DT.1.3.7
ACCESSIBILITY TO AIRPORT

FUA Stuttgart report on passengers landside mobility demand, needs & behaviours

Version 1
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1. Fairport STR, Introduction

The report on passenger mobility needs and behaviours of the Stuttgart Airport gives an overview on the identified satisfaction level with the transport supply and hints on possible behavioural changes or solutions towards low carbon mobility in the FUA Stuttgart. The report is based on research data from 2016 of Fairport strategy of Stuttgart Airport as well as the public transport provider of the Stuttgart Region "VVS". In accordance with the Airport of Stuttgart, we decided to choose those references since Stuttgart Airport won´t give out their data on passenger mobility.

The report provides facts of passenger mobility in general in FUA Stuttgart and the Stuttgart Airport that are relevant to the LAirA project in accordance with the methodology from D.T1.3.1. Besides the quantitative data, also qualitative data, covering ideas and suggestions for improving the transportation system in the FUA Stuttgart will be presented.

2. Methodology of Stuttgart Airport employee mobility survey

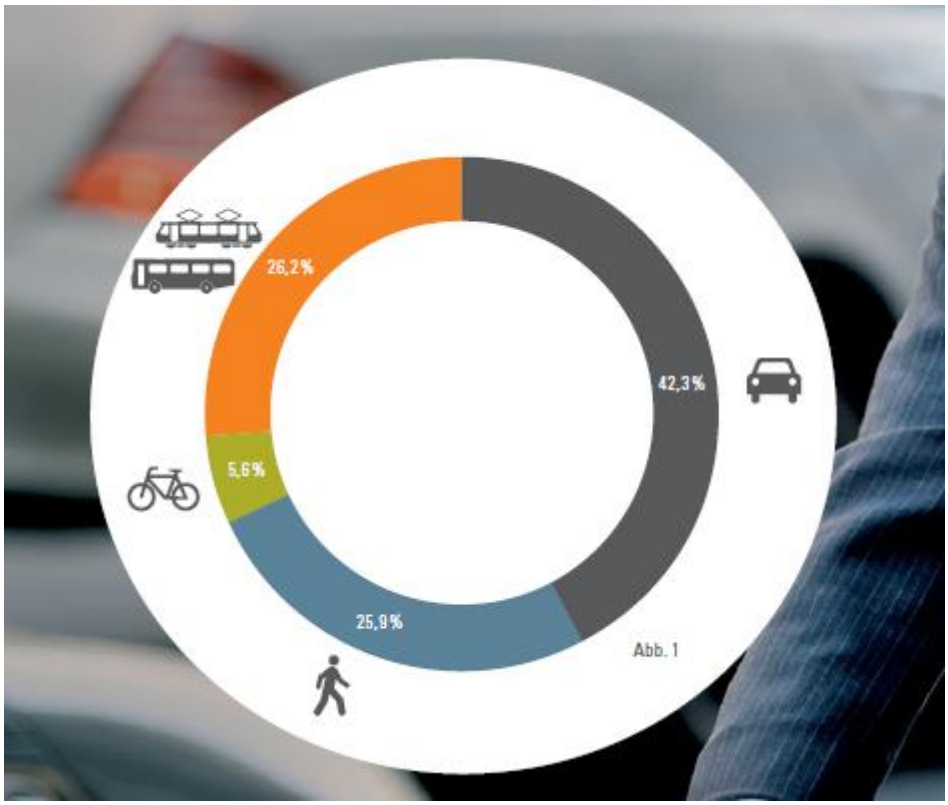
The aim of the study was to investigate the mobility behaviour of the public transport passengers in Stuttgart Region. The evaluations were made from the data of the administrative body of the Stuttgart Region (VRS), because of a household survey in autumn 2009 and in the first half of 2010. A sample of about 5,550 households in the Stuttgart Region were according to their mobility behavior interviewed. This survey was designed so that all members of a household older than six years were about their motorized and non-motorized paths reported over the course of a week. In total over 13,700 household members were reported and over approximately 276,000 paths even on weekends.

The sample size, which was chosen for the survey, are 14 middle centres of the region and their interweaving areas. For the City of Stuttgart, itself became this destination at the request of the city for 17 municipal districts or urban district aggregations specified. The original survey data were after a successful plausibility check over from statistical sources of derivable household sizes and their distribution in the region extrapolated. There was also a weighting according to the frequency of the individual weekdays and a correction to compensate for the collection of unrecorded summer phase. The resulting database includes the annual route the inhabitant in the subspaces, whereby numerous characteristics of persons and characteristics of their ways are still deposited. It is therefore a diverse evaluation possible under various aspects. The evaluations made for this brochure generally refers to the interconnected area of the VVS (City of Stuttgart, districts Böblingen, Esslingen,Ludwigsburg and Rems-Murr-Kreis). The results reflect therefore the behavior of the inhabitants in this room. The working day is defined from Monday to Friday.[1]

[1] VVS, p.4, http://www.vvs.de/download/Mobilitaetsbroschuere.pdf

3. VVS Passenger Mobility Report in the Stuttgart Region

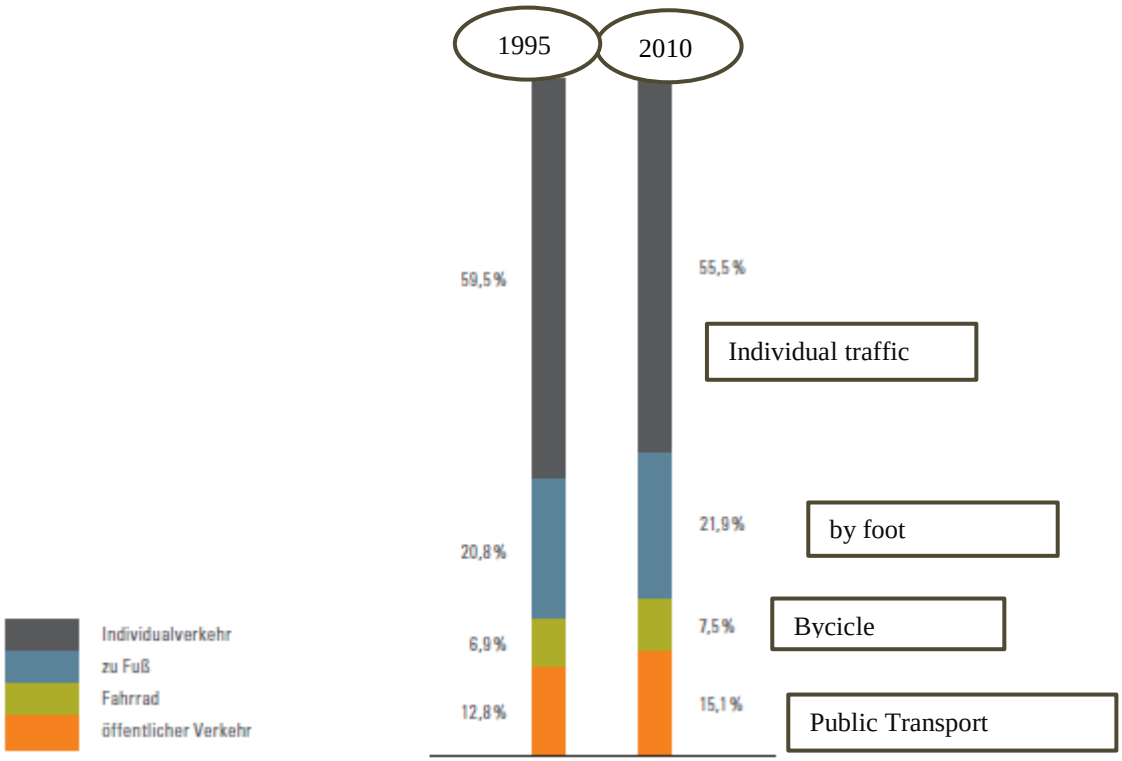
In Germany, 87 percent of all persons aged 15 or over have a driver's license for cars, motorbikes or mopeds. This proportion has increased significantly in the past ten years. Each household has theoretically 1.2 cars available. In the territory of VVS, there are half of the routes driven by motor vehicle or motorized two-wheeled vehicles. This corresponds to the German average. With about 15 percent, public transport also makes an important contribution to coping with traffic. This value refers to all paths in the entire composite room. In urban areas, the value is significantly higher. In addition, the share has been rising for years. It is also pleasing, that almost one third of all journeys are made by bicycle or on foot without motoring.[2]



1 Modal Split of Passenger Mobility in the Stuttgart Region

Between 1995 and 2010 the public transport market share in the state capital Stuttgart increased significantly from 22.2 to 26.6 percent and thus also the reduction of the number of journeys in private transport. The survey data, however, also signals a decrease in passenger car rides, indicating a decline in the vehicle occupancy rates. Insofar the transfer of trips is not automatically also a decline in motor vehicle traffic.

[2] VVS, p.7, http://www.vvs.de/download/Mobilitaetsbroschuere.pdf

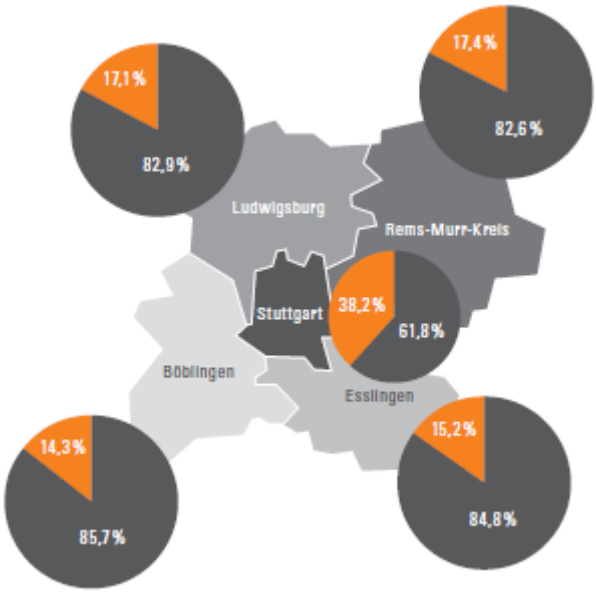


2 Development of the Modal Split in the Stuttgart Region

Short distances on foot or by bike - for longer distances, passenger use public transport in combination by foot or bike. The evaluation of the route length per means of transport shows, that the various modes of transport are used according to their specific advantages. The average walk is 1.8 kilometers, the average bike ride is about 3 kilometers, the car ride on average over 12 kilometers. Rides by bus, light rail or taxi move on a similar scale. With the rapid-transit railway as fast regional traffic system the humans in the VVS range put back on average approximately 23 kilometers, by the train (including the Long-distance trains) about 65 kilometres. For public transport overall, these results in a mean distance of 21 kilometres.

In the interconnected districts, public transport in comparison to motorized traffic currently accounts for around 15 to 17 percent of travel, compared with more than 80 percent of private transport. The residents of the state capital Stuttgart with at least 38 percent public transport use reward high settlement, network and timetable density of public transport in the motorized ways.[3]

[3] VVS, p.9, http://www.vvs.de/download/Mobilitaetsbroschuere.pdf



3 Comparison of public transport use (orange) to individual private traffic (black) by district (Esslingen, Böblingen, Ludwigsburg and Rems-Murr) and City of Stuttgart[4]

The public transport share in the Stuttgart region developed positively over the last few years. Particularly in the areas with good network coverage and dense clocking, the VVS-public transport is leading with up to 70 percent market share in the classic Modal split. There is, however a considerable gap in VVS usage between urban densities and more areas that are rural. Here, structural change will require new, more flexible solutions over the next few years.
In general, the mobility behavior of young people changes now fundamentally. Your own car is losing its appeal. It will be replaced by more flexible mobility concepts. At the same time, there takes place an intensive social discussion on the energy transition and the climate change. In this context, the issue of sustainable mobility is becoming increasingly important.[5]

4. Stuttgart Airport Fairport Strategy, developped in 2016, reviewed in 2018

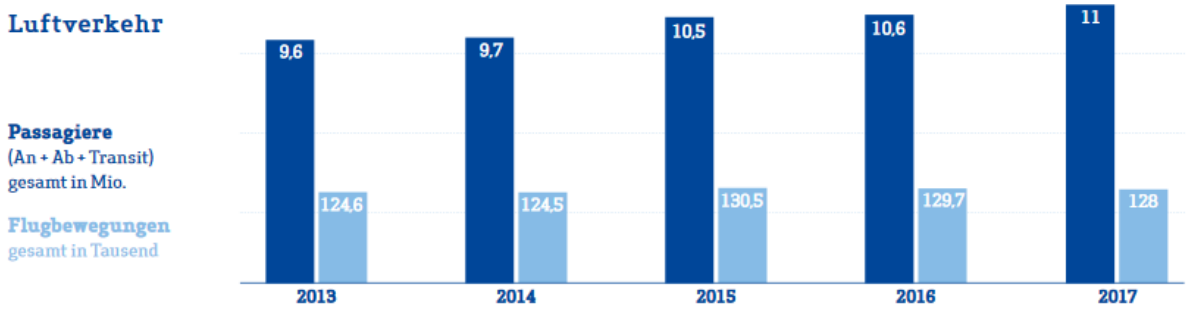
The Stuttgart Airport (FSG) has clearly positioned itself in its fairport program: they will continuously expand their organisation to an intermodal transport hub and the land- and airside. Linking traffic so that the people in the catchment area get the best possible connection. In doing so, it responds both to rising passenger numbers and to the desire of the regional economy for an optimal accessibility of the airport.

[4] VVS, p.14, http://www.vvs.de/download/Mobilitaetsbroschuere.pdf
[5] VVS, p.34, http://www.vvs.de/download/Mobilitaetsbroschuere.pdf

For this reason, FSG supports major infrastructure projects such as the extension of the U6 urban railway line or the Stuttgart-Ulm railway project. It is also investing heavily in expanding terminal capacity. Not least developed the airport grounds is used to a sought after business location best connection to Stuttgart centre as well as to national and international destinations.

The DLR Institute of Airport and Air Traffic forecasts interfaces an uninterrupted upturn in the aviation industry by 2030, strong growth in passenger numbers. In addition, construction and infrastructure projects at Stuttgart Airport are helping to increase the number of passengers and thus the number of feeder traffic and increase the catchment area. Stuttgart Airport connects one of the strongest economic metropolitan regions in Europe with the rest of the world. Around 55 airlines bring about 12 million passengers a year to more than 120 national and international destinations - and guests to Stuttgart.[6]

The Stuttgart 21 rail project, with its improved long-distance and regional transport services, is to provide up to 1.2 million additional passengers to the provincial airport every year.
The Stuttgart Airport Bus Terminal (SAB), which has around 20 inland destinations and around 50 destinations in Europe, has been attracting more travellers since 2016. Based on current forecasts, FSG expects more than 14 million passengers in 2030, 3 million more than in 2017.[7]



4 Stuttgart airport passenger numbers by year in millions (dark blue)

With an annual passenger volume of 10.5 million, the Stuttgart Airport is an essential factor for the economy of the federal state of Baden-Württemberg. Up to 400 flights with over 100 destinations and about 55 Airlines are landing and taking off daily on the runway.

Of particular importance in the planning is the public transport network of the City of Stuttgart. Around 2.5 million passengers took the S-Bahn to the airport in 2017. The number of passengers is rising steady for many years. Currently, half of all passengers spend less than ten minutes on the train until their city railway arrives - 98% of all passengers wait less than one half of an hour.[8]

[6] Fairport STR, https://www.flughafen-stuttgart.de/fairport-str/der-fairport-gedanke/

[7] Fairport STR, p.33 https://www.emas.de/fileadmin/user_upload/umwelterklaerungen/reg/DE-175-00180_Flughafen-Stuttgart-GmbH.pdf

[8] Fairport STR, p.33 https://www.emas.de/fileadmin/user_upload/umwelterklaerungen/reg/DE-175-00180_Flughafen-Stuttgart-GmbH.pdf

The U6-connection of the subway network is intended to supplement the existing public transport service. For this purpose, the line 6 will be extended; On a 3.3 km long route, three new stops will be built with the airport as the terminus. This will be conveniently located for passengers and hotel guests: on the southern edge of the convention centre in an open trough directly in front of the new conference hotel, just a few meters from the airport terminals away. The new U6-connection offers further passengers, visitors and employees the opportunity to reach the airport and the state fair in a cost-effective and comfortable way without a car. By 2030, the FSG can only increase as much as the total traffic volume. The airport is working in conjunction with the expansion of the e-car charging infrastructure an increase in CO2 emissions by the feeder traffic in this way.[9]

5. Need for improvement

According to the survey data, more than half of the citizens in Stuttgart Region commuted by car. There is still room and need for improvement. Whereas the citizens living close to the city centre of Stuttgart rather decided to take public transportation, other citizens living in the surrounding – rather rural - areas chose to take the car. Furthermore we can conclude in this report, that the missing public transport connections in the rural areas one decisive reason for the citizens car-focused mobility behaviour.

In the last section of the survey, respondents were asked about general suggestions for improving the public transport connection to the Airport of Stuttgart. Survey participants addressed in particular requests for direct or faster connections with shorter travel times. Participants also recommended better reliability and customer service, especially in case of disruptions and an increased frequency of the city railway, better connection between modes or options of interchanges and cheaper prices/conditions of public transport for airport employees.

At the beginning of December 2018, the new timetable of VVS was introduced. In general, the new timetable enhanced the airport connection by increasing the clocking of the city railway for example to the airport. For line S2, between Schorndorf and Filderstadt, the 15-minute o'clock is extended until 10 o'clock. During early morning hours, the first connection is moved to 3.48 o'clock from Schorndorf to Schwabstraße. The line S3 between Backnang and the airport / trade fair also increased the frequency by running every 15 minutes until 10 o'clock. An additional train from Backnang to the airport leaves at 3.56 o'clock in the morning, monday through friday, too.[10]

Other solutions to attract passengers to use sustainable mobility could be the active advertisement of alternative transport modes, such as the promotion of information about mobility options.

[9] Fairport, p.33 https://www.emas.de/fileadmin/user_upload/umwelterklaerungen/reg/DE-175-00180_Flughafen-Stuttgart-GmbH.pdf

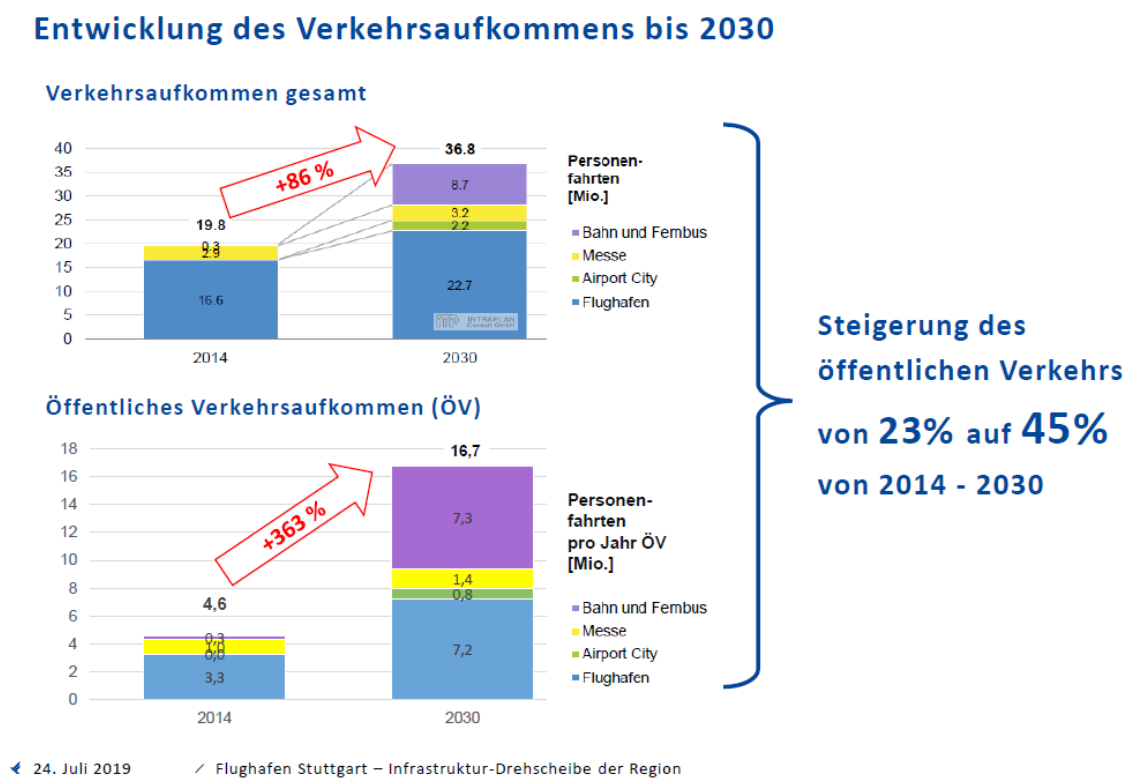
[10] https://www.stuttgarter-zeitung.de/inhalt.fahrplanwechsel-beim-vvs-das-aendert-sich-in-stuttgart-zum-9-dezember.6f4e1911-2ef3-49a6-aedc-d0d7995c65e0.html

6. Summery and Outlook

In conclusion, the majority of people stick to commuting by car instead of shifting to public transportation. Because this mode of transportation, is fast and easy to handle and often the only available transport supply in more rural areas. People may shift to public transport, if the connections, especially in the surrounding rural area/ FUAs, would be improving in terms of operating hours, intervals and availability. In the near future by the end of 2025, the project S21 will enhance and improve the current situation.

It seems, as there is a need for enhancing the intermodal aspects by the means of infrastructure. However, there is also a lack of flexibility, when it comes to behavioural change. Complaints and needs for improvements refer to timetable adaptions and organisational improvements regarding public transport (e.g. tariff models, service and punctuality).

In the future, Stuttgart Airport will be a transport and mobility hub since the prognosis of the share of public transport rises from 23 % in 2014 to up to 45% in 2030. This increase can be explained through multiple mobility projects of Stuttgart Airport, Verband Region Stuttgart, the state of Baden-Württemberg as well as Deutsche Bahn and City of Stuttgart.



5 Development of traffic until 2030 of Stuttgart Airport as transport and mobility hub[11]

[11] Presentation of Stuttgart Airport, "Stuttgart Airport as transportation and mobility hub" 24.07.19, p.11

7. References

fairport STR: Dranbleiben. Bericht 2017. Stuttgart Airport. Retrieved from https://www.emas.de/fileadmin/user_upload/umwelterklaerungen/reg/DE-175-00180_Flughafen-Stuttgart-GmbH.pdf

Survey/ Study: “Mobility behavior in the Traffic and fare network Stuttgart.” (“Das Mobilitätsverhalten im Verkehrs- und Tarifverbund Stuttgart.”), VVS, p.1-34, 2010