



Schweizerische Eidgenossenschaft  
Confédération suisse  
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Federal Department of the Environment,  
Transport, Energy and Communications

Federal Office of Transport

Swiss Confederation

# Swiss Transport Infrastructure Planning and spatial Development

Matthias Rinderknecht 4<sup>th</sup> September 2018

# Overview Presentation



- Objectives
- Constitutional basis / national cantonal/local level
- Transport planning at national level
- Transport model
- Overwhelming concepts / strategies
- Transport + spatial planning instruments
- Most important elements





# Objectives: Beautiful landscape, precious spatial resources+healthy environment to prevent, avoid urban sprawl

Integration of Spatial Planning and Mobility planning to

- optimize planning procedures of Transport + Spatial Development
- preserve a natural landscape at its best,
- to save spatial reserves in rare free urban areas in an economic way,
- to avoid urban sprawl,
- to safeguard a healthy and socially viable environment + free spaces in other areas





# Basis in CH: Constitutional principles

<https://www.admin.ch/opc/en/classified-compilation/19995395/index.html>



## Section 4 Environment and Spatial Planning

Sustainable development .....	Art. 73
Protection of the environment .....	Art. 74
Spatial planning .....	Art. 75

## Section 5 Public Construction Works and Transport

Public Construction Works .....	Art. 81
Public transport .....	Art. 81a
Road transport .....	Art. 82
Road infrastructure .....	Art. 83
Alpine transit traffic .....	Art. 84
Heavy vehicle charge .....	Art. 85
Charge for using the national highways .....	Art. 85a
Use of charges for tasks and costs in connection with road transport .....	Art. 86
Railways and other modes of transport .....	Art. 87
Railway infrastructure .....	Art. 87a
Use of charges for tasks and costs in connection with air traffic .....	Art. 87b
Footpaths and hiking trails .....	Art. 88

# National and cantonal / local tasks

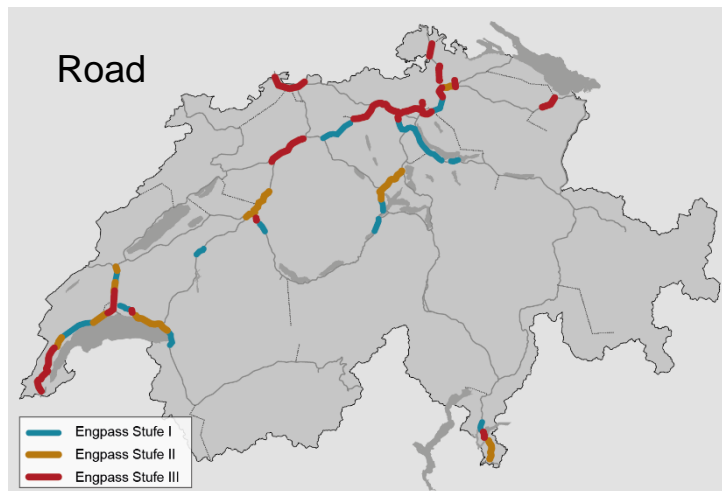
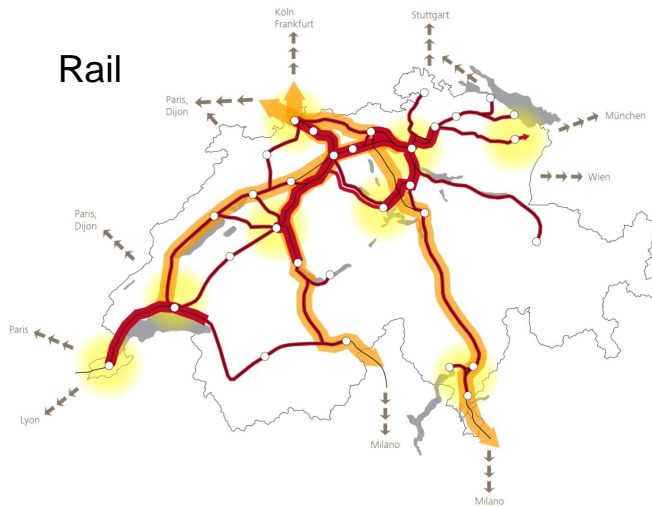
## National Tasks:

- Global Transport Infrastructure Planning + Implementation + Financing for global transport networks
- Specific constitutional provisions at national level:
  - Environment: polluter pays principle for damage avoidance.
  - Spatial Development: national principles binding on Cantons and serve to ensure appropriate+economic use of land and its properly ordered settlement
  - Transalpine Road freight Transport: Shift from road to rail is embedded in the Federal Constitution, including financial mechanisms.
  - Alpine crossing Transit traffic: transalpine road infrastructure capacity may not be increased

## Cantonal / local Tasks:

- Spatial planning at cantonal + local level within the framework of national provisions
- Transport planning at cantonal+local level coordinated with national guidelines

# Transport Planning at national level

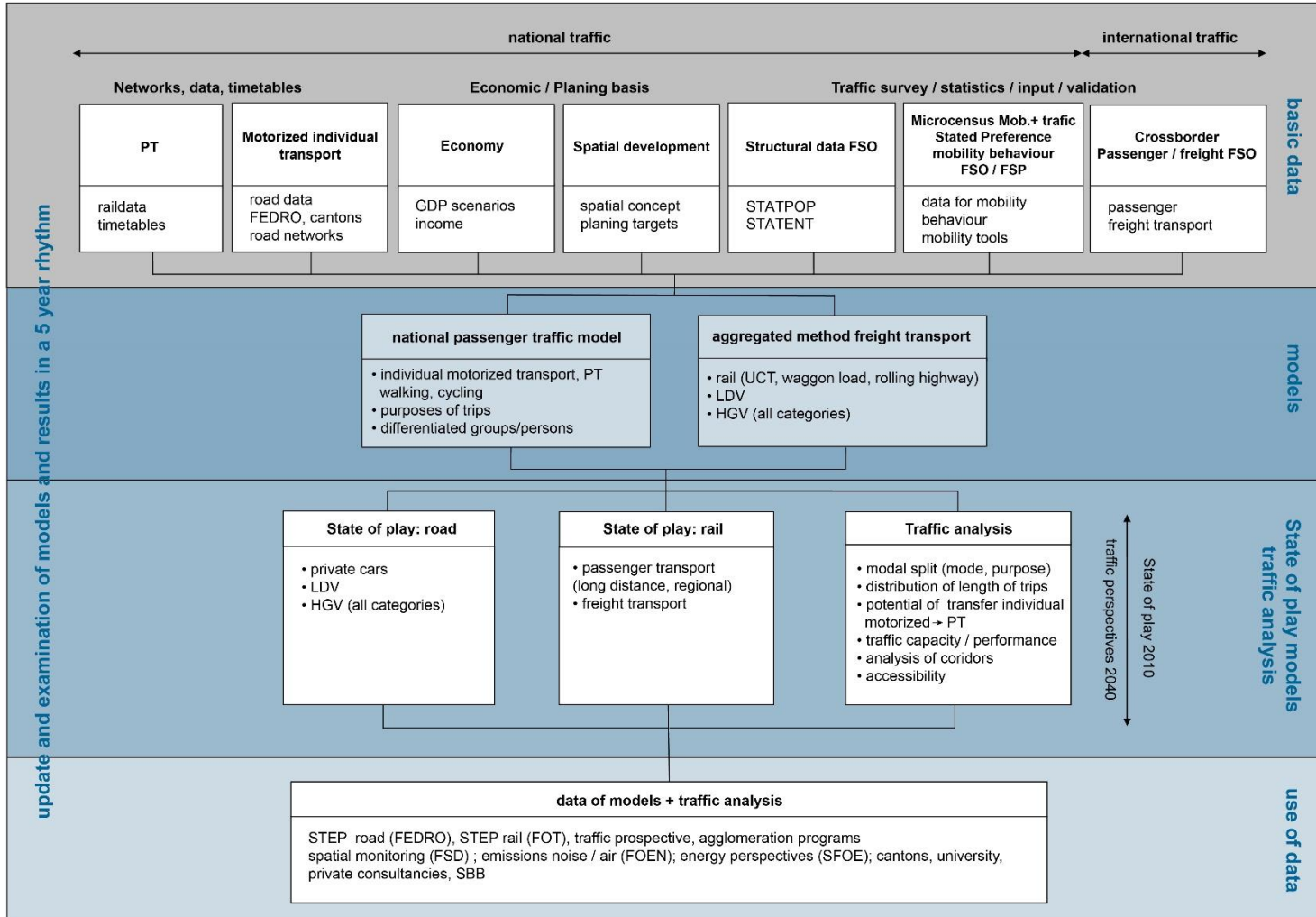


- Demand forecast for rail/public transport “Transport Model”;
- Estimation of capacity standards;
- Set up of future railroad timetables to meet the defined capacity targets;
- Set up of necessary infrastructure+ rolling stock to meet the targets of timetables / slots for passenger and freight;
- Stepwise implementation of elements;
- Demand forecast for road transport Transport Model /extrapolation based on statistics (FEDRO, FSO, bottleneck analysis);
- Set up of future bottleneck elimination and network-extension;
- Project of mobility pricing



# Transport Planning: Transport Model DETEC

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ARE, VM-UVEK, 12.2017

Federal Office of Transport, Matthias Rinderknecht

UNECE WP5 / workshop Integrated Transport and Urban Development 4 September 2018

# Overwhelming Concepts + Strategies



## “Spatial Concept Switzerland” (Raumkonzept Schweiz)

- Strategy: developed with common targets, mechanisms and implementation objectives between national, cantonal and local authorities.

## “Energy Strategy 2050”

- 4-pillar strategy for efficiency, renewable energies, replacement and new construction of large power stations except new nuclear power stations (shut down after their technically safe operating life), foreign energy policy

## “Sustainable Development Strategy”

- Agenda 2030 implementing the SDG’s : Action plan for implementation of domestic policy measures 2016-19, closer coordination between domestic and foreign policy, instruments + provisions to introduce, interdepartmental

## Switzerland's Climate Policy

- Commitment to halving CO<sub>2</sub> emissions compared to 1990 by 2030, substitution of fossil thermal and motor fuels: housing, transport, industry, waste; CO<sub>2</sub>-Act

## Digital Switzerland Strategy

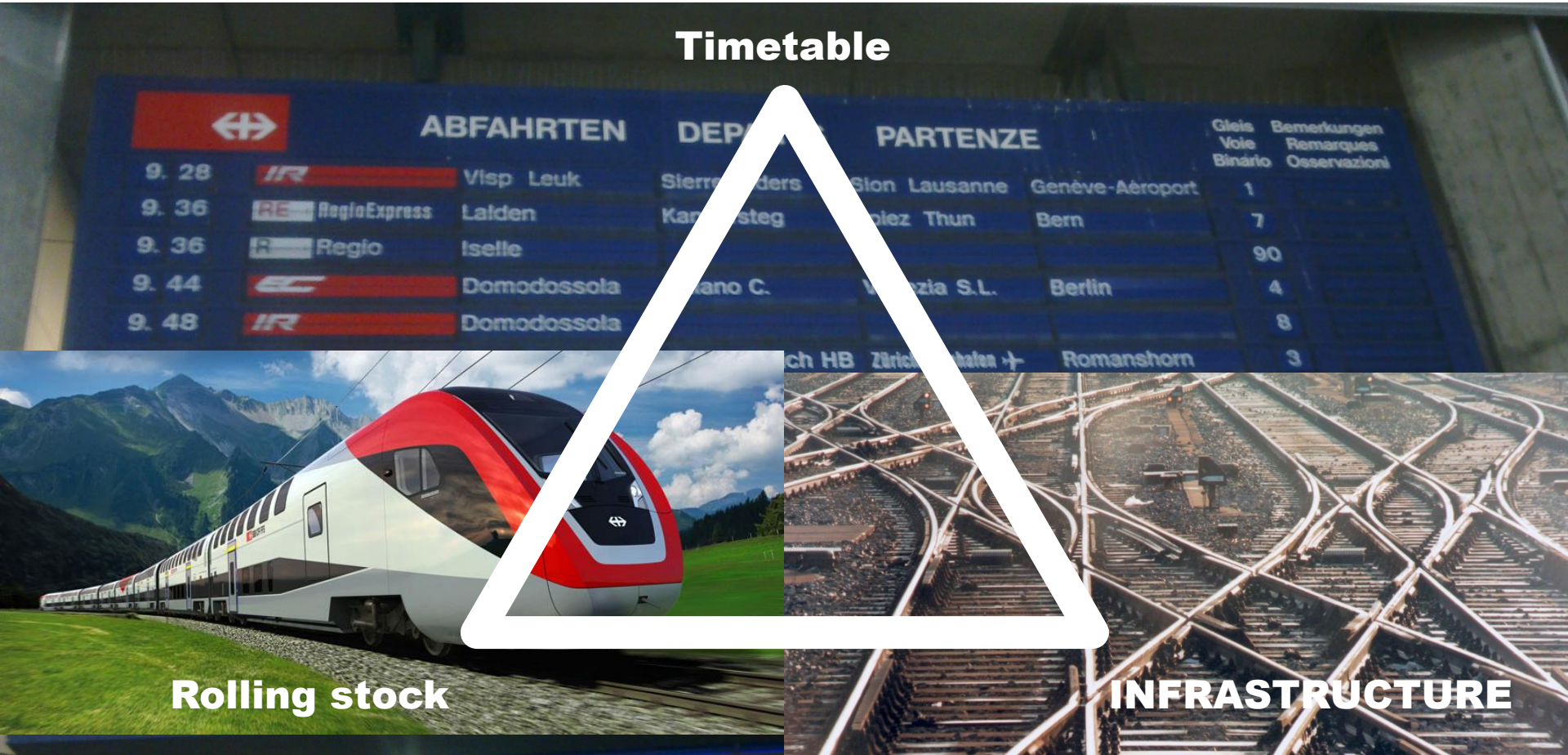
- Strategy to structural change, networked transformation processes, digital economy etc.



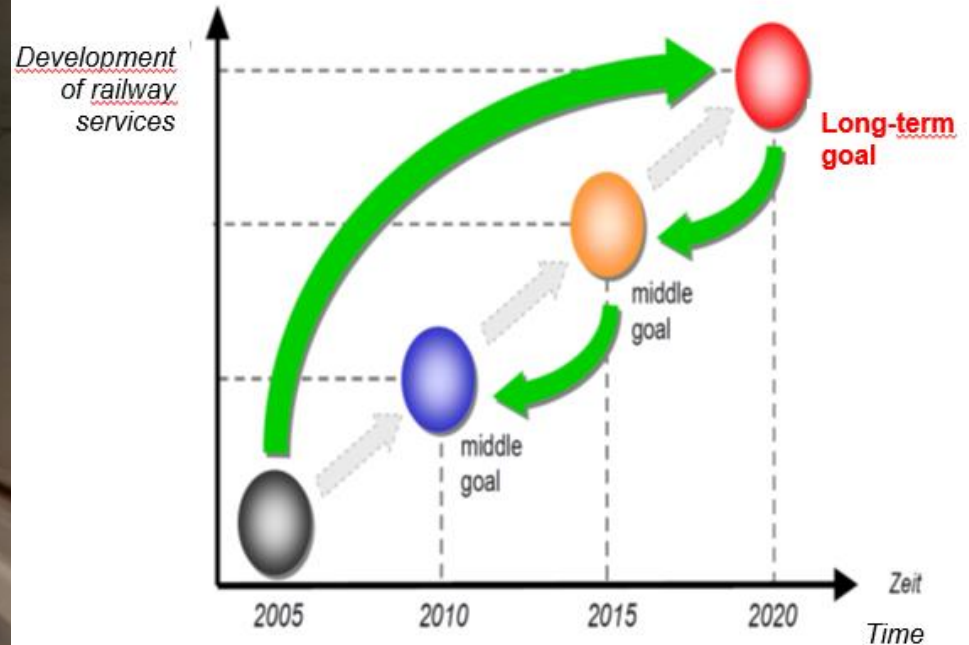


# Timetable – Rolling stock – Infrastructure

## Triangle of planning elements in public transport

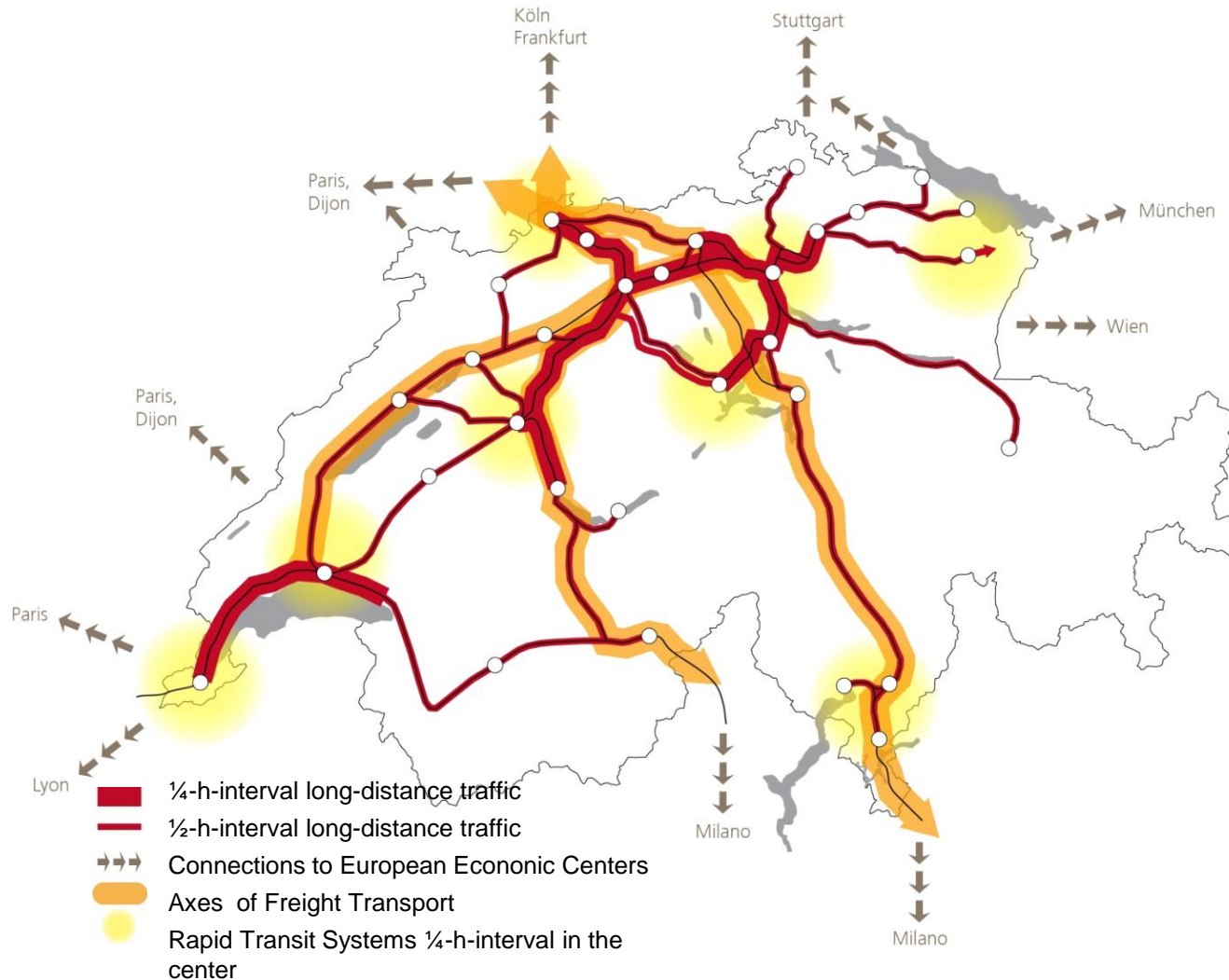


# Iterative planning in public transport planning procedures

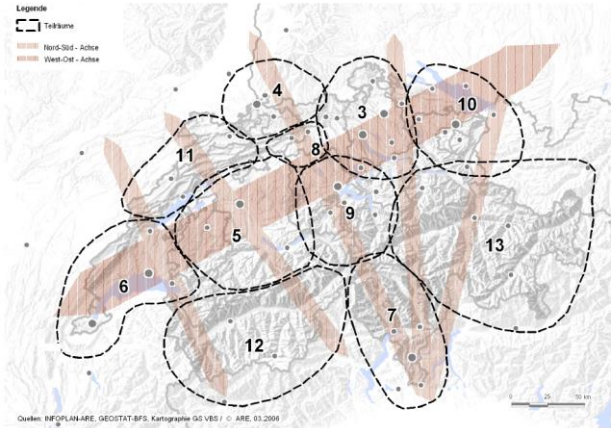




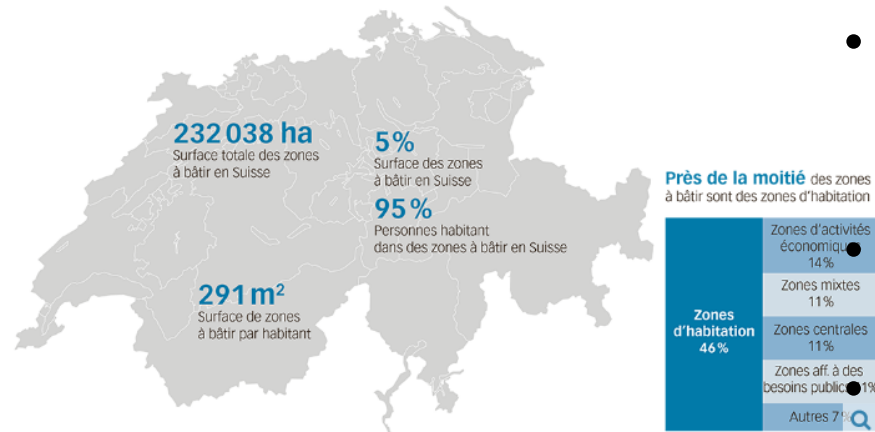
# Long-term Railway Development (>2050)



# Transport / spatial Planning instruments (national)



- Microcensus on Mobility and Transport by Federal Statistical Office and Federal Office for Spatial Development (5 year rhythm since 1974)
- Swiss Transport Model (ministerial instrument) Demand forecast for rail/road transport;
- Sectoral Transport Masterplan (“*Sachplan*”): Infrastructure: Road, Rail, Air, Inland Navigation; Agglomeration Policy / Programs “*Mobility+(urban)Settlement*” “*Projets urbains*”
- Pilote models for sustainable spatial development / *Modellvorhaben NE*



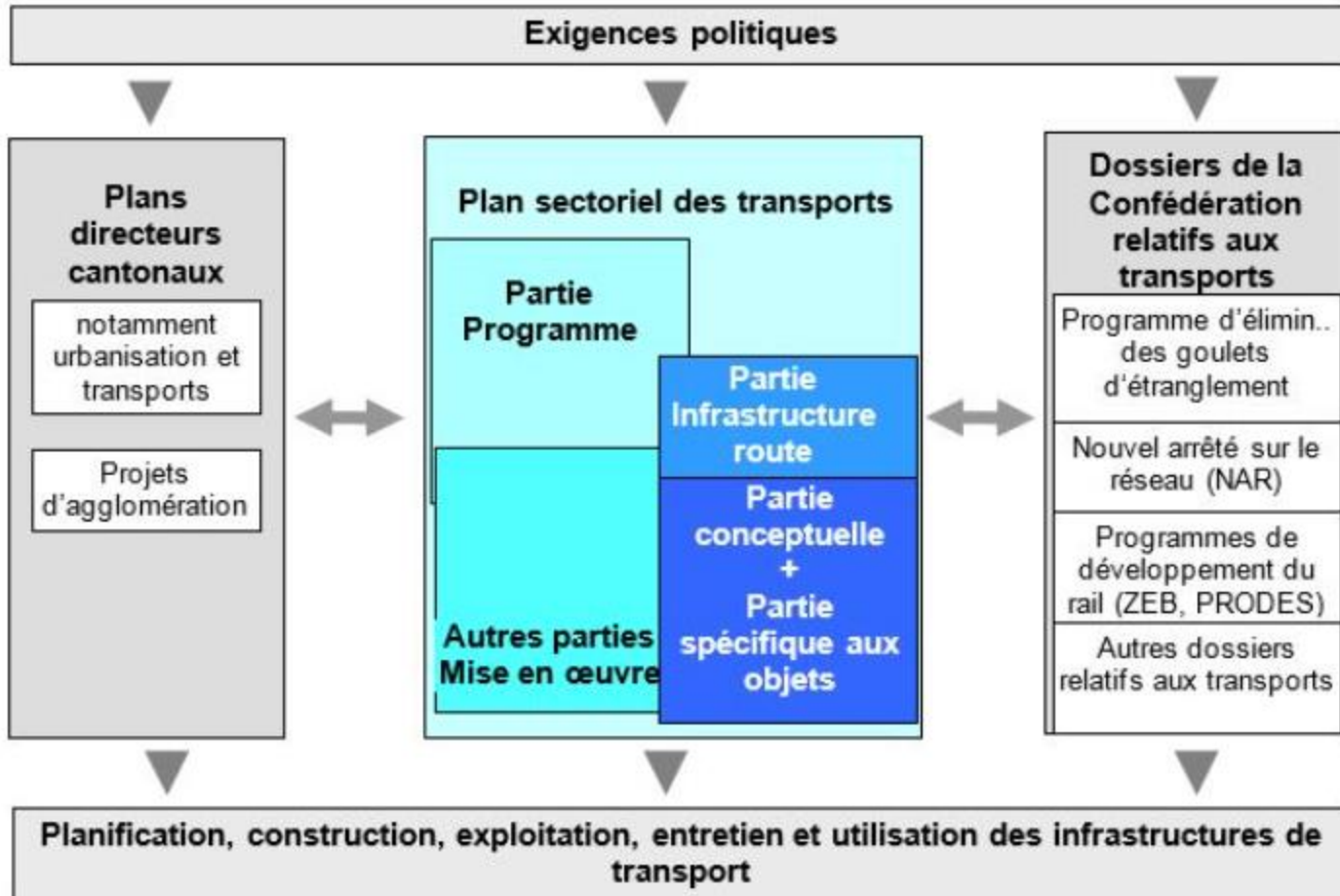
Statistique suisse des zones à bâtir 2017; Base: Géodonnées des cantons relatives aux plans d'affectation

© ARE



# Sectoral Masterplan Transport: Infrastructure Road

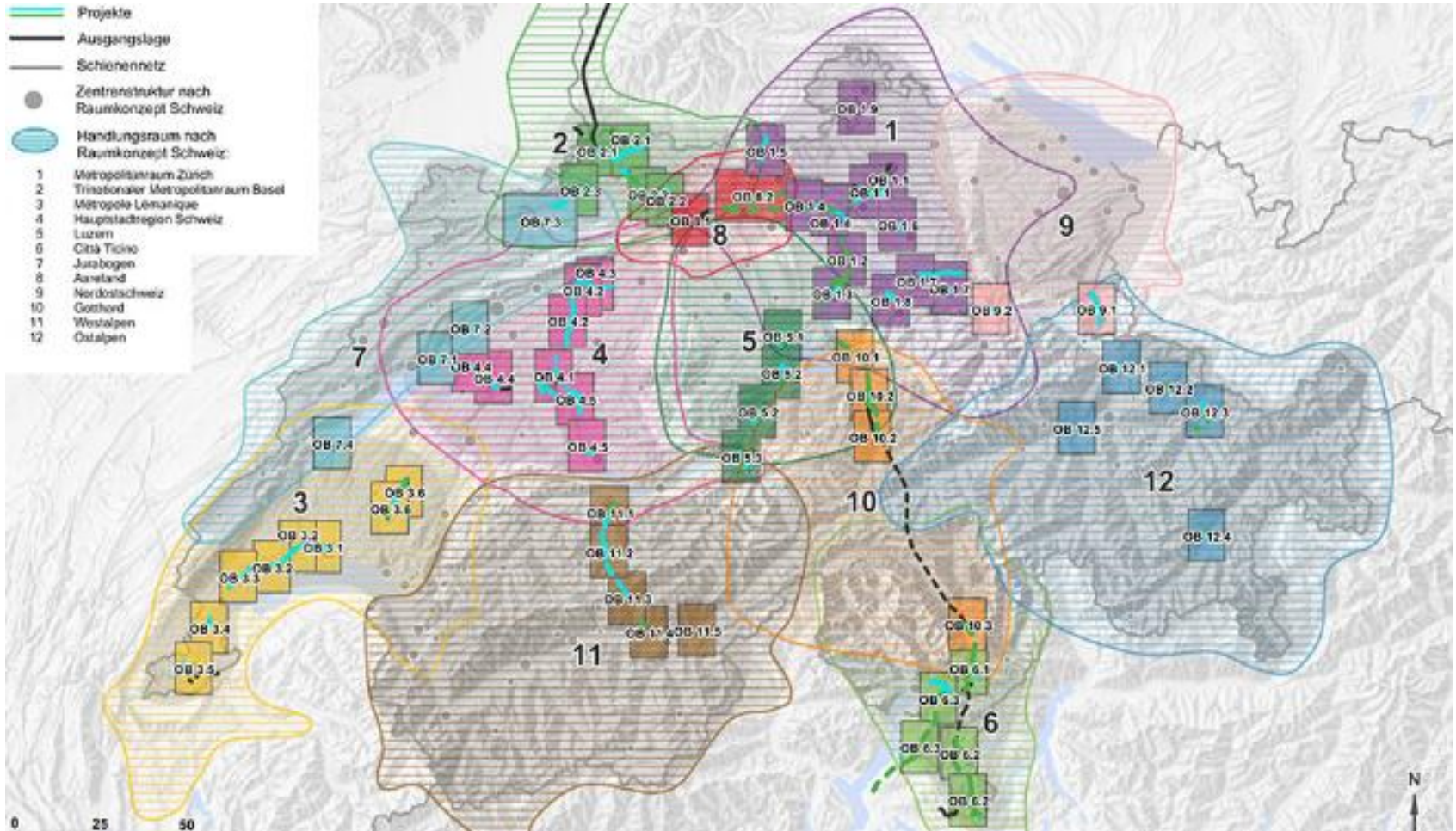
## *Sachplan Verkehr: Infrastruktur Teil Strasse*



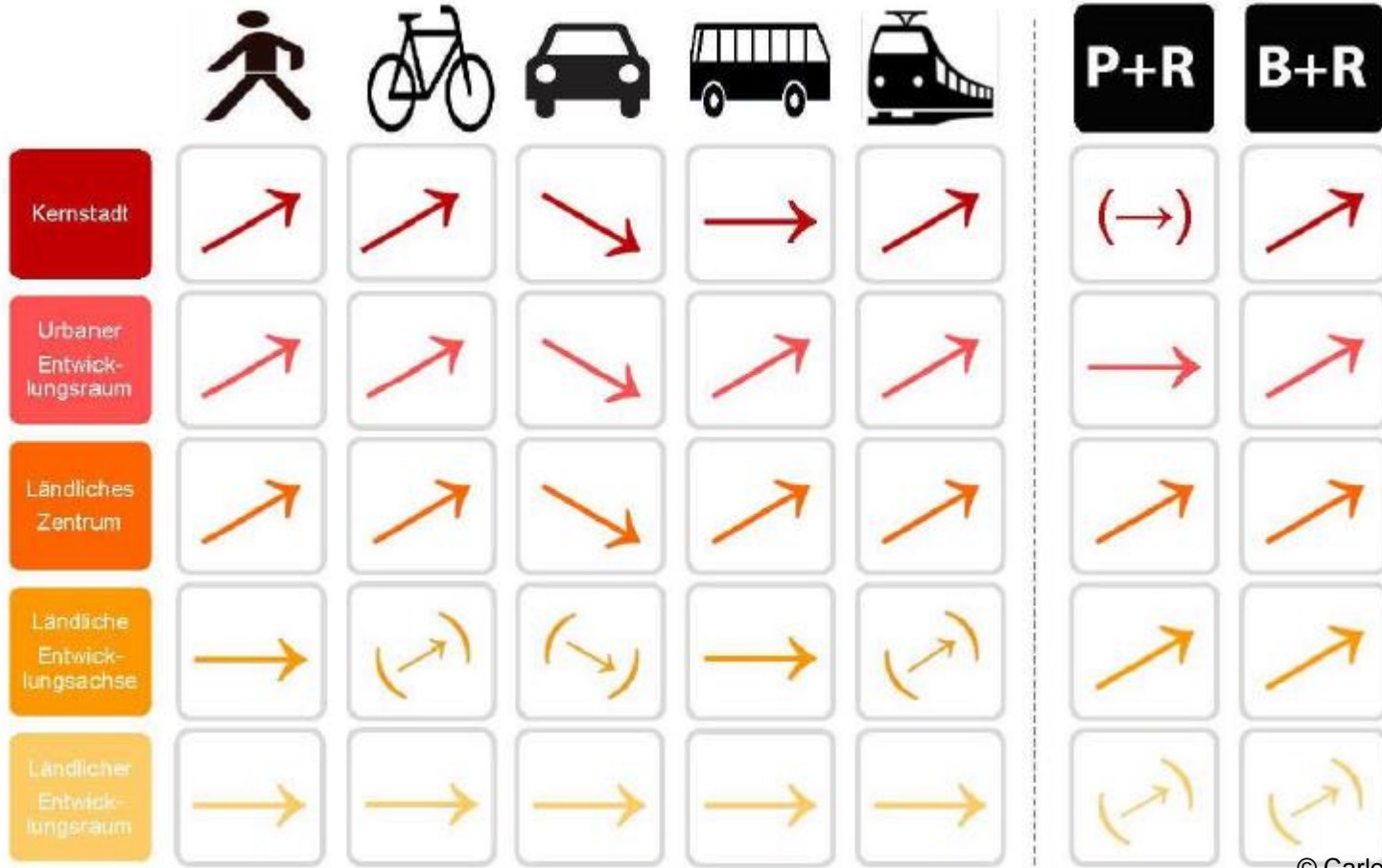


# Sectoral Masterplan Transport: Infrastructure Rail

## Sachplan Verkehr: Infrastruktur Teil Schiene



# **Transport Planning: ex Canton Aargau** Forecast mobility 2040



© Carlo Degelo, Aargau, 2017

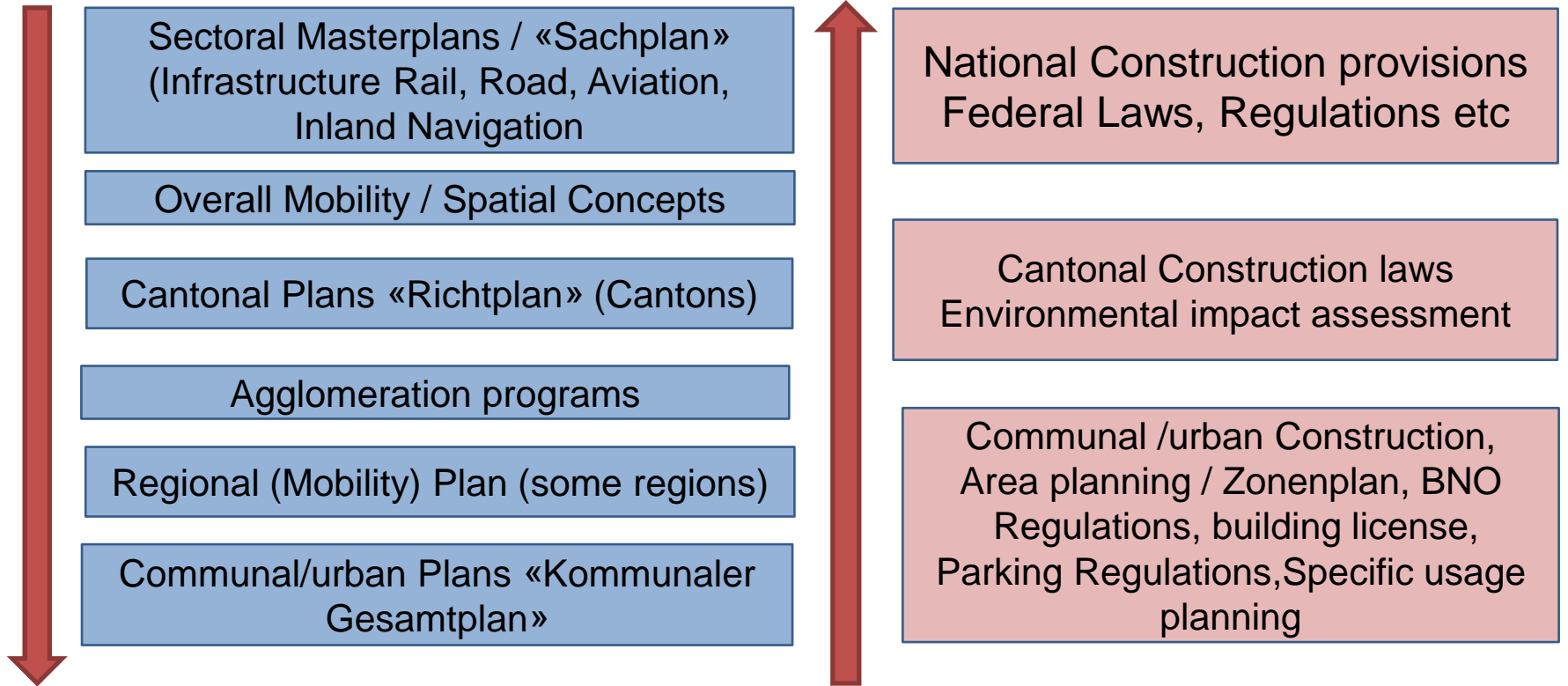
Expected / wanted changes in shares of overall mobility until 2040



# Planning instruments / steps

## Transport Infrastructure and spatial planning at different levels

### Planning / Programs at different levels



**Permanent adjustment between Top down and Bottom up procedures**



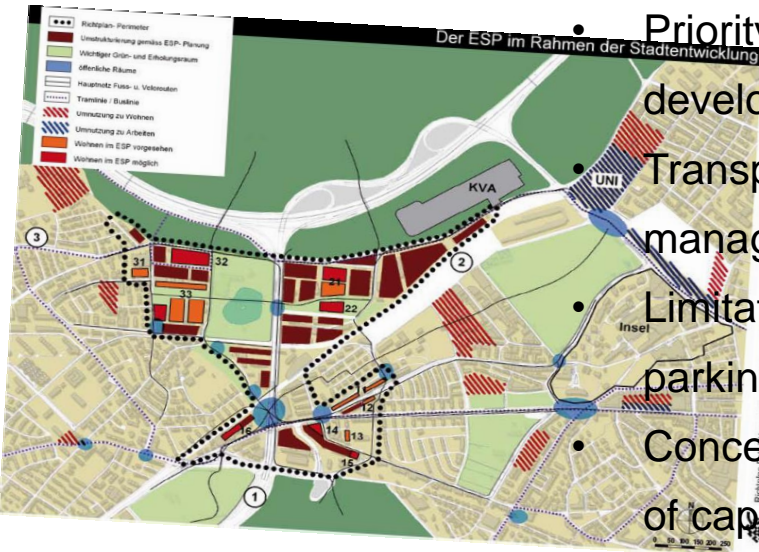


# Integrated Mobility + Urban Planning

## Most important elements



- Working in concepts of differentiated area planning (constructible area, housing, services, industry, mixed zones, free spaces, etc , local initiatives in coordination with regional + global planning
- Participative planning with all stakeholders
- Concept of limited extension of constructible areas, areas with specific uses



- Priority attributed to densification and concentration / hot spots of development instead of extension to avoid urban sprawl
- Transport intensive installations or new housing only with mobility management concept;
- Limitation of additional car movements by introducing stricter parking management, PT, improvement of soft mobility measures
- Concept of evaluation ex-ante of car movements / PT and proof of capacity for expected traffic e.g. by introducing a model of a defined number of car movements with bonus / malus system



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# Thanks for your attention

