Means of Mass Transportations as a solution for high traffic volume

The VGN - Verkehrsverbund Großraum Nürnberg

- with a catchment area of 14.500 km², serving 2.6 million people, it‘s the third largest transport association in Germany and the largest in Bavaria
- formed by eight independent cities and 19 counties, its 700 lines are operated by more than 100 transport companies
- in 2014 227,6 million rides were counted, adding up to 309,2 million euros in ticket sales
- the ticket sales covered 45% of the 681 million euros of expenditures in 2014
- the punctuality of the regional transport lines was at 97%

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NÜRNBERG

Autonomus subway

- 322.000 passengers/day
- route network of 36 km with 46 stations
- costs for extending the line by one station:

∑ = 65 million Euro (subsidies for the project: 50,6 million euros by the government)

Suburbian train

- 60.000 daily commuters create a need of mass transportation
- opening in 2025
- costs: circa 400 million euro
- possible subsidies of 152 million Euro from the government in 2016
- citizens' initiative against the project because of the high costs

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NÜRNBERG

Semester ticket for public transportation

- 258 euro/semester
- complete usage of the VGN-network
- valid all day
- to date 35 % (19.300) of the 55.000 students have bought the ticket

Park and Ride

- eleven p+r facilities with over 1000 spaces
- parking requires a valid ticket for public transport
- parking duration < 48 hours

Carbon free city as a longterm project

NÜRNBERG

Urban areas are responsible for three quarters of the global energy demand and for 80% of the global CO_2-production

Siemens AG Study (2009) „A major city like Munich can reduce its CO_2-emissions by up to 90 % by mid-century, without forcing the citizens to limit certain qualities of their life.“

But: In historically grown cities thousands of people already live there and not all of them welcome urban development plans

Therefore modernizing-funds for property owners and a urban development concept are important in order to achieve the goal of a CO_2-free city

Integrated urban development also offers many possibilites for active climate protection on different levels:

- inner development, densification and protection of green and open spaces
- redevelopment and energetic retrofitting of excisiting buildings
- supply networks - if possible with high construction standards and an efficent energy- and heatsupply
- climate friendly mobility

Alternative forms of mobility as a tool for reducing carbon-emissions

Norisbikes

- close meshed rental system
- distance from the next railway-, subway- or tramstation < 500m
- 800 bikes at 70 rental station
- maximal fee: nine Euro

Environmental Zones

- vehicles are divided into three different groups:
  - red: high emissions
  - yellow: medium emissions
  - green: low emissions
- usually environmental zones are in the inner cities

-> only vehicles from the green group are allowed to enter those zones

Alternative forms of mobility as a tool for reducing carbon-emissions

Carsharing

- use a car without buying it
- taxes, insurance, maintenance and gas are included
- In the rental fee
- over 35 carsharing stations in Nuremberg
- 2011: over 700.000 customers in Europe 2015: over 15 million users in Europe
- more than 240.000 cars in Europe (including electric cars)
- over 3.7 to 5.7 billion euros in sales worldwide

Mobility points

- mobility points are intersections between the alternative forms of mobility
- supposed to make the use of ecofriendly forms of mobility even more attractive
- creating a better parking situation

Car-free living in Langwasser P

An ideas competition for Langwasser in 1954 led to the car-free concept for construction phase "P„

- 1976 start of construction works
- 1978 - 1987 completion
- parking spaces at the edges of the residential area, so the inside can be „optical“ car-free
- reconstruction in 1990 of roundabout 1.000 dwelling units for approximately 3.180 inhabitants
- distinctive feature: first large settlement with a pedestrian zone in Germany and a complete (but less than optimal) infrastructure and a good transport connection

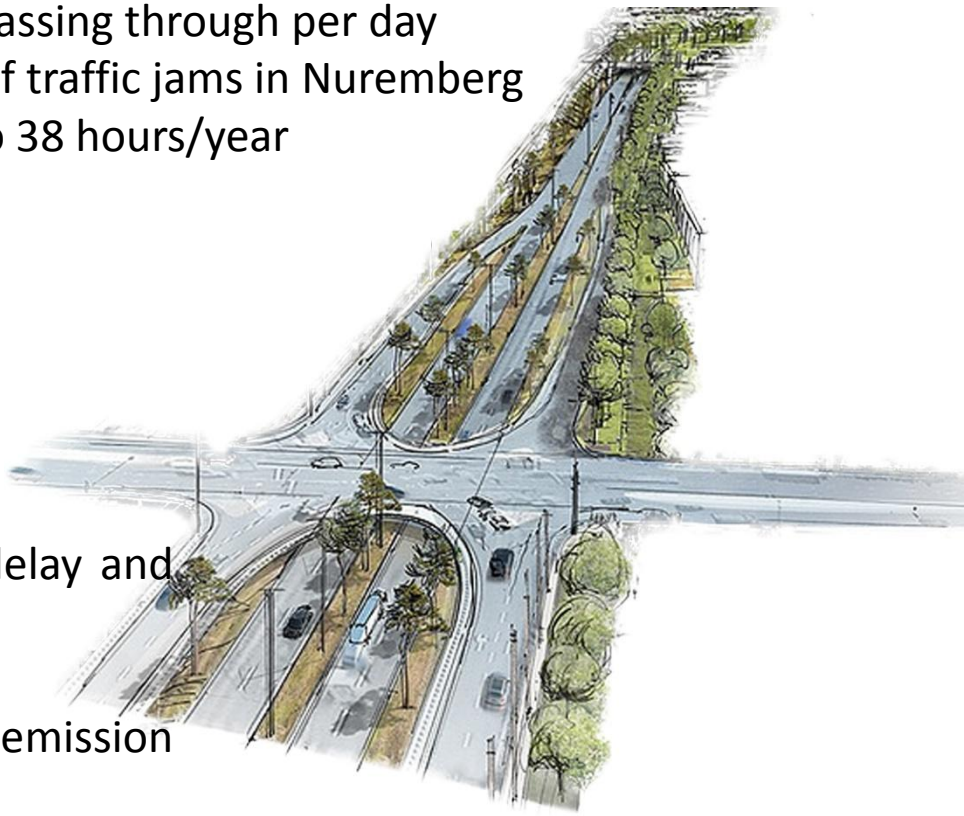
Main infrastructure project

„Frankenschnellweg“

- highway (partly running through city)
- main traffic artery in middle franconia
- high traffic density causing high emissions
- three traffic lights stops with an amount of up to 200.000 cars passing through per day
- average time of traffic jams in Nuremberg summing up to 38 hours/year

Main priority of urban development

- crossingfree route without traffic lights
- reducing environmental pollution



Obstructions

- 2010: costs of 297 million euros
- 2015: costs 500 million euros (because of delay and assessment of environmental effects)
- petitions against this project
- concerns regarding the preservation and emission control regulations

Transferring this practice

In order to become a carbon free city we recommend

- a well connected public transport system to avoid gridlocks
- to inform the citizens about projects, considering their concerns and thereby getting their support
- prospective planning, especially focusing on housing issues in order to prevent segregation (which can lead to the emergence of slums)
- to tackle environmental issues now, even if the taken measures are small-scaled, as the long term consequences can have negative impacts on whole generations (e.g. through genetic mutations)

Possible approaches for improving the means of mass transportation

- Investing in autonomous subways improves the effectivity of public transportation
- Increasing the appeal of alternative forms of mobility, e.g. through tax advantages for eco-friendly cars (hybrids or all-electric vehicles) or higher taxes on high-emission vehicles (like diesels)
- Improving the infrastructure surrounding the means of mass transportation, e.g. with mobility points or park & ride facilities close to stations of public transportation
- Introducing environmental campaigns like car free days orientated towards the model in Paris