SUITS

STUTTGART

Improving air quality in the city

The present good practice report was developed from the cooperation with the Mobility Department of the City of Stuttgart, in their role as a follower city in the SUITS project, for purposes of learning transfer and knowledge exchange.

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Summary

The good practice example shows how Stuttgart has been tackling its particulate matter problem in recent years and the wide range of measures that have been implemented. The main areas of action are Traffic Management and Access Restrictions, Public Transport development, Mobility Management and Environmental Management.

Stuttgart in European Projects

Stuttgart has actively participated on the European level coordinating two EU projects 2MOVE2 and CARAVEL and participating in several other European projects like SUITS, Go Pedelec, Active Access and SUMPA MED). In 2MOVE2[1], the main objective was to improve urban mobility by advancing or creating sustainable, energy-efficient integrated urban transport systems in the participating cities. and CARAVEL[2] aimed to improve quality of life in the participating cities by tackling urban mobility issues through public-private partnerships, stakeholder consultations, awareness-raising activities and research.

source: VVS - Verkehrs- und Tarifverbund Stuttgart

[1] https://civitas.eu/project/2move2

[2] https://civitas.eu/content/caravel

Stuttgart Context

Stuttgart is the capital of the Federal State of Baden-Wurttemberg. The city has 620,000 inhabitants but Stuttgart is the centre of a metropolitan region with more than 5.3 million people. As part of an important economic zone within the European Union and located in one of the densest conurbations in Germany, Stuttgart has to cope with a very high volume of traffic largely caused by commuters. Every day, around 800,000 cars enter and leave the city and are major contributors of traffic congestion and air pollution.

Due to of its location in a basin, Stuttgart suffers from particularly severe urban climatic problems, with low exchange of air in the valley, relatively high average annual temperatures and also only low precipitation. This can lead to strong inversion weather conditions in which the air pollution generated by industry, households and traffic is concentrated in the city for quite some time.

Actions with the overarching goal to reduce traffic congestion and air pollution

Stuttgart is very engaged in the field of sustainable mobility and is one of the forerunner cities in Germany in this respect. For many years, Stuttgart has been pursuing the goal of reducing congestion and pollution and optimizing traffic flows

With the Mobility Plan 2030[3] (VEK 2030), Stuttgart defines the primary objectives to reduce emissions, noise and congestions and to improve quality of live in the city. This plan is considered as the overall SUMP of the municipality including also a more dynamic part, the Action Plan on Sustainable Mobility in Stuttgart. This action plan contains short and midterm goals and approaches and is revised and updated by the political authorities of Stuttgart every two years.

To reduce air pollution problems, Stuttgart has introduced numerous measures and launched different initiatives in the mobility sector in recent years. The actions include the improvement of conditions for public transport, pedestrians and cyclists as well as a reduction of the share of motorized individual transport. In addition, the topics of reachability and accessibility are given high priority.

Following, the main actions in the areas Traffic Management and Access Restrictions, Public Transport development, Mobility Management and Environmental Management are being described. Thus it becomes clear how widely the problem is being tackled.

[3] https://en.stuttgart.de/issues/sustainable-mobility.php

Traffic Management and Access Restrictions

In order to reduce particulate matter and carbon dioxide pollution in the city of Stuttgart, traffic bans based on pollutant classes have been in place since 2008. These have been successively intensified over the course of time[4].

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- Since 2008, Stuttgart has been a low emission zone in the entire city (with a few exceptions), i.e. driving and parking prohibited for vehicles with emission classes lower than Euro 2 and vehicles without a regulated catalytic converter.
- Since 2010 HGV transit ban[5]
- Since 2019, while the emission standards for particulate matter have been met since 2018, the concentration of NOx continued to exceed the limits. In order to comply with the legal requirements, the State of Baden-Wuerttemberg launched a zonal traffic ban for all vehicles with diesel engines with the emission standard Euro 4/IV[6] and lower. The traffic ban is applicable all year round in the low-emission zone.
- Since 2020, diesel traffic ban was further extended to vehicles with diesel engines of emission class Euro 5 and lower on certain routes through the city centre;
- Since July 2020, a zonal traffic ban for diesel vehicles of the Euronorm 5/V and lower has been in effect in the Stuttgart basin and in the districts of Bad Cannstatt, Feuerbach and Zuffenhausen - the so-called small environmental zone.

The restrictions are very effective, but it must be taken into account that a lot of work is involved in processing exemptions, e.g. for supply trips, provision of services or construction works. In addition, corresponding capacities must be planned for the control of compliance with the regulations[7].

In this context, various measures were implemented to optimise traffic flow and reduce possible displacement effects:

- Bans for trucks on certain city routes have been in force since 2010, in this context, a truck route recommendation network was developed, which recommends optimal routes through Stuttgart and at the same time displays routes that are closed to truck traffic.

[4] https://www.stuttgartcitizen.com/news/diesel-traffic-ban-in-stuttgart-what-you-need-to-know/

[5] https://www.stuttgart.de/leben/mobilitaet/logistik/lkw-durchfahrtsverbot.php

[6] Euroklassen 4 und IV -> Pkw und Fahrzeuge > 3,5t

[7] https://www.stuttgartcitizen.com/news/diesel-traffic-ban-in-stuttgart-what-you-need-to-know/

- Implementation of environmentally sensitive dynamic speed adaptation on some main urban routes, which regulate traffic depending on the weather and traffic situation, thus improving traffic flow and reducing stop-and-go situations.
- continuous improvements are being made to the parking guidance system and parking management. On the one hand, this leads to a reduction of parking search traffic, and on the other hand, considering the comparably high parking fees in the city centre, it creates incentives for the increased use of Park and Ride car facilities around the city center and public transport nodes.

An important contribution to this has also been made by the publicity campaigns described in the section on Mobility Management later on.

Public transport

source: Stadt Stuttgart

Traffic restrictions and other measures aimed at changing mobility behaviour must be accompanied by a strong public transport system that makes switching to public transport easy and attractive. Stuttgart already has a very well-developed public transport network, but is striving to continuously expand and improve its capacity and quality.

In 2015, the Public Transport Pact[8] was adopted, which aims to increase the efficiency of public transport, especially bus and rail, enabling at least 20 percent more people to use it until 2025. This pact was agreed between the State of Baden-Württemberg, Stuttgart Region and the state capital Stuttgart along with representatives of the public transport operators.

[8] https://vm.baden-wuerttemberg.de/de/mobilitaet-verkehr/bus-und-bahn/oepnv-pakt-stuttgart/

Measures include:

- Expansion and enhancement of the light rail and suburban railway network
- Expansion of Park & Ride and Bike & Ride facilities along the urban railway lines
- Use of express buses to close gaps in the local transport system, for example through a direct connection between one of the most populous city districts and the city center whereby a separate bus lane can be used on a typically congested route, thus bypassing traffic jams. Two other lines connect city districts with the airport and the exhibition centre, bypassing the inner city areas.
- Increasing transport capacity
    - More frequent services to cope with increasing numbers of passengers
    - Purchase of new cleaner hybrid buses with high emission standards and with higher passenger capacity. In the long term, the operation of hybrid buses should reduce diesel consumption by almost 7 liters per 100 kilometers, resulting in a CO2 saving of 30 percent
- Greater use of the potentials of new information and communication technologies to improve user-friendliness and thus the travel experience (e.g. regarding passenger information or ticketing)
- Further expansion of intermodal connectivity of different transport modes

In recent years, the local public transport system in Stuttgart has developed positively. Stuttgart offers its citizens one of the densest local transport networks in Germany. On average, around half a million people are transported in the metropolitan region every day. Citizens use light rail, buses and suburban trains more frequently. Additionally, bike sharing and car sharing services are well developed and accepted by the population. In the future, even more emphasis will be placed on intermodal transport.

The Public Transport Pact and its programmes ensure the long-term viability of public transport services in the region and greatly contribute to the improvement of air quality and the reduction of traffic congestion.

Mobility Management

The goal of mobility management is to influence transport demand with the aim of making passenger transport more efficient, but also more environmentally and socially compatible and thus more sustainable. In recent years, Stuttgart introduced a number of soft measures with the goal to increase the use of public transport. On the one hand by reducing barriers and increasing the ease of use, but also through awareness campaigns directed to change peoples‘ mobility behaviour.

Examples are:

- 'Jobticket' Initiative: For employees of the city administration and for employees in companies and other organisations in Stuttgart. The subsidy of public transport fares provides incentives for commuting by public transport.
- POLYGO Card: a smartcard for the use of public transport, which also enables the simple access to car and bike sharing services and the use of e-charging stations
- Public transport interchange car park: There are numerous Park and Ride car parks around the city centre as well as in the region. Parking tickets can be used as public transport tickets.
- Streamlining of the fare zone system. The more than 50 fare zones so far have been recently turned through a huge Tariff Reform into only five ring zones. This leads to a fare system which is easier to handle, clearer and also cheaper for many passengers, especially for the numerous commuters who come from the surrounding cities in the region.
- Implementation of a special mobility guidance program for new citizens: Citizens new to the city are provided with a package containing useful information on public transport and a trial voucher.

In addition, Stuttgart implemented numerous mobility campaigns (posters, radio advertising, videos, Facebook posts, interviews, newsletters) aimed at increasing the population's awareness of the air problem and triggering changes in citizens' mobility behavior towards the use of the well-equipped public transport system. These initiatives are for example:

- 2016 - 2020 STUTTGART PACKT'S AN. MACHEN SIE MIT! GEMEINSAM FÜR SAUBERE LUFT[9] introduction of the "particulate matter alert", as an instrument for air pollution control. If air quality falls below the limit values, citizens were called not to use their private cars in Stuttgart and to switch to public transport or to car-pooling. The operation of comfort chimneys, i.e. chimneys which do not serve the basic needs, is also prohibited on these days according to a regulation of the state government. The air in the city has become cleaner and subsequently the particulate matter alarm was ended in April 2020. It has led to people in Stuttgart and the region developing huge awareness on the issue of air pollution and helped to make more visible the alternatives to car commuting.

[9]https://www.stadtklima-stuttgart.de/stadtklima_filestorage/download/luft/Ausfuehrliche-Informationen-zum-Feinstaubalarm.pdf

- Since 2015, Stuttgart has actively promoted a campaign called “Stuttgart steigt um[10]” (Stuttgart is changing), to encourage citizens to avoid using the private car and thinking of alternative transport modes like walking and cycling, sharing mobility and public transport.

Environmental Management

In addition, there are a number of other measures aimed at environmental protection and pollution reduction:

- Comprehensive funding programs for E-mobility in the commercial sector, e.g. through support for the purchase of new vehicles with high emission standards or support for the purchase of E-Cargo bikes[11]
- „Car free day” in Stuttgart. In cooperation with 30 partners, the city organised a street festival with a lively information and participation program. In addition, the use of public transport in the entire city centre area was free of charge on this day[12].
- Programs for environmental protection in companies
- Intensification of the greening of roads and light train rails
- Ban on combustion (solid fuels, green waste) in the city
- Restrictions for dust-intensive operations and construction sites on days with high air pollution
- Subsidies for further expansion of car and bike sharing services in the city

Conclusion

The example of Stuttgart clearly shows how complex the pollution problem is and that a bundle of coordinated measures is needed in different areas to improve the situation in the long term in a sustainable manner. It also shows how closely the different areas are interlinked and that air-related issues have to be taken into account at every point.

A well-developed public transport network and services are the key when aiming on the reduction of individual transport and encouraging people to switch to public transport. In addition, an attractive infrastructure that promotes cycling and walking will make an important contribution to achieving the modal shift.

The aim of the city is to ensure that even more people use public transport in the future, which will further reduce the volume of traffic and improve air quality and

[10] https://www.stuttgart-steigt-um.de/

[11] https://www.stuttgart.de/leben/mobilitaet/elektromobilitaet/

[12] https://www.stuttgart.de/leben/mobilitaet/nachhaltige-mobilitaet/cities-for-mobility/theo-autofrei.php

thus the quality of life. The corresponding measures to achieve this are described in the Transport Development Concept 2030[13].

Stuttgart has developed several results in 2MOVE2 and other national and European projects that will be further exploited, being an integral part of the overall mobility strategy of the municipality. By developing a dynamic "Action Plan for Sustainable Mobility", Stuttgart has gained a living SUMP instrument that focuses not only on planning but rather on the implementation of concrete actions. The various measures have contributed to the fact that no air quality limit values have been exceeded since 2018. From 2021 to 2022, Stuttgart will develop a "Climate Mobility Plan" in order to define concrete and measurable measures which support the reduction of CO2 emissions. The development of this new plan is funded by the Ministry of Transport of Baden-Württemberg.

An important learning is, that it takes a long breath to achieve the desired change in transport. Many integrated measures are needed, which must have an overall objective and be applied in a wide range of areas. The introduction of these measures poses several challenges. Cities need to take into account that during the planning and implementation process of mobility measures, changes on different levels are likely to happen, that needs to be managed. The municipal bodies/ technical departments need to have a long breath and they must be empowered and motivated by the political level to be courageous when it comes to the design and implementation of mobility measures. Cities have to put a strong focus on the visibility of their policies and measures, enhancing transparency and enabling citizen participation. Measures have to be consistent with the long term strategic objectives of the municipality (Sustainable Urban Mobility Plans). In order to avoid an abrupt end of mobility measures it is essential to build up a strong political support (Mayor and City Council) as well as to create a broad network of local actors that support the deployment of sustainable mobility measures in the city.

[13]https://www.stuttgart.de/leben/mobilitaet/nachhaltige-mobilitaet/mobilitaets-konzepte/verkehrsentwicklungskonzept-2030.php