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Environmentally sensitive traffic management

Identification of emission-critical driving situations & harmonisation of traffic flow by speed limit of 40 km/h – for better air quality and high efficiency in Stuttgart

Susanne Scherz, City of Stuttgart Head of Road Traffic Authority





Welcome to Stuttgart

- State Capital of Baden Württemberg
- Good accessibility to highways, rail network, airport and water route
- inhabitants: 610,000
- workplaces: 470,000
- Centre of a polycentric region with 2.7 mio inhabitants, 1 mio workplaces, 160,000 companies





- 500 km main roads
- 912,000 incoming/outgoing cars per day
- PT lines: 7 S-Bahn, 19 U-Bahn, 55 bus, rd. 980 stations/stops
- 1.03 mio PT journeys per day (VVS, 2018)
- 340 km cycling infrastructure
- 400 "Stäffele" (approx. 20 km total length)

STUTTGART



Challenge

- Difficult topography
- Low wind location
- High amount of through traffic
- High share of diesel vehicles

Measures

- Environmental zones
- Bans of heavy good and certain diesel vehicles
- Strengthening of cycling, walking and public transport
- Parking space management
- Various technical measures (e.g. filter cubes)
- Speed limits on main roads
- Extension of traffic management







Speed limit 40 km/h on gradients

- 2012: Project start at hotspot Hohenheimer Straße
- Traffic flow improvement through T40 and more restrictive parking regulations
- No shifting of traffic to other routes
- Reduction, in particular of NO2 pollutions
- Extension of T40 on gradients



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STUTTGART Speed limit 40 km/h at emission critical hotspot



- 2018: Project start at Neckartor hotspot
- T40 in in acceleration sector (sequence of traffic lights / bend)
- Reduction of excessive emissions during acceleration / harmonisation of traffic flow / reduction of NOx
- New: Using vehicle probe data (FCD) and emission values (project partner: Robert Bosch GmbH) for identifying heat maps and impact assessment





Speed limit 40 km/h on main roads

• 2020: T40 on all main roads in entire inner city-area and on several main roads in outer city-area (based on Clean Air Plan)

Significant and beneficial change of driver's behaviour

- With speed <u>information displays</u>: No significant reduction in average speed, but significant harmonisation of traffic flow
- With speed <u>surveillance systems</u>: Significant reduction in vehicles exceeding the speed limit and significant harmonisation of traffic flow

Results on air quality at hotspots

- Significant reduction of NOx emissions level
- Significant reduction of days exceeding NO2 limits and of NO2 annual average value
- Experience at hotspots and in the large-scale road network
- Smoothing the traffic flow
- No significant shifting of traffic to other routes
- No significant loss of capacity
- Appropriate for public transport
- Appropriate for bicycle transport
- ✓ High acceptance by the public



STUTIGART Environmentally sensitive traffic management



Increased steadiness of traffic flow

• Prevention and reduction of congestion

Forecast



Strategies / Measures



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Traffic flow optimisation due to emission critical driving conditions





Outlook

Navigation system



Route guidance straight ahead

Municipal traffic management



Route guidance right



Susanne Scherz

Road Traffic Authority (32-3) City of Stuttgart

+49 711 / 216 – 91155 susanne.scherz@stuttgart.de www.stuttgart.de

