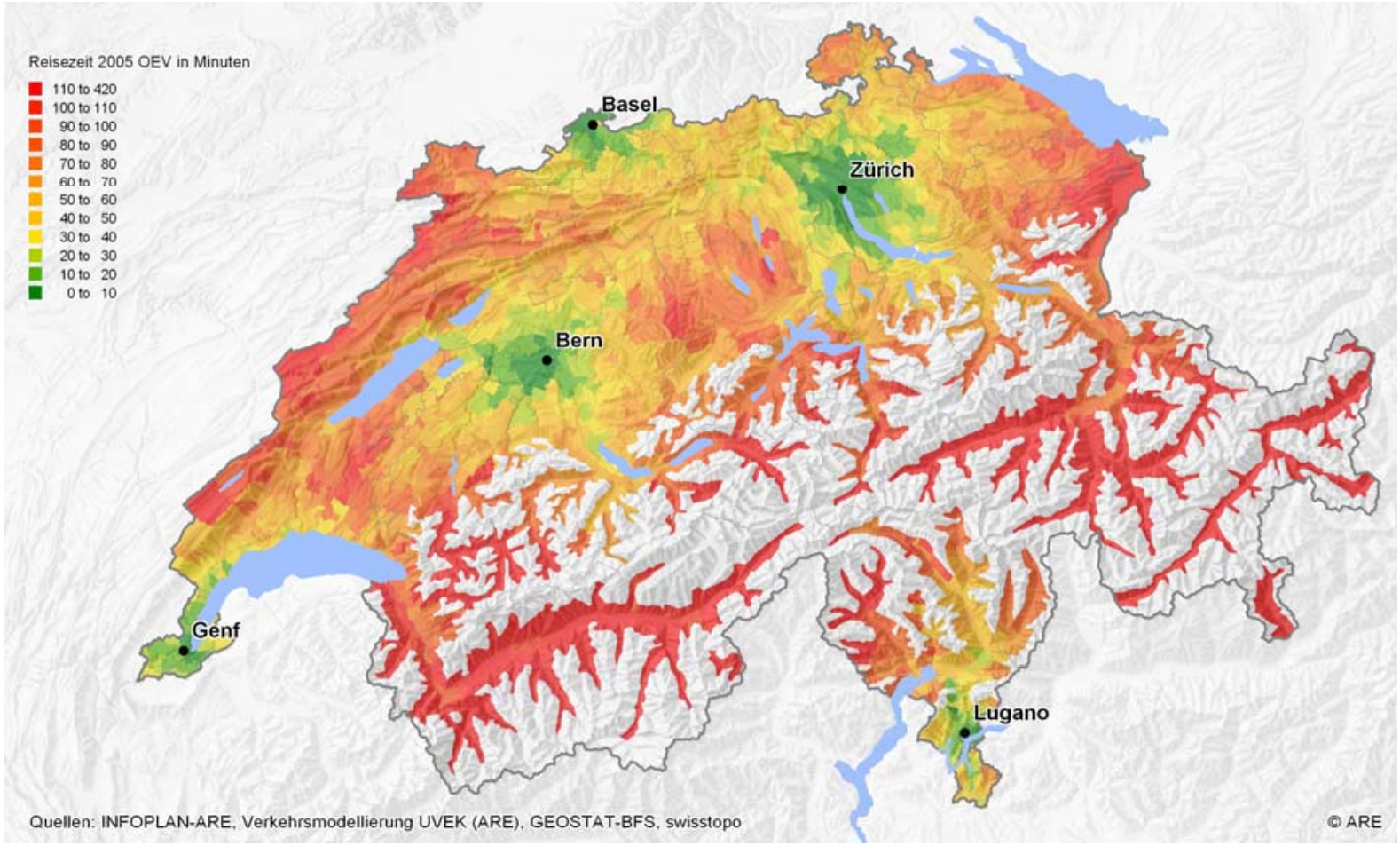
Min: 300

Hinweise:
Berechnung: ARE (2012)
Kartographie: Gephi.0.8.1 beta

The DETEC transport model: journey times with motorised private transport to one of the five principal cities, 2005



The DETEC transport model: journey times with public transport to one of the five principal cities, 2005

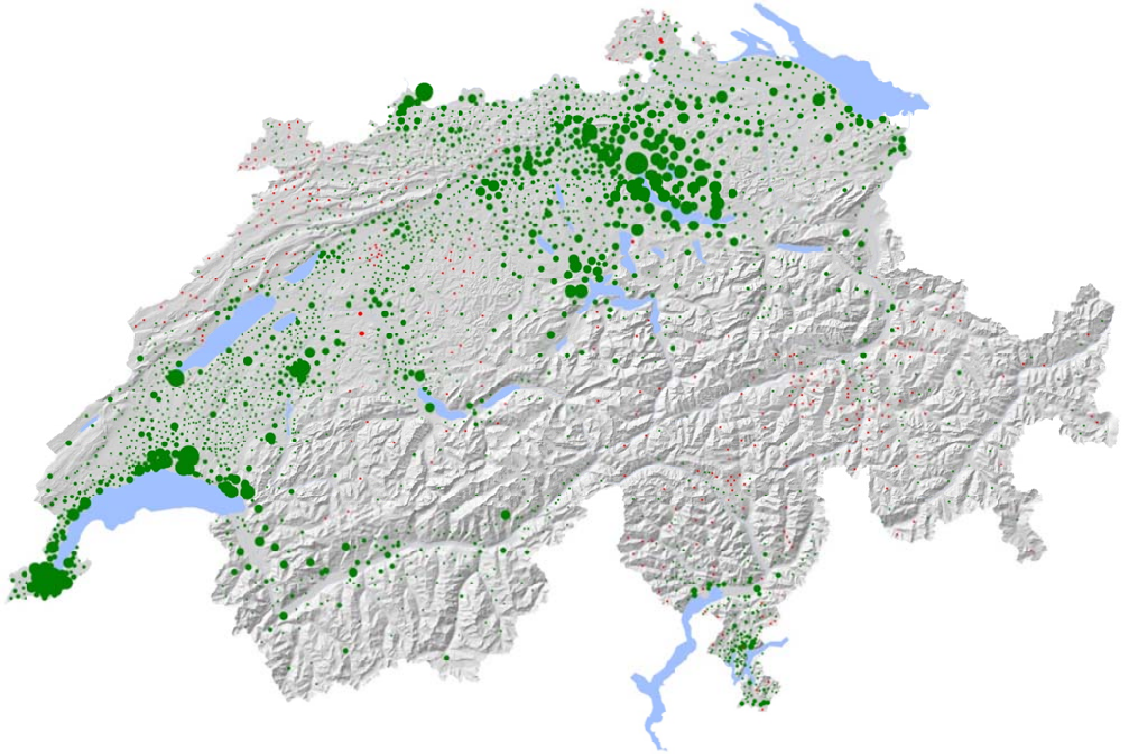


Land use analyses: population growth according to the Federal Statistical Office

+ 1,279,797

(2005-2030; mean scenario; +17.2%)

Land use analyses: population distribution by 2030



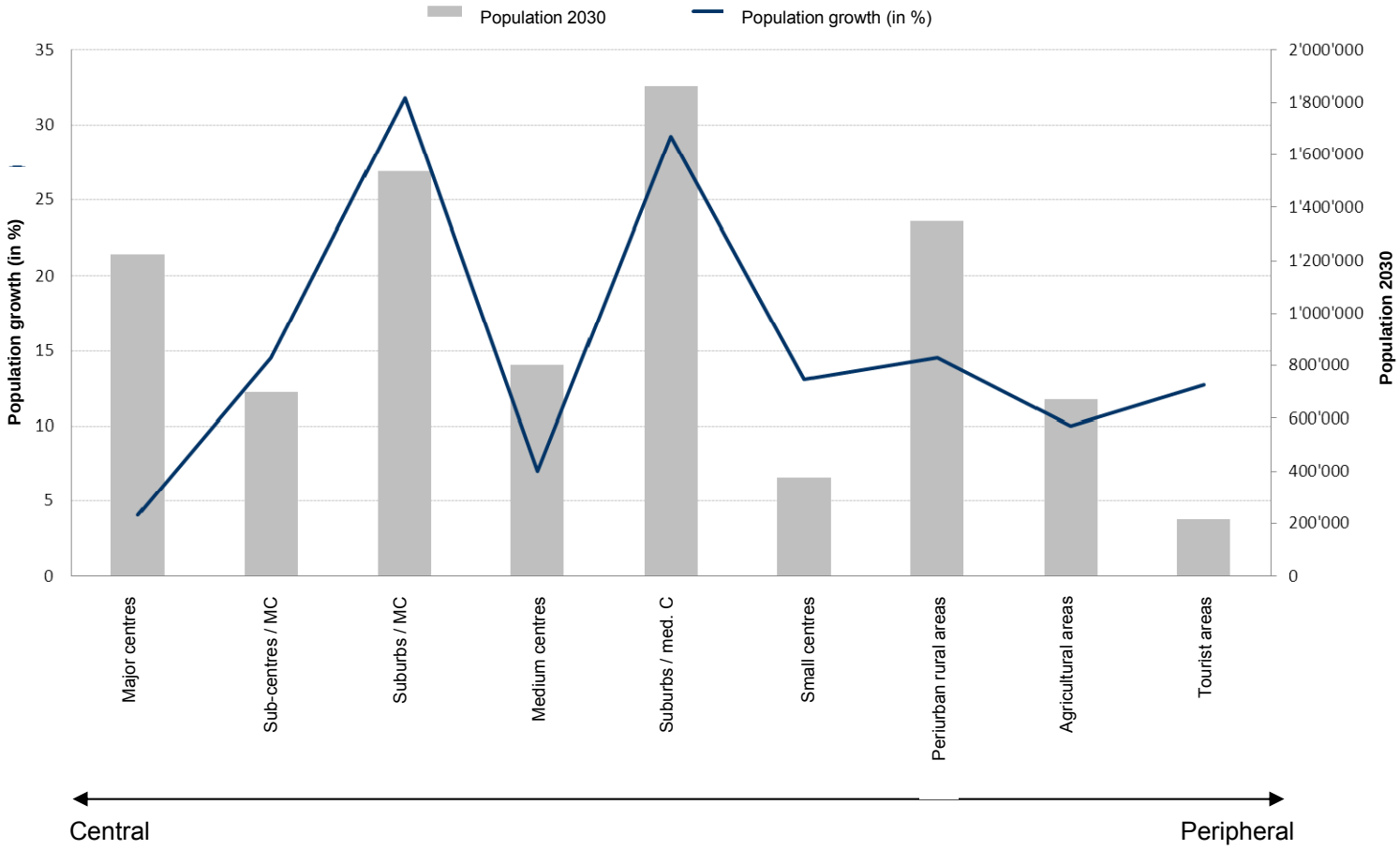
Increase/decrease in inhabitants per local authority area, 2005 – 2030

SFSO mean scenario

30'000
15'000
3'000
-3'000
-15'000
-30'000

Berechnung ARF/Fahrländer (2011;2012)
Kartographie: INFOPLAN-ARE, GEOSTAT-BFS, swisstopo

Land use analyses: estimated population growth by local authority type



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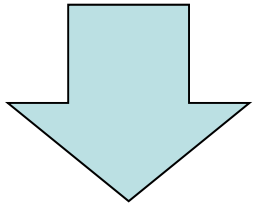
What we want and need (1)

- A better understanding of the medium and long-term secondary impact of new transport infrastructures on ...
- A better understanding of building zoning on ...



... settlement patterns, land prices and locational appeal for businesses and the population

Concluding remarks

- Integrated transport and land use models are needed urgently
- The model is no substitute for coherent spatial and transport policy
- A degree of standardisation is essential
- No monopoly, but broadly accessible, open source software
- Education and training