How might travel times and mobility behavior influence multimodality in the environmental network? A structural analysis of the state capital Stuttgart

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How might travel times and mobility behavior influence multimodality in the environmental network?

A structural analysis of the state capital Stuttgart

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**How might travel times and mobility behavior influence multimodality in the environmental network?
A structural analysis of the state capital Stuttgart"**

by Florian Wondratschek

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1. Introduction

The city of Stuttgart is one of the economically strongest cities, which appear in the headlines in terms of transport policy as one of the most air-polluted cities in Germany in the past decade. At the Neckartor, road traffic is responsible for high emissions. Topographically the Swabian city has also an atypical basin location and a high degree of expansion through traffic roads with the historical aim of a car-friendly city (cf. Stokman 2014, 14). While public investment in cycling in Stuttgart has already increased to the highest level in Germany and multimodality plays a role in the environmental network (EN) of the public transport association, 36% of all trips were still made by car in 2019, which is still the most used mean of transport (cf. Stuttgarter Straßenbahnen 2020, 11). Mobility and transport are neither technologically nor economically determined. Rather social and political conditions are inscribed or institutionalized in societies, organizations, and people's daily routines (Cresswell 2006). Seeing mobility as an expression of a cognitive and norm-oriented thought process, makes the traffic behavior of the people of Stuttgart to a socio-psychological topic. The behavioral rational choice theory according to Domencich and McFadden (1975), which was considered the most important decision criterion in the 1970s, should also be considered when choosing this mode of transport: The lower travel time and required money to reach the destination, the higher the use of a means of transport (Franzen 1998). It is quite provocative to assume that the multimodal environmental network in Stuttgart has so far not been competitive in many ways in terms of travel time. Especially the radial route system of the S-Bahn and the underground have a very centric orientation, which makes polycentric structural developments in the outer districts difficult in terms of rail transport due to longer travel times (cf. Tritschler et al. 2014, 41). This circumstance would make it unthinkably difficult for mobility behavior to change in favor of less air pollution.

In addition to knowledge about the traffic behavior of the people of Stuttgart, it is therefore also important to find out, what the travel times of the people of Stuttgart are between their city districts. In the next step, pointing out the various gaps, specifically by district or multimodal infrastructures, helps to identify potential capabilities and then to compare them with the existing city-specific implementations, such as the transport behavior specified in the study. It should help to detect today's physical and social-scientific problem areas of multimodality of the EN in order to improve them within the framework of a more collective sustainable mobility behavior. The regional planning goal with its constitutional mandate "to create equal living conditions" is mainly the motivation of the master thesis.

There are different lines of research that are addressed in this work and that are renewed with the help of this work. On the one hand, it is about the possibility of viewing the EN as a construct with different means of transport, which is decisive for the mobility turnaround. Their potential is also taken into account by Holden (2020), in which the "Grand Narratives for Sustainable Mobility" deal with a renaissance of collective transport. Outside of this basic narrative, alternative public transport forms like cable car projects, bicycles and pedestrians become additional individual solutions in the EN for multimodality outside of the automobile.

What is new, is the interdisciplinary approach, both to record the psychological components of the citizens, but then to overlap them via infrastructural research, like travel times analyzes between the districts and local accessibility analyzes inside of all districts at the

same time. In social psychology there are many assumptions which could exist regarding multimodal behavior, especially in a big city like Stuttgart. It is assumed, that there is a gap between young multimodal adults in the city center and older people, who only drive and live more on the outskirts (cf. Sheller 2004, 224f; cf. Groth 2019, 199). Studies say that once people are in the workforce, they would abandon their multimodal ideals and turn to automobiles (cf. Lanzendorf, Schönduwe 2013, 40). Some other theories are presented in detail by Hunecke (2015) and Groth (2019) in this discipline and in addition to an idea of these, the Stuttgart case should be compared exactly to what extent the mental multimodality is pronounced among “Stuttgarters” and whether automobilism is really an irreversible hype in Swabia.

By comparing the social psychological facts with the mobility infrastructure, it is possible to mark the anomalies and potential locally. So it can be determined, how the multimodal transport behavior in the environmental association does already affect the citizens today and whether there is a logical local connection between accessibility and basic attitude. In favor of a city-scape-affinity-oriented urban and environmental policy, the concept of multimodality is also deliberately chosen to be more selective: It is only about the close-meshed links between the mobilities of the environmental association, not about car traffic - a purely scientific decision, because there are already numerous theoretical studies on push measures in car traffic in the mobility science (cf. BUND Baden- Württemberg 2022; cf. Nordfjærn, Rundmo 2015).

Research on mobility in the city of Stuttgart has a solid scientific basis that supports this elaboration. Various accessibility analyzes were carried out in the Stuttgart region by the Chamber of Industry and Commerce for commercial areas, whereby in the past these made the different accessibility between public transport and car appear much stronger, since the 70 percentile was able to mainly hide traffic jam times (Chamber of Commerce and Industry Region Stuttgart 2015). Such more car-friendly acceptance times are changed in this study by balanced times that are handled between congestion and rush hour. Beyond the travel times between the districts, it should also be looked inside the districts how well the connectivity between the EN and public services is. Such an accessibility analysis was carried out by the Statistical Office by Schütt (2019), but the 5-minute accessibility provided was not intended to be inclusive, since, for example, people with restricted mobility and senior citizens cover far fewer meters in five minutes, according to a study in Stuttgart only examining meeting cities (cf. Schütt 2019, 15). For this reason, this work works with a 300 meter distance derived from a mobility guarantee like the city of Vienna, including the sports fields, hospitals, educational institutions as objects, compare them with the EN and identify mobility gaps.

When these methods have been applied, one should discuss the psychological and infrastructural assessment, of how these neighborhoods are connected, they should be clustered and possible recommendations in the EN as output individually should be given for the neighborhood. The aim is both, to provide an interpretation of the connections and differences between traffic behavior and spatial infrastructure, but also to develop strategic proposals, in order to spread multimodal behavior even further.

The main goal is to find out, whether Knierim's definition, of describing Stuttgart as a “car-fixated” city, is correct or whether multimodal behavior predominates in the city population. On the basis of this elaboration, important questions that guide political action should be

answered. It's about an analysis of travel times, how long it takes between districts using different means of transport. In the form of an accessibility analysis, it is also about finding out how good the connectivity and local conditions within the districts between key objects are. Finally, the mobility behavior of Stuttgart residents should be presented using a social psychological research method in order to be able to draw conclusions about a multimodal user type.

2. Theoretical Background about the Mobility of Stuttgart

Before concretizing the mobility behavior in general, it is important to get a closer overview on the historical and socio-political development of mobility in the state capital of Baden-Württemberg.

2.1. The historical Development of Mobility in Stuttgart

To understand the mobility development in Stuttgart, it is necessary to take a brief look back at the special history around the region of Stuttgart. The origin of the transport networks dates to the 19th century. Under a state leadership, the Kingdom of Württemberg drove an economic sector that for several decades became one of the strongest: for building up a railway network, the Kingdom started the construction of trains (cf. Brunecker 2013, 17f.). Rail vehicles not only accelerated transportation, but also social modernization. They helped Württemberg to overcome the small state system and the agricultural orientation. In the machine factory of Esslingen, founded in 1846, steam locomotives and wagons were built for the state railway. In 1875, the train factory offered six out of a hundred citizens a job, so the railway contributed to the improvement of living conditions in terms of labor market policy. (cf. Riecke 1878, 44). Stuttgart relied politically on the locomotives, so they created a railroad from the capital to Ulm, on which high-speed trains and regional trains are still running in 2023. Up until this construction, another mode of transport was dominant: the traffic with horses.

As a combination, Stuttgart introduced the third horse railway in Germany after Hamburg and Berlin. But this was intended more as a tourist attraction for a small population of 70,000 people. The business idea of the founder Georg Schöttle was to transport spa guests from Stuttgart to the mineral baths in Cannstatt, which are characteristic for the district. So the fact that Stuttgart has a tram was not due to a planned mass mobilization, but was intended to promote slow tourism (cf. Niederich 2018, 67).

In 1890, the city wanted to expand the streetcar for even more people and abolished horses. Gottlieb Daimler's ideas for building a steam tram failed due to technical problems, which is the reason why Stuttgart also relied entirely on electric trams. (cf. Niederich 2018, 72).

With the invention of the car, international figures were in the black until 1914, from then on, the car and machine industry remained in a "permanent crisis", the sales figures were so low - the proportion of the volume remained constant (Blaich 1973, 18f). Many things changed when the National Socialists (NS) seized power: Politicians stylized German motor vehicles as a symbol of German progress artificially. The NS abolished equal rights for all road users, so shared space has been dissolved in 1934 (cf. Knierim 2016, 35f). National Socialists knew how to use the car for propaganda purposes - “the elegant Benz for the leader, the Volkswagen for the people” (cf. ib.). The politically desired automobilization of society took place. Not only technically, factually, and economically, but also ideologically through the promotion of automobile interest groups and nationalistically due to the inner-German production (cf. ib.). The fact , the new highways were financed by the German railway, which was forced to develop its own competition. This makes the political obedience of the rail

system obvious. During the Thirties Germany had the largest railway network in Europe with 862,000 kilometers. It decrease to 34,000 kilometers after the second world war (cf. Brunecker 2013, 40). Exemplary Stuttgart still notices this circumstance, because the Gäubahn railroad towards Switzerland is still not restored again double-tracked since the war, because France made removal after the world war for reparations.

The closures of railways also led to the end of locomotive production in the Stuttgart area, the car industry of Daimler was overtaking this production area, Porsche and Maybach settled down also in the city. In terms of mobility policy, Stuttgart overtook the American-style consumer society as its model. With this, politicians tried once again to create a car-friendly city. Many elevated highways likely in the United States were discussed and a lot of them were built. Urban planning and traffic planning were hostile to each other, so that traffic policy effects were rarely considered in the planning (cf. Vester 1999, 94). The paradigm of building six to eight-lane motorways through Stuttgart city center was carried through - schools, pharmacies and for the highway “Bundesstraße 14” (B14), architectural monuments were demolished (cf. Stuttgarter Filmschätze 2010). In 1961, the municipal council wanted to put the Stuttgart trams underground in order to keep the streets of the city center completely free of rail traffic (cf. Municipal Council of Stuttgart 1961, 20). The plan: Improving the speed at the six-lane B14, abolition of numerous trams by bus lines, lowering the trams and building the S-Bahn (cf. Municipal Council of Stuttgart 1961, 46). Except for city councilor Eugen Eberle, who warned of an increase in traffic bottlenecks, the entire municipal council voted in favor (cf. Municipal Council of Stuttgart 1961 1961, 43).

The dismantling of tram lines came quickly, the S-Bahn expansion only came in 1973 much later than planned (cf. Niederich 2018, 96f.). After completion of the main S-Bahn line, the tram network was further reduced, in order to avoid so-called double operations (cf. ib.). Car traffic again benefited from the dismantling of trams, as one of the first tram tunnels in the world, the Schwabtunnel was converted into a car tunnel after being double-tracked in 1972. One year later it was originally planned that Stuttgart would get a real U-Bahn, a subway system (cf. Niederich 2018, 99). In several steps, the subway should replace the tram system completely, because a study came to the conclusion that it might be more efficient. It should start with a subway between Weilimdorf and Möhringen or Heumaden (cf. ib.). All other tram lines were to be converted to buses or to transport systems that were very popular at the time, such as the cable car (cf. ib.). At the same time, however, the first barrier-free low-floor trams went into operation elsewhere, which still adorn the cityscapes of major European cities today like Vienna. The low-floor train system does not need expensive elevated platforms and would have saved space during construction. Today's Stuttgart “Stadtbahn” model, which is a combination between tram and subway, has the disadvantage that they cannot run on tracks of the Deutsche Bahn. The so-called model of Karlsruhe, in which the same infrastructure is used for trams and trains, enables lightning-fast route extensions by linking the two rail networks - this is not possible in Stuttgart (cf. Ceder 1999, 14). The elevated train prevailed in the Stuttgart municipal council, but the dismantling tactics met with tremendous resistance: On the one hand, expert opinions assumed exaggerated population forecasts of around 800,000 people (cf. Niederich 2018, 99). However, the forecast population growth went to the neighboring counties (cf. ib.). Building subways there would never have paid off, especially since the S-Bahn was predestined for this type of transport (ib.). On the other hand, there were financing problems for a subway in this hilly terrain, so that the planning was abandoned (cf. Bauer, Theurer 2000, 18). Outer city districts therefore also demanded elevated platforms in order to be able to connect to

local rail transport and refused to replace their trains with buses, which reduced the number of passengers (cf. Niederich 2018, 111f). By 2011, all tram lines had become an extended elevated urban railway network, which has a cost recovery rate of only 63 percent (Niederich 2018, 114 and 199). When designing the route network, it is noticeable that the structure of the public transport system in Stuttgart runs very radially and centrally. A rail transport infrastructure debate about the development opportunities for tangential traffic is not visible on the maps, since Stuttgart uses it only very reluctantly despite the existing rail infrastructure. The city of Munich has already pointed out that tangential connections not only relieve inner-city traffic, but also promote a strengthening of polycentric structures in the long term (cf. City of Munich 1995, 14).

A polycentric orientation of Stuttgart's public transport traffic would complement outlying districts, but clearly also supra-regional major centers with flexible and inner-city-independent route network offers. Transport-politically advantageous for Stuttgart is that they have an electrified and two-lane tangential connection, the Untertürkheim-Kornwestheim railway line. Due to the earlier commuter traffic from the shoe company Salamander- the regional line R11, called the Schusterbahn, serves six times a day between Monday and Friday. Otherwise, the route is used for freight traffic and some fast ICE connections.

As early as 2010, a study by the Stuttgart Transport Research Institute found that the R11 (grey line) had considerable potential about 19,000 passengers every day, provided that it was extended to the regional junctions of Plochingen and Ludwigsburg or Bietigheim (cf. Transport Research Institute Stuttgart 2014, 42). The entire region is now supporting the project, the last reports are in progress and implementation is scheduled for 2024.

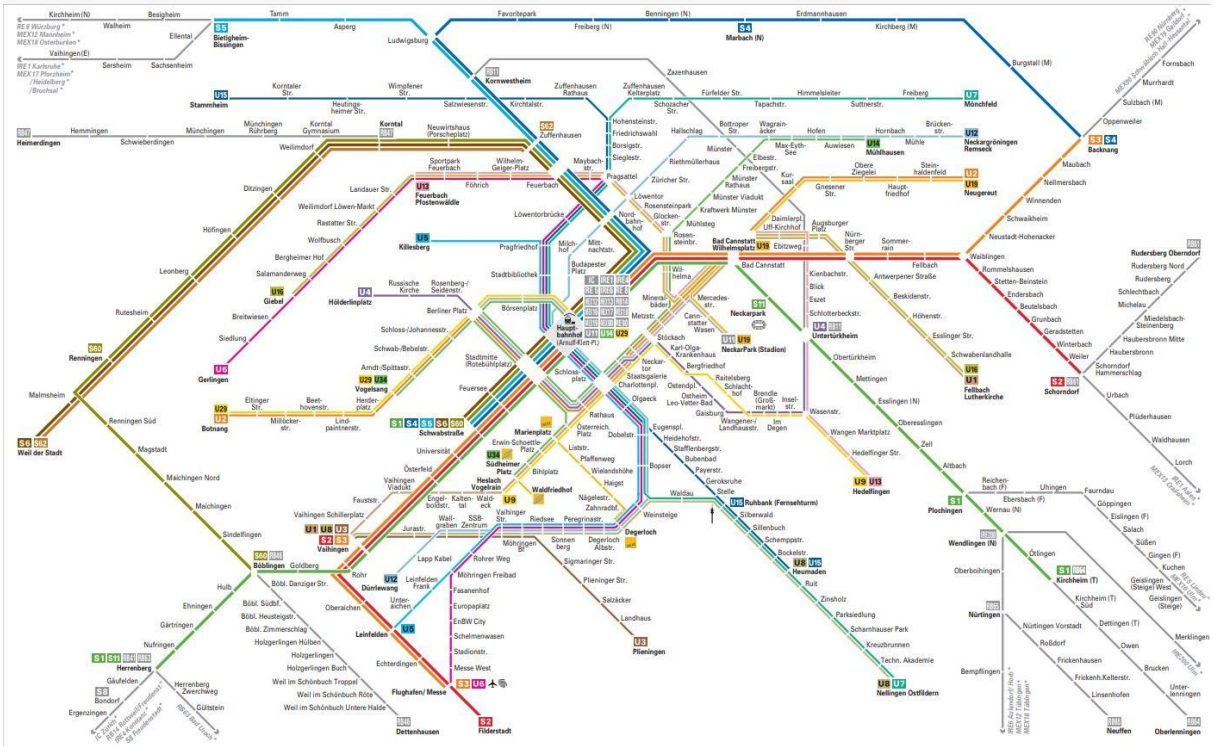

Fig. 1: Map of the U-Bahn and S-Bahn in Stuttgart

After the turn of the millennium did Stuttgart slowly begin to change this historical car preference strategy and to focus more on the environmental network. The state capital has 17 regular subway lines and two special lines over 136 km, and there are bus services in every district for local development. Contrary to the historical car orientation, there is even a proposal to establish urban cableways in Stuttgart-Vaihingen and Degerloch, which represent a slow public transport solution that is suitable for mass traffic (cf. SSP Consult 2019). Even if ferries in public transport are seen as an additional option in the international discourse and this would also be possible in principle in Stuttgart due to the canalization in the 1900s of the Neckar, this possibility is not used in the dimension of public transport. The 2010s can be identified as a turning point in mobility policy:

Right with the big protests against the new underground stop “Stuttgart 21”, the Green party won the elections. The ecological thinking of a mobility transition is a principle of a green program. Canzler (2021) stated, that state president Winfried Kretschmann made in his first reign clear, that he won’t change the “raison d’état“ - a car-friendly policy in the “car land” of Baden-Württemberg (cf. Canzler 2021, 483). But progressive concepts in public transportation can slowly be seen also from the Ministry of Transport of Baden-Württemberg with its funding programs for Bike and Ride, the introduction of a “365-euro youth ticket” or new trains, which could make mobility in Stuttgart more diverse. With the invention of the German-wide “Deutschlandticket” for 49 Euro per month, the citizens are able to use every regional public transport, so more people might shift in the next months, too.

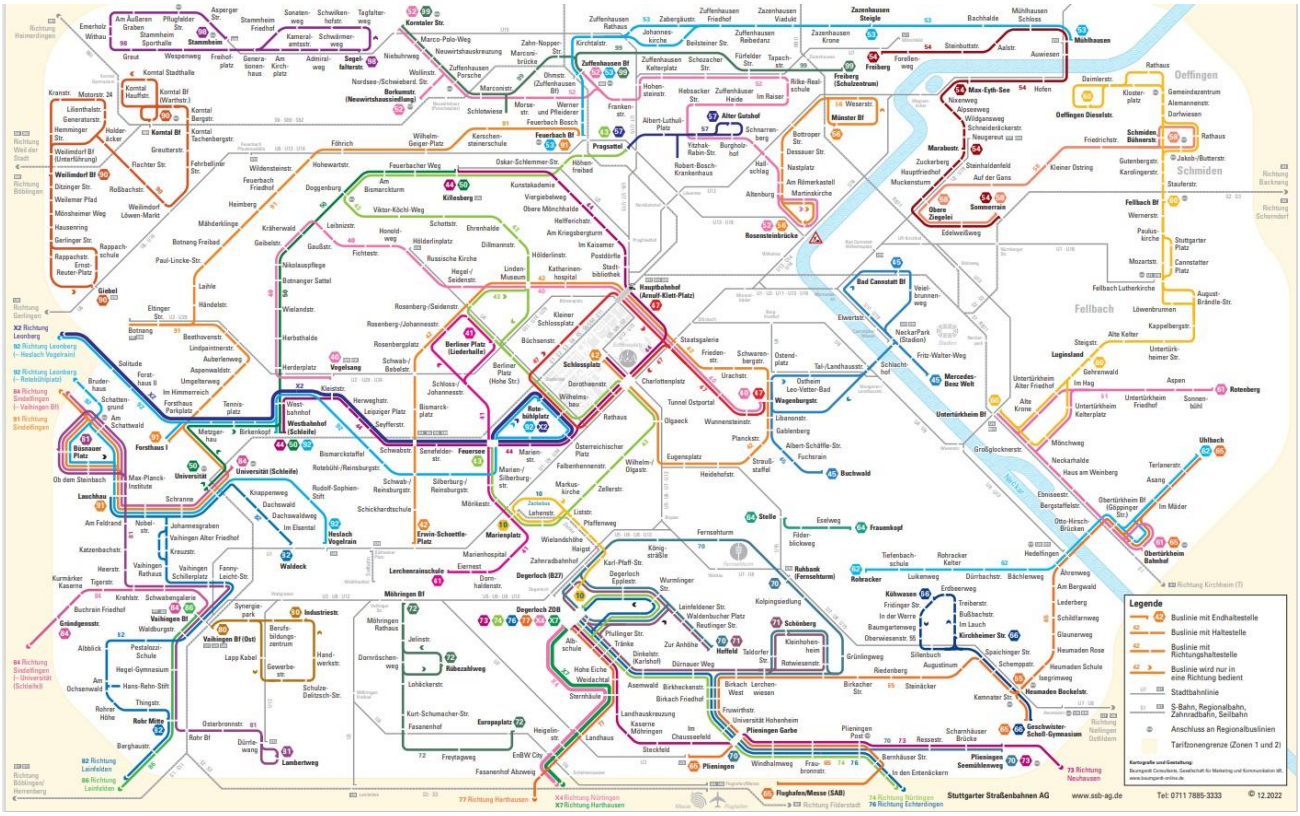

Fig. 2: Map of bus network in Stuttgart

2.2. The Consequences of Transport Policy for the Urban Climate

When political traffic debates about sustainable mobility are sparked, they often focus on air pollution control when it comes to the urban climate: more than 2.8 million people died in the world in 2015 because of inner-city air pollution, and in Germany about 52,000 premature

deaths from fine dust and nitrogen oxides are supposed (cf Schweisfurth 2018, 340). The risk of dying from heart and lung diseases due to long-term exceedances is 12.5-14 percent higher in the big city (cf. ib.).

It is therefore highly problematic if specified limit values are exceeded. According to the World Health Organization, the nitrogen oxide limit value prescribed by the EU should actually be reduced from 40 to 20 µg/m³ in order to ensure adequate health protection (cf. World Health Organization 2013, 35). The nitrogen oxide values published by the Federal Environment Agency in 2018 showed that Stuttgart, with an annual average of 71 µg/m³, is the most polluted city in Germany (cf. Federal Environment Agency 2019a). Stuttgart was also one of the most polluted cities in Germany when it came to PM10 particulate matter values. Because the limit values have been exceeded for so long, the EU is threatening lawsuits against cities like Stuttgart (cf. EU Commission 2017). Cities are obliged to take specific measures in an air pollution control plan that should permanently improve air quality, which also raises the question of mobility (cf. ib.).

In a cause analysis, it was possible to find out which area contributes the most to air pollution. In the state capital the road traffic is the main cause of NO_2 pollutants up to 78 percent (cf. Regional Council Stuttgart 2018, 24f). The study once again confirms the phenomenon that 56 percent of the exceeded particulate matter values are due to abrasion, while exhaust emissions account for only 9 percent (cf. ib.). When debates are held about the future drive, it must be made clear that cars with electric or hydrogen would still contribute the pollution, because the main reason for inner-city air problems remains the strong friction of the tires on the road, which are enormously more energy-consuming than other types of transport (cf. Knierim 2016, 57f). That the rolling frictional resistance between a rubber tire and the road surface is about ten times greater than that of a train wheel on the rails, should be given more political focus for a modal shift from road to rail. (ib.). Measures to reduce speed, the partial installation of autonomous bus lanes, fine dust industrial vacuum cleaners in front of the measuring station, entry bans for diesel and ultimately also the home office regulation that has been possible since COVID-19, which relieves peak times, lead to the situation, that the nitrogen oxide limit values which are still valid today in Stuttgart have not been exceeded at least since October 2020 on monthly average. Only in S-Bad Cannstatt the 20µg/m³ limit value which is recommended by the WHO was fallen below, at all other Stuttgart measuring stations the values are 50 to 85% higher (cf. State Institute for the Environment Baden-Württemberg 2023).

That violent air pollution is also connected to the topography. As early as 1969, Hamm (1969) pointed out that due to its basin location, Stuttgart is only poorly ventilated, so that the density of air pollutants is particularly high (cf. Hamm 1969, 113f). However, compared to other major cities internationally, Stuttgart has with 57% a very high proportion of green and open spaces (cf. Stokman 2014, 14). It is therefore even more astonishing that, despite this climate policy advantage, traffic development was so intensified that the existing fresh air corridors were already insufficient in 1969 (cf. Hamm 1969, 113f). In the literature of international urban planning, Stuttgart functioned as a model city for a long time because it always kept its historical royal parks, such as the Schlossgarten and the Rosensteinpark, free (cf. Stokman 2014, 14). The inner city does not only benefit from improved air flow, but also inhibit the heating of the inner city, which is also known as the urban heat island effect. Only with the cutting up of the Middle Schlossgarten for Stuttgart 21, the city gave up this specific feature. Temperatures also increase proportionally to the size of the city, with

climate change and topography amplifying this effect to such an extent that city planners “soon locate Stuttgart in southern Italy in terms of climate” (ib.). Nocera et al. (2018) complain that municipal mobility planning is also about reducing greenhouse gas emissions (GHG) from transport, since these have an influence on warming and thus also influence urban climate development. More than a fifth of all greenhouse gasses come from traffic (Nocera et al. 2018). The Italian research group therefore developed its own method of calculating the GHG savings using a model in the mobility plan (ib.).

Consequently, too many street traffic areas have enormously high risks for nature and the environment, the extent of which is sometimes influenced by the topography of the city.

2.3. The Modal Split of Stuttgart

The complete modal split has established itself as an easy-to-understand parameter, which, in addition to motorized private transport and public transport, recently also takes pedestrian and bicycle traffic into account. The modal split results from the routes are often taken by the resident population in household surveys. The relative modal split, which is used in most cases, indicates the percentage of journeys by car, public transport, bicycle and foot of all journeys made by the resident population, sometimes also the respective shares of the distances covered. The absolute frequency of journeys or distances according to means of transport are rarely given instead of the percentage shares of the relative modal split. It is also criticized that distinctions, e.g. between private car and car sharing vehicles, between bicycles and pedelecs or bus and subway, are only carried out in special evaluations and play hardly any role in the discussion, also due to the very small number of cases and proportions. (cf. Holz-Rau et al. 2020, 54)

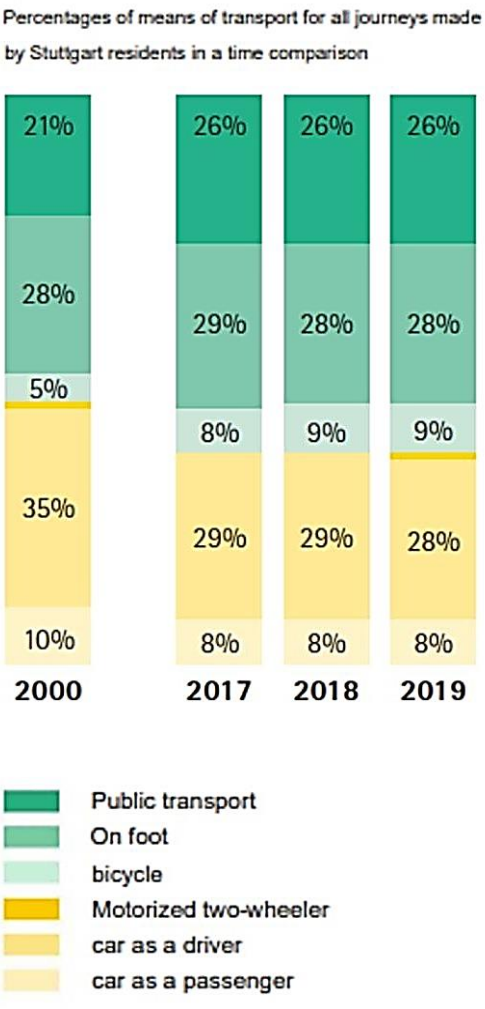

Fig. 3: Modal Splits from 2000 until 2019

The latest modal split was released by the Stuttgarter Straßenbahnen. It is also justifiable from a marketing point of view that the modal split in Stuttgart is moving slightly in favor of the EN and that this is used by the majority. In the course of the last 20 years, however, it is correct to speak of a "significant shift" "away from the car to the means of transport of the environmental network" (Stuttgarter Straßenbahn 2020, 12). The use of cars as a driver or passenger has decreased by eight percentage points.
Accordingly, trips by bicycle or public transport have increased to the same extent. The proportion of journeys made on foot has remained almost unchanged. But it is still the case that the car is the most used means of transport among the people of Stuttgart and although many journeys are already loaded with the environmental association, the proportion is too unambitious if one wants to speak of a real traffic turnaround. European neighbors such as Vienna and Paris have made massive investments in their public transport, Copenhagen, and Amsterdam in their share of cycling, although Stuttgart is also rising in this sphere.

In 2019, every fourth journey was made by bus and train. Compared to other cities of the same size or larger, Stuttgart has the second-highest share of public transport in Germany (ib.). Stuttgart had the second-highest share of public transport in the “Cities

with less than a million inhabitants” category. An absolute comparison of results is not possible due to different methods and smaller sample size in the measurement variants of other institutions according to Stuttgart trams (cf. ib.).

The graphic below even shows where the public transport offer in Stuttgart is competitive and can be clearly seen by comparing public transport and car use at the district level before the Corona pandemic.

The Stuttgart trams (2020) name the decisive factor for a higher modal split in the districts as "the connection to rail transport, i.e. to the Stadtbahn and S-Bahn. Districts or districts with good connections, such as Bad Cannstatt, have a significantly higher use of the public transport than districts with less good connections, where the next stop for the residents is further away" (Stuttgarter Straßenbahn 2020, 11).

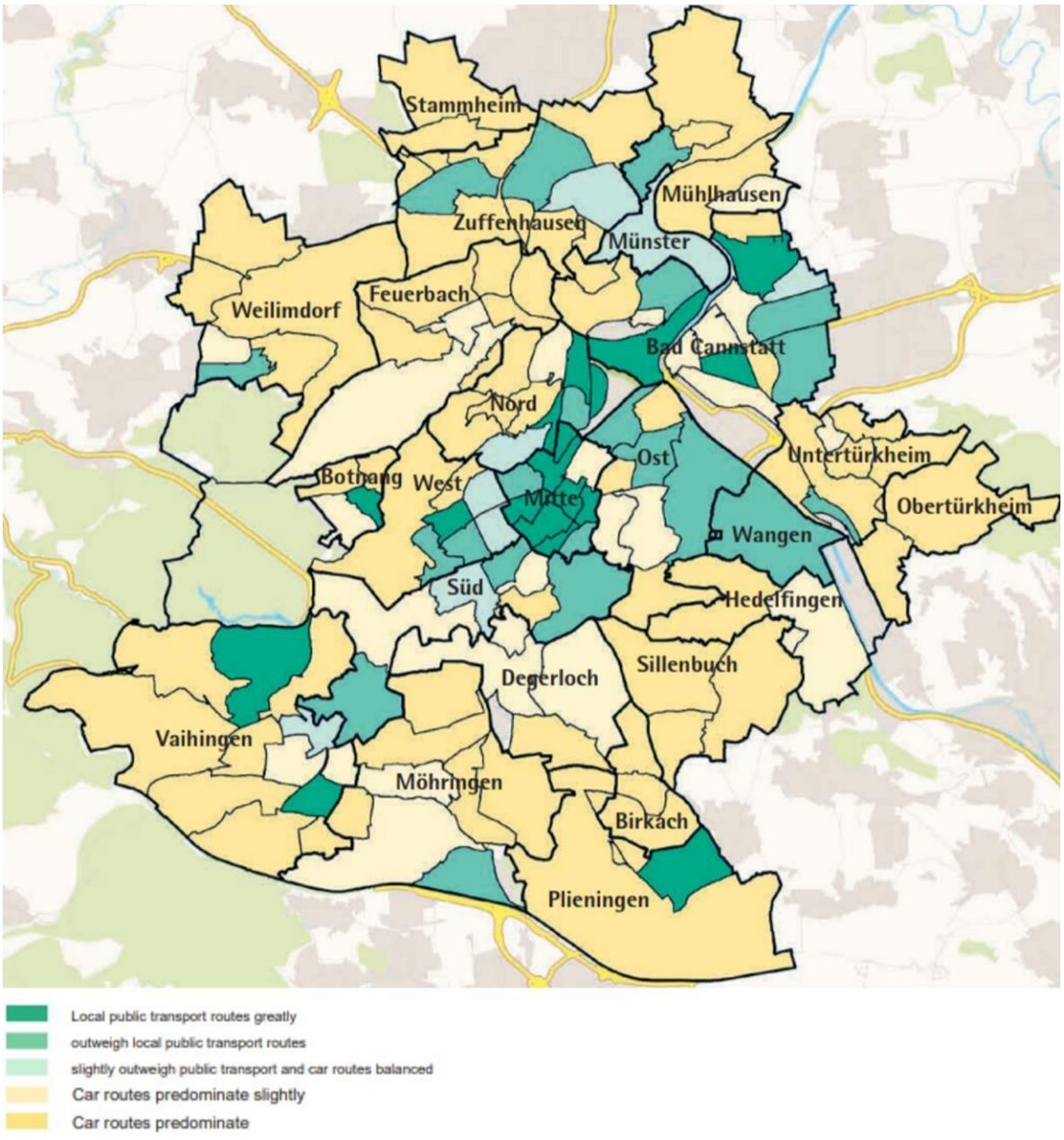

Fig. 4: Real usage of public transport vs. car by district

2.4. The Multimodality in the Environmental Network

If you look at the high air pollution in Stuttgart caused by traffic, it is mandatory to start a mobility turnaround to have better air pollution control. But the example of Stuttgart shows that there is potential for tension from a political point of view. Knierim says that the Swabians are "car-fixated"; in contrast to the history of the railway industry, the historical legacy of the car industry is often discussed emotionally. In addition, the question of the right mobility is also a question of costs: the billions in costs for Stuttgart 21 are also related to the fact that new Stuttgart developments are topographically difficult and sometimes geologically precarious, such as swelling gypsum keuper or mineral water zones. For this reason, the solution of today's traffic problems is not primarily a task of infrastructural adjustment planning. Making mobility smoothly, easy accessible and climate-friendly, is more a form of an intelligent connection of different means of transport, which often can save big infrastructural measures or at least reduce them (cf. Kagerbauer 2021, 179).

The term for that is multimodality, which is also called "multi-optional mobility". In contrast, the use of different means of transport within a single route is referred to as intermodality. If people only use one mode of transport over a certain period of time, they behave monomodally. In relation to a single journey, on the other hand, Eryilmaz et al. (2014) speak of unimodal transport behavior (cf. Ahrens et al. 2010, 21; Eryilmaz et al. 2014, 716f). From the point of view of the person using different means of transport, multimodality have various options for fulfilling the desires and needs relating to mobility (cf. Deffner et al. 2014, 202). There are options in the head for this, "like apps on a smartphone". The option that best suits the person is implemented (or built into routines). Best "fit" means getting from A to B as best as possible - these can be rational reasons (e.g., inexpensive, fast, and reliable). However, it also includes emotional-symbolic preferences (e.g., “suitable for me and my circle of friends”). Multi-optionality means psychologically, there are degrees of freedom for the choice of means of transport for each supply structure with no commitment to a single one. The hope is that the non-determination will lead to efficient, environmentally friendly modes of transport, playing a role in the mix as often as possible. The concept of multimodality, on the other hand, is more closely based on the infrastructural perspective. In German cities there are usually different modes of transport. If these modes are networked with each other, a multimodal transport system exists. Since we understand transport systems as socio-technical systems (cf. Kuhm 1997), there is an interaction between perceived options and infrastructural-technical modalities.

So, when a perspective changes to a practical selection of the appropriate mode of transport, we speak of multimodal transport behavior. There is a difference between the mental representation of multi- optionality and the infrastructural provision and practical exercise of multi-modality. In Stuttgart, too, the promotion of multimodal transport systems is the subject of a transport policy strategy (cf. von der Ruhren et al. 2005, 5). To increase the general efficiency of transportation systems and to implement spatial and environmental policy aims are the key motivation. At EU level, an efficient transport sector is seen as a prerequisite for economic prosperity in Europe (cf. ib.). In addition to greater integration into the internal market, concrete climate protection goals are also formulated in the transport sector. Better networking and the further expansion of multimodal offers are important building blocks of this policy. The great social switch and changing demands – like from owning your own home in the countryside, the car as a status symbol that you have arrived

in the middle of society – used to seem incompatible with the use of public (mass) transport. At the same time, this also resulted in the need to deal with spatial dispersion. The car fixation led to the negative consequences that are known today – massively excessive emissions, high space requirements, health problems, destruction of urban qualities and, ultimately, global climate impacts.

Since then, science, planning and sustainability communication have been working to compare alternative concepts to auto-fixation. Initially, this meant criticism of the automobile. The big question is to what extent the concept of multimodality should take the automobile into account. Studies conducted 25 years ago on a car-free lifestyle have already shown that mobility without a private car is possible (cf. Klöckner, Fliegner 2000; Oltra et al. 2022). Ahrend et al. (2014) do not understand carless mobility as a complete renunciation of the use of a car, but merely aims at changing ownership (cf. Ahrend et al. 2014, 4). There are still car sharing concepts such as “use rather than own” or “own or share” that call into question the need of buying a car (cf. ib.). The part which is always omnipresent is the situation that the car has always played a role in numerous research studies, even in the city. Model projects that make car-free residential areas and inner cities pedestrian and bicycle-friendly can only be found on small regional scales. The biggest and most ambitious step, to make all traffic in a big city car-free, and thus only to sketch accessibility with public offers of the EN such as train, bike, bus, cable car, ship, foot, has so far only been a utopian construct of a scientific theory:

Holden et al. (2020) have described a possible narrative in which sustainable mobility challenges today's individual travel behavior, in which travel via “collective transport 2.0.” gaining superiority (cf. Holden et al. 2020, 5f). Traditionally, public transport has been the key answer to this challenge. In fact, only the share of public transport in the modal split needs to increase drastically. It is considered "improbable" that the number of journeys by public transport can replace today's high individual journeys. These researchers also describe the need to think about new forms of collective traffic, which also is based on a shift from "ownership" to "usership", which is also defined as part of the "Mobility as a Service" concept (cf. Jittrapirom et al. 2020). They propose a collective transport 2.0 narrative that both increases today's local transport, but stays with shared mobility, which continues to demand independent or future car use. If car sharing or taxi-on-demand offers are available in the models, the car is re-integrated in connection with the new model of car use without ownership. Viewing the car itself as a sporadically used option is not without controversy, however: pure decoupling from forced automobility is only a mitigated goal - in large cities, the attractiveness of the EN is increasingly being made without car use, which aims to do without and thus spark urban planning potential. This decoupling of mobility from private cars in favor of a whole range of mobility options in the EN should not only guarantee movement in physical space. Rather, there is the much more optimistic claim that this satisfies all possible mobility needs (e.g. shopping, work, leisure sports, relationships) and enables social integration (cf. Götz 1998, 22f). The main target in the city is about shifting the journeys of the masses of people to the EN. It is not about answering the question of transport in a few special cases, such as people who have to be transported in a bed or people with maximum mobility impairments, but about transporting the masses within the city districts. In the case of those, public services of general interest are just as responsible for the constitutional achievement of social participation, but the type of transport can be left out here because exceptions stay exceptions.

Based on this, various options were designed for a multimodal choice of transport and multimodal transport systems: Beutler (2004) outlines an "urbanibility" concept that suggests simple use without thinking, which only pays for the actual use of a means of transport and propagates the one-way capability of means of transport. The concept of Bruhn (2013), who considers "attractive long-term subscriptions compared to individual prices" as a superior customer acquisition strategy, is more geared towards long-term customer loyalty, i.e., a plea for an all-inclusive EN (Bruhn 2013, 27). The Institute for Social-Ecological Research (ISOE) in Frankfurt am Main came with a concept of a sustainable multi-optional mobility culture. It deals with the role of communication in the planning and implementation of transport policy measures and how it can be used consciously to promote multimodal offers (cf. Deffner et al. 2014). For a long time, it seemed that multi-optionality and multi-modality were purely expert topics and difficult to present to the public. Due to the pressure to act, both from climate protection and economic constraints, but also due to technological developments, there have been signs of change for several years: multi-optional concepts are not only reported in daily newspapers, but they are also on the agendas of companies and providers of transport services. Examples are the linking of cycle route signs or bicycle rental systems. The players here are not niche providers, but logistics companies and banks. At the same time, everyday users desires Internet-based solutions to implement practical and contemporary mobility. The main driver of these changes are less based on the environment itself, more the economy sees possible economic gains in travel time thanks to multimodality:

Walther (2021) describes it economical worthwhile when public transport is based on a timetable, because then you have basically benefits compared to the individual transport: small improvements in travel time can result from expanding routes or densifying the timetable. However, as soon as it is no longer a question of connections without transfers, another aspect comes into play for the EN: a small reduction in travel time on a partial route can enable a change to the subsequent means of transport, which ultimately brings an advantage of half an hour. Since the travel time advantages are always evaluated for an entire route, it is important to have direct transfer options that can be "reliably" reached. These can be connecting trains, but also usable rental bicycles, buses, water taxis or simply an existing footpath. Therefore, the coordination of timetables and the infrastructural presence of vehicles is a core component of multimodal transport planning that aims to reduce travel times. (cf.
Walther 2021, 83)

Multimodal target approaches contain the narrative of a collective transport 2.0., in which significantly more public providers make journeys, since they have at least comparable, if not better travel times than the car on all routes. The optimistic goal is to tighten up the concept of a mobility guarantee, in which not only accessibility, connection to important means of transport and punctuality are guaranteed, but in the best case it is about coverage of the environmental network around the clock that is competitive with car traffic, with various options for using mobility offers at any time and to guarantee every connection in a city within a certain time.

It must also be made clear that multimodality and multi-optionality are not the same multimodal behavior largely. Uniformly the flexible use of more than one means of transport for different routes within a certain period of time. Furthermore, there is intermodality, a special subcategory of multimodality, which means the chaining of means of transport on

one route. Monomodality, on the other hand, is used as a direct antonym of multimodality was discussed, which means the exclusive use of only one means of transport for all routes. In this regard, the discussion about a transition from the automobile to the multimodal society, in particular the monomodal use of the automobile. (Groth 2019, 66)

With the traffic science surveys Mobility in Germany (MiD) and the mobility panel (MOP), there are two representative surveys across Germany on a broad empirical basis. Although there are already possible longitudinal data regarding the measurability of multimodality, they do not research the mobility needs and the coordinated traffic behavior that was decisive for a certain choice of transport mode and travel times. In longitudinal studies, the representation of local accessibility is also enormously under considered. Deffner et al. (2014) point out that the studies usually only focus on multimodal motorized and public transport users. The assumptions are, that the bicycle is not a fully- fledged alternative means of transport, and that walking is devalued as a mere feeder function. The scientific added value of studies that want to infer monomodal and multimodal user behavior is questionable in places with completely different travel times between the individual modes of transport. For research into multimodality, it would be of relevance to find out how the groups feel about the choice of means of transport and what their current real options look like on site. These real options are made up of how closely interconnected the EN is, how competitive the travel times with the EN are, and how accessible the EN infrastructure is at the local level, such as walking distance to a residential area stop, connectivity to bike sharing, accessibility to public transport, like public places such as schools, sports halls, or hospitals. Sometimes it is possible to make mobility and connection gaps visible.

2.5. Bike Sharing as Multimodal Option in Stuttgart

Before dealing with bike sharing, it is relevant to briefly introduce the topic of cycling in Stuttgart. Cycling is mobility without harmful greenhouse gases, which takes up very little space and is quiet (cf. ibid.). If more people switch to bicycles, this is very lucrative from a private and economic point of view, since the cost of using a bicycle is around 10 cents per kilometer traveled (cf. Röhling et al. 2008, 37).

In 2004 the situation was still very bad: cyclists (and pedestrians) rate the cycling situation as very unsatisfactory. "Without a coherent cycle path network, there is a patchwork of individual cycle paths, combined cycle/footpaths and approved footpaths" (Viehbahn 2004, 4). Back then, 80% of cycle lanes were shared pedestrian and cycle lanes (cf.ib.). The topographical conditions of Stuttgart are unchangeable, so that "hilly" or "even mountainous" was of course an obstacle to the use of the bicycle in addition to safety deficits. For this reason, the city continuously changed its policy by focusing on the expansion of the pedelec, which support uphill stretches so that cycling can be made more attractive on the hilly stretches of Stuttgart. On a socio-economic level, pedelecs are superior to cars (cf. Prill 2015, 155). This is reflected in significantly lower acquisition, maintenance and health costs (cf. ibid.). In order for more people to switch to electric bikes, infrastructural improvements were also made to cycling, albeit not equally in all districts of Stuttgart (cf. Prill 2015, 158).

At the end of the 2010s, a catalog of political demands for an improvement in cycling emerged directly from the citizenry. This was called the "Stuttgarter Radentscheid", in which 35,000 signatures were submitted for a referendum: This included very specific framework conditions for cycling in Stuttgart. Crossings or junctions should be improved in terms of

traffic technology so that pedestrians and cyclists are better protected from turning accidents through structural measures. Cycle paths should also be consistently cleared of dirt, snow and obstacles on an equal footing with the main axes of motor vehicle traffic. After a legal opinion recommended that the referendum should not be allowed, then Mayor Fritz Kuhn still wanted to make Stuttgart the "city of bicycles" by increasing the budget and staff for cycling to 7.4 million euros. Over a period of four to six years, a study by Greenpeace certifies that Stuttgart spends five euros per capita on cycling (cf. Greenpeace 2018, 10). In Germany, this is the highest value in the study, but a comparison with the bicycle cities of Amsterdam with eleven euros and Copenhagen with 35.60 euros is only a dream of the future (cf. ib.).

In Stuttgart it is also a question of how the improved network potential for cyclists could be filled with a higher share of the modal split, for which the rental bike system is also an option. Bike sharing means overtaking the public (traffic) space in many cities these days - including in Stuttgart, which wants to push back motorized private transport and supplement local public transport. As a driver of the EN, it has seen a sharp increase in user numbers both worldwide and in Germany. However, bike- sharing systems have so far been less widespread since they cannot usually be operated to cover their costs and the operators are dependent on financial support from public donors. The first attempts to establish commercial bike sharing services date back to the middle of the last century. Ultimately, however, they were not pursued further. Bike sharing offers have only been spreading since the beginning of the 21st century - favored by technological and social changes out quickly. Rental bike offers are usually station-bound. In the 1960s, users had to sign a contract at the rental station, pay a deposit and return the bike there after use (Monheim et al. 2009). Free systems could not be operated permanently due to high loss rates. In the mid-1990s, deposit systems were created in which bicycles could be borrowed by inserting coins, as in Copenhagen in 1995. Building on new information technologies, towards the end of the 1990s, systems were introduced that allowed users to be identified and billed precisely at the right time. Multimodal networking with other modes of transport was also made possible. As a result, in addition to station-bound systems, free-floating and mixed systems were also created. In 2000, the Call a Bike system was introduced in Munich as one of the first long-term bike sharing offers in Germany. Call a Bike bicycles were parked at all telephone boxes in the extended inner city, for which a release code was given after a telephone report to the call center. After the end of use, the rental bike should be parked at a phone booth and you should call off (Monheim et al. 2009). A year later, Deutsche Bahn took over the system, which saw strong growth in the following years and was also introduced in other German cities. A second major rental bike provider in Germany has been nextbike since 2004, which now operates in over 50 cities nationwide and in over 100 cities worldwide. Call a Bike and nextbike currently operate the majority of bike sharing offers in Germany. There are also regional station-based systems of Call a Bike such as RegioRad in Stuttgart, which is operated by the Stuttgart VVS. The world's largest systems exist in China like Hangzhou with 90,000 bicycles, the largest in Europe is in Paris and London. Bike-sharing offers can represent an attractive alternative to motorized individual transport and public transport, especially in densely populated areas. For urban regions, where the population will grow in the future, bike sharing might overtake more trips in the coming years. In Germany, bike sharing is primarily offered in larger cities and in medium-sized towns. (cf. Stein et al. 2017, 41f)

At the same time, public start-up financing led to user-friendly further development of bike-sharing systems and consequently to more popularity. Cooperation with the general student

committees of some universities also led to a sharp increase in the number of users in the past. The drivers of the spread of bike-sharing systems are usually municipalities, which issue tenders for such offers with the aim of relieving local public transport at peak times and offering a more attractive range of mobility without car traffic. However, the bike-sharing providers also approach municipalities that they consider suitable in order to establish their system locally. There are various reasons why bike sharing is less widespread than station-based car sharing. According to providers, neither the construction nor the operation of a bike sharing system can be managed cost-effectively, which can be attributed to the high investment costs (purchase of bicycles, construction or adaptation of the infrastructure) and the labor-intensive maintenance. The income from usage fees and advertising is currently not sufficient to recover these costs. The service life of a wheel generation is five to ten years, so extensive investments are necessary at regular intervals. For the reasons mentioned, from the point of view of the operators, financing from mostly public donors is almost always necessary to be able to start a bike sharing system. Since bike sharing providers are part of the environmental network, they believe that a financing structure like the local transport is justified. In addition to commuters, tourists are also a relevant user group. In cities that already have a high proportion of bicycles in the modal split without commercial bike-sharing offers and in which tourism plays a minor role, bike-sharing offers therefore only have a low chance of success. A topography that is unsuitable for cycling can further reduce the chances of realization, whereby the use of pedelecs can help here, for which Stuttgart is a prime example. (cf. Stein et al. 2017, 43f)

Agora Verkehrswende (2018) recommends that urban development should take sharing offers into account as part of small-scale mobility concepts. This means that bike sharing should not only occur at public transport stops and highly frequented places, but also in the development of new residential areas on the periphery, for having bike sharing as part of intermodal route chains or for mobility within the district. In addition, it is a district-related inner-city densification concept. (cf. Agora Verkehrswende 2018, 19)

In Stuttgart, the range of rental bikes and return stations is constantly being expanded and optimized. Schütt (2020) was able to present a workshop report that provides insights into the evaluation options for the bike sharing model in Stuttgart in the form of a usage analysis.

A total of almost 42,000 trips were made after the cleanup counted, which corresponds to an average of about 230 trips per day. 78.2% of all trips took place during the week, the rest at the weekend. The interface data make it clear that 75% of all journeys take a maximum of 20 minutes. 40% of the trips even end after less than 10 minutes. Only 9% need more than an hour - but bike sharing in Stuttgart shouldn't take that long either, as there are also tariffs that favor a short time. (cf. Schütt 2020, 37)

The more than 200 km² area of the state capital Stuttgart extends over a height difference of almost 350 m, which is the reason that spatial usage patterns of trips made with the rental bike must also be taken into account. The frequent use of the stations located in the valley basin in the city districts of Mitte, West and Süd is not surprising. This are mostly centrally located near the main train station or the main shopping street (Königstraße), moreover are between to bridge these usually only small differences in height. This also applies to the stations in the Neckar valley, in particular in Bad Cannstatt. The stations in the plane stand out by a comparatively small proportion of borrowed pedelecs off.

The stations with the highest sum of pickups and returns are:

- Marienplatz/Zahnradbahn (S-Süd) with 5,599 events
- Königstraße/Arnulf-Klett-Platz (S-Mitte) with 4,995 events,
- Lautenschlagerstraße/Zeppelin Carré (S-Mitte) with 4,225 events.

The stations were used the least:

- Freibad Möhringen/Hechinger Str. (Möhringen) with 5 events
- Neugereut/Marktplatz (Mühlhausen) with 30 events,
- Europaplatz/Fasanenhof (Möhringen) with 37 events (Schütt 2020, 39).

If rental bike users choose the direct route between the collection and return station, the covered routes in Stuttgart can also be visualized. Even if this is based on a simplifying assumption, this representation provides a good overview of the main areas of use in the urban area. Frequently used drive-throughs (“Durchfahrten”) are shown in red and seldom used routes in blue.

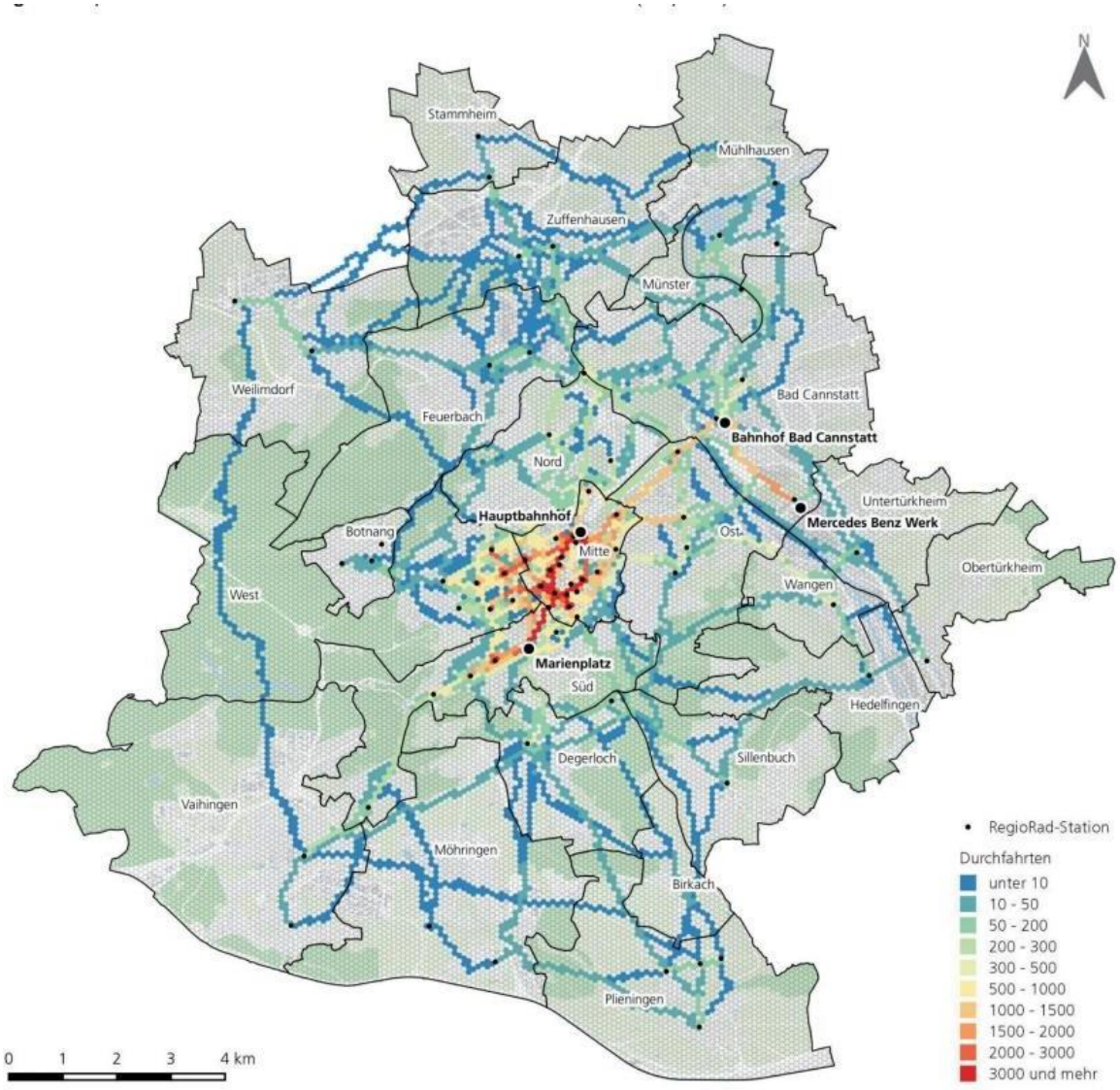

Fig. 5: Drive-through with rental bikes

2.6. The Social Psychological Dimension of the Mobility Behavior

Mobility comes from the Latin word "mobilitas" and means agility, speed, changeability and include all movements of people and goods between places (cf. Stöppler 2018, 11). Basically, it means any change of position, also intellectual, cultural, social and virtual. Existing means of transport make it possible to cover greater distances in a short time and the possibility to travel to almost any place in the world (cf. ib.). It represents the relevant conditions for self-determined participation in social systems and enables, for example, a linking of the areas of living, leisure, education and work (cf.
Stöppler 2018, 11f.). Being mobile is even described as a “model of modernity”, and spatial mobility is the essential expression of this value (cf. Tully, Baier 2006, 28). The use of mobility can lead to an expansion of the scope of action for actively dealing with the environment and opens new options, e.g., in leisure activities and establishing and

maintaining social contacts. In the inclusive understanding of a society, it should still be noted that this freedom is restricted for many people due to the lack of barrier-free systems. Elderly or disabled people are prevented from exercising their right to participate through security deficits, inaccessibility, or a massive loss of comfort. Achieving equivalent mobility access is already a component that must always be considered when it comes to individual mobility behavior. Why people use the mobility that they use depends particularly strongly on the socio-psychological way of thinking, which is discussed in this chapter.

In the literature there is a tendency to equate multimodal and sustainable transport activities. For example, the behavior of multimodal people is described as a situation-appropriate, resource-saving choice between different modes of transport, or the image of the “metromobile person” is drawn, who pragmatically sees the utility of all modes of transport and uses a wide range of modes of transport in everyday life, so that ultimately no main mode of transport can be identified (cf. Knie 2011, 70). In addition, it must be observed very closely which behaviors are changed when multimodal transport increases. If multimodal behavior gains in importance in the future, this will primarily be based on the EN, especially "the use of bicycles and public transport". To put it positively, multimodal transport behavior could reduce or completely avoid the "greater evil" of monomodal car use (cf. ib.).

However, Nobis (2013) also warns that development can go in the direction of an unsustainable way of life if behaviors are differentiated too vaguely, since the route combinations with airplanes can also be described as multimodal per se. A deeper differentiation of behavior is therefore required. While Nobis (2013) divides this multimodality into the three dimensions of the concept of sustainability, the "behaviors" themselves are not researched in an interdisciplinary manner. However, it is of great interest to learn how exactly these conscious mobility choices come together. Due to the various linking options, it is of great relevance to look at each individual means of transport for yourself, as each has its own characteristics.

2.6.1. Characteristics of Mobility Behavior

It must be made clear that mobility behavior is composed both extrinsically and intrinsically. In the application field of traffic psychology, all influencing factors in the entire spatial-temporal behavior are examined today (Hunecke 2015, 11). This includes not only the realized, but also the potential forms of mobility behavior, which are initially only thought of in a space of possibilities (Canzler, Knie 2000). Psychology is of particular importance for the analysis of potential forms of mobility because it is dedicated to the individual's internal evaluation systems, which cannot be deduced from the realized mobility behavior. Gandit (2009) shows that there are clear connections between a perceived attitude and the choice of the means of transport (Gandit 2009, 57f). It is therefore a task of social psychology to clarify what influence values and norms might have on traffic behavior, how means of transport are emotionally evaluated and to what extent mobility behavior is based on conscious or automated process decisions (cf. Hunecke 2015, 11). All answers to these questions could be used to optimize mobility-related planning measures (cf. ib.). In the following sections, the basics that relate to the connections between the internal processes of evaluated information and mobility behavior will be briefly outlined. Four different variables can be differentiated here: beliefs in control, attitudes, norms and values (cf.

Hunecke 2015, 12).

- **locus of control**

The need for self-determined action is to be regarded as one of the most important human motives. What is perceived as self-determined action differs intrapersonally, in that people have different goals and perceive environmental influences differently. Locus of control is a person's subjective assessment of how mobility goals might actually be implemented. For example, it can be a goal to be on time for appointments. However, the assessment of whether this is possible in the existing traffic situation with a car or public transport using one's own resources is described by means of transport- related beliefs in control. Self-controlled means of transport, such as cars, bicycles or scooters, gives the individual more opportunities to influence movement in space. Own-operation is usually prioritized higher than means of transport controlled by others, such as public transport and autonomous driving. "Behavioural checkpoints" have often been studied in psychology. Bandura's (1977) construct of the behavioral "expectation of self-efficacy" proves particularly influential. It is about the certainty of being able to meet requirements through one's own skills. Ajzen (1991) speaks of planned behavior, which evaluates one's own behavioral possibilities to carry out a desired behavior. Within the framework of the theory of planned behavior, locus of control has often been examined in terms of its influence on the use of transport.

In Gardner and Abraham (2008), the psychological construct had the highest correlation with non-use of the car. Basically, this means that people who do not use a car are subjectively convinced that they do not have to use the car either (cf. Hunecke 2015, 13f). This connection is also confirmed by several studies in which connections between psychological variables and the use of means of transport have been examined while simultaneously considering spatial, transport infrastructure and socio- demographic characteristics (cf. Hunecke et al. 2007). The control beliefs resulted in being able to use public transport (public transport control). Hunecke showed in the "logistic regression analysis" that people who are convinced that they drive publicly also use public transport. This can therefore even be used to predict public transport use. This psychological variable "public transport control" cannot be derived directly from accessibility to public transport either; the correlation between the measured values of both variables was very low at .30 (Haustein, Hunecke 2007).

In social and behavioral mobility research, two other loci of control could be identified that have a clear connection with the use of means of transport: Firstly, there are "perceived mobility necessities". having to be mobile, e.g., about one’s own job, childcare and the supply of goods and services (cf.
Hunecke 2015, 14f). Correlation analyzes make it clear that the perceived mobility needs are more closely related to characteristics that are mainly general living conditions, while the recorded “perceived behavioral control” is stronger correlated with infrastructural characteristics of the transport offer, such as the accessibility of public transport (cf. Haustein, Hunecke 2007). From a social-psychological point of view, mobility is equated with individualization that " no means proves successful freedom, but rather a shifting of constraints and a damnation of having to find one's own in the chaos of change" (Hoanzl 2017, 48). Nevertheless, the moderate correlations between the "perceived mobility needs"

and the socio-structural characteristics indicate that there are two largely independent factors influencing car use (Hunecke 2015, 15).

The other point is the "wheel weather resistance". It proves to be particularly relevant for bike use by checking subjective beliefs as to whether the person uses the bike even in bad weather. According to evaluations of mobility diaries, in sunny, cloudy, and rainy weather, people with high weather resistance use the bicycle more frequently as a means of everyday transport in all weather conditions. In rainy weather, the difference in bike use to people with low cycling weather resistance is particularly high (Haustein et al. 2007).

Compared to other psychological variables, the beliefs in control are directly related to the objectifiable characteristics of the transport infrastructure and to the concrete organization of everyday life. It can be assumed that the locus of control is determined in the long term by the objectifiable characteristics of the mobility environment. According to Hunecke (2015), in concrete decision-making situations, the psychological beliefs of control are the more meaningful predictors. These capture intrapsychic processes of information evaluation in the head, which take place close to the concrete decision-making context and can thus explain the comparatively high variance in mobility behavior.

Therefore, if psychological variables are included in interdisciplinary explanatory models for mobility behavior, mobility-related locus of control should be considered first, because these are expected to have the largest independent share in improving the explanatory model of all personal influencing factors (Hunecke 2015, 15f).

- **Attitudes**

Attitudes characterize summarizing evaluations of objects, people, situations, or ideas. They result from experience and can include cognitive, affective, and behavioral elements. Attitudes influence behavior by pre-structuring and aligning information processing in decision-making processes. Attitudes are therefore relevant to behavior, but attitude and behavior can differ significantly. Only when attitudes are easily recalled, accessible, and stable over time, they do have the greatest impact on behavior (cf. Glasman, Albarracín 2006). A traffic psychology study sees a small correlation of .27 between a positive attitude towards the car and its use, and a positive non-use of the car and actual use has a negative correlation of .48 (Gardner, Abraham 2008). This may be because attitudes are typically captured in dimensions such as "good or bad." Since attitudes usually refer to a specific means of transport or forms of locomotion, they are differentiated as psychological constructs from values that refer to generalized goals in life. attitudes, a more self-interested perspective is expressed, in which the advantages and disadvantages for one's own person are assessed. The content of attitudes also results from the sum of experiences in the formation of attitudes. In mobility research, attitudes have been examined almost exclusively with regard to the evaluation of different means of transport and here above all the use of cars (cf. Hunecke 2015, 16).

To characterize the content of attitudes, three classes of motives for the use of means of transport were differentiated: instrumental, affective and symbolic motives (cf. Steg 2005). The instrumental motives characterize the use of the individual means of transport to achieve the individual mobility goals. In the case of evaluations, the main focus is on the

time and cost involved in using the means of transport and in overcoming spatial and organizational barriers (cf. ib.). Affective motives relate to the hedonic experience of using the means of transport. Positive emotions such as joy can be evoked, for example, by seeing the landscape, having fun driving with your own music or pride by driving a vehicle yourself (cf. ib.). Negative emotions mostly result from stress in traffic, e.g. from waiting in traffic jams, narrowness in overcrowded public transport or barrier-free transfers. The symbolic motifs refer to the social functions of mobility, in which above all the social status and aspects of the social identity of people are evaluated. In this understanding, the symbolic motifs are aimed at symbolic evaluations of everyday mobility, which were socially conveyed in early childhood and can certainly have an emotional effect. At this point it is already clear that the content of the three classes of motifs cannot be clearly distinguished from one another. (cf. Hunecke 2015, 17)

Psychologically, it is difficult to separate these attitude dimensions from one another. Lois and López- Sáez (2009) were able to map the relationship of the three dimensions and showed that the affective motivations had a direct influence on car use, while the instrumental and symbolic motivations influenced only the affective motivations (cf. Lois, López-Sáez 2009, 795). In a comparison with the different modes of transport, the car was generally attributed greater spatial and temporal autonomy, which is also associated with shorter travel times. Likewise, the car is compared to public transport with regard to the aspect of privacy regulation. On the other hand, the use of public transport is often rated as cheaper and does not entail any parking problems. The experience value of cars and public transport is rated very strongly depending on individual preferences, e.g. whether driving the vehicle independently is perceived as more pleasant.

The bicycle is also assessed as a means of transport using similar assessment dimensions. Safety and health aspects are of additional importance here. Although safety was irrelevant to behavior when taking into account other psychological influencing factors on the way to work, a positive assessment of the health effects of cycling increases its use in a statistically significant way (Heinen et al. 2011). The evaluation of the means of transport can not only be recorded by questioning road users, but can also be proven in the messages that are transported in the mass media. It is well known that the marketing of the automobile companies tries to convey the advantages of the automobile in a variety of symbolic ways. Aspects of autonomy, experience and also as a classic status object are marketed here in a symbolic way (cf. Hunecke, Baasch 2007, 66f). Even for music videos, content analysis has shown that cars are marketed disproportionately in these spheres: while public transport, buses and trains, were presented in only 11.4% of the analyzed music videos, 68.6% posed with cars (cf. ib.). Admitted in this context that the car wants to express its social status by owning a prestigious car is still unusual - answers about social desirability have so far reduced the imposition of classism (cf. ib.).

- **Norms**

Compared to beliefs in control and attitudes, norms are characterized by the fact that they express an obligation or an "ought" to behave appropriately and inappropriately. Social norms always refer to the expectations of people that are relevant to themselves. Social norms characterize the expectations of a group regarding how to behave appropriately, e.g.

car drivers to be considerate of pedestrians and cyclists. There are also norms as to how the members of the group actually behave with regard to expectations, e.g., whether, as car drivers, they are really considerate towards pedestrians and cyclists. There are also personal norms that characterize a personal moral obligation to carry out a behavior.
Personal norms differ from social norms in that one can feel personally morally obligated to behave, even if the surrounding social reference group does not see it that way. As a rule, they are mostly learned in the course of a child's biography and then continued as independent moral norms. Value orientation is necessary, which prescribe the general principles of the concrete way of life. Compared to values, however, norms are more action-oriented and therefore better for influencing mobility behavior. In the area of transport use, the influence of social and personal norms have been empirically examined in detail. These analyzes are primarily motivated by determining the influence of environmental standards on mobility behavior. From the perspective of models of action based on social psychology, it has proven useful to operationalize the motivational aspect of environmental awareness as a personal ecological norm. Environmental awareness is a theoretically fuzzy construct that includes both normative and value- and attitude-related aspects. Ultimately, however, the personal ecological norm that leads to a feeling of moral obligation to make one's own mobility behavior ecologically sustainable. All personal responsibility standards in the mobility sector are largely aligned with the values of environmental and climate protection. Prosocial norms are rarely mentioned by road users or are mostly seen as synonymous with ecological norms, i.e. if the environment is protected through mobility behavior, this is also directly advantageous for other people. Social norms, on the other hand, are not so strongly focused on ecological aspects when choosing a mode of transport. Above all, expectations regarding social status in the use of different modes of transport are expressed in social norms. (Hunecke 2015, 19f)

There is a connection between personal norms and the use of eco-mobility. The more pronounced the environmental awareness, the more likely this speaks in favor of not using a car and using public transport (Gardener, Abraham 2008). The influence of personal norms on mobility behavior is also confirmed in other studies. For the subjective social norm, however, it is only assumed that it only has a theoretical influence on one's own evaluation mechanisms, but not on direct mobility behavior (cf. Ajzen 1991; cf. Erikson, Forward 2011, 375). To put it bluntly, this means that intellectuals who feel morally superior due to a norm-based environmental awareness are not necessarily more ecological in practice. Based on this, the relationship between subjective, social and personal norms in the transport study was examined with two independent samples, in which the psychological constructs, attitude, subjective norm, perceived behavioral control and behavioral intentions from the theory of planned behavior were recorded. The empirical examination of psychological constructs and the use of public transport shows that the personal norm exerts an influence on the use of public transport via behavioral intention. So, this affects the perceptual process in the brain via attitude and perceived behavioral control. Furthermore, the results of this study indicate that the subjective norm, in contrast to the personal norm, has no direct influence on the behavioral intention to use public transport. The same is also the case with riding a bicycle. The subjective norm for a modal shift does not play a major role for a more detailed consideration in the environmental network. (cf. Hunecke 2015, 21f)

- **Values**

Values are cognitively represented objects and specific criteria and standards against which one's own actions as well as things and people in the social environment are judged. In contrast to attitudes, values do not refer to specific objects and situations, but structure a person's life goal and world view through their general orientation function. Emmi selects self-determination, safety, religiosity, or environmental protection and focuses on human information processing due to their high degree of abstraction. (cf. Radtke et al. 1981, 37)

Due to their general orientation function, however, values are only suitable to a limited extent for forecasting specific traffic behavior. This is mainly due to the fact that specific forms of environmentally oriented behavior can be better predicted by traffic-specific norms and attitudes. In the field of environmental behavior, this connection is at the center of theories in which values are postulated as predictors of environment-related norms and attitudes. (cf. Stern et al. 1999)

A differentiated analysis of the connections between general and environmental values for reducing car use was carried out in a study with over 1000 car owners in Sweden. A high correlation between personal ecological standards and the willingness to reduce car use was shown. On the other hand, both general value orientation and those related to the environment do not have a direct positive effect on the willingness to reduce car use. Instead, they affect that readiness indirectly by affecting different aspects of cognition. Overall, ecological problems and personal norms have a positive influence on those who perceive them as distal influencing factors of mobility behavior, which only exert an influence on the choice of transport mode via proximate influencing factors such as locus of control, attitudes, and norms. Another indirect influence on mobility behavior results from connections between values and place of residence choice. Here, the decision whether to choose an inner-city quarter or a pro bane area as a place to live is influenced not only by economic and socio- demographic influencing factors but also by value orientation. People with progressive values are more common in the inner city, which is by no means due to their generally younger age alone – the place of residence in turn influences many downstream mobility-related decisions such as the total distances traveled in traffic and the frequency of use of different means of transport. So that's values within the class. Overall, the psychological variable is the weakest, but by no means a negligible influence on mobility behavior, because if people are important to ecological values, this increases the probability that this person will also develop ecologically oriented attitudes and norms.

2.6.2. Segmentation Approaches for multimodal Transport Behavior

It can be assumed that target group-specific planning and design increases the effectiveness of intervention measures to promote environmentally friendly behavior. So-called marketing campaigns based on the snowball principle have long been widespread in marketing terms, i.e., they address the entire population. In modern, highly differentiated social structures, there are only few opportunities to change environmental attitudes and behavior. The content of information campaigns must always be tailored to the language semantics and communication channels of different target groups and to be able to achieve the necessary attention there. Target groups and segmentation represent a possibility of

reducing the complexity of heterogeneous populations by identifying homogeneous subgroups. The whole thing is not only scientifically, but also marketing-technically required. (cf. Hunecke 2015, 47)

For exact quantification-oriented social research, only a subordinate importance is attached to group- related or typology of the explanatory approaches. This is justified by the loss of information that occurs in the process of target group segmentation in relation to a generally valid explanatory model of the groups only approximately. This difference creates a certain lack of clarity, which can be interpreted as a methodological deficiency compared to generalized explanatory models. However, there are plausible arguments that can justify the use of group-specific analysis methods. The first argument is epistemologically oriented. The second results more from pragmatic considerations. (Hunecke 2015, 47f)

Basically, it's about simplifying traffic science. It is based on a data group to list significant cause- effect relationships in subgroups. In the case of complex problems, there is a risk that such issues will be overlooked. Of pragmatic advantage is that such approaches improve and simplify the communication possibilities between scientific practitioners. In application-oriented research confirm and masculinity research results are transferred to practitioners with the purpose of deriving recommendations for action and design. In this elaboration, the goal is precisely that the political actors can (and should) become active in relation to the local transport situation. (cf. ib.)

There are a few approaches to segment mobility behavior. The aim here is to identify groups of people whose members are as similar as possible in terms of selected characteristics and at the same time can be differentiated as well as possible from other groups. Four classes of characteristics have been used for segmentation proven by target groups in the field of personal mobility. Geographical, behavioral, social graphic, and physiographic characteristics. All significant characteristics within mobility research such as behavior, homogeneous groups, household types, life phases, lifestyles, mobility styles and attitude-based mobility chicks can ultimately be assigned to these four classes.

It is good to segment the number of people **geographically**. These are based on characteristics of the area, settlement, and transport infrastructure. These characteristics can be largely objectified because they can be recorded by analyzing the physical environment and transport infrastructure equipment of the user independently of their subjective assessment. Like people, city districts or residential regions each have their own characteristics (Lanzendorf, Schönduwe 2013). Configuration on this makes it unique in detail. Nevertheless, generalized characteristics can be determined, which can be used to evaluate and typology geographical areas (cf. Hunecke 2015). Naturally, geographical approaches, however, cannot be grasped in a social-psychological way.

Behavioral segmentations can be recorded in social psychology. These are based on the realized traffic behavior, frequencies, or the use of transport activities. However, in behavior-based segmentation, not only the behavior is usually recorded, but also additional situational and personal characteristics of the users. These characteristics can then indirectly be used to determine situational framework conditions or subjective preferences for behavior. (cf. Hunecke 2015, 53)

Anable (2005) examined the social psychological theory of attitude-behaviour relationships, within the "Theory of Planned Behavior" (TPB). There, multifactorial attitude statements were examined to segment potential "switchers" to sustainable mobility in a cluster analysis. He was able to extract six different psychographic groups, all of which have different degrees of mode-switching potential. Each group represents a unique combination of preferences, worldviews, and attitudes, indicating that different groups that respond to different must be served wisely in order to optimize the chance of influencing behavior in the choice of transport. Accordingly, sociodemographic factors had little influence on the behavior, suggesting that attitudes largely depend on personal characteristics. Anable claims that this study demonstrates its utility by providing a way to extract naturally occurring, relatively homogeneous, and meaningful groups that can be used in designing targeted “hard” and "soft" transport policies. (cf. Anable 2005, 65).

In summary, the population falls into six distinct groups with respect to their scores on various components of the TPB and additional factors such as environmental concern, participation in pro- environmental behavior and moral obligation. The four car-owning segments display significant differences in the extent to which they exhibit psychological attachment to the car, feel responsible for the environmental effects of their car use and perceived behavioral control over using alternatives to the car. The largest segment in this sample, the *Malcontented Motorists* (30%), for example, perceive a high number of constraints to the use of public transport despite feeling increasingly frustrated and unhappy with car travel and believing that they have a moral responsibility to change behavior. The *Complacent Car Addicts* (26%) on the other hand admit that the use of alternative modes is possible, but do not feel any moral imperative or other incentive to alter their car use. The *Aspiring Environmentalists* (18%) have already substantially reduced their car use largely for environmental and health reasons but appreciate the practical advantages of car travel and are thus reluctant to give up ownership entirely. The *Die Hard Drivers* (19%) are fond of cars and car travel, believe in the right to drive cheaply and freely and have negative feelings towards all other travel modes. The two non-car-owning segments are also differentiated by these variables, although it is clear that ‘actual control’ factors in the form of age and income have a role in the profile of these groups. Nevertheless, there is evidence to suggest that the *Car-less Crusaders* (4%) have sacrificed car ownership for environmental reasons and have positive evaluations of all other modes. The *Reluctant Riders* (3%), on the other hand, are involuntary users of public transport due to health or financial reasons. They would prefer to travel by car and either aspire to owning a car in the future or accept lifts by car when possible. (cf. Anable 2005, 70)

This baseline study, which serves as a core basis for the development of the social psychological questionnaire, was conducted in Manchester, UK, with 666 participants in 2005. For multimodal transport behavior, the chances of change are considered very difficult at 45% since their change from everyday options without a car is considered "less likely". There is also specific information and suggestions that enable individual group members to change their traffic behavior. For this purpose, the presentation of alternative transport offers is necessary to strengthen the individuality of the users to be emphasized. Stereotypes must also be avoided and therefore address as wide an audience as possible without specializing in mass marketing. This understanding means that messages can be designed in a way that avoids counterproductive reactions and achieves a higher level of acceptance that mobility

management policies such as enabling more multimodal behavior entails. It includes a framework that could be used to define such.

An example is that the dissatisfied drivers should respond to advertising messages reminding them of the frustrations they face in traffic jams - a confrontational approach. This should awaken their moral imperatives and awaken the potentially more relaxed alternative of public transit. Aspiring environmentalists should require less convincing to use alternatives, including the bicycle, if this group is made aware of the options available to them. Hence, the segmentation approach illustrates that policy interventions need to be responsive to the different motivations and constraints of the sub- groups. However, such responses may be less about 'harder' infrastructural changes and more about 'softer' interventions which set out to give better travel information and opportunities with an emphasis on management and marketing activities. The ascendance of "soft factor" interventions on the transport policy agenda will benefit from methodologies that enable individual's perceptions of the benefits derived from traveling on various travel modes to be understood and influenced in a targeted way. Marketing and soft factor interventions can influence an individual's perceptions of the benefits derived from traveling in a particular mode and reinforce favorable attitudes already held.
Moreover, psychographic segmentation not only identifies target markets, but also provides detailed diagnostic information that is useful in understanding the unique antecedents that drive each segment's behavior. (Anable 2005, 77)

Ultimately, it remains to be said that a cluster analysis can also be created based on the extracted factors after combined application. Within a range of more than 500 participants, a number of clusters may be appropriate. A five-cluster solution was also chosen to appeal to the means of transport, within the pattern mental options with a view to orientation towards multimodality. This is how the mental multioptionality manifests itself in 5 different groups. The "car-loving mono-optionalists" represent the only mental mono-optional group in the sample. They assign strongly positive, symbolically emotional values to the car by associating the act of driving with a sense of freedom and passion and the automobile itself as a shelter in everyday life offers. In this sense, driving a car means the best way of getting around for the car mono-optionalists. Mental options, alternative means of transport, use are absent for this mentally homogeneous group of people. A positive emotional turning away from alternative means of transport to the car, for example in relation to the bicycle or one's own feet, is visible. There is even an emotional aversion, especially to public transport. This is fundamentally based on an aversion to human closeness and a fear of perceived demotion and devaluation of social status - evidence of perceived classism. (cf. Groth 2019, 198)

As a result, this group of people rejects the flexible and situation-related means of public transport. In previous studies it was found that men and adults between the ages of 50 and 64 years have two- family houses and have a higher income. People with a lower level of formal education are more frequently represented in the group of car-loving mono optional lists than the average. The mental condition of this group of people is not unknown regarding other studies, whereby reference can be made to Anables (2005) "Reluctant drivers". Any user groups are segmented based on their real traffic behavior, in contrast to the attitude-based segmentations.

Sociodemographic characteristics can often be attacked because they are characterized by a favorable ratio of survey effort to derivable benefits. Age, gender, or nationality are often already available in official statistics at different spatial resolution rates and therefore do not have to be queried directly for representative traffic forecasts. However, the decisive argument for using sociographic data is the expectation that this will enable a clearly defined group of people with specific mobility-related needs to be identified. This assumption is also the basis of the approach of behaviorally homogeneous groups, which was introduced in the 1970s as the first approach to segmenting people in traffic science (cf. Kutter 1972).

In the Kutter's pioneer study, the socio-demographic characteristics, age, gender and participation in professional life have proven to be relevant. The martial of the car, ownership in the respective households, provides additional information for differentiation. It has now been shown that such a simple approach is far too fuzzy to capture mobility behavior in modern, differentiated societies.
Here, role expectations and daily routines have changed to such an extent that significant, complex approaches to identifying behaviorally homogeneous groups must be applied (Hunecke 2015, 56). Overall, there are more frequent segmentation approaches in the mobility sector that are based solely on socio-demographic characteristics but are based on specific combinations of individual or household-related characteristics (ib.).

Psychographic segmentation is based on intrapsychic characteristics of information evaluation such as attitudes, beliefs, norms, and values. As the first psychographic characteristics, values were mostly used in the context of lifestyle. With mobility cultures, they are repeatedly addressed as a construct in socio-psychological transport research, which is also of importance for Stuttgart in the context of this research work. Lifestyle is understood as a relatively stable, regularly recurring pattern of everyday conduct of life value orientations, attitudes, interpretations, taste preferences, actions and interrelationships that are related to one another. When choosing a lifestyle, of course, clear limits are set by objective living conditions. Age can play an important role through generational (different imprinting of the generations by time circumstances) and life cycle effects (personality changes during aging), as well as gender, level of education, professional position, and disposable income (cf. Lippset, Rokkan 1967, 45). All elements play a role in the question of mobility, which was already discussed in the previous chapter.

Lifestyle research assumes that the increasing pluralization and individualization of society could decouple the formerly close connection between social situation and historical milieus (e.g., working- class milieu, Catholic milieu, protestatic-liberal milieu). They are replaced by numerous different lifestyles and other features of social differentiation, such as the 'former' features of social differentiation of education, occupation, and income. What is confusing is that lifestyle research often resorts to the concept of milieu and talks about social milieus, which, however, have nothing in common with the "historical milieus". However, belonging to a certain lifestyle group is by no means to be seen independently of class affiliation. It is therefore used in lower-, middle- and upper-class milieus, which, however, can also be narrowly criticized by possible discriminatory evaluations based on classism and snobbishness. Within the individual layers, there are usually several milieus next to each other or they extend "vertically" across the layer boundaries. Social milieus differ on the "horizontal axis" according to the degree to which they are tied to tradition and the change in

values from "old" to "new" values. (Schwarz 2010, 202)

The concept of social milieus was taken up and further developed in market and election research. Different, empirically obtained milieu typologies are used and associated with attitudes, that produce a certain voting behavior that occurs in elections in general, both in politics and in mobility. (ib.)

The basis of the Stuttgart lifestyle survey is Otte’s lifestyle typology, which is, in contrast to the usual approaches in this area, openly accessible and can be replicated with relatively little effort. Otte's work is based on a synopsis of numerous approaches to lifestyle and value research (cf. Otte 2004).
The typology consists of a combination of two additive indices, each divided into three segments, which indicate the “equipment level” and the “modernity/biographical capture perspective” of lifestyle. The equipment level is differentiated into high, medium, and low "consumer goods equipment and cultural practices" together with the corresponding "high-demanding", "respectable- striving" and "calculating-modest" value orientations in vertical (cf. Schwarz 2010, 203).

On the second (horizontal) dimension, people are differentiated both according to the modernity and the biographical perspective of their way of life: Modern ways of living are typically biographically open, innovative, and experience-oriented; partly modern forms are biographically consolidated and more strongly influenced by everyday routines; traditional ways of life are established and closed. The intersection of dimensions leads to a 3 x 3 panel board. The designations of the resulting nine types follow the usual labels of lifestyle research. (cf. Schwarz 2010, 203).

1 Conservative Upscale	tradition of the property-owning bourgeoisie, conservatism, distinction based on “rank”, exclusivity in the standard of living, classic high culture, willingness to perform and lead, religiosity
2 Conventionalists	Tradition of the petty bourgeoisie, obligatory and acceptable values, security orientation, high culture consumption with a popular element, conservative-religious, Morality, domestic idyll
3 Traditional workers	Tradition of skilled work, modesty, practical orientation, meaning social security, union proximity, German song goods, club life
4 Liberal Upscale	tradition of the educated middle class, liberality, professional self- realization, High culture consumption with an “alternative” impact, sense of authenticity, connoisseurship in consumption
5 Promotion-oriented	focus on a solid professional career, family and participation in the mainstream of modern leisure culture, "averageness" and internal heterogeneity of the type through middle position
6 Home-centered	family-centeredness and domesticity through children and low availability of resources, traditional folk festival scene and modern mass culture such as pop music and watch TV
7 Reflective	Cultural, academically shaped avant-garde, reflexivity, creativity and love of experimentation, search for personal development, global attitude towards life
8 Hedonists	Youth-cultural style protest through fashion and music, innovative spirit, contemporary orientation to enjoyment and consumption, extraversion, urban spectacle and club culture
9 Entertainment-seeking	experiential consumption, materialistic status symbolism and entertainment orientation outside the home against the background of a threat of declassification, depoliticization

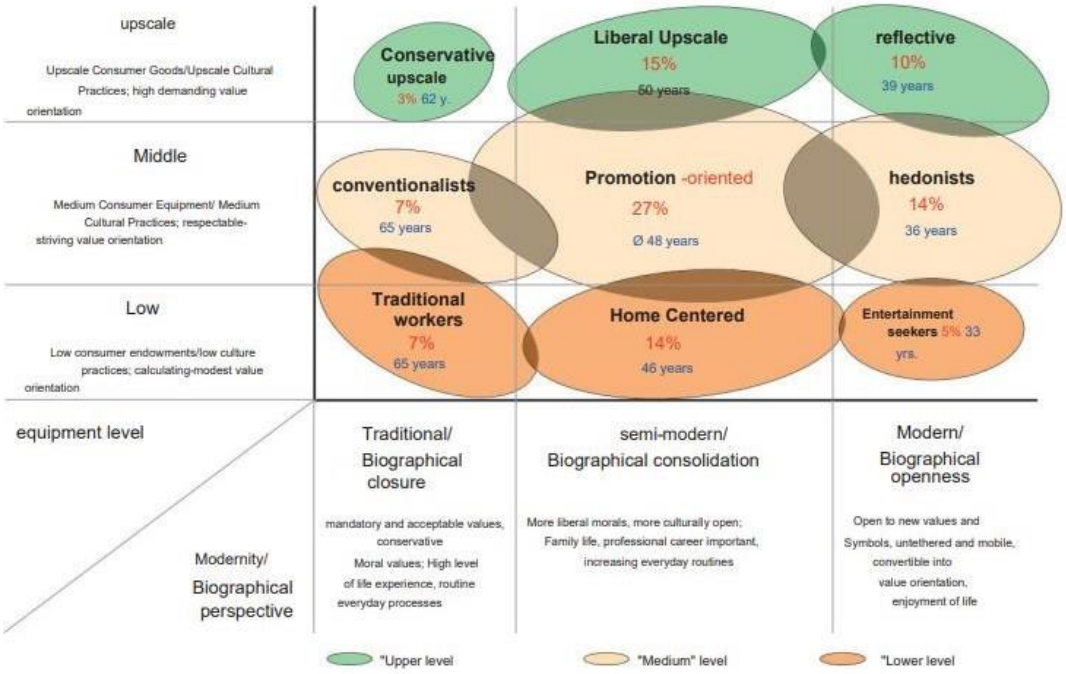

Fig. 6: Lifestyle types in Stuttgart

The nine lifestyle types with the hierarchical dimension of the equipment level (in other lifestyle approaches this corresponds to the social situation/class) and the horizontal lifestyle dimension are projected into a two-dimensional social space. In the graphic, the types are shown approximately in proportion to their size, corresponding to their percentage of the total population in Stuttgart. In addition, was the average age of the people of the respective type (median) is calculated and displayed. These size proportions are maintained in the following illustrations.

The typology of the lifestyle groups and their distribution in the Stuttgart urban society shows a wide range of variation and a considerable differentiation and heterogeneity of the lifestyle of the people in this city. Both in the hierarchical structure according to the level of equipment and in the horizontal structure of lifestyle, the "middle" lifestyle type of the "promotion-oriented" dominates in Stuttgart, to which more than a quarter (27%) of the population can be assigned and who represent the broad "middle" of urban society. In terms of age structure, this group is also in the middle segment with an average age of 48 years. A good quarter of Stuttgart urban society (28%) belongs to one of the three upper lifestyle types; the middle level includes almost half (48%) and the low level also about a quarter (26%) of the population. On the vertical axis of the value orientations, the middle types dominate with a total of 56 percent. In addition to the by far most strongly represented type of "promotion-oriented" (27%) in the middle of society, the type of "liberal upper class" is comparatively widespread with 15 percent. This is also a type which is more prevalent in the big city.

The three modern lifestyle types, biographically open and predominantly occupied by young people, cover 29 percent of the Stuttgart population. In particular, the middle type of "hedonists", who are characterized by "youth culture style protest" and "joy of innovation", and the upper type of "reflexives" ("academic-oriented avant-garde") are, as regional

comparative studies by Otte show, overrepresented in the big city. After all, a total of 17 percent of Stuttgart residents can be assigned to the three lifestyle types with traditional values and a biographically closed life situation. All of these three groups, which are among the smallest in proportion, contain people older than 60 years.

In the 2010s, a concept of mobility styles was created for the first time with the help of a multi-stage study design, which worked out traffic behavior with those different milieus. Otte did this again an area-specific lifestyle research with Rössel (cf. Otte, Rössel 2011, 16). Based on a qualitative- hermeneutic sub-study, it was possible to work out and understand elements of mobility models. A standardized survey was then carried out and a typology was created, which led to the following cluster analysis.

However, it is criticized that general lifestyle dimensions are not used to constitute a type, but only to describe it (cf. Hunecke 2000). In a follow-up project, the mobility style typology was therefore developed depended on general lifestyle orientations and not based on mobility orientations. A central point of criticism from transport research is the lack of inclusion of spatial structural influences. A critique from which various conclusions can be drawn: In his mobility style study, Fliegner (2002) includes the “choice of residential location as a prerequisite for mobility” and Lanzendorf (2000) also uses indicators of the spatial structure when he surveyed 1,000 people in five districts of Cologne for his dissertation on mobility styles. The StadtLeben project also takes a critical look at mobility-related lifestyle research. First, Jürgens and Kasper (2006) concluded that, depending on the variables (activity, means of transport, choice of transport), lifestyles do show a significant influence, but “the differences between the lifestyle groups are predominantly socio-demographic characteristics” (Jürgens, Kasper 2006, 141). In a sub-project, the variance explanation of different models is compared. It becomes clear that the explained variance increases continuously when the spatial model is expanded to include sociodemographic variables and lifestyles (Hunecke, Schweer 2006, 156). They come to the conclusion that lifestyles have less of an impact than living conditions but have an independent effect through the choice of location. Finally, within the diverse research by StadtLeben, a mobility typology that largely corresponds to the approach of the mobility styles of the ISOE provides the highest behavioral prediction for the choice of transport mode (Hunecke, Schweer 2006, 156).

It must always be kept in mind that transport research has long been dominated by deterministic explanatory approaches and that these considerations represent an opening. It is de facto assumed that the measurable traffic behavior can be derived from the external framework conditions, exclusively from the spatial structure and socio-economic conditions.

The involvement of road users as "socially integrated subjects" with individual attitudes and value orientations shape decisions about the choice of transport. However, it also has to do with the fact that locations and available infrastructures are relevant for multimodal behavior. The concept of mobility culture takes this integrative perspective on the influencing factors of measurable mobility behavior into account. The Federal Environment Agency is therefore committed to the concept of mobility culture, in which perspectives for the application of the concept of mobility culture in practice are shown. Mobility culture is a broad, multi-dimensional concept. It differs from the concept of mobility styles in that mobility styles focus on the individual or the differentiation of social subgroups, whereas mobility culture also considers socio-spatial units. Mobility styles are ultimately part of the mobility culture that influence multimodal behavior.

Mobility culture results primarily from the following dimensions:

- Spatial structure and transport options: First, this includes the infrastructure (existence of bus and train services, bike paths, footpaths, e-charging stations, etc.), which can decisively determine the quality of stay in public space and mobility behavior. In addition to purely structural aspects, this dimension also includes organizational or regulatory aspects of the offer (existence of discounted tickets in public transport, parking space management, frequency, multiple tracks of railway lines). This dimension of influence can be designed directly and purposefully.
- Politics and planning implementation: This dimension include the levels of politics, planning, interest groups and local media as well as the providers of transport and mobility services, all of which have (or want to) influence the desired mobility models. Due to the specific interaction of these actors, each transport policy element has its own official and unofficial local discourse and its own guiding principles/decisions and compromises that influence the local mobility culture.
- Perception and lifestyle orientations: This dimension reflects what people's mobility habits are like. The population is characterized in each case by demographic and economic characteristics as well as by mediated (political) attitudes and values. In addition, routines are an important aspect, as they are sometimes just as difficult to change as infrastructure. (Federal Environment Agency 2019b, 15f)

Regarding the application of the concept of mobility culture in practice, the study comes to the conclusion that there are still no applicable analytical instruments that are based on the concept of mobility culture (cf. Federal Environment Agency 2019b, 16). For this, all areas would have to be reduced in the complexity of the present approach and a transferrable set of analysis tools would have to be developed. So far, the approaches have only been reduced to the municipal level, but they could also be extended to regions, countries, and entire republics (cf. ib.).

The big question of the master's thesis "How does multimodality in the environmental network influence travel times and sustainable mobility behavior?" can be divided into different research questions, which can be answered within the framework of different research methods.

From a socio-psychological point of view, special attention is paid to traffic behavior, which also includes areas of urban climate. Here, the Knierim’s Swabia pretext has to be examined, whether Stuttgart could be described as a “car-fixated” city or whether multimodal behavior predominates in the city population.

The following questions can be used for this:

1. For people from Stuttgart, is the car an object of freedom, passion, and fun?

2. Can residents go about their daily lives without a car?

3. Is there an attempt in the capital to use the environmental association more often?

4. Do people generally have an environmental awareness when it comes to mobility?

5. Is it described as "difficult" to use public transport?

6. Do people in Stuttgart let influence their choice of transport by important people?

7. Are there district differences, e.g., in weather-resistant cycling behavior?

8. Is the younger generation more EN-affine than the older ones?

9. Do people from educationally elite classes use public transport more often than average people?

10. How many people must be constantly mobile in the state capital?

As a result of the research, it is to be expected that when answering the questionnaire, a dividing line will initially be drawn between inner-city and out-of-town groups of people, as it was forecast by Growth (2019). Differences in the feelings for cars and different usage behavior in multimodal transport are expected, because especially those districts where the car industry is lying might be more dominant. Hypothetically, this is plausible given a social norm orientation.

For this purpose, it is planned to carry out a cross-sectional survey in order to gain an insight into the mobility behavior of the people of Stuttgart across all age groups and to assess the potential for possible optimization. The questionnaire on psychological factors influencing the use of cars, public transport and bicycles (PsyVKN) is used (Hunecke et al. 2022). It is a measuring instrument that includes transport-related attitudes, locus of control and norms that infer connections to individual transport use. The aim is to be able to survey as many residents as possible from the state capital and from the city districts so there is a balanced response ratio between the inner city and the outer city districts.

From a transport infrastructure point of view, more attention should be paid to the areas of travel times and its sustainable aspect, which primarily examine spatial and geographical things. The following questions are available here:

1. **How long is the travel time between the city districts using the different means of transport?**

Since people's psychological decisions are often based on socialized circumstances, it should be recorded how the districts are accessible to each other. As a quantitative data collection method, accessibility analysis is suitable for evaluating travel times (Schwedes, Becker 2022). First, all relations between the 23 districts via point-to-point connections are set up in a cross-table matrix. This helps to identify the gaps to public transport and also where more intensive networking of multimodality or its expansion may be required. This is particularly useful for testing the hypothesis that radial urban development, which also seems to exist in Stuttgart, leads to unequal treatment of spatial accessibility of city districts (Bodenschatz et al. 2013). Travel times generally provide the important parameters as to where there are infrastructural deficits or where potential is being expanded. Even if it is viewed as a "relic of the old transport planning", travel times that are too slow in the EN can increase the rate of car use. Strictly speaking, adaptation planning is still used: Where mobility works more quickly, traffic flows are aligned.

2. **How good are the connectivity and the local EN-conditions within the districts between key objects and the EN?**

The focus can be specified on several questions: Are the goals of public services easily

accessible everywhere with inclusive means of transport, including public transport or active mobility users? Where are typical, everyday destinations of proximity not within walking distance. At which points in Stuttgart is public transport particularly disadvantaged compared to private individual transport? On the other hand, there will be accessibility analyzes at district level to determine the structural conditions of multimodality. It is about the degree of networking and systematic examination of municipal gaps. In this step, historical comparisons with old traffic plans should also be included in order to draw conclusions about the genesis of the degree of networking. Finally, it should be possible to answer both at the level of the city as a whole and at the level of local politics, how multimodality influences travel time, the urban climate and traffic behavior and what conclusions Stuttgart can draw from this.

In order to identify certain structures for multimodality at the district level, a systematic list of today's possibilities is needed. For this purpose, an accessibility analysis should be chosen at the district level in order to illustrate the conditions within the city. It's about the degree of connectivity of the points of interest in a district to transport. In order to cover this for all Stuttgart districts, a walking distance-based evaluation should be carried out. However, this does not replace examinations of microstructures, which can, for example, make statements about the increasingly important and legally required accessibility.

3. Which types of multimodal users can be detected in Stuttgart?

An important question is to find out what types of mobility predominate in Stuttgart, which have a strong impact on mobility behavior and can provide information about multimodal behavior. This should be made possible through a dedicated survey about personal traffic behavior. It is also important to examine whether there are district-related inequalities in Stuttgart. In addition to the scientific added value, the study creates a template for using existing basic attitudes regarding mobility and opens up discussions about promising multimodal projects that can be based on this.

3. Methodology

3.1. PsyVKN - Questionnaire on Psychological Factors influencing the Use of Cars, Public Transport and Bicycles

3.1.1. Operationalization

In the studies of the socio-psychological findings in mobility behavior, it emerged that multimodal traffic behavior is initially linked to a decision-making process that depends on the individual sensitivities to a special mean of transport. Therefore, before conclusions can be drawn about multimodal behavior, it is of great relevance to examine the socio-psychological attitudes of affected persons on a specific topic.

Various objects of study would lend themselves to discussing people's attitudes towards this transport policy issue. It also plays a role to what extent one believes the information about the use of the people or whether this is subject to the control framework, e.g. whether the person really uses the bike in the rain or whether public transport is actually used to the extent stated. However, due to several hurdles in Stuttgart, a controlling examination framework, such as that used in a car use study in Sweden, cannot be implemented. Except in the buses, Stuttgart does not have a ticketing system that registers checking out or in. In Stuttgart, data protection law does not allow anonymous access to mileage figures or internal company data evaluations from the test persons. The question of who drove the car cannot be found out, which is why one is ultimately dependent on the truthful statements of people.

For this reason, the PsyVKN, a modern socio-psychological questionnaire tool was selected in the German-speaking area, which is based on truthful statements and has a high informative value on people's mobility behavior and subdivides them into the categories explicitly explained in the above- mentioned chapter and already contains theoretical constructs there have created with specific response behavior.

As a central element in the mobility skeleton, the itemset is integrated in the form of the questionnaire for recording intrapsychic evaluation processes of the use of transport (PsyVKN) (cf. Hunecke et al. 2021). The itemset contains control beliefs, transport-related attitudes, as well as norms and has already been used in many studies in a comparable form (cf. Haustein, Hunecke 2007). The formulation of the items was optimized across the various studies and has already been tested in several languages, the translation quality of which into English cannot always be perfectly separated (cf. Hunecke et al. 2021). For this reason, the German-language PsyVKN is deliberately used in this work to empirically apply items that can consistently capture psychological constructs on the use of transport.

The set of items used in the questionnaire consists of 27 psychological statements, which are evaluated by test subjects on the basis of a 5-point Likert scale ("does not apply" to "apply"). The itemset is listed in the table below. It has the advantage that, in addition to considering the car, it also places a strong focus on EN, such as public transport and bicycles. The various psychological dimensions, as described in the theory part of the social-psychological chapter, are comprehensively considered and form a suitable basis for a wide range of analyses. (cf. van Behren 2021, 37f)

In the following, all existing items are to be assigned based on their category and it is translated in English:

Category	Acronym	Item
Social Norm (SN)	SN1	People who are important to me think that I should use public transport instead of the car.
	SN2	People who are important to me think it would be good if I used public transport instead of the car for my everyday trips.
Personal Norm (PN)	PN1	Because of my principles, I feel personally obliged to use environmentally friendly means of transport on my daily trips.
	PN2	I feel obliged to make a contribution to climate protection through the choice of my means of transport.
Perceived Behavior Control (PBC)	AutoOEV1	I can do what I want to do using public transport.
	AutoOEV2	I can manage my everyday life very well without a car.
	PBC1	It is difficult for me to use public transport instead of the car to cover my daily journeys.
	PBC2	If I want, it's easy for me to use public transport instead of the car for my everyday trips.
Perceived mobility constraints (PMN)	PMN	My everyday organization requires a high degree of mobility.
	PMN2	I have to be constantly mobile to meet my everyday obligations.
Wheel Weather Resistance (WetRes)	WetRes1	I don't like cycling when the weather is cold.
	WetRes2	I ride my bike even when the weather is bad.
Bike Orientation (RadErl)	ErlRad1	I can relax well when cycling.
	ErlRad2	I like travelling by bike.
Car Orientation (AutoErl)	AutoPkw1	For me, driving a car means freedom.
	ErlPkw1	For me, driving means fun and passion.
	ErlPkw2	I enjoy being able to use my driving skills when driving a car.
	PrivPkw1	When I'm in the car, I feel safe and protected.
	PrivPkw2	When driving a car, I appreciate being able to decide for myself who I want to drive with.
Privacy Public Transport (PrvtOV)	PrivOEV1	People come too close to me in an uncomfortable way on public transport.
	PrivOEV2	On public transport, my privacy is inconveniently restricted.

After the study, it should be possible to cluster six target groups. In the MOBILANZ study, seven mobility-relevant attitude dimensions and a value orientation were determined on the basis of an extended theory of planned behavior, on the basis of which five mobility types are determined. If the mobility types are compared with the different aspects of mobility behavior such as the use of means of transport and the distances covered, it turns out that the "car individualist" type, who travels mono-optionally, causes around three times as much CO_2 as "self-determined mobile". As groups there are "public transport-distancing compulsory mobility", "weather-insensitive bicycle fans" and environmentally sensitive public transport fans" (Hunecke 2015, 68). However, because Groth carried out a different classification of mental multi-optionality with a similar study, which differentiated into two main groups and formed subgroups there (mono-optional: "auto-loving mono-optionalists"; multi- optional: "auto-rejecting tri-optionalists", "critically multi-optionalists", "flexible foot- and public transport bi-optionalists", "individual traffic-oriented bi-optionalists"), a deductive clustering was declined, so groups will be formed after the survey (cf. Groth 2019, 185).

3.1.2. Elected Access to Participants

Baur and Florian (2009) already state that a target population must first be defined for the online survey. In surveys such as the PsyVKN, all persons about whom a statement is to be made must be specified. In this study, the general urban population of Stuttgart was to be surveyed. But guests who are not from the city should also have the opportunity to take part in the study, since the number of commuters also has a significant impact on mobility in Stuttgart. As a "sample instance" it should be marked that at least a comparison between the information in the inner city and outer city districts is possible based on the data. If possible, a two-digit number of participants from each city district should be reached for obtaining a large comparison of all districts. (cf. Baur, Florian 2009, 109). As a selection basis, various channels were used to reach the participants, which had the aim of being able to collect as many answers as possible. For this reason, the specified online form should be disseminated as best as possible. On the one hand, the dissemination was carried out passively and actively. First, after a short preparation of the cover letter, it was shared on company's own social media channels via the private account link and questionnaire. The project was then shared in various social media groups on Telegram, Instagram and Facebook that deal with the mobility topic. This was deliberately done to ensure that there was a certain political balance. With various methods, the concern expressed by Hillmann (1994) that a politically motivated selection of respondents can systematically and purposefully steer results in one direction (Hillmann 1994, 512). Extrapolating conclusions from a similarly shaped group to the general population would miss the point of the survey and would be misleading (cf. ib.).

For this reason, groups were deliberately selected for further dissemination, both online and later in person, that have different, subjective, views on the question of mobility, but are above all interested.

The surveys were distributed in circles of the Stuttgart automotive industry in various departments via private and former professional contacts. Three different personal approaches were used, which spread it among a circle of around 500 employees. The survey was shared somewhat more distantly and anonymously in social media groups from regional car lovers, car tuning communities, construction site enthusiasts, Stuttgart 21 fan

pages, to an anti-green movement page.

At the same time, it was ensured that there were forums for environmental organizations, local transport companies, cycling associations and local groups that are committed to sustainability in their district, which subjectively represent the political counterweight. However, the participants were advertised "neutrally" on local websites, bulletin boards and through cooperation with the administration. It was disseminated further, for example, on district websites run by volunteers, and e-mails from publicly commissioned civic participation companies. Poster printouts with the QR code, which has become more common since Corona, were also legally posted in supermarkets, universities, nursing homes, the city library or restaurant premises at least at one point per district.

The personal surveys carried out as part of the study, in which people were interviewed at random, can also be regarded as "neutral". It all started in Zuffenhausen, where in the fall, passers-by near the Zuffenhausen town hall were asked for four hours. Due to the nearby subway station, traffic-calmed locations were chosen for the follow-up surveys later. The next surveys took place at the Christmas market in Cannstatt and Weilimdorf, where people had more time and groups of people spontaneously agreed to fill out the survey themselves on their mobile phones. These in-person surveys should also provide age-demographic corrections, as online surveys are still more likely to target younger people.

3.1.3. Participants

Overall, it could be determined that over 569 people took part in the PsyVKN in the survey period. According to the information, 478 people live in Stuttgart, 71 come from outside, the rest did not specify.

A clear picture emerged among the participants when it came to selecting the district locations. The majority of participants could be won in the outskirts of the city, which is also related to the survey design. As the smallest district in Stuttgart, Münster (48) is the most populous in absolute numbers, ahead of S-Mitte (43), Weilimdorf (42) and Bad Cannstatt (42). Six districts reached between 20 and 30 participants. Eleven districts remained under 20, including two inner-city districts S-Nord and S- Ost (12 each). Even bottom Obertürkheim (10) managed to get two-digit numbers of participants. 41 participants leave the category empty (“Leer”).

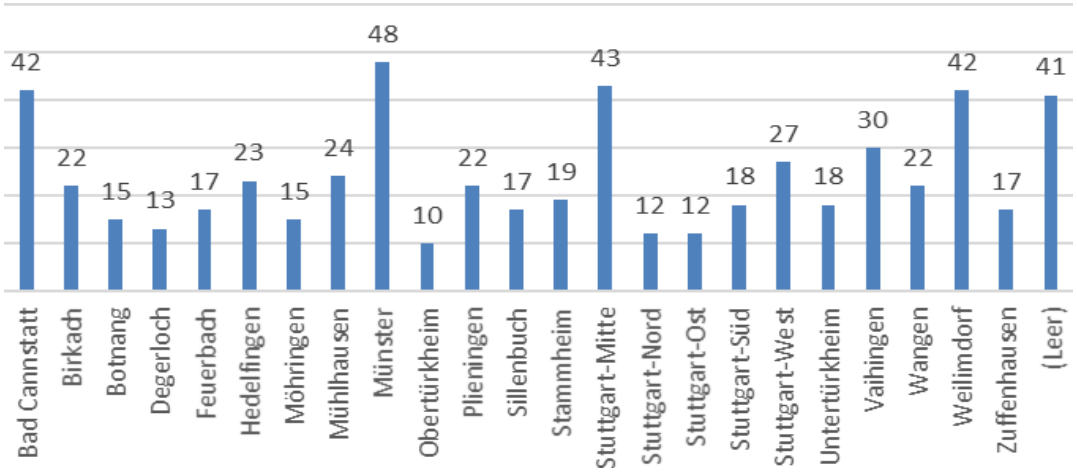

Fig. 7: District distribution (incl. guests) of the participants

It is also noticeable that there is a certain gender gap, since the number of genders in the respondents is not evenly distributed. The study is clearly male dominated. There is a women's quota of around 35% with 200 women, there was one diverse participant and 349 men, 19 left the gender open. The highest percentage of men was in Weilimdorf and Stammheim, which was over 83%. The highest proportion of women was achieved in Plieningen (54%), S-Ost (50%) and Sillenbuch (47%).

When it came to age, it became clear that the study is below the average age of the people in Stuttgart. An average age of 39.7 is below the city average of 42.3. This value is surprising in that the inner city districts, which tend to lower the average age in Stuttgart, hardly play a factor. With 30.3 years, S- Vaihingen has the lowest average age of the participants, closely followed by the outskirts of Obertürkheim with 30.6, where most of the population is older. By far the oldest were respondents in Weilimdorf, whose average age was 63.4.

What is particularly noticeable in the survey is that the degree of academics is extraordinarily high at 39% and the proportion of those who do not have a school-leaving certificate, secondary school certificate or intermediate school-leaving certificate can be estimated as rather low at 14%. Worth mentioning is the high proportion of doctorate holders in Birkach (13%), master's/diploma graduates in S-West (41%) and completed trainees in Obertürkheim (50%). Strong tendencies that Stuttgart city districts can be clustered into educational segments can already be put into perspective in this step. In all city districts, the academization rate is above the state average for Baden-Württemberg, a majority of participants counts to the top-educated milieu of Stuttgart, which has to be set into account for arguing with this study.

3.1.4. Implementation

After selecting the PsyVKN questionnaire according to Hunecke (2021), a cover letter was first drafted at the beginning of October 2022 and an attractive poster designed. This was created in the colors of the university institution, whose logo was not used for legal reasons. It contains the necessary content of the work, a QR code, the survey link and a short description of the research.

The personal contacts from the car and railway companies were immediately involved, and billposting began in all districts from the city center to the north. At the beginning of November, personal surveys were carried out in Zuffenhausen, the success rate of which was rather negative due to the time of day and the Stadtbahn stop was too close. The survey was then shared between the two political camps and various social media channels. For this purpose, some people were written to directly, who often took over the forwarding as volunteers. The first "peak" of response sheets came at the beginning of November via the online survey. Then the transmission began in the upper Neckar suburbs and in the southern parts of the city on the Filder plain. During this time, the origins of the first evaluation forms were looked at again and again: A "familiarity effect" of the survey maker can also have something to do with the fact that in S-Münster and in Bad Cannstatt, the response behavior developed well despite less advertising. A tendency developed in the response behavior in which Birkach and Plieningen, as well as Obertürkheim, Wangen and Weilimdorf are neglected. With Plieningen and Birkach, the officer for citizen participation in the administration was asked in November, who passed on contact details, in Wangen the

survey was shared on a voluntary website, in Weilimdorf surveys were carried out at the Christmas market. The city administration of Obertürkheim did not answer. At the beginning of December, there were double-digit responses in 15 of 23 districts, with Obertürkheim being the only district without a response. In the final sprint, further places were found for the poster on the Filder plain and in the upper Neckar suburbs, or it was determined that the poster was no longer hanging at four locations, which is why striking improvements were made. With the Scarcity method, a legal marketing trick was also used to ultimately increase the response behavior, with the large attachment: Bitte nur einmal teilnehmen!! (“Please participate only once!!"). Lynn describes this as the principle of scarcity in distribution because limited items or opportunities acquire a certain rarity value (cf. Lynn 1991). Even if the response behavior is not limited, since the personal surveys were entered with the same device, it was probably possible to give the impression that taking part several times could be worthwhile. The last peak was reached on 19th December, after the completion of the survey there were no more posters to be seen from 2nd January 2023.

3.2. Cross-tab Matrix of Travel Times between Districts

It is of great necessity to take the travel times into account in the preparation. Psychologically, in addition to optionality, travel times also play a role in the mobility decision. Whether travel time gains really play such a large role as assumed in the profitability calculations is disputed in the specialist literature, but the usefulness of small travel time gains is clearly confirmed (cf. Walther 2021, 83).

The competitiveness of the connections should be surveyed and compared within the framework of a cross-tab matrix between all districts for cars, public transport and bicycles. With the help of this comparability, it could become clear in which city districts connections are particularly expandable or competitive by the EN. For Stuttgart in particular, listing all connections from all districts could reveal trends in the city-wide accessibility of each individual district.

3.2.1. Operationalization

The aim is to make the travel time analysis quantifiable and to measure it in a standardized way for comparison. First, it is important in this method to define which travel time is determined, since these usually differ in whether additional times for reaching the means of transport, or the front door of the destination have to be added to the pure travel time with the means of transport. An extensive travel time is the time required for a change of location from the point of the start address to the point of the destination address, which is also called complex travel time (cf. Ahrends 2015, 21). In principle, the travel time includes the access time, i.e., the walking time from the first address to the vehicle or public transport stop, the waiting time, the actual transport time, including any transfer times or the time needed to look for a parking space, and finally, the departure time, which includes the walking time from the vehicle to the destination address (cf. Märtens 2017, 15).

For the cross-tab matrix, only selected point-to-point connections should be specified, which can protrude from a central fixed point in one district into the other districts. The advantage of this is a certain clarity with the number of often diverse connection options reduced to the shortest possible time and therefore allows a simple comparison in a single table for each

means of transport. The same design can also facilitate computational portability in mathematical computation programs, and is therefore practical, easy to use, and easier to understand. The disadvantage is that the quality of service, i.e., whether the connection is possible every 10, 15 or 30 minutes, is not displayed in this context. Public transport connections that run less than a 30-minute frequency between Monday and Friday are not considered in the elaboration in order not to jeopardize the validity of a frequently existing connection. Considering the mean or median walking times to the vehicle would have required an enormously more complex GIS-heavy file. The regional accessibility in a district was included in another method, which is why this no longer needs to be done at this point.

Real-time data from Stuttgart's districts is required for the analysis to determine the travel times between the different districts required for the network. In this study, it includes:

- Local public transport in the form of the official timetable data from the online information provided by the Stuttgarter Straßenbahnen AG
- Real-time public road traffic data, sampled at 10:00 a.m. on weekdays, so as not to reflect peak traffic hours, but also non-off-peak nighttime traffic.
- Exact travel time calculator for individual traffic via non-motorized bicycle traffic, which recognizes topographical conditions, like the Baden-Württemberg cycle route planner.

When it comes to the bicycle connection, you have to differentiate between a one-way trip from the location and to the location, since there are different travel times due to topographical hurdles. The goals of the travel time analysis are subject to the following conditions: After selecting a fixed point per district as indicated below, a cross-tab matrix is to be created using the above network, which describes the fastest connection between the points for each mode of transport monomodally. For this purpose, the routes of the car are compared with the environmental network, i.e., public transport and bicycle.

What needs to be methodically defended is a move away from the 70th percentile. In selected studies, it was methodically introduced that cars generally reach their destinations faster than public transport. The 70 percentile means that 70 percent of all vehicles reach at least this speed on a route (cf.
Chamber of Commerce and Industry Region Stuttgart 2015, 2). However, because peak traffic times make up less than 30 percent of the day, it happens that inner-city traffic times that are at risk of congestion and the resulting time costs are given little or no consideration.

Even a one-sided calculation of the traffic jam time INRIX would not be fair. With 27 km/h at peak times, the value changes again, the Swabian metropolis is in tenth place in the Federal Republic with 39 hours of expected traffic jam loss and approximately total costs of 207 million euros (cf. ib.). As in all other large cities, the traffic jams are concentrated on the inner-city traffic axes, which are reflected in the miles of queues of cars on the B10, B14 and B27 (cf. INRIX 2022).

Therefore, based on a free real-time capable internet service provider, the 18th October 2022, 10:00, was chosen as the reference time. It is a compromise between a very flattening out of congestion times and a middle car speed. It also portrays public transport, which often has the highest frequency between Monday and Friday.

3.2.2. Choice of Fix Points

The selection of the fix points is an important element in determining the connection qualities. Various parameters influence the selection of the process: On the one hand, a point should be selected that is equally available for all means of transport. This means that trains, bikes and cars are used at these locations. Furthermore, the point should have a high passenger potential and be as close as possible to the center or main attraction of a district. This could prevent the sole concentration on a single randomly chosen stop and reduces the probability of a border stop and peripheral spatial calculations. In Weilimdorf, for example, the Löwen-Markt was used as a transhipment point and not the existing S-Bahn connection in the North. In Plieningen, the U-Bahn stop Plieningen Garbe was not used as a fixed point because it did not depict the center of Plieningen, which is why it was switched to Plieningen Post. As the most central bus stop Dürnauer Weg was chosen in Birkach. Otherwise, either S-Bahn or U-Bahn connections are available at all fixed points. Of course, the exact travel times of all districts of the district cannot be deduced from this travel times analysis. However, traffic planning calculation tools are also possible for this, which is not necessary in this work, especially if you want to point out multimodal possibilities of the EN. It's just a rough timeline created for the benefit of the masses. The probability that a stop will be the start or end point of a trip is highest at the busiest traffic junction.

3.3. Accessibility Analysis of every District

The accessibility analysis is a traffic science planning tool that is used for various issues (Hull et al. 2012; Silva et al. 2016, 67f). These questions usually have at least a regional basis. Within public planning, a region is usually referred to as an administrative unit (Bathelt, Glückler 2012, 74). In this example, these will be the city districts of Stuttgart.

The importance of accessibility analysis for regional areas results from their responsibilities and tasks. These include i.e., spatial development and local transport plans, which are often drawn up by municipal planning companies. It is about how the connection qualities differ between the different urban areas and what travel time differences there are between different means of transport.
Especially in the area of services of general interest, there are numerous applications that are located in the community context (e.g. the accessibility of day-care centers). However, the construction of such accessibility models for local investigations is described as "unusual", "because the effort is the expected benefit significantly exceeds and sometimes the required key figures can also be carried out manually via simple web-based connection queries" (Peter 2021, 57). Although accessibility models are often only located at the regional level, which is the principle of subsidiarity, they should also be able to represent local accessibility (Schwarze 2015, 73). In contrast to the regional models, local accessibility analyzes show the following advantages:

- shorter calculation times
- higher flexibility
- lower data requirements
- rare special cases and existing local knowledge
- Easier integration of public transport including procurement of timetable data

The potential uses of reachability analytics make a multimodal, i.e., comprehensive

consideration of all modes of transport, indispensable. In the area of services of general interest, maximum travel times are given for different modes of transport in which waypoints should be reached. Since the shift in transport demand to the means of transport in the EN (public transport, micro mobility) is an overriding planning goal of mobility planning, comparisons of travel times are indispensable. Shen (1998) showed that a high level of accessibility of public transport leads to greater use compared to private individual transport (cf. Shen 1998). Public transport also enables those groups of people who are excluded from using the car to interact spatially. Under the keyword of spatial mismatch, it has long been discussed whether spatial barriers between people with low incomes and jobs increase social exclusion (cf. Grengs 2010). Different studies were able to show, however, that this spatial mismatch is not caused by spatial distances but by different transport options (Grengs 2010; Shen 1998). An exclusive consideration of distances or monomodal spatial resistances is not able to adequately describe the mobility obstacles of disadvantaged groups of people. It is particularly important for cities to assume sufficient buffer times (resistance values) for the individual means of transport. A monomodal MIV model that does not take parking search traffic, traffic jams and pedestrian access and exits into account would give unrealistically short travel times, especially in inner cities. If these travel times are then compared with those of public transport in a multimodal model, this simplification can lead to an underestimation of the competitiveness of public transport offers. The calculations of spatial resistances must be consistent for all traffic modes.

The given presentation by Schütt (2019) is only similar in its methodology, but the output format in this study should be more selective. For this reason, Schütt's large-scale investigations will not be pursued any further.

3.3.1. Operationalization

Operationalization means turning abstract concepts into measurable observations. In transport science, most concepts in accessibility analyzes are quantifiable and easy to measure. There is a systematic collection of data.

The geodata of Stuttgart districts is required for the analysis, the availability, timeliness, and completeness of which usually differ. The aim is to implement the modeling of the transport system as realistically and at the same time as practicably. The following data sets were necessary for the individual sub-areas of the analysis. To determine the relations between the various city districts, a network is first required. This includes:

- Streets and road network from Stuttgart Maps
- Exact meter-precise measurement for the respective distance determination, which was carried out selectively both by Stuttgart Maps and by an Openrouteservice (ORS) tool, which can automatically carry out area-wide distances using it
- Tool for viewing topographical differences through Stuttgart Maps

The accessibility analysis goals focus the EN in the districts and don’t look at the connection to the neighbor districts. The project is much more local and multimodal oriented. For this purpose, 23 maps of every Stuttgart district are created, which are made in the appendix. Specifically, the research project would like to carry out the accessibility to the multimodal transport infrastructure of the EN. Any mobility gaps in which there is no public transport offer for 300 meters should also be found. The points of interest are compared with the mobility

points at a spatial distance, and it is examined how accessible the EN is from these points by foot. To do justice to a continued orientation of offers of public services of general interest, the study is limited to the following points in the maps:

- Public transport stops, bike-sharing places, as representatives of mobility sector,
- (High) school system, as a representative of the education sector,
- Hospitals and care facilities, as a representative of the healthcare sector,
- Sports fields, halls, and swimming pools, as representatives of the cultural sector,
- Offices are also displayed on the maps but are only shown spatially on maps as a point of reference for public services, but are not taken into account in terms of accessibility.

3.3.2. Choice of Assumptions for Accessibility Analysis

Various points were considered as elements to be examined in the accessibility analysis. The accessibility on foot was, more optimistically, broken down to 300 meters. The previous assumptions of an orientation of 500 meters are by no means an accessible distance in view of demographic shifts. Regarding the inclusive human right with the declaration of Barcelona, a consideration was given to making even more drastic adjustments to accessibility for retirement homes and schools that teach people with physical disabilities. In view of the broad methodological basis, this was not specified further, although such a tightening would by no means be inappropriate for reasons of the basic rights of social partners. In this respect, a compromise was chosen with the 300-meter accessibility, which refers both to the points of interest and to the different living areas. Mobility gaps are fixed in writing.

On the basis of the bicycle, it was examined exactly where there are bike-sharing stations. What is not shown on the map but has been researched are the topographical conditions of a district, as well as main cycling routes and cycling recommendations. These are listed later in the appendix in all 23 districts.

3.3.3. Graphical Combination of the Results

Subsequently, both accessibility analyzes are placed in an overall context and the overall accessibility in the city is discussed and finally justified to what extent the EN is organized locally and to what extent competitive multimodality-promoting offers are available locally.

Finally, all the results of the methods are bundled and summarized. In addition to names, districts and the number of inhabitants, a short demographic description is given in a table. It then shows the results of the cross-tab matrix of the three best and worst public transport and cycling connections, as well as a comparison of where the EN is more competitive to the car and where the car is faster. The accessibility analyses, which address mobility gaps and accessibility of the POI and places of residence, are then placed in an overall context. The overall accessibility in the city is discussed in all directions and finally potentials are shown to what extent the EN could be improved locally or across districts and to what extent competitive multimodality-promoting offers must be expanded locally. As a basis for this, political debates on traffic development plans, current traffic policy debates, independently developed suggestions for improvement are listed, which, however, do not replace profitability calculations or are scientifically evidence-based.

The reason why suggested results are displayed, is a systemic participation orientation: Karl

Oettle described an understanding of transport policy that offered new perspectives on a “currently dogmatically limited transport science” that viewed transport primarily from an economic point of view. Oettle calls for a transparent researcher who analyzes concrete social conditions and also attaches the requirements of sustainability to concrete values and norms in order to guide his actions. The task of transport policy is to clarify conflicting interests and “to put the resulting alternatives up for public discussion”. The transport policy decisions to be made are not only of an economic nature, but also linked to values and cannot be clarified scientifically in the narrower sense. According to Oettle, people do not live to do business, but to be able to live better. Therefore, transport policy must keep an eye on the question of how people want to live and design their own action-oriented approaches. For this reason, the series of proposals is reduced to the multimodal options of the EN, which do not claim to be the only possible result, but rather a potential one of the analyzes listed above. (cf. Schwedes 2018, 13)

4. Results

This chapter describes the results of the methods used. Care should be taken to structure this chapter in a meaningful way. Therefore, sub-chapters on different methods were prepared.

4.1. PsyVKN - Questionnaire on Psychological Factors influencing the Use of Cars, Public Transport and Bicycles

In order to show the results of the PsyVKN, the entire study is divided into the eight-factor model, as planned, in order to depict the different areas of traffic behavior of Stuttgart residents and their guests.

4.1.1. Eight Factor Model

In the case of the “Personal Ecological Norm” (Pnorm; 2 items), it can be shown that the overwhelming majority of the random sample are individually very ecological in their choice of transport:

A majority of more than 86% feels personally obliged to use environmentally friendly means of transport on their daily trips because of their principles. 81% feel obliged to contribute climate protection by choosing their mode of transport. The latter is immensely more "fully" agreed (39%) than the principled (31%).

In the case of the "social norm" (Snorm; 2 items), it also turned out that in Stuttgart a shift from cars to public transport is not progressively demanded by people who are considered important. Only a third could agree that the individual relocation behavior is denounced by people who feel important. A two-thirds majority disagrees on this point. The situation is different when it comes to the extent to which important people would provide individual support if they used public transport instead of the car for everyday trips. About three quarters see it positively. From a social point of view, there is no pressure to change the means of transport, but shop stewards would provide positive individual support if mobility behavior changes (cf. Appendix, 119f).

In the “perceived behavioral control” (PBC; 4 items) it becomes apparent that there is behavior that tends to be shifting affinity. "I can do what I want to do using public transport" is described positively by 72% across the city, with 18.9% even "strongly" agreeing (Appendix, 121). The point that could significantly characterize a possible definition of an “Autostadt” is also surprising in Stuttgart: Over 64% of those surveyed said they could manage their everyday life very well without a car. Only 11% stated that this statement was "not at all true". The points “It is difficult for me to use public transport instead of the car in my everyday life” and “If I want to, it is easy for me to use public transport instead of the car for my everyday journeys” have many similarities ". The majority of 66% sees everyday use of public transport as easy. However, the fact that one third of all respondents do not see public transport as an easy option has an impact on every intraindividual mind-set about multimodality. Local transport is the biggest player in the environmental network, which is why simple usability should be mandatory to take advantage of the variety of offers.

In the next category, “Perceived mobility constraints” (PMN; 2 items), it is noticeable that the people of Stuttgart need a high degree of mobility in their everyday organization. 51% tend to agree with the statement, 21% completely. Only 27% deny the statement. The response to the question of whether you have to be constantly mobile in order to meet everyday obligations was more ambivalent. The tendencies differ according to the districts, the majority of those questioned across the city think that this is not the case. However, the fact that compulsive mobility is perceived is the case for 41%, i.e., almost every second person.

About "bike weather resistance" (WetRes; 2 items) and "bike experience" (RadErl; 2 items), it is shown that people in Stuttgart do not like to bike in bad weather, but half of all respondents do it anyway. It is also shown that more than 70% of the participants perceive cycling as more relaxing and that 82% also state that they (rather) enjoy cycling (Appendix, 127). This is even the answer with the most extreme agreement of all the people polled.

A surprising result can be found for the car orientation (PkwOri; 5 items): There are only two out of five areas in which a majority behind a car orientation can be found. Only "the possibility to decide for yourself who is going with you" (62%) and the safety factor (52%) are still considered positive factors, otherwise the PsyVKN survey for Stuttgart residents and their guests opposed a car orientation: 68% associate driving a car not with freedom, and even fewer consider it fun and passion. A total of 80% denied this fun factor. Being able to use one's own driving skills is therefore not fun for 60% - the experience orientation of driving seems to have experienced a major break in Stuttgart (Appendix, 131ff).

In the last category “privacy in local public transport” (PrvtOV; 2 items), the Stuttgart study shows that the respondents rate privacy in local public transport very positively. Only one in five said people get uncomfortably close (Appendix, 136f). It is even rarer that privacy is disturbed in public transport in an unpleasant way - eight out of nine participants do not feel that their privacy is being compromised. Ultimately, public transport performs better in terms of privacy than the car.

4.1.2. Districtal Assessment

A very important question for a modal shift was also to make the differences and similarities to the evaluations in the districts visible since these could ultimately determine the skills for multimodality on site from a socio-psychological point of view.

In all 23 districts, as well as their guests, it becomes clear that they feel obliged with convincing majorities to use environmentally friendly means of transport on their everyday trips. The “lowest” approval values were in Untertürkheim (65%) and in Münster (77%), while Stammheim, Plieningen (95% each) and Birkach (100%) were the highest. The relationship in the districts is roughly similar in terms of the extent to which their choice of transport is answered about climate protection; on average, this point is viewed around 15% more skeptically.

The first differences can be seen in the SNorm: In S-Ost, 66% agree with the thesis that "people who are important to me think that I should use public transport instead of the car". It is the only district in which there was a majority in agreement with this statement. Otherwise SN1 is rejected moderately (agreement Botnang: 47%; S-West: 44%) to radical

(agreement Feuerbach: 12%; Untertürkheim: 16%). On the other hand, the fact that important people would support you if you used public transport instead of the car is supported in all districts. It is noteworthy that in S-Nord 25% agree with the statement "not at all", the highest value in Stuttgart. The highest general agreement can be found in Degerloch with 91%.

When looking at the PBC, various aspects can be noted: only in Birkach (50%), which is not connected to rail transport, and Münster (39%), which has no S-Bahn, is there no majority for the point "I can do what I do want to do, do it with public transport". Only guests viewed this point more critically than the respondents from Stuttgart, otherwise most can do everything publicly. At the same time, it must be mentioned that the agreement is definitely seen in other S-Bahn-free districts of Sillenbuch (82%), Mühlhausen (78%), Wangen (77%) and Stammheim (68%).

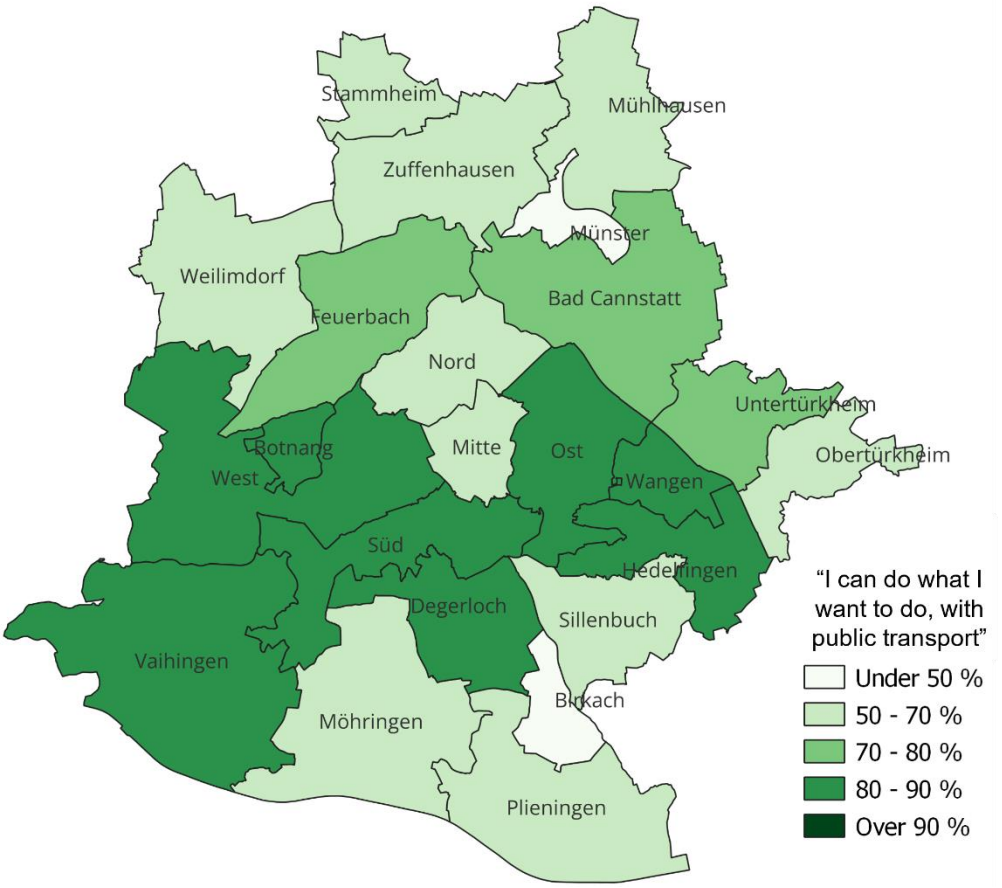

Fig. 8: Map of responses to “I can do what I want to do, with public transport”

This correlates with the question of whether it is very easy to do without the car. A majority of 20 out of 23 districts could organize their everyday life without a car. Only in Obertürkheim, Birkach and Münster are less than the 50% border, but at least 36%. The strongest "full" agreement is in S-Ost with 58%, with general agreement ("fully agree" and "rather agree") Vaihingen is top with 90%. It is a surprise that in an outlying district like Vaihingen it turns out that nine out of ten people could very well do without a car. (Appendix, 138ff)

There is a greater variance in the results of the PMN: it is the case that 72% of all Stuttgarters admit that their everyday organization requires a high degree of mobility, but at the same time 57% consider it (rather) incorrect that they constantly have to be mobile. This means that at least 15% of all respondents use a higher mobility measure than they actually have to - a point that must also be taken into account for multimodality.

This gap is particularly drastic in Botnang, where 80% stated that they do not have to be mobile all the time and 83% of them use mobility to a large extent. It looked similarly strong in Mühlhausen with 86% of those who were exempt from compulsory mobility, of which,

however, 82% ultimately also made great use of mobility. The weakest differences were in Wangen with 50% being exempted from compulsory mobility and of these only 38% making high demands on mobility.

The participants, who have to “be constantly mobile", are from Degerloch with 58%, Sillenbuch, Münster with 53% and Bad Cannstatt with 52%. Least Weilimdorf with 17%, Untertürkheim with 23% and S-Nord with 25%. However, the age of the respondents must be clearly considered here, since the demographic differences are evident behind the survey of permanent mobility: the older, the less mobile the people are. District clusterifications are therefore hardly possible in the PMN later in the interpretation.

In terms of resistance to cycling weather (WetRes), it becomes clear that the people of Stuttgart find the bad weather repulsive, but most of them do not see this as an obstacle to not cycling. Making cycling dependent on the weather applies in particular to Obertürkheim and Mühlhausen (approval: 90%). For S-West and Vaihingen (rejection: 37% each) and Münster (36%) weather doesn’t matter. The fact that people cycle more when the weather is bad than is intrinsically desired is evident in all districts.

The district of Stammheim (68%) and the student districts of Vaihingen (66%) and Birkach (64%) are the most weather resistant. Non-Stuttgart residents report the weakest resistance (19%), Wangen is at the bottom (41%) and the majority therefore also have fair-weather cyclists.

In the case of the RadErl, it is interesting to see how many people can "relax" during cycling: Obertürkheim, whose sample is small anyway, is the only district in which cycling is seen as "(rather) not relaxed" by 60%. There are lots of “relaxers” in Sillenbuch (88%), Hedelfingen and Plieningen (87% each). Geographically, there is an East-Neckar-Filder axis with a high affinity for bikes.

In view of the survey of some people in the anti-green political milieu, it is particularly remarkable that a clear majority stated that they generally like to ride bikes. The results clearly indicate that even their mobility behavior could look bike-friendly, but it doesn't necessarily have to be. Only one in three voters from S-Nord does not like cycling, otherwise there are some districts that often maintain a positive relationship with cycling usage more than 80% of the time. What is surprising is that the top district value of most like cycling with 96% is not from an inner-city district but from voters from Hedelfingen.

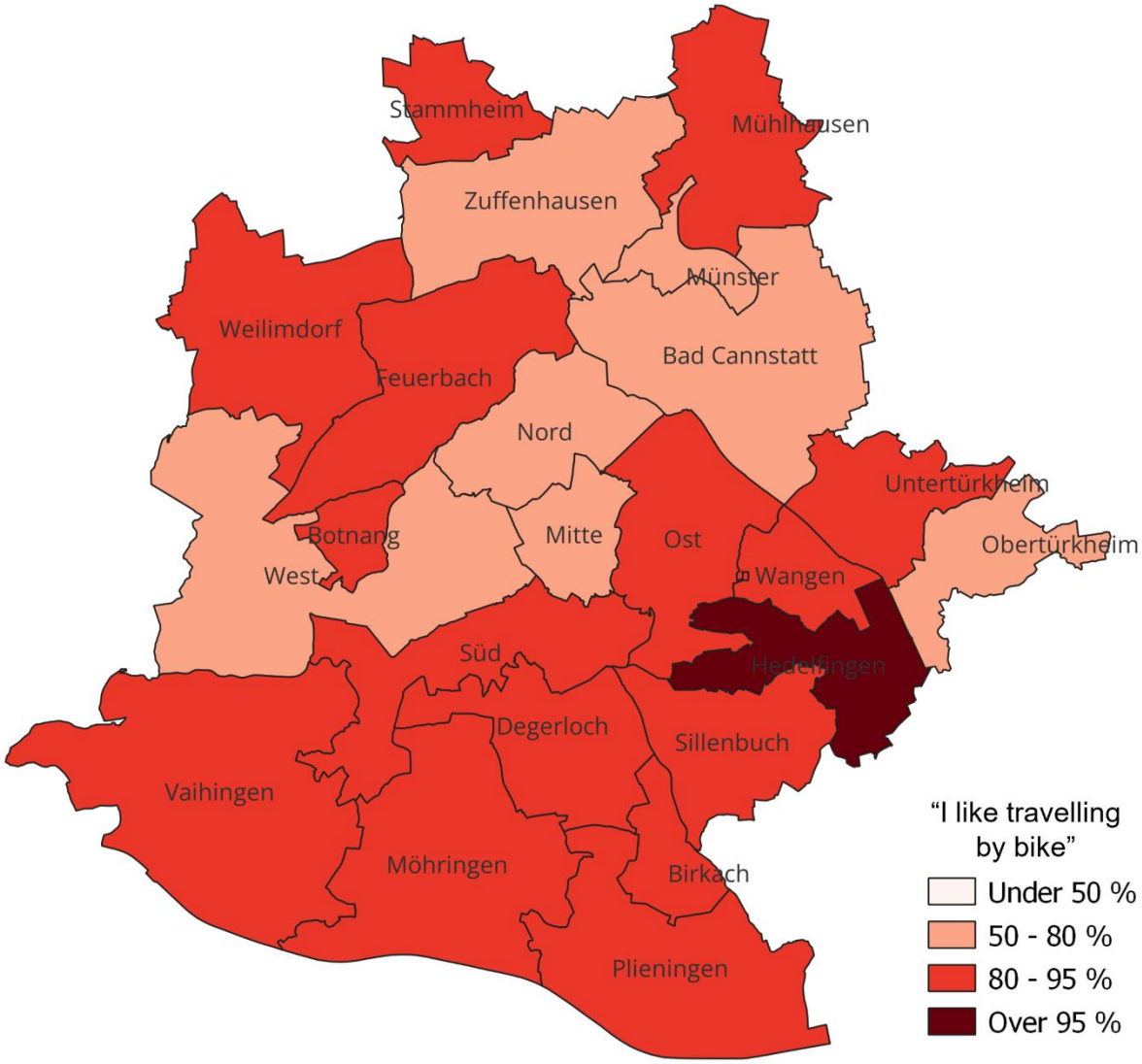

Fig. 9: Map of responses to “I like travelling by bike”

Because so many people like to ride a bike, and often only individual votes cancel out a 100% quota, it makes sense to deal with the size of those who "reluctantly" ride a bike when presenting the results. Again, all of Stuttgart's districts are surpassed by those that left the borough column blank. Of these, 43% are reluctant to ride their bikes. Cycling is the least popular among people from S-Nord with a third of the participants. Münster (26%), Bad Cannstatt and Zuffenhausen (23% each) come next.

There are great ambivalences at AutoErl. First of all, it should be emphasized that the car's social argument is that you are free to choose who you drive with. There you can see that Birkach is the only district where it is not valued by the majority. Hedelfingen and Münster are also more skeptical. The greatest appreciation is in Obertürkheim (90%), Untertürkheim and Süd (78% each). When it comes to the safety factor, which is traditionally of great importance in cars, the confidence of the people in Stuttgart is noticeably crumbling:

This safety factor is only visible in 11 of the 23 city districts - but mostly also hopped over the threshold by commuters outside of Stuttgart. The feeling of car security exists in the districts of East (75%), Bad Cannstatt and Untertürkheim (71%) - consequently districts with a clear connection to automobiles and also commuters.

Apart from the undecided districts of Degerloch and Obertürkheim, 10 districts are skeptical about automobile safety. The rejection rates are particularly high in Hedelfingen (77%), in Botnang, Feuerbach and Möhringen (two thirds each). The fact that the last two are in the rejection districts is particularly surprising given the possible participation in the survey from automotive-related industries.

When asked whether it is fun to use driving skills when driving a car, the majority clearly disagree. Only in Bad Cannstatt, Mühlhausen and Obertürkheim is more than 50% of this fun felt. The lowest approval rate is found in Vaihingen with 16%. Automobile skepticism becomes even more blatant when asked whether driving is freedom. Only non-Stuttgart residents and in the Obertürkheim (60%) district see driving as freedom. Even Cannstatter and Untertürkheimer deny the concept of freedom. S-Ost (rejection: 92%), Vaihingen (90%) and Botnang (87%) are radically opposed. Systematic auto- criticism is most noticeable with the item "Driving a car means fun and passion for me". In terms of percentage, the most passionate car drivers are in Bad Cannstatt (32%), Obertürkheim (30%) and S-Süd (27%). Surprisingly, driving a car means the least fun and passion in the outskirts of Mühlhausen (96%), Plieningen (95%) and Vaihingen (93%). Most "full" approval of the thesis came from Münster (approval: 13%), most "full" rejection from Botnang (rejection: 73%).

When it comes to the last point about privacy in public transport, Stuttgart gets very supportive values for local transport. "People come too close to me in an unpleasant way on public transport" is only higher in Münster (44%), S-Mitte (33%) and Bad Cannstatt (31%). The lowest approval ratings were in Birkach and Plieningen (5% each). There is also a similar situation that privacy is restricted in an unpleasant way because the approval ratings only drop by around 10%. There was a "complete" rejection of the item in Botnang (100%), closely followed by Hedelfingen (96%) and Stammheim (95%).

For this reason, separate groups have been created for the purpose of clustering, which reflect the majority of those questioned depending on the city district.

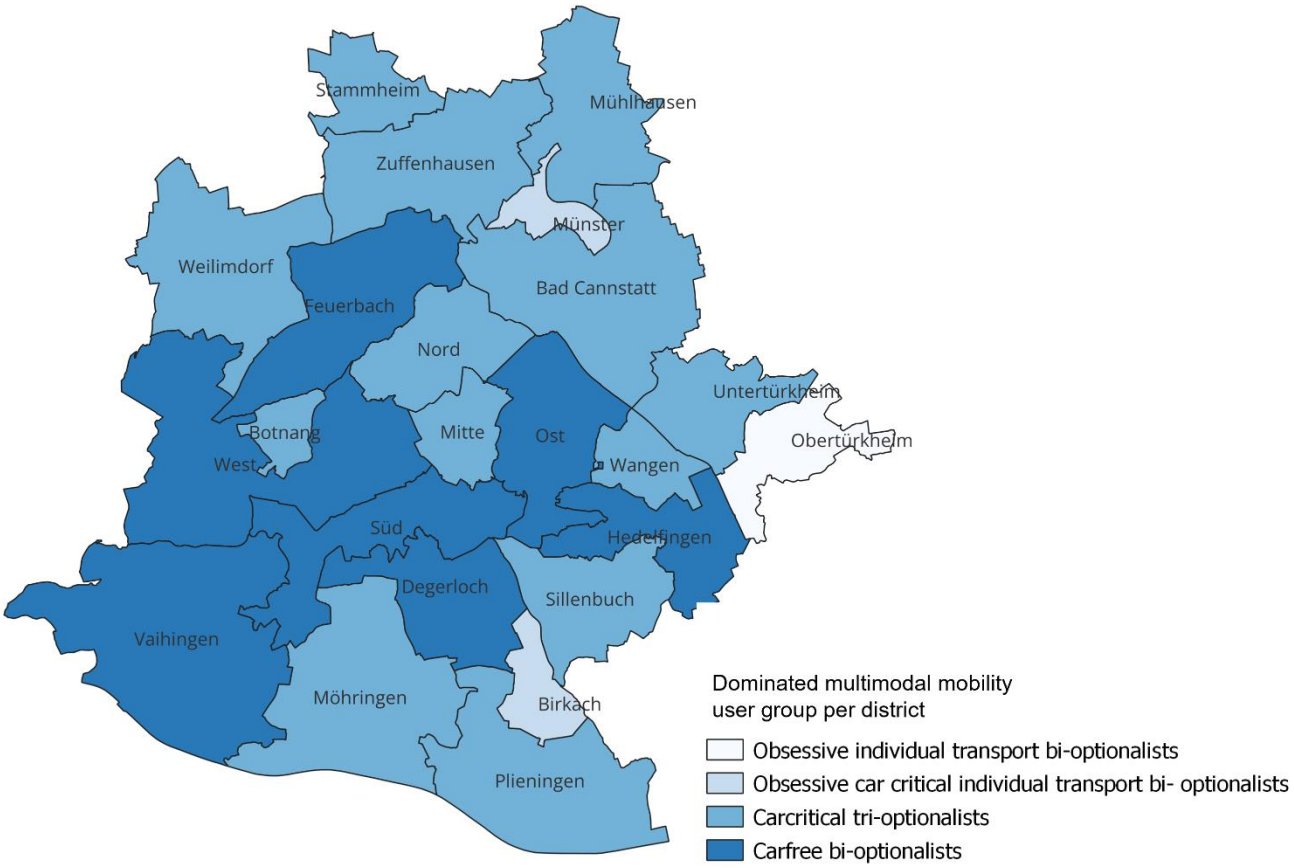

Fig. 10: Dominated multimodal mobility user group per district

The vast majority in the Stuttgart city districts are autocritical tri-optionalists, 13 city districts are multimodal on the move, but the majority see the car critically. Carfree bi-optionalists, who spend at least 75% of their everyday lives without a car, are to be found especially in the city center in S-West, S- Ost, S-Süd and, if you exclude the commuters, in S-Mitte. But in the Degerloch, Feuerbach and, to a greater surprise, in the outskirts of Hedelfingen, which has no S-Bahn connection, car users are becoming increasingly rare. Where public transport is described as difficult to access by a majority, there are also people with compulsive modes of mobility who, however, are also carcritical individual transport bi-optionalists. The “Obsessive car critical individual transport bi-optionalists” include Birkach and Münster. “Obsessive individual transport bi-optionalists” without criticizing the car as a status of freedom can only be found in Obertürkheim, the eastern outskirts of the city.

4.1.3. Other Findings

If you go into more detail and compare results from demographic and gender groups, then the study also comes up with interesting results.

When it comes to the gender question, it can be seen that men have on average 5% high ecological principles than women and both genders feel equally obliged to use public transport instead of the car. There is also only a small effect that men state 10% less often that people disturb their privacy in an unpleasant way. Women also only have 10% less fun

than men using their driving skills when driving a car. The values for the driving-freedom link and the feeling of car safety are almost the same. The biggest difference between men and women is in the item "I ride my bike even when the weather is bad". While only a minority of women (39%) cycle when the weather is bad, 53% of men still cycle. Male participants are more weather-resistant than women when it comes to cycling.

Educational problems can occasionally be found. In many areas, the values are close together in the 10% quartile, which is why the question of the choice of transport is not a question of education.
However, it is striking that the principle-based choice of environmentally friendly means of transport increases with the level of education. The question that driving a car is freedom also decreases with a higher level of education: those who have completed secondary school (55%) and people without a

school-leaving certificate (50%) still see it as freedom, while it ranges from those with a technical qualification (36%) to those with a doctorate (20%).) decreases elementarily. The situation is similar for people who can easily organize their everyday life without a car. It's more the higher educated at bachelor's, master's and doctoral levels who make it. Those with higher qualifications, who often need a car, usually do not come from Stuttgart or live in the outskirts of the city. (Appendix, 143f)

Age-wise, no clear mobility behavior can be determined. There are only slight tendencies that the younger the group of people, the more likely they are to have ecological principles and are somewhat more critical of cars. They can also do without the car a little more often. All the more, which could also be found in the district breakdown, at the same time more mobility constraints are perceived than the generation before 1970 and they have to "constantly be mobile" 20% more often.

When dividing Stuttgart’s citizen against guests, it can be clearly seen that Stuttgarter are much less car-oriented than people from outside and are generally more environmentally friendly than their guests and commuters. However, this can indicate a different mindset formation since the dimension of public transport in the state capital collides with the idea of public transport in the country, which is the main area of residence of the guests.

When looking at the PsyVKN, it should again be pointed out that not all city districts have a sufficiently high number to compare them to the same order of magnitude and that they are not overall representative. For this reason, when summarizing inner-city districts, individual districts and their attitudes can be integrated easily.

4.2. Cross-tab Matrix of Travel Times between Districts

The multimodal travel time comparison basically shows that the quick accessibility of outer city districts is significantly related to an existing and synchronized rail connection.

In the present study, the travel time comparisons between car, bike and public transport, which are available in the appendix, has been listed (Appendix, 49ff). The following table shows travel time advantages of the public transportation compared to car journeys.

Districts	01 - Mitte (Charlottenplatz)	02 - Nord (Killesberg)	03 - Ost (Ostendplatz)	04 - Süd (Marienplatz)	05 - West (Feuersee)	06 - Bad Cannstatt (Bf)	07 - Birkach (Dürnauer Weg)	08 - Botnang	09 - Degerloch	10 - Feuerbach (Bf)	11 -Hedelfingen	12 - Möhringen (Bf)	13 -Mühlhausen	14 - Münster (Freibergstr.)	15 -Obertürkheim (Bf)	16 - Plieningen (Post)	17 - Sillenbuch	18 -Stammheim	19 - Untertürkheim (Bf)	20 - Vaihingen (Bf)	21 - Wangen (Marktplatz)	22 -Weilimdorf (Löwen-Markt)	23 -Zuffenhausen (Rathaus)
01 - Mitte (Charlottenplatz)	x	3	4	5	1	0	-3	-2	7	7	1	4	3	3	2	-9	6	-1	0	3	2	4	3
02 - Nord (Killesberg)	3	x	-6	-3	-2	-3	-11	-19	4	-3	-16	-3	-14	-15	-6	-16	0	-5	-3	-9	-11	-8	-7
03 - Ost (Ostendplatz)	4	-6	x	-2	-4	-6	-19	-10	-7	-1	-6	-7	-9	-7	-9	-23	-8	-13	0	-3	-2	-7	-10
04 - Süd (Marienplatz)	5	-3	-2	x	2	-1	-8	-6	1	3	-4	-7	-4	-7	-2	-16	-5	-7	-2	1	-3	-12	-5
05 - West (Feuersee)	1	-2	-4	2	x	7	-12	-2	-4	5	-4	-6	-3	-9	5	-13	-6	-8	7	8	-5	-2	-4
06 - Bad Cannstatt (Bf)	0	-3	-6	-1	7	x	-9	-9	-1	-2	-7	-2	-9	-6	5	-16	-5	-15	5	8	-5	-6	-12
07 - Birkach (Dürnauer Weg)	-3	-11	-19	-8	-12	-9	x	-23	-1	-8	-15	-8	-13	-17	-17	-2	-10	-20	-16	-10	-20	-15	-14
08 - Botnang	-2	-19	-10	-6	-2	-9	-23	x	-12	-4	-10	-19	-15	-12	-4	-36	-9	-26	-2	-17	-8	-18	-14
09 - Degerloch	7	4	-7	1	-4	-1	-1	-12	x	8	-15	2	-3	-7	-10	-5	1	-3	-5	0	-7	-8	-3
10 - Feuerbach (Bf)	7	-3	-1	3	5	-2	-8	-4	8	x	-10	0	-4	-5	3	-15	2	-9	5	3	-6	3	-3
11 - Hedelfingen	1	-16	-6	-4	-4	-7	-15	-10	-15	-10	x	-13	-15	-13	2	-18	-9	-19	3	-7	1	-16	-19
12 - Möhringen (Bf)	4	-3	-7	-7	-6	-2	-8	-19	2	0	-13	x	-3	-7	-9	-1	-1	-8	-9	0	-8	-15	-2
13 - Mühlhausen	3	-14	-9	-4	-3	-9	-13	-15	-3	-4	-15	-3	x	-1	-17	-17	-14	-7	-21	-3	-14	-11	0
14 - Münster (Freibergstr.)	3	-15	-7	-7	-9	-6	-17	-12	-7	-5	-13	-7	-1	x	-21	-16	-14	-11	-17	-8	-14	-9	-15
15 - Obertürkheim (Bf)	2	-6	-9	-2	5	5	-17	-4	-10	3	2	-9	-17	-21	x	-16	-4	-13	6	6	-3	-5	-12
16 - Plieningen (Post)	-9	-16	-23	-16	-13	-16	-2	-36	-5	-15	-18	-1	-17	-16	-16	x	-38	-24	-18	-12	-24	-27	-16
17 - Sillenbuch	6	0	-8	-5	-6	-5	-10	-9	1	2	-9	-1	-14	-14	-4	-38	x	-7	-13	0	-15	-8	-4
18 - Stammheim	-1	-5	-13	-7	-8	-15	-20	-26	-3	-9	-19	-8	-7	-11	-13	-24	-7	x	-4	-7	-9	-5	8
19 Untertürk-heim (Bf)	0	-3	0	-2	7	5	-16	-2	-5	5	3	-9	-21	-17	6	-18	-13	-4	x	7	3	-6	-12
20 - Vaihingen (Bf)	3	-9	-3	1	8	8	-10	-17	0	3	-7	0	-3	-8	6	-12	0	-7	7	x	-6	-17	-7
21 - Wangen (Marktplatz)	2	-11	-2	-3	-5	-5	-20	-8	-7	-6	1	-8	-14	-14	-3	-24	-15	-9	3	-6	x	-14	-14
22 - Weilimdorf (Löwen-Markt)	4	-8	-7	-12	-2	-6	-15	-18	-8	3	-16	-15	-11	-9	-5	-27	-8	-5	-6	-17	-14	x	-9
23 Zuffenhausen (Rathaus)	3	-7	-10	-5	-4	-12	-14	-14	-3	-3	-18	-2	0	-15	-12	-16	-4	8	-12	-7	-14	-9	x

Fig. 11: Travel times per district public transportation vs. car

Basically, it has to be said that the car in Stuttgart is the shortest travel time means of transport, despite the progressively assumed values between numerous city districts. On average, the car is 6.8 minutes faster than public transport on each route. In the areas that are mainly accessible by bus, the gap to public transport is clearer: Birkach (12.3 minutes) and Plieningen (17.1 minutes) form the two poorly connected districts in Stuttgart, the Stadtbahn station in Münster (10.4 minutes) scratches in the dimensions, too. The elaboration shows that a well-connected S-Bahn location significantly reduces travel times in public transport, even if Stuttgart does not have a ring S-Bahn: S-Süd, S-West, Bad

Cannstatt, Feuerbach, Untertürkheim and even the outskirts of Obertürkheim are below the average value and their public transport option "wins" over the car in significantly more districts.

The only deviation is Zuffenhausen, because their measurement point Rathaus is poorly connected to the S-Bahn. There are also examples in Stuttgart that works well without a S-Bahn: Degerloch is the fourth- best developed district of Stuttgart with a 3.1-minute lag. However, with four Stadtbahn lines and a cog railway, this is not much of a surprise. In front of it are S-West (2.2 min), Feuerbach (1.4 min) and, as the peak, S-Mitte (-1.9 min), which is the only districts where public transportation is faster on average. The public transport option from Charlottenplatz in S-Mitte beats the car in 18 districts, demonstrating the centralism of the public transport system. With 10 Stadtbahn lines as (current) super crossing stations in Stuttgart, it is also understandable that these competitive times can be reached.

Bad in Stuttgart's public transport are the direct connections of the outer city districts outside of the S- Bahn, especially in the upper Neckar districts. The strong concentration of the Stadtbahn on inner-city hubs leaves open the possibility of tangential routes, which would be practically possible in Stuttgart. Especially between the districts Untertürkheim, Bad Cannstatt, Münster, Zuffenhausen, the “Schusterbahn” between Kornwestheim and Untertürkheim could generate more competitive travel times in public transport in these districts. The bypassing of the city center, which could be of supra-regional importance, has not yet been done regularly in Stuttgart, so new quarters of the districts (Zazenhausen, Winterhalde and Seelberg) could save 18 – 21 minutes with the public transport. These time improvements are intentionally taken into account with this methodology because it is only offered six times a day and only regular traffic is considered.

In the results you can find a similar tangential dilemma in the districts of Hedelfingen and Obertürkheim to get to the Filder plain: There is a bus 65 here, which has a lot of stops and only allows a change to the Stadtbahn in Sillenbuch (Heumaden) to go in the direction of West-Filder districts. A slow bus delays every trip up to 18 minutes. In terms of results, a gap in public transport connections to the Filder can clearly be identified. From Hedelfingen to Degerloch, Sillenbuch, Möhringen, Birkach and Plieningen public transport travel time is extended in a double-digit range – without projects like merging two bus lines over the Speidelweg, testing fast express bus to the University of Hohenheim or building an urban cableway system. Today's travel time results in these districts are still unsatisfactory for public transport.

So, three factors emerge that become a blatant challenge in public transport:

1. **Poor connectivity of public transport options to the S-Bahn or highly frequented Stadtbahn stations in Stuttgart leads to heavy losses in public transport travel times.**

2. **Bus-heavy districts have a significantly poorer accessibility due to slower means of transport.**

3. **Public transport connections are concentrated in the inner city, since tangential traffic has so far played a secondary role.**

Including bike travel times in the analysis is an important step to increase the visibility of cycling culture. The values for so-called pedelecs were also not assumed, but the classic

bikes were taken as a reference, which shows the real comparison.

Especially for short distances in the city center, the bike can win against car travel times. From S- Nord to Feuerbach, from S-Mitte to S-West, from S-Süd to S-Mitte, there are time advantages for cyclists because the city center is beginning to become pedestrian and bicycle-friendly and thus slows down car traffic, too. Even on longer journeys, the bike can keep up when going downhill in hilly Stuttgart. It is particularly noticeable from Degerloch, where the travel times by bike down can be competitive with the car and public transport. One-way usability in particular appears to be a viable field here, i.e., in relation to multimodality that a bike-sharing system serves a high-altitude effect that tends to go into the Stuttgart boiler.

Because up to Degerloch, you need 55% longer travel times by bike on average, which can hardly keep up with the car travel times on the B27. In the EN, cycling is a competitive alternative, especially in S-Nord. There, 10 districts can be reached faster by bike than by public transport. The best accessibility from a district is Degerloch with 27.9 minutes, the best accessibility to a district with a round trip is S-Mitte with 25.4 minutes, which is also the easiest to reach overall. On average, it takes the longest ride to Plieningen with an average of 52.1 minutes. **In general, it can be stated that the lower a district is located, the easier it is for everyone else to reach it, which is why inner-city districts, and the Neckar districts have better cycling time values than the rest.**

4.3. Accessibility Analysis detailed Results separated in the Districts

4.3.1. Comparison of the Accessibilities in the Districts

In the accessibility analysis, EN should be considered in the districts, for which 23 maps of all Stuttgart districts were created, which can be accessed in the appendix (Appendix, 3ff). During the review, it had to be determined that the connection to the multimodal transport infrastructure of the EN works with varying degrees of success. The services of general interest within a 300 meter radius can show significant qualitative differences in Stuttgart:

First, starting with the area of health care: In the case of Stuttgart hospitals, it is initially noticeable that, apart from the gerontopsychiatric service in Feuerbach, all hospitals are in the city center or in Bad Cannstatt. In addition, the connection with public transport should be viewed critically: There are only two hospitals that are directly connected to rail transport with their own stop, the Karl-Olga- Krankenhaus in the south-east and the Diakonieklinikum in the south-west. The Katharinen-,Olga-, Marienhospital and the Robert-Bosch-Krankenhaus can only be reached via bus connections. The Rot-Kreuz-Krankenhaus in Bad Cannstatt requires a footpath of exactly 300 meters since the "Wilhelmsplatz" stop. To the Bad Cannstatt Hospital, you need to walk over 600 meters to the next stop because it is in a mobility gap. The strong concentration on both city districts has to be criticized for two reasons for public services of general interest, since a) in an emergency, people from the Filder districts and north-west need longer to go to a hospital and b) for this very reason it is not certain that Stuttgarter also come to Stuttgart hospitals. The more visits, the better for the health process - a social effect (cf. Deffner et al. 2021). Lifestyle research in Stuttgart was able to show that families are rooted here, which is why public transport here could also increase the probability of visitors.

Accessibility to care facilities, which are more common in Stuttgart, is even worse than the hospital infrastructure. In Bad Cannstatt, more than 80% of their care facilities are not within a 300 meter radius of a bus stop. Most districts, such as Botnang, Möhringen, Hedelfingen, have a mediocre rate of around 50%, which often have a facility right next to the bus stop and one that is more in a quiet residential area. The inner city districts are distributed quite differently, since, for example, S-Ost has a weak value with only 22%, S-North with 85% a very good value. Only the Münster and Zuffenhausen districts have all nursing homes within a 300 meter range.

Furthermore, it was looked at how sports fields, halls and swimming pools as representatives of the cultural sector behave in Stuttgart. It is noticeable that here are probably the worst accessibility values in Stuttgart. Rail transport only connects a sports facility directly in exceptional cases. In about 30 percent of cases there is a bus connection, all others are not within a 300 meter radius and therefore also have high values for car use. Again, in Bad Cannstatt, the values are extremely low at less than 15%, but there are also such values in the city center and in the Filder region. In the north in Zuffenhausen the rate falls even lower, in Stammheim it is 0%. Only in Botnang and in Obertürkheim the accessibility rate for sports facilities is at 66%, but those locations are usually only accessible by bus, which also points to a rather deficient clock in the outskirts of Stuttgart. Accessibility is 100% in S-West. It should also be mentioned that sports halls in combination with schools have a higher probability of being accessible by public transport. The fact that there is a desire within the district to cover short distances by bike is surprising in relation to multimodality that bike sharing does not exist in such halls and sports areas. It should be anticipated that Botnang already does this as the only district, because they have a stop around the corresponding sports facilities with the U2.

Then the accessibility of the (university) school system, as a representative of the educational system, should be assessed. The state capital has better values in terms of the accessibility of schools. Accordingly, S-West (100%), S-Mitte (85%) and S-North (75%) have very high accessibility values. Primary schools are usually not in the 300 meter range, but due to their proximity to the various city districts they are also relevant for the vicinity of a district. The rate is better for secondary schools. Rather surprisingly, higher education is not always easily accessible, especially at universities that are not in the city center. About inclusion, it is also noticeable in Stuttgart that there is still a very separatist spatial separation compared to special education and counseling centers, as these are usually pushed to the sidelines and are therefore usually difficult to reach publicly, which makes it even more difficult for people with disabilities power to reach the facilities.

In the local connectivity to the EN in the mobility area, there is a lot to report about the relationship between public transport stops and bike-sharing places throughout Stuttgart. First, it must be clearly stated in Stuttgart that the entire public transport system has only a low level of connectivity at its stops: there are hardly any crossing stations in Stuttgart that enable easy transfer from the underground to the S-Bahn or regional trains.

The most important stop in Stuttgart, the terminus station with its 16 tracks, has currently been moved so far that Stuttgart 21 can be built as an underground stop. As a result, the transfer path to the S-Bahn and U-Bahn, which is also called in chargon the “Fernwanderweg” (long-distance hiking trail), has been over 500 meters long for years and will continue until 2025. The next stops around the main train station can also be reached in

this order of magnitude, which means that the travel times are significantly delayed and make the transfer less attractive. There is also the case in “Bad Cannstatt” with its second largest station, which Stadtbahn station Wilhelmsplatz is 300 meters from the main platform. The regional station can only be reached via an inconspicuous overpass that goes through a building and ultimately only leads to an underpass with which you can go to platforms 1-5. For platform 6-8 you have to walk a longer way across the platform. The situation is similar in Zuffenhausen, where a six-track train station could serve as a hub, but the nearest underground station is 700 meters away. The train stations of Stuttgart's only tangential route, which open up Zazenhausen, Münster and Ebitzweg, are also not connected in a meaningful way. In Zazenhausen, a stop 300 meters away is not called the same, in Münster the single-track platform is not only almost invisible behind a house from the Münster side, but the Hallschlag with its significantly larger passenger capacities cannot be reached at this station via a pedestrian crossing, so that you can at least 1000 meters detour to take this train. The Ebitzweg stop in Bad Cannstatt, which is on the U13, also seems inconspicuous, hidden behind a noise protection wall and a platform where, due to the natural greenery of the platform, one is not sure whether a train is still running there. Connectivity, which should be highlighted positively, are examples of Untertürkheim and Vaihingen, where changing to Stadtbahn and buses can be done directly, above ground and only with few barriers. Degerloch, which has a highly frequented Stadtbahn station and an above-ground cog train station, also skillfully combines its offerings with state express buses. This creates short transfer routes and a high level of user-friendliness for public transport.

The accessibility study was able to show once again where there are mobility gaps in Stuttgart where public transport services are needed. In addition to the Espan and Im Geiger in Bad Cannstatt, the Filder districts of Plieningen, Birkach, Möhringen and Degerloch still have white spots. The accessibility to the POI is very low with a mobility gap. The fact that bus transport cannot shift masses in the same capacity sizes as rail transport must also be considered. Especially regarding the University of Hohenheim, which in the past has always successfully campaigned against a Stadtbahn, a lower potential for relocation was politically chosen. The appendix shows which parts of the city are affected by the mobility gaps.

The role of bike sharing offers should also be specifically addressed. The rental bikes help shape the EN in many cities – including in Stuttgart. Bike-sharing systems such as "RegioRadStuttgart" are intended to help reduce motorized private transport and relieve local public transport. In Stuttgart, the range of rental bikes and return stations is constantly being expanded and at the end of the study 116 stations were listed - and the trend is rising. For targeted further development, it is important to evaluate the use in as much detail as possible, which was also started in the past by Schütt (2020).

The way in which places a station is located is only in exceptional cases at multimodal hubs, i.e., at stops. As mentioned above, Botnang has brought this EN stop orientation together with its sports infrastructure. However, the inner city districts, especially in the basin, probably have the greatest offers. There they operate with multimodal hubs or in student residential areas to get them to bike sharing. With the simultaneous promotion of the cycling infrastructure in the city, there is a higher volume of bicycles here and the coping should also be done consciously with the means of transport. It can be assumed, also in combination with the research carried out by Schütt (2020), that the various inner-city locations of the rental systems have a positive added value in terms of multimodality. It gets exciting when it

comes to the division into the outer city districts. Usually there are only three locations where you can rent the RegioRad. These are mostly concentrated on the most frequented places in the district that are close to a public transport connection, in Untertürkheim or in parts of Hedelfingen and Degerloch, however, they put these stations in the middle of residential areas, which so far have only come in the 300 meter range. These are two different core beliefs of multimodality: For easy use, some communes see it as necessary to have always the bike sharing spaces next to public transport offers, because that is the location where most people arrive. So there could be a potential that the public transportation users can be made their journeys even more climate-friendly.
Other districts hope that the residential locations of rental bikes should follow a door-to-hub approach. For avoiding car trips as far as possible, you need to cover the first part by bike and then continue with public transport, so the districts has intermodality as a permanent guiding principle. However, it is necessary that this guarantees the availability of pedelecs at the valley stations, as in Rohracker in Hedelfingen and Untertürkheim with the difference in altitude, if the last few meters are to be covered by bike. Viewing bike sharing as a mobility gap-closer is a method that is implemented there with little effort and as a new offer. Undeveloped areas have a first alternative. Certainly, the pricing also plays a role for this model. However, this variant shows the diversity for different district strategies on how they want to deal with the topic, since they are significantly involved in the bike sharing locations. When it comes to bike sharing, it can therefore be said that Stuttgart largely relies on connectivity to public transport stops, but sometimes also targets the mobility gaps related to the place of residence. One result of this is that the public transport location is always decisive for the last few meters to the end area. This also means that there is still a mobility gap in bike sharing, since bike sharing in Stuttgart, like in many other large cities, is station-based. The modal shift potential can only increase spatially and infrastructural if the offer is available in the residential area. Otherwise, and this can be left open here, an improvement in tariffs could have an effect.

Taking the results of Schütt (2020) into account, however, it must also be said that there is no data on the rental systems close to residential areas. Among 50 loans were in Stammheim, Botnang, Möhringen and parts of Mühlhausen in 2019 (cf. Schütt 2020, 40). Most rentals are, like the main cycle traffic, also between S-Süd and S-West via the city center to Bad Cannstatt, ending at the Daimler factory in Untertürkheim. This is exactly where the highest borrowing processes can be found. This means that the more bicycle traffic there is, the more likely it is that the station will be used. Münster, Feuerbach and Degerloch also achieved good values, although they do not have the big population or suboptimal height differences.

3.3.2. General Accessibility Outcome of the Environmental Network

Various factors have been analyzed depending on the city district, which could also be improved regarding multimodality. These relate to public transport, bicycles, and other modes of transport, since in some districts cable car projects are even discussed as a solution, e.g., between Vaihingen, Möhringen and Plieningen.

It is possible to cluster certain city districts in a supergroup to have an overview of the current state of spatial transport infrastructure that includes all districts. This not only summarizes the regional accessibility analysis, but also that of the cross-tab matrix for the

travel times between the Stuttgart city districts, for getting a status quo on the multimodality options.

The division can be made into five different subgroups. The absolutely best traffic infrastructure conditions can be found in the inner city districts minus S-Nord. There is a wide range of options, cycling is fairly well developed and public transport is well developed. There is room for improvement in the regional connectivity between the modes of transport, albeit sometimes due to construction sites. Otherwise, the highest multimodality potential can be derived from this region purely in terms of transport infrastructure.

The Pioneers all have large boroughs with a disproportionate number of people. They have a frequented station for regional rail traffic and have a denser network. The number of shared bikes is also rather high. In addition, they fulfill a cross-district function as a crossing station, which is of national importance. However, mobility gaps exist, and some areas can only be reached by bus despite dense development, which reduces capacity. To shift masses, the districts are second in the multimodality assessment.

District	Bike Sharing Opportunities	Public transportation network options	Travel time to neighbor districts	Accessibility to POI	Loal connectivity of EN	Accessibility Category
Bad Cannstatt	+	++	+	0	0	**Pioneer**
Birkach	0	-	-	0	-	**Localized**
Botnang	0	0	+	-	0	**Transfer**
Degerloch	++	+	+	0	++	**Pioneer**
Feuerbach	+	+	+	0	+	**Pioneer**
Hedelfingen	+	0	+	0	0	**Growing**
Mitte	++	++	++	++	+	**Shifters**
Möhringen	+	0	+	-	0	**Transfer**
Mühlhausen	0	0	+	-	0	**Transfer**
Münster	0	0	+	0	0	**Growing**
Nord	+	0	+	0	+	**Pioneer**
Obertürkheim	+	0	+	0	+	**Growing**
Ost	++	+	+	+	++	**Shifters**
Plieningen	+	-	-	0	-	**Localized**
Sillenbuch	0	0	+	-	0	**Transfer**
Stammheim	0	0	+	-	-	**Transfer**
Süd	++	+	++	++	++	**Shifters**
Untertürkheim	+	+	+	0	++	**Growing**
Vaihingen	++	++	+	+	+	**Pioneer**
Wangen	0	0	+	0	0	**Transfer**
Weilimdorf	+	0	+	0	0	**Growing**
West	++	++	++	++	++	**Shifters**
Zuffenhausen	+	0	+	0	0	**Growing**

Fig. 12: Table of accessibility categories per district

In the growing group, all smaller districts are combined, which on the one hand have a rather positive bike sharing usage rate but are rather limited in their public transport network. However, there is a tangential option for them, which would catapult the chances of multimodality since neighboring districts could be reached and connected much faster. The districts are rather negatively connected to the POI, which means that spatially higher car densities can also be expected and tend to indicate a modal split that is not yet the EN.

Most of the districts that are in the middle and therefore also help determine the phenomenon of the stylized “average Stuttgarter” are classified as a transfer group. Despite a very good public transport network, accessibility in the districts is rather negative and the connection to the S-Bahn and regional trains is less utilized in the district. Although Wangen and Möhringen are lucky enough to find a train station in a relatively short time, these are only selected positive examples. The proximity to federal highways also makes them rather pessimistic about multimodality, since journeys to the city center by train take a little longer and the way out of the city by car is significantly shorter than with other means of transport.

Due to the weaker use of bike sharing in the areas, it can be assumed that these will require spatially larger infrastructure measures in order to shift traffic to the EN. The districts of Birkach and Plieningen belong to the last group, Localized. On the large map of Stuttgart, they are in the very south and largely cut off from inner city traffic. Only bus connections to Degerloch give them better public prospects, even if not a rail connection. On the other hand, there is a higher proportion of bike sharing uses, which is not surprising given the University of Hohenheim. In the city districts, the POI are easier to reach, but with a rather reduced frequency by bus. It is hoped that bike sharing will have a greater impact on the infrastructure than an expansion of public transport. The U3 extension from Plieningen Garbe, which is far to the west of Plieningen, was rejected in the past, which means that further expansion is probably out of the question. So far, the capacities of the Mittlere Filderstraße have mainly been filled by cars, which is why the environmental association has opportunities, especially in the vicinity, and is dependent on better bus and pedelec availability in supra-district areas. However, it is very unlikely that the car travel times can be attacked, even they start cable car projects with 27 km/h (SSP Consult 2019).

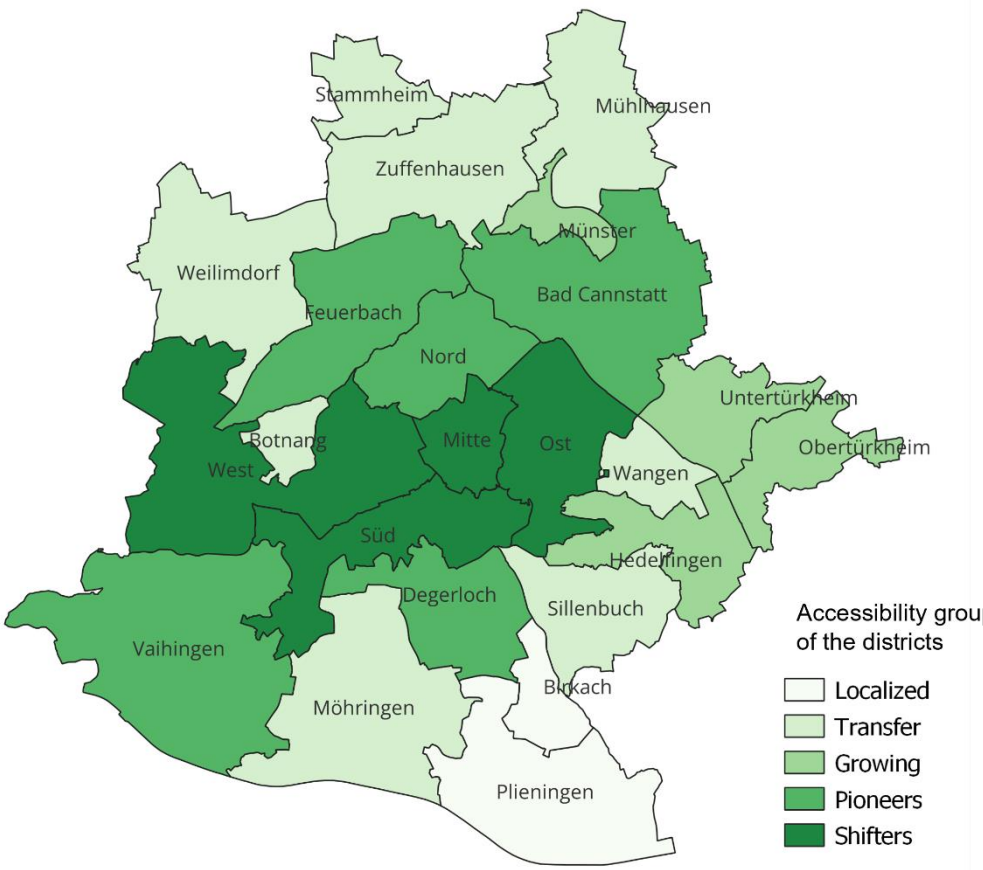

Fig. 13: Map of accessibility groups per district

5. Discussion

The PsyVKN first examined the socio-psychological prerequisite dimensions of multi-modal traffic behavior. A conceptual change of perspective was thus carried out. The potential versus the real choice of transport should be empirically discussed to what extent the postulated transition from a strongly car-centric to a multimodal society in Stuttgart could work based on psychological ways of thinking and convictions. The present evaluations enable several answers to the research question on which the master's thesis is based (“How does multimodality in the environmental network influence mobility behavior”). Finally, the theses addressed in the results must be critically classified regarding their analytical foundation.

Knierim (2016) stated in the “pietistic southwest” that the car is an affair of the heart for Swabians, and Canzler (2021) also describes a continuation of today’s car-friendly state policy as a “raison d’état”, which refers to a socially desired “car-friendly policy” in the state capital. At the time, Sheller's contributions (2004) were a daring step that demanded an end to the car feeling and thus opposed older studies that state the deeply emotional relationship between people and cars (cf. Sheller 2004, 224f). He anticipated the planned increase in mental transportation options that could favor multimodal transportation (cf. ib.). It also addresses the issue of generations, which assumes that young adults are historically more likely to move away from exclusive car use. His basic concepts also seem to apply to the participants of the PsyVKN in Stuttgart. Young adults use several forms of mobility more often than the average and show significant effects that speak for a de- emotionalization of the car. According to Groth, however, the change in mobility behavior has so far been explained primarily by the fact that people are not in an automotive situation. This means predominantly residents, in multifunctional residential locations, with local accessibility structures, extended training and study times, prolonged phases of financial insecurity, family planning postponed to a later date, etc. (cf. Groth 2019, 197).

However, it is questionable whether it is only young residents in multifunctional residential areas, with local accessibility structures, who are promoting multi-optionality and increasingly becoming so- called "car-rejecting tri-optionalists". In Stuttgart, it's not just people born after 1997 who deny any declaration of love for the car, which is based on a passion for driving or the sheltered character of the car. The populous 1960s generation also criticize the automobile from an ecological perspective, dedicate it as an object of freedom and try to give public transport a chance, even if it is not easy to use it. And the fact that this attitude in Stuttgart not only appears in the inner city districts but also in the outskirts reflects an urban mental orientation towards multimodality that could be used.It is still undisputed that young people up to the age of 26 reject the car more than all other age groups and that higher school education can also be a factor - Groth calls these "educated urbanities" (Groth 2019, 197). However, it must also be taken into account that the majority of the groups of 27 to 39-year-olds (rejection: 83%) and also the populous 40–65-year-olds (rejection: 66%) do not associate the car with a symbol of freedom, and not only in individual inner-city districts, but across districts. The only ones with a ratio of about 50 to 50 are seniors over 65 and the non-Stuttgart residents indicated. The fun and passion factor, which is very low in all age groups, depends on the political and infrastructural conditions in Stuttgart and not just on one's own convictions. It is unclear in the PsyVKN how much passion for driving actually no longer exists intrinsically or how much passion was socialized and shifted through push-and-

pull policies, i.e., a traffic-shifting traffic policy with traffic infrastructure EN improvement measures.

There is a tendency for means of transport to be less emotionally charged, which in a positive sense means that the people of Stuttgart want to make their transport decisions in a more open, flexible and situation-related manner. Large sections of the population almost stereotypically embody a generation that has emancipated itself from the exclusive use of cars and behaves in a highly multimodal manner. The "car-loving mono-optionalist" is part of a departing group of people in the city. Contrary to Groth's (2009) notion that these are working groups and groups of people who have family ties and live on the outskirts of town, who have a strong "monogamous" bond with their car and reject all other means of transport. These groups of people state that they are traveling in the environmental network in Stuttgart. This openness is only more reserved among older people, even if only small tendencies towards car use can be discerned.

Of course, these mental conditions are advantageous for a multimodal traffic turnaround, but it is unclear how reliable and stable mental optionality will be in the future. On the one hand, in order to tighten the EN quota, it may be necessary to exceed the mental break-even point, which sometimes only comes about through certain improvements in travel time reductions, capacities improvements or fare reductions. And on the other hand, there is skepticism with regard to the values of young adults when, for example, "changes in the [...] framework conditions and in the behavior realized lead [...] to an adjustment of the corresponding attitudes in the medium term" (Hunecke, Haustein 2012, 59). To put it bluntly, there are speculations that especially young adults are dreamers and will return to routine car use once they start a family (cf. Lanzendorf, Schönduwe 2013, 40). In the 2010s, there were studies that tended to support such a development, especially in the transition from study to work (cf. ib.). According to the PsyVKN, most of the groups of people in Stuttgart are rather skeptical about using cars and are open to cycling and public transport. Apart from Obertürkheim, Stuttgart has a majority of car-critical mobility users in 22 districts, which include all age groups, genders and professions. It can be left open why an intrinsically very sustainable mobility behavior is not or cannot yet be implemented in reality in Stuttgart. Criticially, the effect may have happened that people who are satisfied with the status quo do not take part in the study at all. Of course, it should be added that the participants of the PsyVKN were more academically educated, male, German-speaking Stuttgarters and in the city of 600,000 residents only a small sample. It was probably the first public, city-wide PsyVKN survey in the state capital, but the number of participants lies in a satisfactory range. For this reason, it is assumed that the people of Stuttgart have a multimodal construct in terms of social psychology, which would bring ideal and individual psychological factors for a mobility turnaround. There is a certain scattering factor that needs to be taken into account, because the entire traffic in Stuttgart is by no means made up of people from Stuttgart alone. According to Veller (2016), the state capital has 52% more commuters than internal commuters from Stuttgart, the Non-Stuttgarter make up 60% of all employees here (Veller 2016, 267). There are certainly increasing indications that poor public transport in rural areas leads to an increase in car commuters into the city. In any case, the urban-rural divide should be taken into account too if Stuttgart wants more multimodal transport behavior, especially far before the borders of Stuttgart. It is undisputed that the more automobile-friendly tendencies outside of Stuttgart residents, which can also be found in the PsyVKN, require further scientific investigations into how a suburban mobility transition could be established.

On the other hand, it must be noted, the capital is, regarding to time-costs and accessibility-orientation, not performing on a capital-typical top-level multimodal development. It might even be understandable that some scientists would use the Swabian idiom of "putting one's own house in order first” in the direction to the city administration:

The duration for travelling between the city districts of Stuttgart with the different means of transport in 2023 can’t be clearly declared as equal. One learning from the study is that car traffic times are still faster in most districts. The study does not delve deeper into how important travel time is for the mode of transport decision, but its share will not be small, if not the main indicator after conservative adjustment planning. There are remote areas in Stuttgart that are not environmentally connected and therefore travel times are far longer than those by car. This also makes it clear that connectivity can undoubtedly also be related to travel times. The situation of having mobility gaps is not unusual, but the city has a clear mandate to close these gaps with offers.

A great potential in the area of mobility gaps in regular public transport can be derived particularly succinctly from the results. Multimodality always has a spatial dimension of the (possible) increase in options, which could soften the inner city/outer city dichotomy. So far, research on multimodal modes of transport has been criticized for being "spatially deterministic" because it derives the individual choice of mode of transport from built spatial structures (cf. Groth 2019, 200). In action-theoretical models such as “residential self-selection”, it is thought behaviorally that complementary residential locations are reproduced in the choice of transport. Simply put, proximity to the nearest train station brings more multimodal modes of transport than a residence where gardens are tarred over for private car parking. If there is simply no public transport offer within a 300-meter range, it is completely logical that the car is used for longer journeys outside of competitive cycling distances. Strictly speaking, mobility gaps in the EN are to be promoted as the simplest mental means of transport option, the "automotive mono-optionality", which is diametrically opposed to the traffic turnaround. Especially when one assumes that Stuttgart, like many other major German cities, will encounter significantly more people and will have to expand its settlement areas to do so, the question arises to what extent slow public transport options such as the bus or rail public transport suitable for mass transport can be compared to such systemically relevant and cultural important places can be introduced and consequently be perceived as an additional option (cf. Groth 201, 201).

Such mobility gaps in Stuttgart can be closed by various public transport expansions, which all depend on which expansion tactics are followed:

In radially oriented networks such as Stuttgart, it is reasonable to assume that a rail public transport branch is laid in mobility gaps, which then connects the city center directly. It is political practice in Stuttgart that the Stadtbahn in the outer areas of the Fildern are regularly extended. In terms of capacity, it is unimaginable that further Stadtbahn or S-Bahn lines would be added to the inner-city lines - this would usually require new routes, which not only cost money, but will also only be implemented years later. A route detour for a new stop in a new area is also unpopular because it is detrimental to the profitability of a route if the train runs in a supra-regional context. In Stuttgart, with the Mittnachtstraße between Stuttgart Hbf and Nordbahnhof or Bad Cannstatt, such a stop for the Stuttgart 21-Rosenstein real estate project threatens to come, which would not even be in a

mobility gap (cf. Lieb 2011, 7).

When it comes to reducing travel times on public transport when there are mobility gaps, tangential connections seem to be coming to the fore in Stuttgart. The thinking behind a proposed closure of mobility gaps can probably be explained with the following example: For the eastern gap of Bad Cannstatt "Im Geiger", new bus connections can play a role. In the east city, Stuttgart has the problem that its intermodal connectivity between the different public transport systems leaves a lot to be desired.

For this reason, new lines might try to solve multiple problems at once. The mobility gap “Im Geiger” will be connected to the S- and U1 stops Nürnberger Straße with its local high school and will become an east tangential line for Stuttgart, connecting the U2 and the U14. Of course, this requires reliable commuter flow and passenger numbers and does not want to fundamentally prefer buses over alternatives such as cable cars. When it comes to reducing travel time, there are considerations that can be implemented quickly. The bus line shortens travel times to the districts and, in particular, fulfills a hub function.

Ultimately, however, it is important to consider whether the data supports this innovation. If demand is forecast to be significantly lower, there are comprehensive alternatives to on-demand systems, which are implemented, for example, with SSB flex, through citizen buses or a taxi-on-demand offer (Schiefelbusch et al. 2021). However, this is only “worth it” in smaller and sparsely populated areas (cf. König, Grippenhoven 2019, 11f). The demand for tangentials is often quite strong in Stuttgart, so tangentials on rail have to be discussed more and more. The city could make use of the option of connecting its subway terminus, as train journeys could be saved, for example between Mühlhausen (U14) and Mönchsfeld (U7) or Neugereut (U2/U19) in the east or between Vaihingen (U1) and Dürrlewang (U12) in the west.

However, the Schusterbahn is likely to offer the greatest potential for a tangential connection, as there are faster connections for up to 26,000 people between Zazenhausen, Münster, Ebitzweg in Bad Cannstatt and Untertürkheim and at the same time there are connections to various hubs. With an S-Bahn or regional train there is significantly higher capacity and travel is much faster. If timed well, this investment can represent the break-even point, as today's outlying districts will be upgraded to S-Bahn districts, which would ultimately mean shorter travel times for 33% of all Stuttgart city districts (Neckar districts, Zuffenhausen and Stammheim). The possibility of not even driving into the city relieves the strain on the S-Bahn tunnel and the inner-city S-Bahn capacities. With these regular expansions, the travel times and capacity matching options are made more efficient, which should attract users who want to give local transport a chance, as is clearly measurable in Stuttgart in the PsyVKN. An important message from this study is that the capital of Baden-Württemberg could get faster public transportations connections compared to the car without any new built route connections - a novelty for Stuttgart for outlying districts.

However, the points mentioned are very specific to public transport. Since the PsyVKN, however, there has been a third vehicle that needs to be taken into account, which is causing a stir in Stuttgart and lifting the EN over the threshold, in which the masses will change - the bicycle possibility.

Cycling is very popular in Stuttgart, despite the topographical challenge. The thesis of a cross-generational bicycle boom seems to have arrived conceptually in the Baden-Württemberg state capital, which is why a “renaissance of the bicycle” can be expected. According to PsyVKN, in Stuttgart it is no longer the case that only young, “multimodal” adults glorify the bicycle, while the older generation, which is socialized by automobiles, still speaks about the bicycle in a stigmatizing manner (cf. Groth 2019, 198f). Mental multimodality is present among young and old in Stuttgart, which has a particularly positive effect and calls for a possible transition from an automobile to a multimodal society.

However, the numbers remain below average in the modal split. If public transport cannot close the so-called annual mobility gaps in Stuttgart due to a lack of supply, bicycles must therefore target this area. It's not just the train stations that should be networked with bike sharing stations, because it's also about the use of bike sharing hubs in residential areas. Building directly in the residential areas, such as in Rohracker and Untertürkheim, could help ensure that people can use the offer in zones where the car still dominates and the EN potential is used here. The approach of expanding the range of bike-and-ride offers is therefore not unreasonable. It is conceivable that mental access to transport options could expand in this group of people if the corresponding opportunity infrastructures can lead to an adjustment of actual access to transport options (cf. Hunecke, Haustein 2012, 59). It can be expected that the spontaneous availability of the offer represents a time-saving and good alternative to local transport, for which you have to wait at least 10 minutes, depending on the means of transport. During this time, short distances in particular are usually easier to cover by bike (see ib.). If there is a bike sharing station in the destination's catchment area, it will most likely be used; the density is still too low compared to Paris. Basu and Ferreira highlighted that the long-term effects of bike sharing on reducing car dependency are valid (cf. Basu, Ferreira 2021). Because the bike is competitive for ice ages at close distances, its promotion and visibility is important. For Stuttgart's future tactics, it may also be important that the use of bike sharing is seen as a connection between the first and last mile to local transport, which is why a significantly greater focus on bike sharing in residential areas will become an issue. Even if the connectivity of cycling primarily appeals to people who do not have limited mobility, the means of transport represents the most radical approach to mobility transition, which is also very cheap compared to many other transport infrastructures. Whether the bike in Stuttgart can achieve “Parisian standards” and improve connectivity between the city districts in the future could depend on the density of the bike sharing network. Spontaneous use could become more popular and definitely provide relief when the weather is nice. It should also support the trend in the future that overcrowding in public transport on short journeys could at least be alleviated by cycling. This also eases travel times.

6. Summary and Outlook

In summary, it can be said that several results of research on this scale speak against describing the traffic behavior of the people of Stuttgart as car fixated. Accordingly, the attitudes of the citizen should be described as "multimodal oriented". It has been shown in the PsyVKN that people from Stuttgart no longer see the car as an object of freedom, passion and fun and that a majority can organize their everyday life without a car. Apart from Münster, Birkach and Obertürkheim, the use of public transport is described as rather easy. It is striking that people's environmental awareness in the field of mobility is no longer a politically determined unique selling point but is supported by the large majority of the population. In all 23 districts there is a high sensitivity to climate protection through the choice of transport, even if this was not explicitly formulated. Such beliefs in control are scientifically an enormous asset for a modal shift. Anyone who is psychologically and subjectively convinced that they no longer have to use a car will very likely transfer this inner attitude to their behavior in the future (cf. Hunecke 2015, 13).

Regarding the choice of transport, it is also clear in Stuttgart that in most districts people let others tell you something, but they assume that there are people in their area who would support them with the modal shift.

There were no significant differences between the districts, which means that this out-of-town-down- town dichotomy is hardly reflected at all in the attitudes. Certainly, the public transport usage rates in the city center are somewhat higher in the city, but in terms of mobility behavior, both, the outskirts and the city center, are mostly carcritical tri-optionalists, if not even car-free EN-bi-optionalists.

There are rather secondary reasons, such as the feeling of safety in a car or the weather resistance for cycling, where differences are more visible. Connections here cannot simply be clustered; they are too person dependent. A further case that became clear is the analyze that there is only a very small effect, that the younger generation is more EN-affine than the older ones. The older generation seems to be catching up with the youngsters in leaps and bounds. Except for seniors, who are most likely to still use the car, mobility is being shifted and the generations capable of work are significantly more autocritical than stated in the literature. It could be also easily confirmed that educated people more often develop a pronounced environmental awareness and more often find it easy to use public transport than the non-academized average. Only in individual cases, which Groth describes as "car-loving mono-optionalists", it can be confirmed that a disproportionate number of people can be found with a simple school-leaving certificate.

Also, it can be agreed, and what needs to be considered from a socio-political point of view, is the high degree of mobility within the urban population. The prospect of having to be constantly mobile is closely linked to the quality of life. Multimodal transport planning should start with unmasking the reasons for this mobility compulsion in Stuttgart and reacting accordingly. Often linked to a lack of supply structures or connectivity in the district, this can be the cause, which might be a hypothesis of this phenomenon.

An infrastructural comparison with the two accessibility analyzes could be performed according to districts. The results indicated by the preparatory work of Tritschler (2014) confirmed that the travel times to the outskirts with the environmental network are usually

longer than with the car. Public transport has not yet exhausted its full potential, since travel times could be reduced via tangential lines, which already exist, or bus connections could be introduced without great difficulty. Wherever there is an S-Bahn connection, the travel times are rather short, but it also had to be noted that Stuttgart tends to have a connectivity problem. The networking of public transport itself can be expanded in Stuttgart, since either the Stadtbahn stations are separated for a long time or, also due to construction sites, the footpaths can be very long and confusing. When looking at the travel times by bike, it became clear that the bike proves to be competitive, especially in the flat regions, and can keep up with the times in the 10% range downhill, as well as in the short distance. Covering inclines with a normal bike is not competitive, the pedelec quota in bike sharing can possibly help to solve the problem. But it is also due to the weather resistance that one can expect that cyclists in these affected hilly districts will leave their bikes in cool weather.

In summary, however, the original research of the Stuttgarter Straßenbahnen (2020) can also be emphasized, that the higher the density of multimodal mobility offers, the more likely the mobility behavior is positively adjusted to public transport and cycling. This was particularly evident in the inner city districts. It is also noticeable that there is a particularly positive attitude towards cycling in the districts, which is particularly noticeable in the topographically flatter districts in the north-east on the Neckar (Bad Cannstatt and Münster) and in the west in Stuttgart-Vaihingen. This is a crucial target group in the mobility turnaround, since they have the potential to switch, but the offers of the environmental network must be available.

Thanks to the accessibility analysis, the detailed analysis of the individual districts also made it clear that the weak connectivity leads to mobility gaps on the one hand, but on the other hand that sports areas, hospitals, and care facilities are connected to public transport stations in a comparatively below- average manner compared to the education sector. In this way, some areas could be found in which the multimodal environmental network can still do something for its competitiveness. Linking citizens' buses to the tariff network, new mobility concepts such as the SSB flex taxis or alternative means of transport are major issues at the local side. Beyond the district level, the creation of new tangential connections such as bus lines or the use of free railway lines such as the Schusterbahn will then be necessary. When it comes to moving masses, the railway has clear advantages over buses and taxis. These are the infrastructural problems and potentials addressed, which can be derived for the eco-mobility and are specified in the appendix by the city district.

With the elaboration, a contribution to the regional-structural mobility debate could be continued, which refers to multimodality in the context of the possibilities of public transport between the Stuttgart districts. The elaboration was thus able to fathom the transport preferences within Stuttgart's civil society and its guests and, given the current state of research, it is rather absurd to describe Stuttgarters as car-centric citizens.

However, if you continue the discourse on climate protection and multimodality, it must always be considered that the people of Stuttgart are ultimately only partly responsible for the current mobility situation with a high concentration of cars and air pollution zones in Stuttgart, but another large proportion of commuters come from rural areas. Future regional analyzes would have to be examined more closely to compare traffic behavior and their traffic options. For the practical turnaround in traffic, it is not enough to concentrate solely on the citizens of the city, but the region and the state need to at least shift the high flow of

commuters into the city. It must be said that the study does not replace an urban climate study based on means of transport in Stuttgart. It can therefore only point out from the point of view of transport science that increasing absolute numbers of commuters by car due to the mono-optionality of rural regions must be urgently considered and solutions must be found here. It also remains unclear whether Stuttgart can sustainably deal with further traffic growth or whether the environmental association could reach its limits sooner if city and mobility planning take place separately, the danger of which Stuttgart's political Green Left has been denouncing at Stuttgart 21-Rosensteinviertel for several decades. All of these points should not be underestimated, as they may prevent even the boldest sustainable mobility user from making their decision. From a scientific point of view, this work offers an introduction to implementing the “equivalence of transport” in order to be able to enable the people of Stuttgart to adopt the mobility behavior that they seem to want - a multimodally sustainable!

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Appendix

Content

I.	Accessibility Analysis of all Districts of Stuttgart with Map and Folder	-2-
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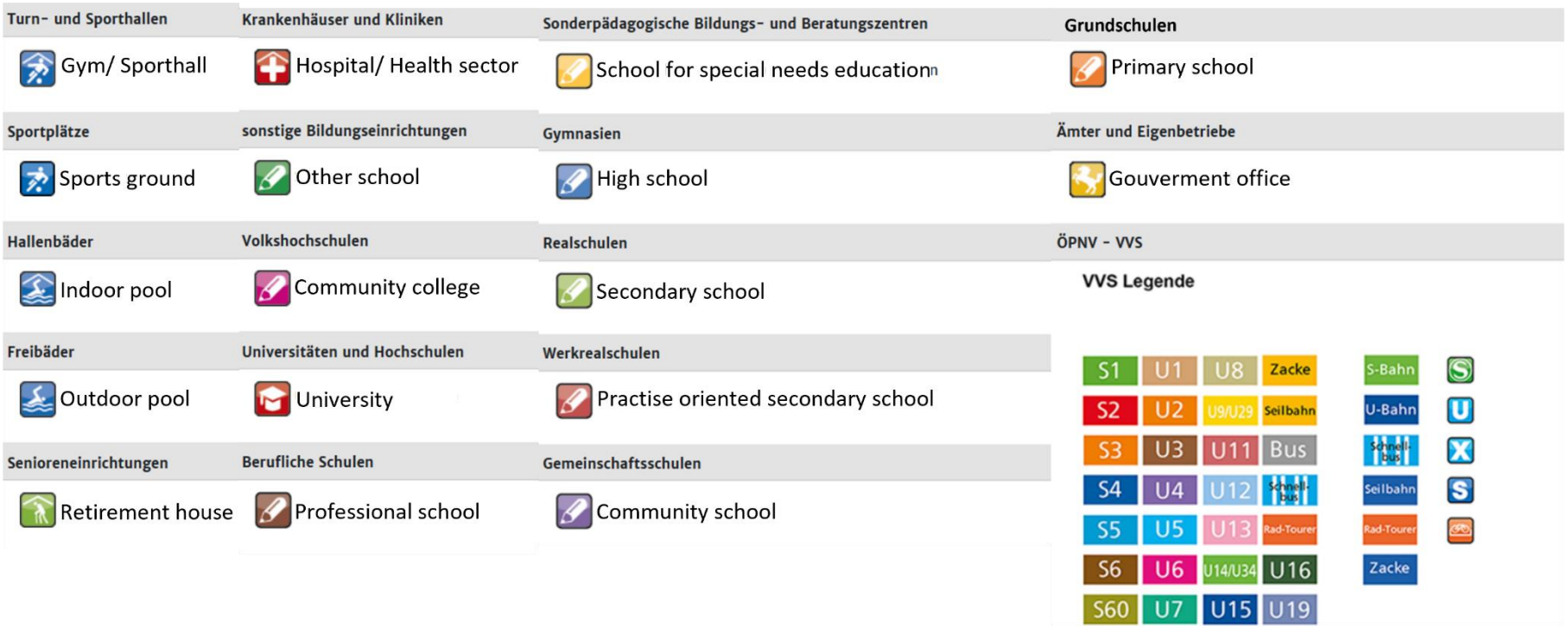
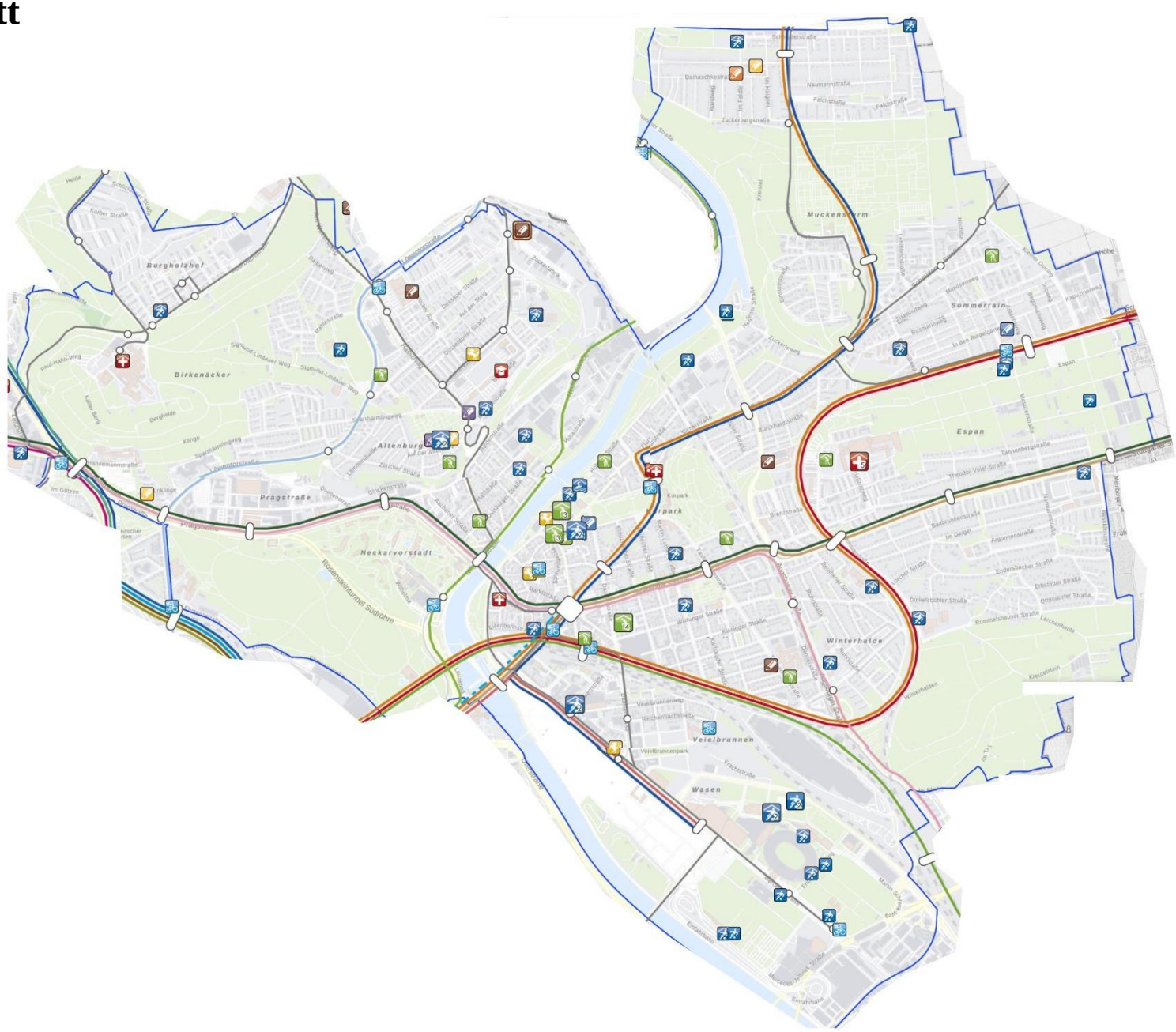
The socio-demographic facts in the accessibility analysis are taken from the “Datenkompass Stadtbezirke Stuttgart. Ausgabe 2019/2020”, published by the state capital Stuttgart in the statistics and information management theme booklets. Furthermore, it should be pointed out that the data table sheet was not inserted in the PsyVKN, since the data situation is presented separately. Extension proposals are only linked to the main statements but are only options in terms of transport infrastructure and in no way replace the current informative value of standardized evaluations or other profitability calculations. It was also possible to disregard district-internal pendulum current statistics, which, according to the statistical office, do not exist for individual districts, but which could support the orientation of the proposals. In the PsyVKN, the information was derived from the fee-based survey tool at umfrageonline.com/c/p9zv3mfd, which was closed on January 1, 2023, 0:00. The PsyVKN was subsequently supplemented by relevant comparison statistics in addition to its entire listing of the raw data.

I. Accessibility Analysis of all Districts of Stuttgart with Map and Folder

Legend by Stuttgart Maps

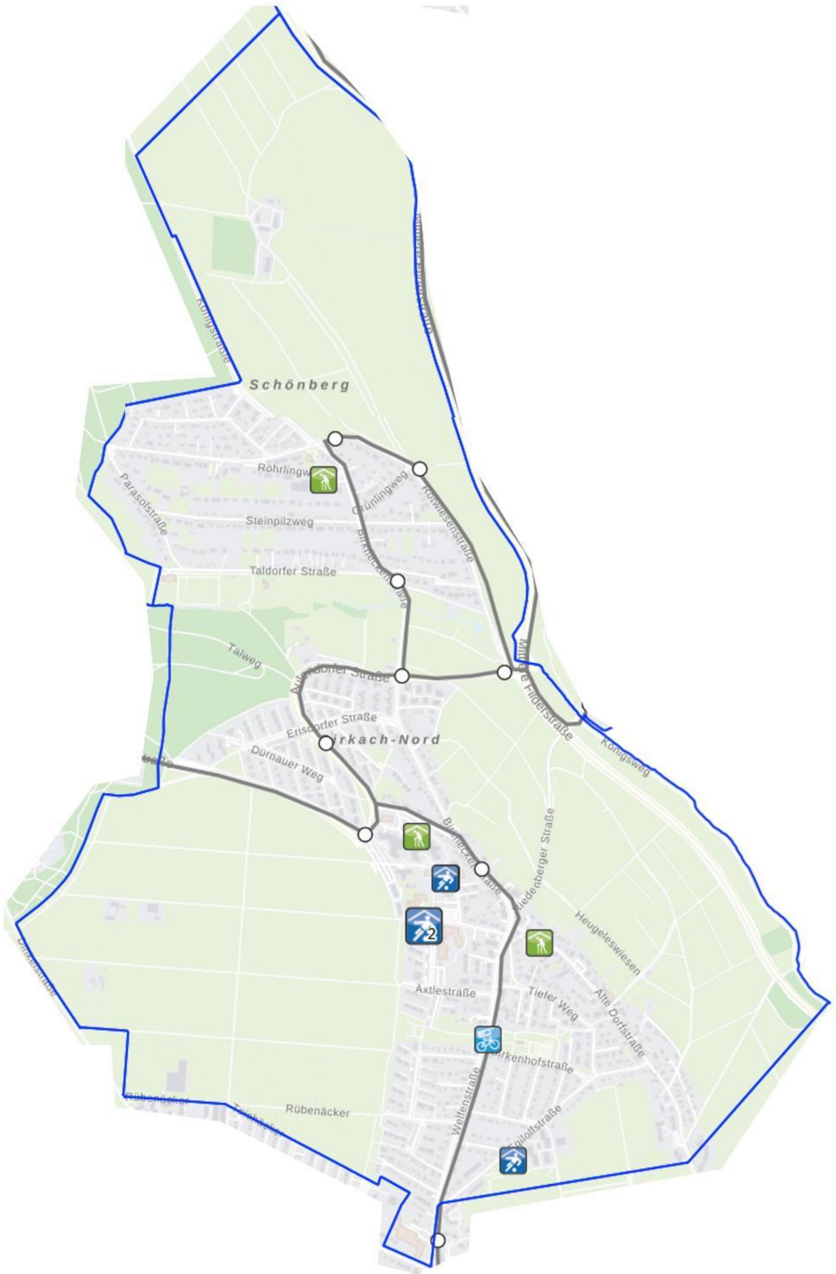


Bad Cannstatt



District name	Bad Cannstatt		District parts	Muckensturm, Schmidener Vorstadt, Espan, Kurpark, Cannstatt-Mitte, Seelberg, Winterhalde, Wasen, Veielbrunnen, Im Geiger, Neckarvorstadt, Pragstraße, Altenburg, Hallschlag, Birkenäcker, Burgholzhof, Sommerrain, Steinhaldenfeld			residents	71509				
Main description of the district	In the "Bad" of Bad Cannstatt, it becomes clear that the district has numerous mineral springs. Located directly on the Neckar, vineyards also extend in the northern part of the district to the Steinhaldenfeld district. Bad Cannstatt adorns spa and baths, is known for the "Neckar Park", which includes the Wasen, the entire VfB Stuttgart site with the stadium. Public services disproportionately include hospitals and 16 public school complexes. Bad Cannstatt indisputably has the most residents after districts of Stuttgart and with a share of 6.1% also the second highest percentage of under-6-year-olds.											
Mobility behavior after PsyVKN	"I can do what I want by using PT"				"I like to travel by bike"				"I can do very well in everyday life without a car"			
Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Untertürkheim	5	Plieningen	43	Ost	10	Plieningen	68	Plieningen	-16	Vaihingen	8
	West	7	Birkach	34	Münster	11	Birkach	58	Stammheim	-15	West	7
	Obertürkheim	8	Stammheim	33	Untertürkheim	14	Vaihingen	58	Zuffenhausen	-12	Obertürkheim	5
Accessibility of multimodal options of the environmental network	Public transport: Bad Cannstatt's accessibility varies depending on the district. Only short distances have to be walked in the heart of Bad Cannstatt to get the bus, subway, S-Bahn and regional trains. However, Bad Cannstatt does not have a crossing station, since the transfer from the Wilhelmsplatz underground station to the rear track 8 is 350 meters with lots of stairs. The districts in the east of Bad Cannstatt are fundamentally deprived, in which it takes an average of 300 meters to the next public transport stop, the district in Geiger even 650 meters.				Bike: Two main bike routes run through Bad Cannstatt. 9 bike sharing stations can be found in the district. While the center of Cannstatt is located in the valley on the Neckar, internal gradients outside the core area must generally be expected.				Other: Ship infrastructures in Bad Cannstatt are intact, but only sail once or twice a day independently of the VVS. Park and Ride area exists at Sommerrain station.			
Travel options to different districts from the environmental network	Public transport: Basically, Bad Cannstatt offers underground services in all relations, the curvy S-Bahn provides a fast connection between the city center and Fellbach in the Rems-Murr district. The U13 is a west tangential to Feuerbach and south to Untertürkheim. Journeys from the eastern parts of the city to S-Ost and Münster are time-consuming. The development of the south-east is only possible with the bus 45 with a weak frequency, one can only get to Münster by changing to the U14.				Bike: Although cycling uphill to Fellbach is possible at several points, several railway tracks and federal highways impede an ideal transition between the city districts. At ground level you can go north to Münster and, if you are on top of the Birkenäcker, down to Zuffenhausen and Feuerbach. Otherwise you have to master gradients in the north. To get to the city center from S-Ost, you have to go uphill.				Other: Private offers for shipping exist, but only once or twice a day and so far only for tourist and regional purposes.			
Possibilities to improve multimodality	Public transport: The integration of the eastern parts gaps into the public transport network, independent of bus lines or taxi on demand, is of great importance. Bad Cannstatt could create a missing tangential to the north via the existing Schusterbahn and link the Ebitzweg stop with buses, for example, which then drive to Cannstatt. The consideration of a subway expansion between S-Ost and Neckar Park, another branch line to the city center should be examined. In terms of capacity, this route could be implemented on the former X1 express bus lane.				Bike: A connection of the two main cycle routes on Gnesener Straße should be implemented, as well as a safe continuation to Untertürkheim on Augsburger Straße. An underground bike path is necessary to develop the NeckarPark, regardless of whether it is in Cannstatt or Untertürkheim.				Other: As an additional or alternative possibility, public shipping could be offered as a tangential between Mühlhausen and Untertürkheim via Neckar Park. Because multi-lane federal roads and railway lines often make it difficult to plan new light rail lines into the city centre, cableways that overcome the transport infrastructure, for example between NeckarPark via S-Ost to the main station, and from there on towards S-Nord, could be considered.			

Birkach

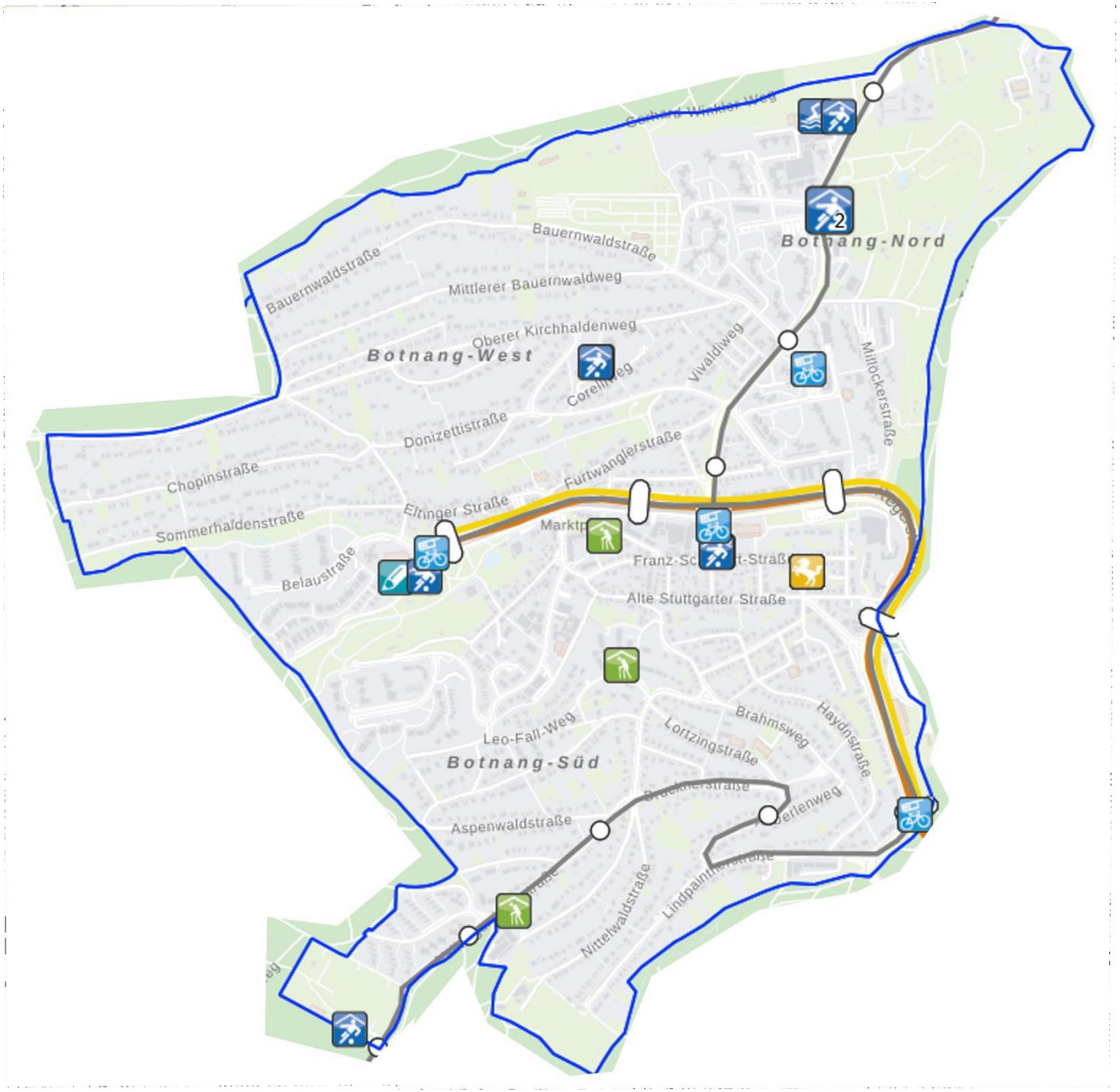

Schönberg
Röhrlingweg
Steinpilzweg
Taldorfer Straße
Parasolstraße
Talweg
Birkach-Nord
Dürnauer Weg
Axtlestraße
Tiefer Weg
Heugeleswiesen
Alte Dorfstraße
Welfenstraße
Rübenäcker
Königsweg

District name	Birkach	District parts	Birkach-Nord, Birkach-Süd, Schömberg	residents	7215
Main description of the district	The second smallest district is on the Filder plain south of Degerloch. It is surrounded by greenery, has numerous playgrounds and a youth farm. The district of Schömberg does not have any shopping facilities or infrastructure worth mentioning, but it is one of the "most desirable" residential locations. Demographically, it is striking in Birkach that its cross-section of the population contains hardly any under-six-year-olds and that the Stuttgart district had the highest percentage of deaths. However, its proximity to the University of Hohenheim lowers the average age to 43 years, which is slightly above Stuttgart's average.				
Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Degerloch	9	Stammheim	53	Plieningen	14	Stammheim	71	Botnang	-23	Degerloch	-1
	Plieningen	10	Mühlhausen	49	Sillenbuch	17	Weilimdorf	69	Stammheim	-20	Plieningen	-2
	Sillenbuch	18	Botnang	47	Möhringen	20	Mühlhausen	62	Wangen	-20	Mitte	-3

Accessibility of multimodal options of the environmental network	Public transport: Bus services are available in all areas of Birkach. Only in Schömberg is the average distance to the bus stops more than 300 meters, in the other parts of the city this is less. The sports halls and courts are all available in this radius. The nearest S-Bahn station is the airport, which can be reached by bus in 16 minutes.	Bike: The only rental station is not at a bus stop. There is no main cycle route, only cycling recommendations through Birkach.	Other: -
Travel options to different districts from the environmental network	Public transport: Without its own subway connection, Birkach is the only district that is 100% dependent on bus transport. On Sundays this means a 30-minute cycle. The 65 connects Birkach with Plieningen, Sillenbuch, Hedelfingen and Obertürkheim, the 70 and 71 go to Degerloch.	Bike: No matter which district you want to go to, you always have to cycle uphill. Only from Birkach-Süd does it go down to the airport, otherwise you have to climb in altitude. Basically, it is topographically more attractive to cycle to Birkach than to drive away.	Other: -
Possibilities to improve multimodality	Public transport: A frequent bus cycle can increase Birkach's connection options. A U-Bahn gap closure between Plieningen - Riedenberg or via the Königsstraße could be considered in order to get from Birkach to the city center more quickly. In the future, the airport train station could also be developed as a regional option with an express bus.	Bike: Additional rental systems with electric drives would clearly be an option at this location, probably in Birkach-Nord and Schömberg, where you basically have to climb a meter.	Other: Establishment of a local bus with a high age quota positive for social participation.

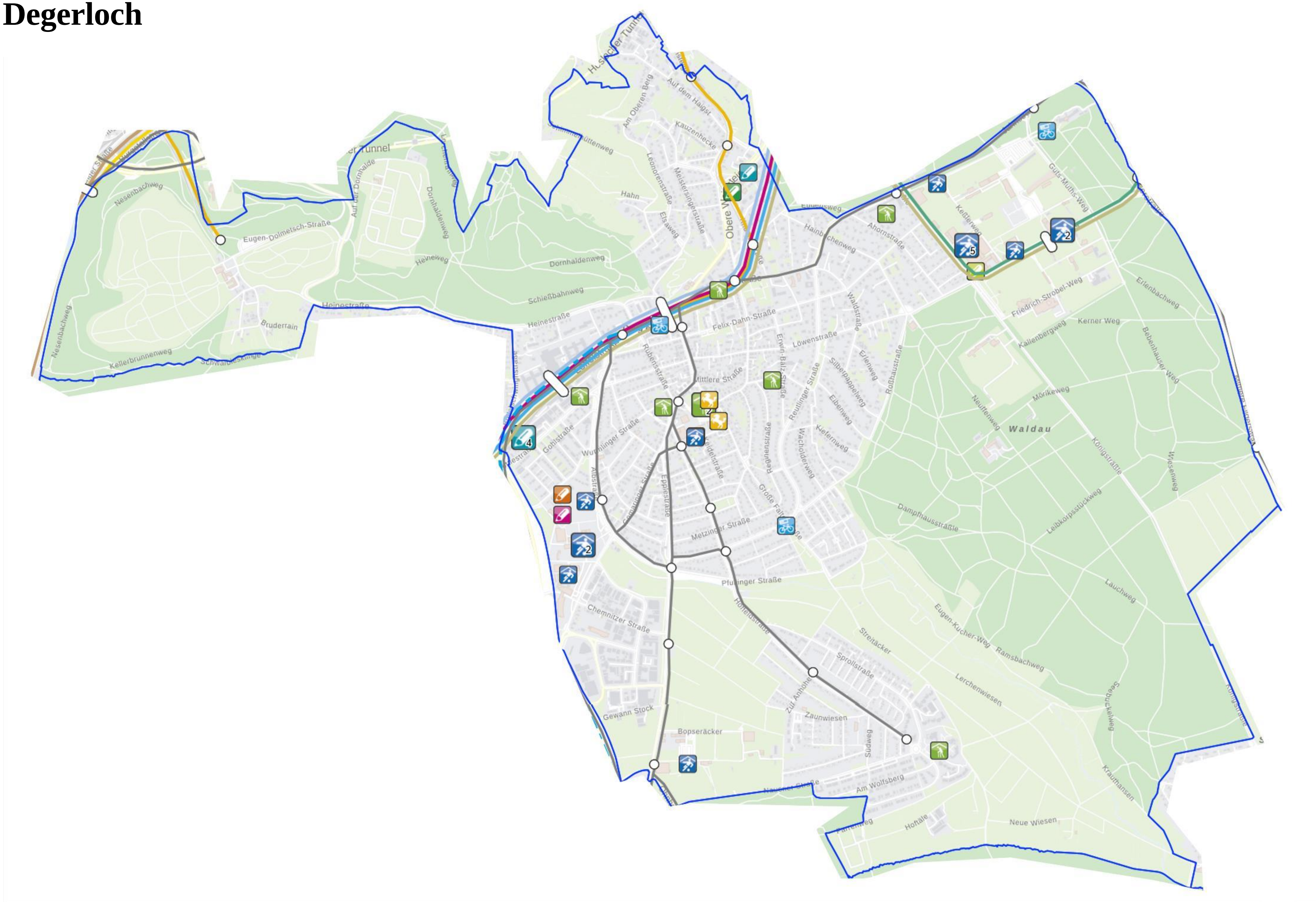
Botnang


Botnang-Nord
Botnang-West
Botnang-Süd
Bauernwaldstraße
Mittlerer Bauernwaldweg
Oberer Kirchhaldenweg
Donizettistraße
Chopinstraße
Sommerhaldenstraße
Belaustraße
Furtwanglerstraße
Vivaldiweg
Alte Stuttgarter Straße
Leo-Fall-Weg
Lortzingstraße
Brahmsweg
Haydnstraße
Aspenwaldstraße
Nittelwaldstraße

District name	Botnang	District parts	Botnang Nord, Botnang Ost, Botnang Süd, Botnang West	residents	13102

Main description of the district	Botnang is located in large forest and nature reserves in the west of the city. Adjacent to the west of Stuttgart and via a tangential road to Feuerbach, the district is completely surrounded by trees and topographically belongs to the hill. A former workers' settlement became a resting place for seniors, Botnang Stuttgart has the second highest number of pensioners and also one of the lowest proportions of the population with a migration background. Botnanger's income has increased the second highest compared to 2015.											
Mobility behavior after PsyVKN	"I can do what I want by using PT"				"I like to travel by bike"				"I can do very well in everyday life without a car"			
Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	West	16	Plieningen	57	Süd	15	Plieningen	67	Plieningen	-36	Mitte	-2
	Mitte	17	Stammheim	52	West	17	Birkach	60	Stammheim	-26	West	-2
	Feuerbach	19	Birkach	47	Feuerbach	18	Sillenbuch	55	Birkach	-23	Untertürkheim	-2
Accessibility of multimodal options of the environmental network	Public transport: The accessibility of public transport is not always the same. The U2 runs geographically in the middle of the district. Sports halls and a primary school are located directly at the end of the line and at Ettlinger Strasse. The bus connection to Feuerbach is intended to open up the north, where there is a swimming pool and another sports hall. Neither old people's homes nor another sports hall are connected to public transport, the walk is longer than 300 meters for 30% of the population.				Bike: 3 of the 4 bike sharing stations are located at underground stations, one directly at the bus stop in Botnang-Nord. In Botnang-West there is a mobility gap in the residential areas.				Other: Botnang has a private local bus that runs four different routes from Monday to Saturday independently of the VVS, which is flexible in terms of location.			
Travel options to different districts from the environmental network	Public transport: The U2 is the quickest way to get to the city center. The bus is the fastest option to Feuerbach. The connection in the north to Weilimdorf is lacking, as well as a direct connection to the S-Bahn in the south.				Bike: S-Vaihingen, Gerlingen and Weilimdorf can be reached directly with 135 meters of altitude difference. To the S-West, the Botnanger vertical meters must first be mastered up to the saddle before it goes down. After Feuerbach it goes down the mountain.				Other: -			
Possibilities to improve multimodality	Public transport: To increase it, Botnang needs a direct connection to the S-Bahn network, in order to be able to reach the eastern districts of Stuttgart more easily. To Feuerbach, the bus would have to run more frequently as a tangential connection.				Bike: Mobility gap in the west should be better developed for Eadverkehr, possibly with a new bike sharing station. Expand the bike path to Vaihingen.				Other: Local bus should be included in the VVS tariff in order to be available to everyone as an on-demand offer.			

Degerloch



Nesenbachweg
Eugen-Dolmetsch-Straße
Heineweg
Dornhaldenweg
Schießbahnweg
Heinestraße
Bruderrain
Kellerbrunnenweg
Hahn
Kauzenhecke
Auf dem Haigst
Am Oberen Berg
Felix-Dahn-Straße
Löwenstraße
Mittlere Straße
Waldstraße
Roßhaustraße
Erlenweg
Ahornstraße
Hainbuchenweg
Silberpappelweg
Reutlinger Straße
Wacholderweg
Kiefernweg
Eibenweg
Regenstraße
Gothstraße
Wurmlinger Straße
Epplestraße
Metzinger Straße
Pfullinger Straße
Chemnitzer Straße
Gewann Stock
Bopseräcker
Zaunwiesen
Sprollstraße
Streitäcker
Am Wolfsberg
Hoftäle
Neue Wiesen
Lerchenwiesen
Ramsbachweg
Eugen-Kucher-Weg
Dampfhausstraße
Leibkorpsstückweg
Königstraße
Waldau
Mörikeweg
Neuffenweg
Kallenbergweg
Kerner Weg
Friedrich-Strobel-Weg
Erlenbachweg
Bebenhauser Weg
Wiesenweg
Lauchweg
Guts-Muths-Weg
Kraumansen

District name	Degerloch	District parts	Degerloch, Waldau, Tränke, Haigst, Hoffeld	residents	16738

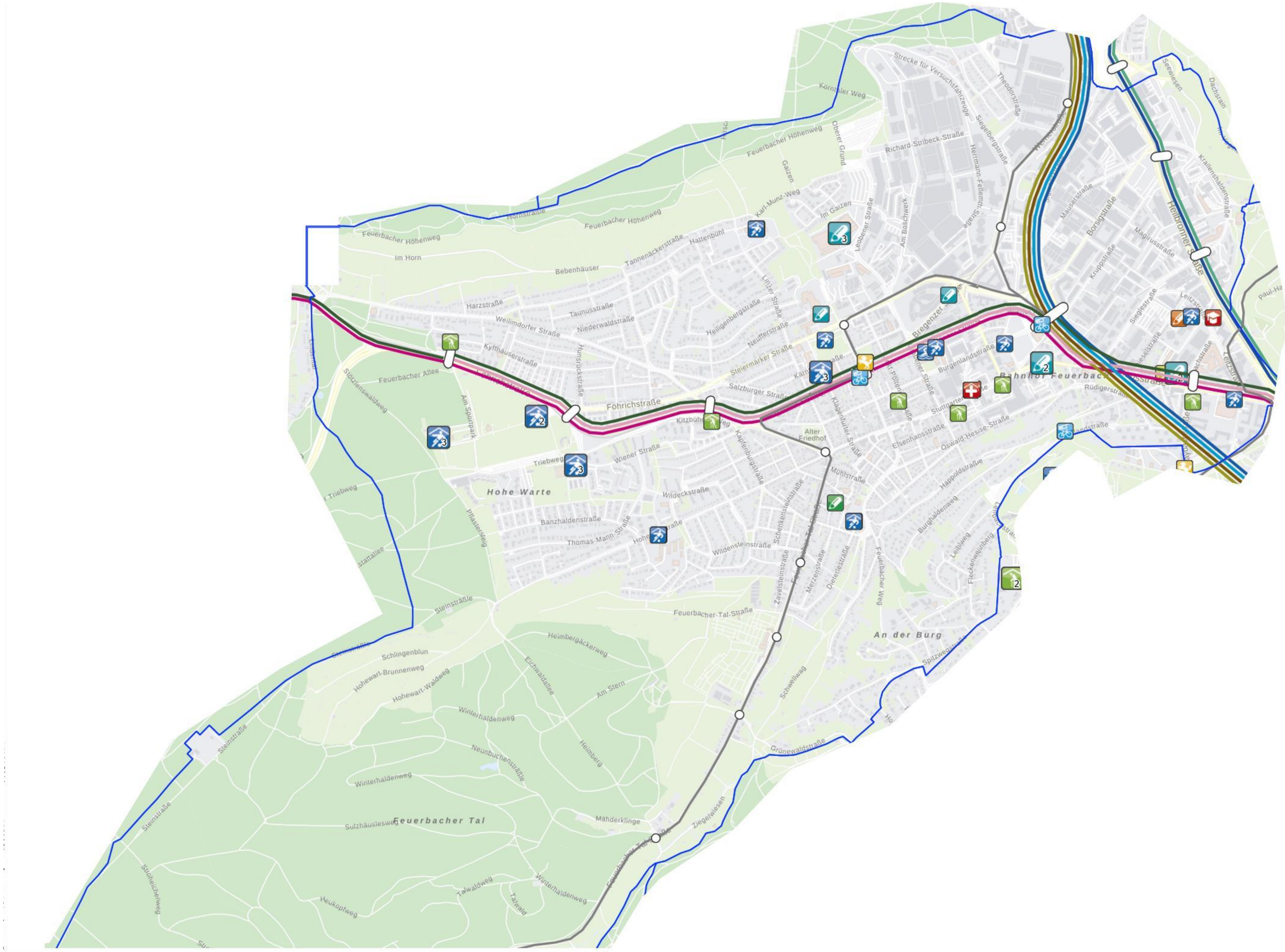
Main description of the district	Degerloch is the largest and highest municipal district that lies on the Filder plain. The television tower stands on it as a tourist landmark of the city. In the Degerloch, the net income per person is the second highest. At 3.3%, there is also the lowest work rate in Stuttgart and the lowest proportion of immigrants. It is the fourth oldest district in terms of population.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Möhringen	5	Stammheim	36	Möhringen	8	Stammheim	50	Hedelfingen	-15	Feuerbach	8
	Mitte	8	Mühlhausen	32	Sillenbuch	12	Weilimdorf	49	Botnang	-12	Mitte	7
	Sillenbuch	8	Hedelfingen	31	Birkach	14	Mühlhausen	45	Obertürkheim	-10	Nord	4

Accessibility of multimodal options of the environmental network	Public transport: While sports, schools and culture on the Waldau and the center of Degerloch are easily accessible by underground and express buses, there is unequal accessibility in other parts of the city: in Haigst, the rack railway is very often less than 300 meters long. The forest cemetery, which geographically belongs to Degerloch, is not accessible by anyone except the historic cable car, the districts of Tränke and Hoffeld only by buses, which also affects schools and sports fields and halls.	Bike: Two rental stations are installed outside of public transport hubs. One is peripherally located on Große Falterstraße, the other directly under Stuttgart's landmark. The cycle recommendations are not issued as such everywhere, cycle lanes exist, but not to a large extent.	Other: The large Park and Ride car park on Albstraße wants to motivate people to switch from the B27 to public transport.
Travel options to different districts from the environmental network	Public transport: Degerloch has a stable network of public connections in all directions. Degerloch is connected nationally with its express bus stop and has a subway bypass option, direct subway connections in four districts with the U7/8 to Sillenbuch, with the U15 to S-Ost, with many line branches further to Möhringen and with the Zacke to S-South. There are several bus connections to the more southern districts of Birkach and Plieningen, the intervals of which are not as good as those of the subway.	Bike: From Degerloch it goes down to all neighboring districts. The highest point is the television tower.	Other: -
Possibilities to improve multimodality	Public transport: The Waldfriedhof could also be connected via a through bus between Degerloch, e.g. via an extension of the 41 from the Lerchenrainschule to S-Süd. At the same time, a suitable variant should be considered for the southern development, since both the University of Hohenheim and Stuttgart Airport are two destinations with a high volume of passengers. An extension of the subway could be an option, such as the idea of flying over the ecologically sensitive area with a cable car. Variants that can be implemented temporarily and at short notice would be shorter bus cycles synchronous to the subway cycle.	Bike: The Hoffeld and Tränke districts could be connected to better locations for rental systems if they could get to the Degerloch public transport hotspots free of charge. On-way solutions could work with a free or integrated 30-minute regulation.	Other: Cable car projects to Hohenheim via Asemwald are being examined. These make particular sense at junctions in Degerloch.

Feuerbach


Feuerbacher Höhenweg
Im Horn
Bebenhäuser
Tannenäckerstraße
Hattenbühl
Karl-Munz-Weg
Im Gaizen
Gaizen
Oberer Grund
Kornthaler Weg
Strecke für Versuchsfahrzeuge
Theodorstraße
Richard-Stribeck-Straße
Siegelbergstraße
Leobener Straße
Am Bosch-Werk
Borsigstraße
Mauserstraße
Kruppstraße
Magirusstraße
Heilbronner Straße
Kraillenshaldenstraße
Dachsrain
Harzstraße
Taunusstraße
Weilimdorfer Straße
Niederwaldstraße
Kyffhäuserstraße
Heiligenbergstraße
Linzer Straße
Neuffenstraße
Steiermärker Straße
Salzburger Straße
Bregenzer
Burgenlandstraße
Bahnhof Feuerbach
Rüdigerstraße
Siegelstraße
Feuerbacher Allee
Stotzlenswaldweg
Am Sportpark
Föhrichstraße
Hunsrückstraße
Kitzbühe
Kapfenburgstraße
Alter Friedhof
Klagenfurter Straße
Elsenhansstraße
Oswald-Hesse-Straße
Stuttgarter
Triebweg
Wiener Straße
Hohe Warte
Wildeckstraße
Mühlstraße
Haldenrainstraße
Burghaldenweg
Hagpoldstraße
Banzhaldenstraße
Thomas-Mann-Straße
Wildensteinstraße
Schenkensteinstraße
Merzenstraße
Dieterlestraße
Feuerbacher Weg
Leibleweg
Pfaffensteigweg
Steinstraße
Feuerbacher-Tal-Straße
An der Burg
Heimbergäckerweg
Schlingenblun
Hohewart-Brunnenweg
Hohewart-Waldweg
Eichwaldallee
Am Stern
Winterhaldenweg
Neunbuchenstraße
Heimberg
Schwellweg
Grünewaldstraße
Spitzwegstraße
Sulzhäusleweg
Feuerbacher Tal
Mähderklinge
Ziegelwiesen
Talwaldweg
Talwald
Heukopfweg
Paul-Ha

District name	Feuerbach	District parts	Feuerbach-Ost, Siegelberg, Bahnhof Feuerbach, Feuerbach-Mitte, Lemberg/ Föhring, Hohe Warte, Feuerbacher Tal, An der Burg	residents	30525

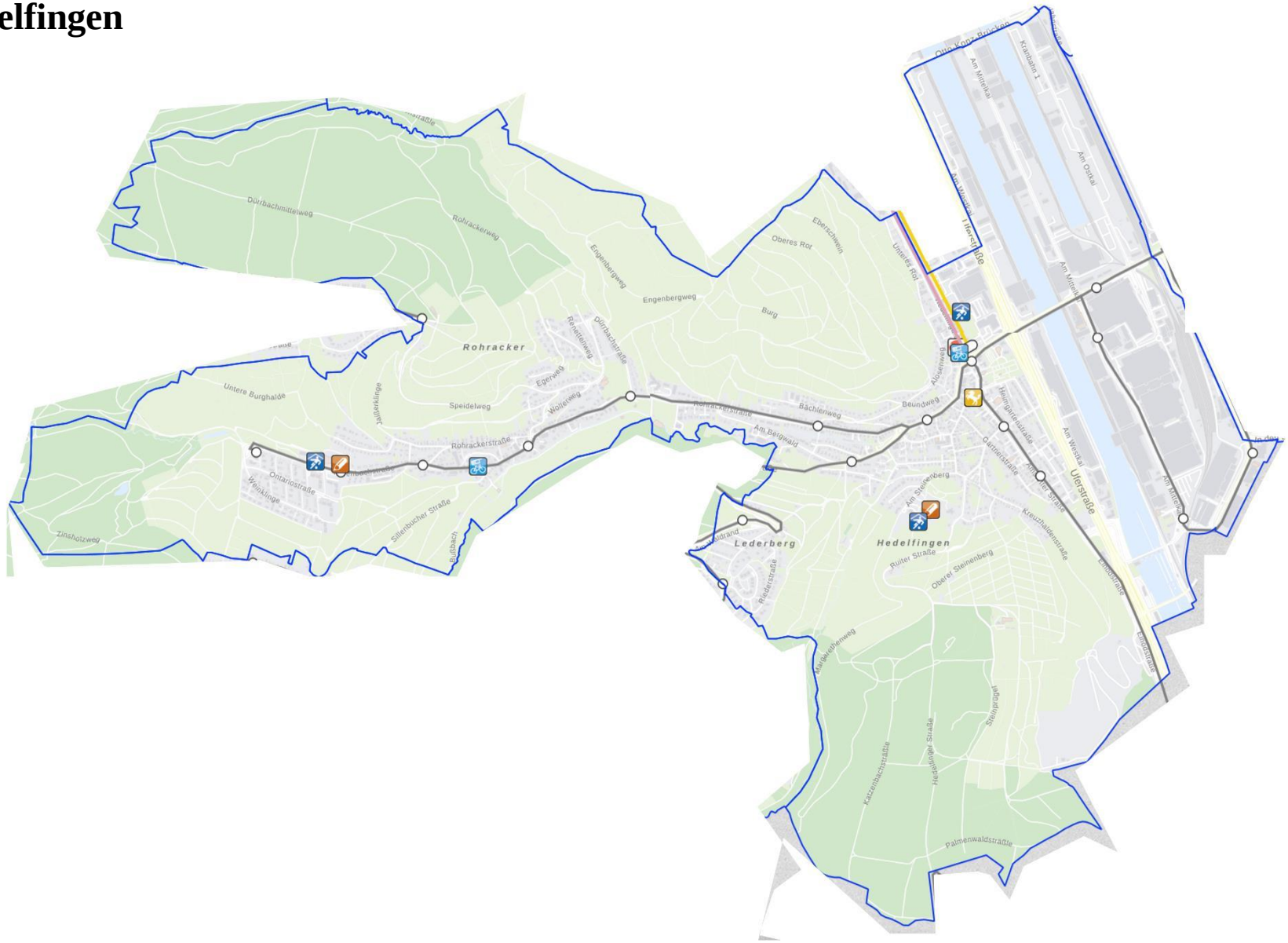
Main description of the district	Feuerbach originated on the northern edge of the Stuttgart basin in the Feuerbach valley and borders on S-Nord and Botnang via forests. Feuerbach has the city's third-highest percentage of under-6-year-olds. The district also recorded the strongest growth in net income at 8.7%. In other areas, the district is right on average.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Weilimdorf	8	Plieningen	48	Zuffenhausen	9	Plieningen	70	Plieningen	-15	Degerloch	8
	West	9	Birkach	35	Nord	14	Birkach	61	Hedelfingen	-10	Mitte	7
	Nord	11	Hedelfingen	32	Weilimdorf	17	Vaihingen	58	Stammheim	-9	West	5

Accessibility of multimodal options of the environmental network	Public transport: In principle, Feuerbach has a wide range of public transport options with S-Bahn, U-Bahn and bus. It is striking that Feuerbach has three of its six geriatric care facilities right next to a subway station, while the rest are near a hospital. On the other hand, two out of six schools in the district are not within 300 meters of public transport, and of the 20 sports areas in the district, not even 30% make it below this limit. While there are subways in other parts of the city, there is only the 91 bus in the Feuerbacher Tal.	Bike: 2 of 3 bike sharing stations are in Feuerbach at public transport stops. A main cycle route goes through Feuerbach. Topographically, Feuerbach lies in a valley.	Other: There is a private local bus in Feuerbach, which takes various routes and is largely flexible in terms of location at the stations.
Travel options to different districts from the environmental network	Public transport: On the positive side, it is relatively easy to get to the neighboring districts of Weilimdorf and Bad Cannstatt by subway. Zuffenhausen can also be reached by S-Bahn and other subways. Botnang, on the other hand, can only be reached by bus every half hour, so far the connection to S-Nord has only been possible via a detour via the Pragsattel. S-West, with which there is also a border, is already well developed with the S-Bahn.	Bike: To get to Weilimdorf, you have to climb 40 meters uphill. For Botnang, 83 meters in altitude must be mastered, after Zuffenhausen 25. From the Pragsattel it goes down to Cannstatt. Towards S-Nord, inclines of up to 125 meters in altitude have to be mastered.	Other: -
Possibilities to improve multimodality	Public transport: Although the connection to Botnang is not the most central at first glance, it offers the possibility of bypassing the city center. A subway-like cycle with continuous travel to Vaihingen can release supra-regional potential outside of the S-Bahn. An offer organized by the VVS between Feuerbach and Killesberg via Feuerbacher Weg is to be set up.	Bike: E-bikes are necessary in Feuerbach in order to be able to master inclines. The Weilimdorfer Straße should contain more space for cyclists in order to get the main route to Feuerbach there.	Other: To S-Nord, specifically to Killesberg, you can consider expanding the local bus option via Feuerbacher Weg. Furthermore, the integration of the local bus into the VVS tariff would offer new transfer potential.

Hedelfingen



District name	Hedelfingen	District parts	Hedelfingen, Hafen, Lederberg, Rohracker	residents	10305

Main description of the district	Hedelfingen is on the Neckar and has a major logistical function for traffic with the port. Other districts such as Rohracker and Lederberg are on the rise on the Filder level. The district has the third highest increase in population at 14.5%. However, the offspring is very small, with the U6-year-olds Hedelfingen comes third with 5.2%. The third fewest people move away here are wide, in Hedelfingen the proportion of working women is the second lowest at 44.3%.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Wangen	2	Stammheim	47	Wangen	4	Botnang	61	Stammheim	-19	Untertürkheim	3
	Obertürkheim	4	Weilimdorf	45	Obertürkheim	7	Vaihingen	60	Zuffenhausen	-19	Obertürkheim	2
	Untertürkheim	5	Botnang	41	Untertürkheim	8	Stammheim	56	Plieningen	-18	Mitte	1

Accessibility of multimodal options of the environmental network	Public transport: the underground and bus services determine Hedelfingen's public transport offering. There is a direct link to the S-Bahn to Obertürkheim and Untertürkheim. Only one in six sports fields are in close proximity, but 50% of the schools and 100% of the retirement homes.	Bike: The main cycle route runs very briefly in the district of Hedelfingen. 2 bike sharing stations exist. Hedelfingen is divided into various parts of the city that lie on the hill.	Other: -
Travel options to different districts from the environmental network	Public transport: In the south to Esslingen there are only transfer connections. Two subways go to the north, which connect S-Wangen and S-Untertürkheim directly. Eastern neighbor Obertürkheim is closely connected via a bus network. S-Ost can be reached directly by subway, but the districts of Geroksruhe and Gablenberg can only be reached by changing trains. Sillenbuch is accessible via Heumaden by bus.	Bike: Obertürkheim, Wangen, Untertürkheim and Esslingen can be reached flat. The parts of the city in the south-east that can be reached by subway have hardly any increase. Only when you go to the Fildern to Sillenbuch, Kemnat, Degerloch or in the more southern parts of the south-east, there is a significant increase, which is partly reminiscent of alpine routes and because they are not always used in winter.	Other: -
Possibilities to improve multimodality	Public transport: Hedelfingen is the Ost-Bus hub in Stuttgart and should therefore make full use of its through-connection potential. In concrete terms, this means that they master the partly alpine routes by bus. It is necessary to close the gap over the alpine Speidelweg between Rohracker and Frauenkopf.	Bike: Tactically, you should proceed in Rohracker in the same way as in alpine mountain regions, either rely on electric bikes and take a mobile route in the direction of Frauenkopf in order to get to the city center from there as easily as possible. Small buses that can take bikes are rather unrealistic.	Other: -

Möhringen


Möhringen-Nord
Möhringen-Mitte
Möhringen-Ost
Möhringen-Süd
Fasanenhof
Fasanenhof-Ost
Haldenweiss
Laustraße
Dornäcker
Dachsweg
Tribergweg
Falkenstraße
Korinnaweg
Langes Hart
Lerchenfeld
Sigmaringer Straße
Trochtelfinger Straße
Weidach
Nord Süd Straße
Tailfinger Straße
Fleischhauerstraße
Fleischingstraße
Rauhenweiherstraße
Weilstetter Weg
Balingerstraße
Leiningerstraße
Laustinger Weg
Kohlhäuserstraße
Eichenstraße
Eulenstraße
Marzenbaumstraße
Pilsener Straße
Stuttgarter Straße
Kalterweg
Rohrer Straße
Jahnstraße
Schillerstraße
Schönbuchstraße
Heubrunnenstraße
Handwerkstraße
Gewerbestraße
Breitwiesen
Im Beigart
Steinenbuch
Lohäcker
In der Körsch
Stöffelweg
Machtolfweg
Korschwiesen
Spitalwald
Spitalrain
Burrlewangäcker
Burrlewang-Allee
Weibel
Kurt Schumacher Straße
Hohenweg
Laubbaumweg
Ashstraße
Pinestraße
Birchstraße
Oakstraße
Maplestraße
Spruceallee
Burrlesee
Spitzlesee
Hagelsbrunnenweg
Silcherweg
Hudelbergweg
Kesslerweg
A 8
A 81

District name	Möhringen	District parts	Möhringen-Nord, Möhringen-Süd, Möhringen-Mitte, Wallgraben-Ost, Sternhäule, Fasanenhof-Ost, Fasanenhof, Sonnenberg	residents	33306

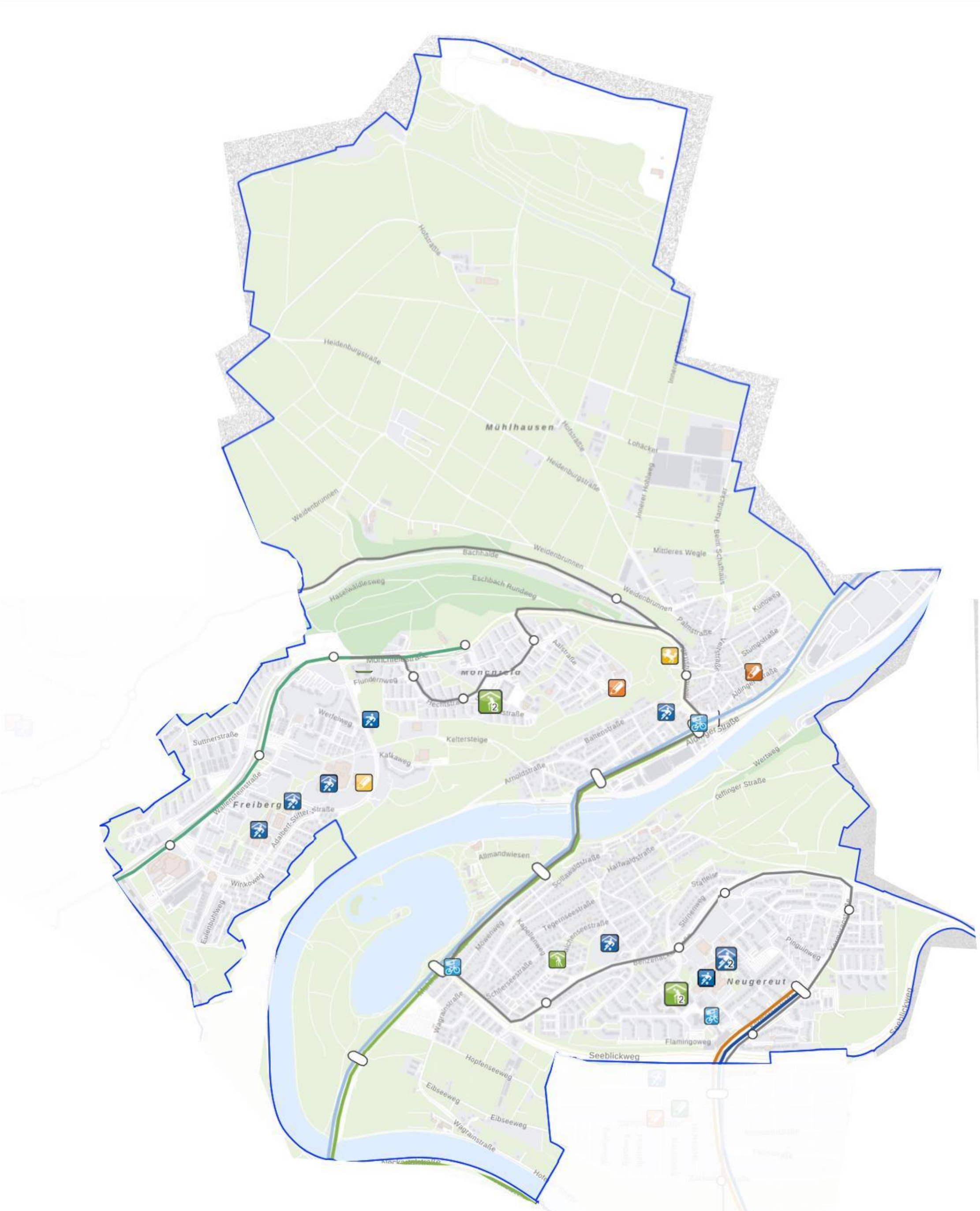
Main description of the district	Möhringen is on the Filder plain and is accessible as a business location with the subways and express buses. Möhringen has the second-highest rate of population inflow in the city, has the second-lowest unemployment rate, and the third-fastest net income growth.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Degerloch	5	Stammheim	41	Vaihingen	10	Mühlhausen	73	Botnang	-19	Mitte	4
	Vaihingen	7	Hedelfingen	37	Degerloch	12	Stammheim	62	Weilimdorf	-15	Degerloch	2
	Mitte	13	Mühlhausen	37	Birkach	17	Weilimdorf	52	Hedelfingen	-13	Feuerbach	0

Accessibility of multimodal options of the environmental network	Public transport: Without an S-Bahn, but with a strong express bus and subway network, Möhringen in Stuttgart is publicly connected. 33% of the sports areas, 63% of the retirement homes and 42% of the educational institutions are connected to public transport within a short distance.	Bike: Möhringen has two main bike routes and four bike sharing stations. The more southern Möhringen becomes, the more it flattens out.	Other: Möhringen has a local bus from Mon-Sat with four different routes, where you can get on via Winken.
Travel options to different districts from the environmental network	Public transport: S-Degerloch and S-Vaihingen are very well connected by underground. Plieningen can also be reached directly with the U3, but the city center does not have a subway. Leinfelden can also be reached directly by subway, from the Fasanenhof district the U6 runs directly to the airport. Only to S-Süd there is no direct connection,	Bike: Thanks to our own bike bridge over the Vaihinger Viaduct, most parts of Vaihingen can be reached flat. After S-Degerloch there is a slight increase of 33 meters in altitude. The terrain drops off towards Unteraichen and S-Süd.	Other: -
Possibilities to improve multimodality	Public transport: Possibilities to get to S-Süd would be a bus that could overcome a restricted path between Waldeck and Sonnenberg. The high proportion of special educational and nursing facilities in Möhringen-Nord requires public transport offers with short walking distances - direct connection lines to the S-Bahn in Vaihingen or Österfeld would make sense.	Bike: Since only low altitudes have to be mastered, bike sharing could play a more prominent role in order to go out spontaneously. Especially to the universities the wheel is competitive. Another rental in the Sonnenberg district could be worthwhile.	Other: Local bus could be integrated into the VVS as an on demand solution.

Mühlhausen



District name	Mühlhausen	District parts	Mühlhausen, Freiberg, Mönchsfeld, Hofen, Neugereut	residents	25664

Main description of the district	Located in the north-east of Stuttgart on the Neckar, Mühlhausen extends over two hills and can only be reached by subway and bus. The smallest increase in population in Stuttgart was measured in Mühlhausen, the third most pensioners live here, which explains the second highest number of deaths. 57.5% have been living there for more than 15 years, which is a top value in Stuttgart. Mühlhausen has the second highest youth unemployment in Stuttgart with 5%, it is also the second poorest district of Stuttgart in terms of net income. The third-highest increase in private cars can also be reported there.											
Mobility behavior after PsyVKN	"I can do what I want by using PT"				"I like to travel by bike"				"I can do very well in everyday life without a car"			
Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Münster	7	Plieningen	54	Münster	11	Plieningen	87	Untertürkheim	-21	Mitte	3
	Zuffenhausen	13	Birkach	49	Bad Cannstatt	21	Vaihingen	77	Obertürkheim	-17	Zuffenhausen	0
	Mitte	22	Sillenbuch	47	Zuffenhausen	22	Birkach	76	Plieningen	-17	Münster	-1
Accessibility of multimodal options of the environmental network	Public transport: S-Mühlhausen is not connected to an S-Bahn and is connected to the U-Bahn network via the U12 and U14. Buses also make the district more accessible. Only 60% of the senior citizens' facilities are directly connected to public transport, 28% of the sports areas and 33% of the educational institutions.				Bike: There are 3 bike rental stations. Topographically, Mönchsfeld and Neugereut are two hills, in the valley there is Hofen and Mühlhausen. The Neckarradweg is located there.				Other: Mühlhausen has active shipping docks.			
Travel options to different districts from the environmental network	Public transport: In the east to Aldingen and Remseck is the U12, to Zuffenhausen runs the U7 from Mönchsfeld, to the S-Bahn to Zuffenhausen there is a bus with slower frequencies. S-Münster and Bad Cannstatt-Mitte can be reached with the U14, Hallschlag with the U12 and sometimes the 54 runs "locally like" through to Sommerrain, where there is also a connection to the S-Bahn. In the east to Oeffingen there is no direct service. The U2 and U19 connect the Neugereut district with the NeckarPark and the city centre. You can only get to Kornwestheim via Aldingen or Zuffenhausen.				Bike: After S-Münster, Aldingen and Bad Cannstatt it goes straight through the Neckar. Otherwise, altitude meters must be made in the districts of Steinhaldenfeld, Oeffingen, Schmiden, Hegnach, Kornwestheim.				Other: There are two boat trips daily to Bad Cannstatt.			
Possibilities to improve multimodality	Public transport: Basically, the Fellbach districts of Oeffingen and Schmiden are top candidates for the expansion of the U2. In the short term, a bus could be taken from Max-Eyth-See via Seeblickweg to Waiblingen via Schmiden-Oeffingen. Despite the low capacity, travel times to the city center could be reduced for these communities because there are no traffic jams on these routes. In addition, a bus to Kornwestheim could help to get from Mühlhausen to an S-Bahn faster. The expansion of a subway curve between Mühlhausen and Mönchsfeld has the potential to merge subways, which would mean freedom of transfer.				Bike: The road to Kornwestheim should be protected for cyclists. Otherwise, you should consider whether you can create a largely level path past the castle to reach Mönchsfeld. Here, too, the construction of the Mühlhausen curve could have consequences. In order to improve the route to S-Münster and Bad Cannstatt, a kind of widening of the Aubrücke or an even more progressive regulation of the Hofener Straße, which is partially closed to car traffic, is needed.				Other: The introduction of a local bus in the VVS tariff, which is only allowed to break through scenic paths between Mühlhausen and Mönchsfeld, could be an option to open up peripheral areas such as the Sonnenhof. Shipping piers from S-Mühlhausen to Untertürkheim via Münster, Wasen and NeckarPark could also be a direct option.			

Münster

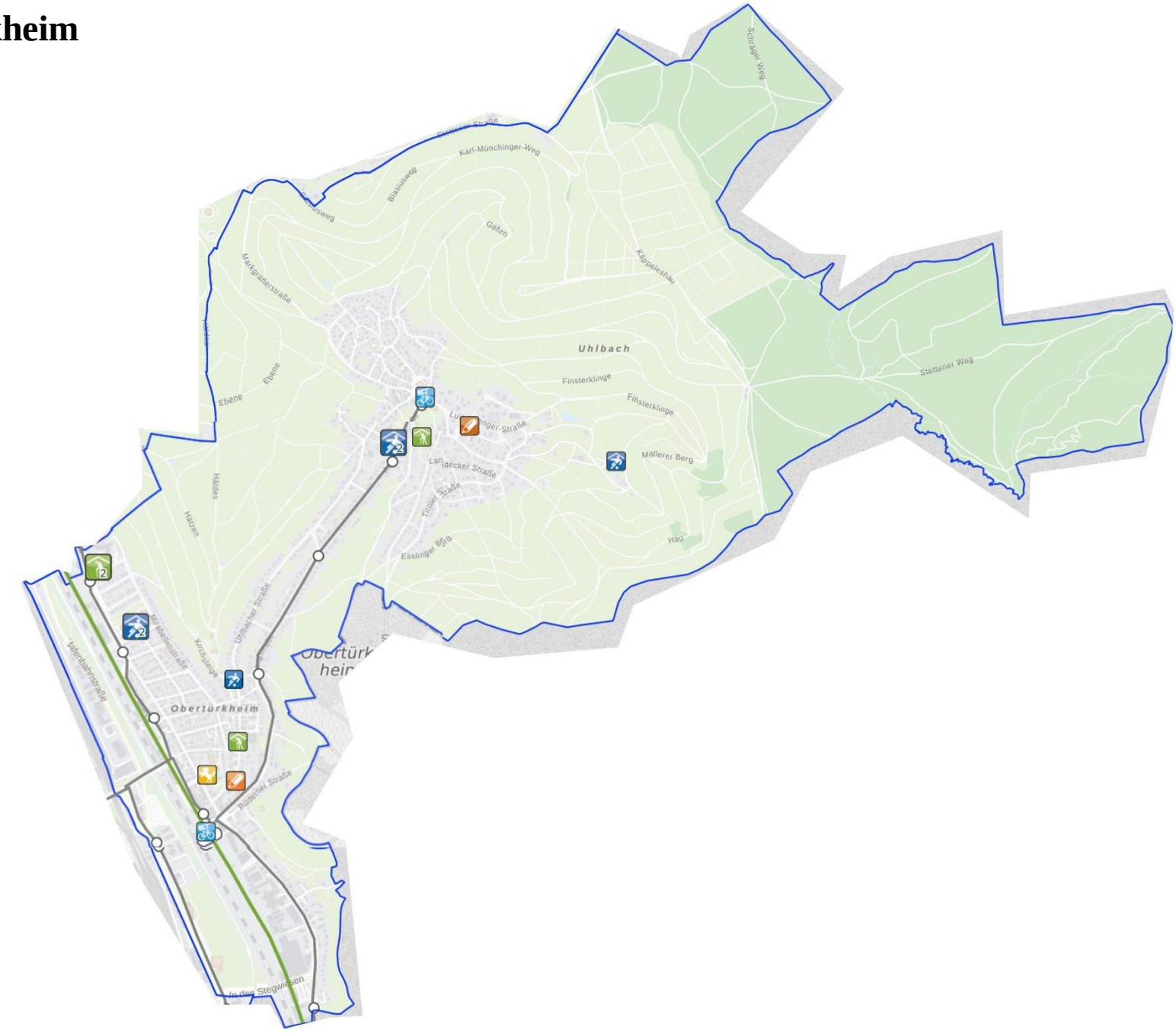

Münster
Austraße
Mainstraße
Moselstraße
Lechweg
Oderstraße
Murgtalstraße
Zuckerfabrik
Löwentorstraße
Neckartalstraße

District name	Münster	District parts	Münster	residents	6820
Main description of the district	The smallest district with the most green areas in Stuttgart is located on a small hill, surrounded by the Neckar, close to Bad Cannstatt and Mühlhausen. Not only the population, but also the living space of the apartment is the smallest proportion in Stuttgart. Münster has the lowest transition rate to high school, Stuttgart has the third highest unemployment rate at 6.4%, has the lowest number of displaced persons and has the highest density of unemployment benefit II recipients for children under 15 years of age.				
Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Mühlhausen	7	Plieningen	49	Obertürkheim	10	Plieningen	76	Obertürkheim	-21	Mitte	3
	Mitte	16	Birkach	46	Bad Cannstatt	12	Vaihingen	69	Birkach	-17	Mühlhausen	-1
	Bad Cannstatt	16	Sillenbuch	42	Mühlhausen	13	Birkach	67	Untertürkheim	-17	Feuerbach	-5

Accessibility of multimodal options of the environmental network	Public transport: Münster has the U14 on the Neckar, beyond the eight railway tracks that belong to the Schusterbahn, the U12 is less well developed in the district. A bus connection exists. Neither sports nor educational areas are in a short distance, the retirement home is only in this close distance.	Bike: The Neckarradweg crosses Münster. Bike sharing is only possible at one station, connected to a central public transport stop. Munster is on a hillside and includes vineyards from Schnarrenberg to Robinson Barracks.	Other: Münster had for a pilot project a local bus with several lines and fixed stops. The district also has non-operating shipping piers.
Travel options to different districts from the environmental network	Public transport: You can get to Cannstatt-Mitte and Neckarvorstadt with the U14, the U12 opens up the Hallschlag and then leads quickly towards the city centre. Alternatively, the 56 runs with several stops via the Hallschlag to the Neckarvorstadt. S-Mühlhauen is accessed by both subways. The north-south relation consists of a rare offer of the Schusterbahn, which opens up Zazenhausen, the Bad Cannster districts of Winterhalde and Seelberg, as well as Untertürkheim. In 60% of the neighboring districts there is no direct connection from S-Münster.	Bike: Münster core city is mostly based on the Neckar. The relation to Mühlhausen and Bad Cannstatt are flat. After Zuffenhausen in the north, Steinhaldenfeld in the east, Cannstatt districts like Hallschlag you have to cycle uphill.	Other: -
Possibilities to improve multimodality	Public transport: The expansion of the Schusterbahn is necessary nationwide for the complete integration of the Neckar districts. The connection between Münster's U14 and Schmiden Vorstadt also needs to be strengthened, since a hub with the U2 is being created here. This route can be combined with the necessary facilities for a public transport connection to the eastern districts of Im Geiger and Espan in Bad Cannstatt. The connection to an inner-city oriented S-Bahn should also be established.	Bike: The Aubrücke needs higher bike capacities with a widening of the bridge in the direction of Mühlhausen. Continuing on, the Löwentorstraße should be the fastest connection to the city center with protective strips upwards in order to be able to merge into Bottroper Straße. Between Münster and Hallschlag, another cycle connection is needed above or below the railway tracks, which makes sense in the case of a station expansion for the Schusterbahn, in order to open up this on both sides.	Other: Citizens bus could be integrated into VVS. Shipping docks could be reactivated if you want to go back to Wasen or NeckarPark, albeit via a lock.

Obertürkheim

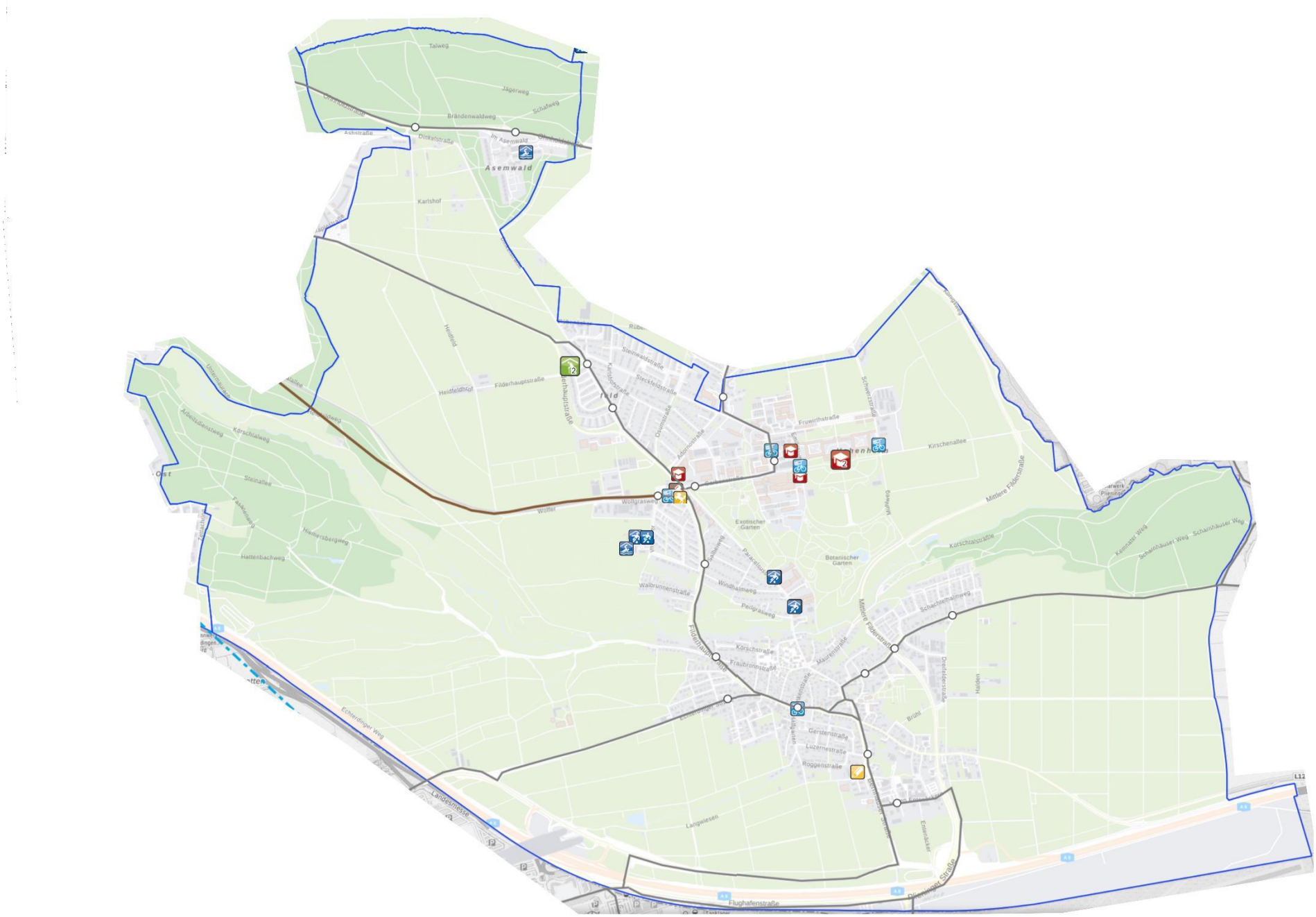


District name	Obertürkheim	District parts	Obertürkheim, Uhlbach	residents	8647
Main description of the district	As the south-eastern outskirts of Stuttgart with access to the Neckar, Obertürkheim is also on a vineyard hill. The highest percentage of children are born in Obertürkheim, there is the third lowest employment rate for women and the third highest youth unemployment in Stuttgart. Here there is the second highest growth in car density and the largest proportion of unemployment benefit recipients for U15-year-olds.				
Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Untertürkheim	3	Plieningen	42	Hedelfingen	8	Vaihingen	74	Münster	-21	Untertürkheim	6
	Hedelfingen	4	Plieningen	42	Untertürkheim	11	Botnang	62	Birkach	-17	Vaihingen	6
	Bad Cannstatt	8	Mühlhausen	37	Wangen	12	Botnang	62	Mühlhausen	-17	West	5

Accessibility of multimodal options of the environmental network	Public transport: Obertürkheim, as an outlying district, is the only one that has no subway, but it has a dense bus network and connection to the S1. There are short distances to public transport in 66% of the sports areas and retirement homes - schools to 100%.	Bike: In Obertürkheim itself you are both on the Neckar, but in order to get to parts of the city like Uhlbach, there is a very large area to master. Obertürkheim has a total of two bike sharing stations, one of which is right next to the train station. The Neckar main cycle path goes through here.	Other: -
Travel options to different districts from the environmental network	Public transport: Thanks to the S1, Obertürkheim is well connected to the city center and the upper Neckar districts. To the east, Esslingen is also well developed, including with their buses. Hedelfingen is connected by bus, from where the districts of Rohracker are also accessible. It goes directly to the airport via Sillenbuch, Birkach and Plieningen. The neighboring Untertürkheim is accessible by S-Bahn and by bus, which goes up to the Rotenberg. There is no direct connection between Uhlbach and Rotenberg.	Bike: In the east to Kernen-Stetten there is a forest path and 188 meters in altitude to master. It looks better topographically to Untertürkheim, Esslingen, Wangen and Hedelfingen, which are just accessible. Only up to the Filderhöhe to Sillenbuch would you have to climb 188 meters.	Other: -
Possibilities to improve multimodality	Public transport: Obertürkheim could be better developed in the north if the Schusterbahn is extended and expanded at least to Esslingen, as this opens up parts of Bad Cannstatt, Münster and Zazenhausen. The bus ring closure between Untertürkheim from Rotenberg to Uhlbach would also make sense. Obertürkheim would also benefit from an extension from the 62 to the U15, a first through connection to the south-east. An extension of the U4 from Untertürkheim could help to fully open up the south-east and increase the inner capacities enormously.	Bike: In order to get to Uhlbach, a road should be explicitly designed to be bicycle-friendly, so that cyclists are better protected. Guiding the Neckarradweg through the town center could help local retail and increase the attractiveness of the route due to local supply offers.	Other: Without bus extensions, there should be integrated Taxi On Demand options to get from Uhlbach in the direction of the S-Bahn.

Plieningen


Talweg
Jägerweg
Schafweg
Brandenwaldweg
Dinkelstraße
Asemwald
Karlshof
Heidfeld
Heidfeldhof
Filderhauptstraße
Steinwaldstraße
Steckfolgstraße
Karolastraße
Auchtertstraße
Fruwirthstraße
Schwarzstraße
Kirschenallee
Mittlere Filderstraße
Korschtalweg
Steinallee
Zaubenweg
Hiemersbergweg
Hattenbachweg
Wolfer
Wolfgrasweg
Exotischer Garten
Botanischer Garten
Korschtalstraße
Kemnater Weg
Scharnhäuser Weg
Walbrunnenstraße
Windhalmweg
Perlgrasweg
Schachtelhalmweg
Korschstraße
Fraubronnstraße
Maurenstraße
Drieleswiesenstraße
Gerstenstraße
Luzernestraße
Roggenstraße
Bristol
Echterdinger Weg
Landesmesse
Langwiesen
Flughafenstraße
Plieninger Straße
L12

District name	Plieningen	District parts	Plieningen, Chauseefeld, Steckfeld, Asemwald, Hohenheim	residents	13426

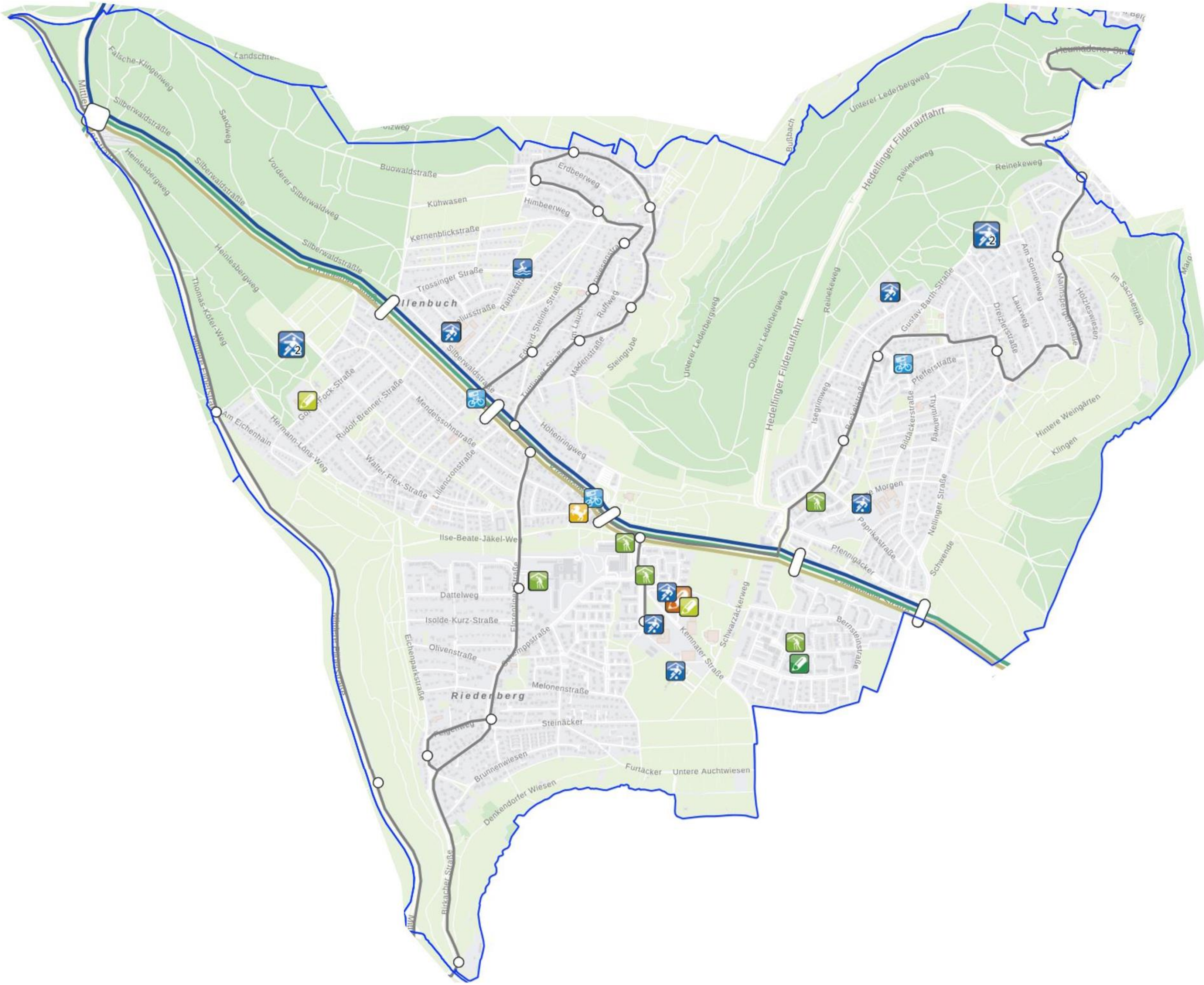
Main description of the district	The southernmost district owns shares of Stuttgart Airport and owns the University of Hohenheim. With 66%, Plieningen has the largest share of single-family houses in Stuttgart. Despite having the second-lowest proportion of people in employment, Plieningen has the second-lowest youth unemployment rate in Stuttgart at 2.2%. Plieningen has the largest proportion of open spaces in Stuttgart, the car density is decreasing.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Birkach	10	Stammheim	59	Birkach	18	Weilimdorf	81	Sillenbuch	-38	Möhringen	-1
	Möhringen	14	Botnang	57	Sillenbuch	27	Mühlhausen	79	Botnang	-36	Birkach	-2
	Degerloch	17	Mühlhausen	54	Möhringen	28	Stammheim	72	Weilimdorf	-27	Degerloch	-5

Accessibility of multimodal options of the environmental network	Public transport: The district of Plieningen is located directly on the border to the airport and the district of Esslingen. There is no sports area in the vicinity, 80% of the educational institutions and both retirement homes have short distances to public transport.	Bike: There are 5 bike sharing stations, 3 of which are concentrated at the University of Hohenheim. Plieiningen is built on a slope where Hohenheim is at the top, the town center at the level of Mittlere Filderstraße. There is a main cycle route that does not go in the direction of the city centre.	Other: -
Travel options to different districts from the environmental network	Public transport: The U3 connects the west as the only subway line. There are numerous bus connections to the north, east and south. Degerloch is developed as a hub, and there is also a direct route to Obertürkheim and Hedelfingen with the 65. Neuhausen, Nürtingen and Echterdingen can also be accessed from Plieningen. The Asemwald district is directly accessible only with Degerloch and further with the Ruhbank.	Bike: The airport tunnel, in which there is no room for bicycle traffic, was recently awarded a negative prize, despite the significantly important connection to Filderstadt in the south. Except in the south, at least 35 meters in altitude must always be mastered.	Other: -
Possibilities to improve multimodality	Public transport: After the subway to Hohenheim was constantly being rejected, Plieningen should plan a subway route towards the city center, realistically via the Königsstrasse to Degerloch. Alternatively, the Möhringen curve could open up Plieningen via Sonnenberg with its own subway. The connection to the next rail junction at the airport, which is also used as a regional train station with the S21, could save time if the footpaths are kept short and the 65 bus runs there regularly.	Bike: In addition to the necessary improvement of the airport tunnel for cyclists, a main cycle route should be created that brings Plieningen to Degerloch and can be done on flat terrain if possible. The current connection on the Königsträßle is 134 meters in altitude. That's another reason why you should make sure that there are e-bike offers here.	Other: Cable car projects from Plieningen to Degerloch are being examined and could help against surface sealing, but the capacity at the subway junctions may be too low for this.

Sillenbuch



Silberwaldstraße
Heinlesbergweg
Thomas-Kötter-Weg
Vorderer Silberwaldweg
Buowaldstraße
Kühwasen
Kernenblickstraße
Trossinger Straße
Erdbeerweg
Himbeerweg
Ruffweg
Steingrube
Unterer Lederbergweg
Oberer Lederbergweg
Hedelfinger Filderauffahrt
Reinekeweg
Gustav-Barth-Straße
Pfefferstraße
Dreizlerstraße
Hintere Weingärten
Klingen
Rudolf-Brenner-Straße
Mendelssohnstraße
Hermann-Löns-Weg
Am Eichenhain
Walter-Flex-Straße
Liliencronstraße
Höhenringweg
Ilse-Beate-Jäkel-Weg
Dattelweg
Isolde-Kurz-Straße
Olivenstraße
Eichenparkstraße
Melonenstraße
Riederberg
Steinäcker
Brunnenwiesen
Denkendorfer Wiesen
Furtäcker
Untere Auchtwiesen
Schwarzäckerweg
Kemnater Straße
Bernsteinstraße
Pfennigäcker
Paprikastraße
Nellinger Straße
Schwende
Birkacher Straße

District name	Sillenbuch	District parts	Sillenbuch, Heumaden, Riedenberg	residents	24143

Main description of the district	Sillenbuch is a wooded borough and is an attractive residential area in the Filder plain, which has historically escaped industrial designation, making it a quiet borough. It has the second-lowest share of immigrant backgrounds, as well as the highest share of retirees. It is the oldest district in Stuttgart. In Sillenbuch is the largest living space of the inhabitants and the lowest degree of supply of U3-year-olds. The transition rates to high school are in the top 3 in Stuttgart. The proportion of employed women is the second highest at 49.5%. In terms of net income, Sillenbuch is the third richest district with the second highest car density in Stuttgart.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Degerloch	8	Plieningen	50	Birkach	12	Stammheim	59	Plieningen	-38	Mitte	6
	Mitte	11	Mühlhausen	47	Degerloch	13	Weilimdorf	58	Wangen	-15	Feuerbach	2
	Möhringen	17	Münster	42	Hedelfingen	14	Mühlhausen	53	Mühlhausen	-14	Degerloch	1

Accessibility of multimodal options of the environmental network	Public transport: Subways and buses determine public transport in Sillenbuch. Only 25% of stops are in short distance for sports areas, 50% of senior facilities, 33% of educational facilities.	Bike: Sillenbuch has 3 bike sharing stations, is on the hill at the foot of the Fildern and the last corner of the Stuttgart basin.	Other: -
Travel options to different districts from the environmental network	Public transport: Sillenbuch can easily get to the Esslingen district in the east with the U7 and U8. The U7 also goes to the city center, while the partially running U8 links Degerloch. To the south-east there is the U15, which only runs to Sillenbuch during peak hours. The 65 connects Sillenbuch directly with Birkach, Hedelfingen, Obertürkheim and Plieningen.	Bike: Topographically, it goes down from the Ruhbank in all directions, in order to get there, you have to master the altitude difference. You only have to cycle back to the western districts from the Mittlere Filderstraße.	Other: -
Possibilities to improve multimodality	Public transport: It is not enough to only have low-frequency bus connections to the Fildern. In addition to setting up an express bus service, a longer subway system via Riedenberg and Birkach to Plieningen could also be considered. However, such an extension would compete with Degerloch's plans, since the city center can be accessed a bit more quickly from there. In some cases, the routes to the stops for pedestrians have to be improved, which seems necessary, especially in view of the demographics.	Bike: Fundamental expansions in the Riedenberg district should lead to an increase in the proportion of cyclists between Hohenheim and Riedenberg, which also has demographic reasons.	Other: Cable car projects between Riedenberg and Hohenheim would probably be more space-saving than subway construction, but could become scarce in terms of capacity with rather smaller subway junctions. An on-demand offer integrated into the VVS tariff would be helpful in Sillenbuch in order to reach bus stops.

Stammheim


Hube
Kleines Hüble
Emerholzweg
Häfner
Stiefelhans
Holzweg
Bei der Eiche
Egerten
Münchinger
Greut
Solitudeallee
Viehtrieb
Hornissenweg
Goldkäferweg
Zikadenweg
Tuchbleiche
Vigandstraße
Hoptigheimer Straße
Schwilkenhofstraße
Segelfalterstraße
Sally-Wiest-Straße
Langenäcker
Burrenbachstraße
Amundsenstraße
Winterhalde
Waldweinberg
Güglingweg
Stammheim-Süd
In den Weinbergen
Marco-Polo-Weg
Heutingsheimer Straße
Rasmussenweg
Scottweg
In den Hochwiesen
Schwieberdinger Straße

District name	Stammheim	District parts	Stammheim-Süd, Stammheim-Mitte	residents	12475

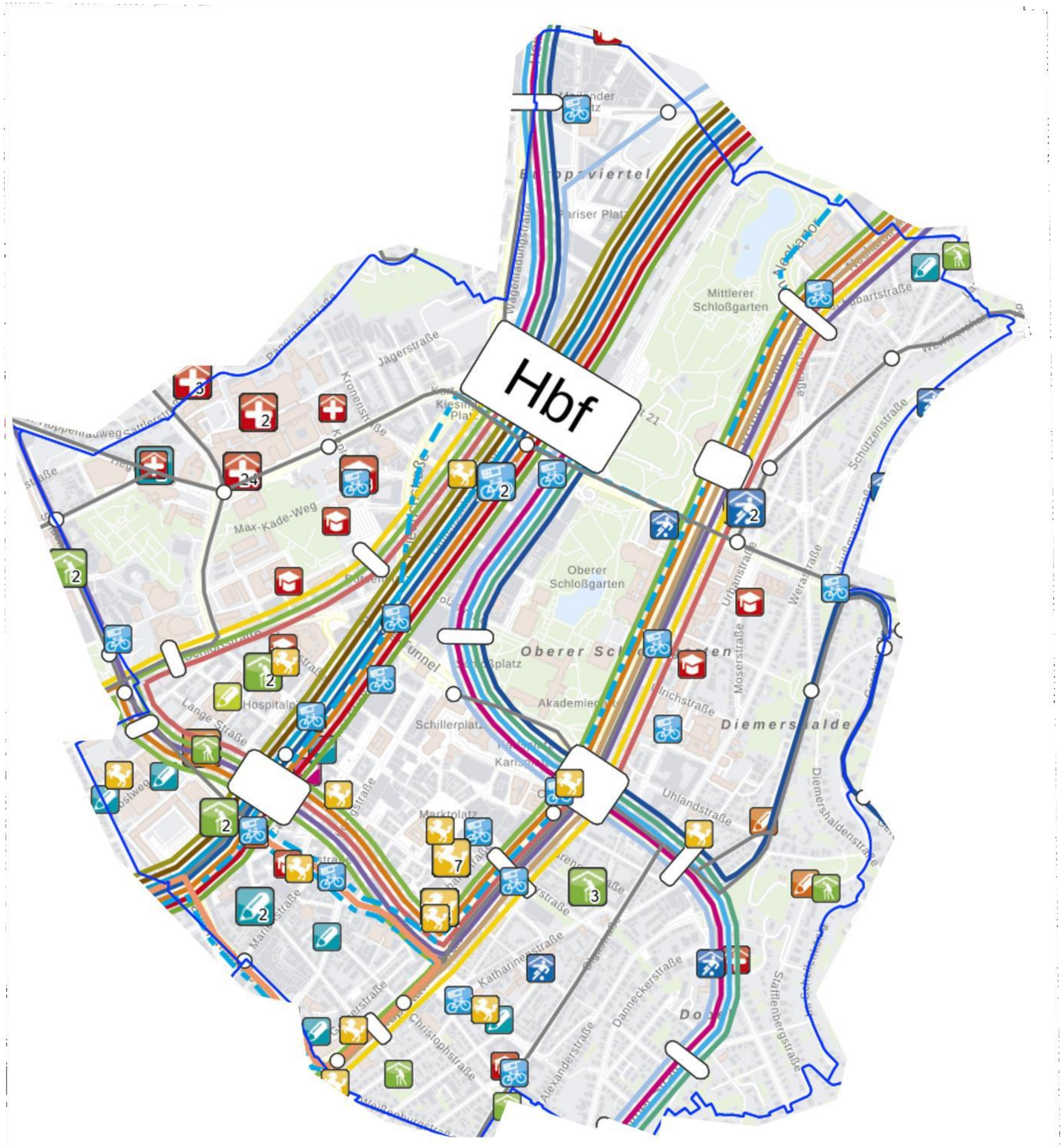
Main description of the district	Stammheim is the northernmost district of Stuttgart and is characterized by industrial areas. Connected to the U15 there is a direct connection to the city. The best known is the prison on the outskirts of town. For a suburb, Stammheim is quite young. The natural balance is even positive. Stammheim has the highest number of kindergartens in all of Stuttgart, and the transition rate to secondary school is higher than average. The district has the fourth lowest youth unemployment rate. The car density is highest in Stammheim in percentage terms, but a decrease of 1.5% is visible.

Mobility behavior after PsyVKN												
	"I can do what I want by using PT"				"I like to travel by bike"				"I can do very well in everyday life without a car"			

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Zuffenhausen	7	Plieningen	59	Zuffenhausen	13	Plieningen	77	Botnang	-26	Zuffenhausen	8
	Mitte	24	Birkach	53	Feuerbach	19	Birkach	76	Plieningen	-24	Mitte	-1
	Feuerbach	24	Botnang	52	Mühlhausen	24	Möhringen	74	Birkach	-20	Degerloch	-3

Accessibility of multimodal options of the environmental network	Public transport: The U15 runs through Stammheim as a central axis through the district, which 98 tries to connect all parts of the city to it, 412 goes to Pattonville, the 508 to Ludwigsburg. All sports areas, the school and senior citizens' facilities are not in the vicinity of public transport.	Bike: There are 2 bike sharing stations near the subway. There are no main cycle routes.	Other: -
Travel options to different districts from the environmental network	Public transport: Stammheim reaches the north of Kornwestheim by bus 412. In the west there is no longer a direct connection to Kallenberg, which belongs to Korntal-Münchingen. The entire city of Korntal-Münchingen can only be reached via the S-Bahn, which can only be reached from Stammheim by bus 99. The east with Zazenhausen and the south can only be accessed by changing trains in Zuffenhausen.	Bike: It goes slightly downhill in all directions, up to Kallenberg and Korntal, where a small increase of 33 meters in altitude has to be mastered. You drive down to Zazenhausen and Mühlhausen in the east without an increase.	Other: -
Possibilities to improve multimodality	Public transport: In principle, it is possible to significantly reduce the travel times from Stammheim by public transport without major infrastructure expansion. A short, fast connection to Kornwestheim station is crucial: expanding the Schusterbahn to the S-Bahn from Kornwestheim reduces travel times to all Neckar districts and Zazenhausen immensely. It would also be technically possible to run a tangential north branch directly from Kornwestheim via the Black Forest Railway, which could reduce travel times to Korntal and Weilimdorf, even if this can be viewed critically in terms of capacity.	Bike: The Freihofstraße should be fundamentally better aligned for cycling. In order to get to the other side of the B27, there should be a special wheel guide that could further speed up travel times to Mühlhausen.	Other: -

S-Mitte


Hbf
Mittlerer
Schloßgarten
Oberer
Schloßgarten
Max-Kade-Weg
Jägerstraße
Schillerplatz
Marktplatz
Lange Straße
Uhlandstraße
Urbanstraße
Moserstraße
Werastraße
Schützenstraße
Diemershaldenstraße
Staffenbergstraße
Danneckerstraße
Alexanderstraße
Christophstraße
Katharinenstraße

District name	Mitte	District parts	Oberer Schlossgarten, Rathaus, Neue Vorstadt, Universität, Europaviertel, Hauptbahnhof, Kernerviertel, Diemershalde, Dobel, Heusteigviertel	residents	24129

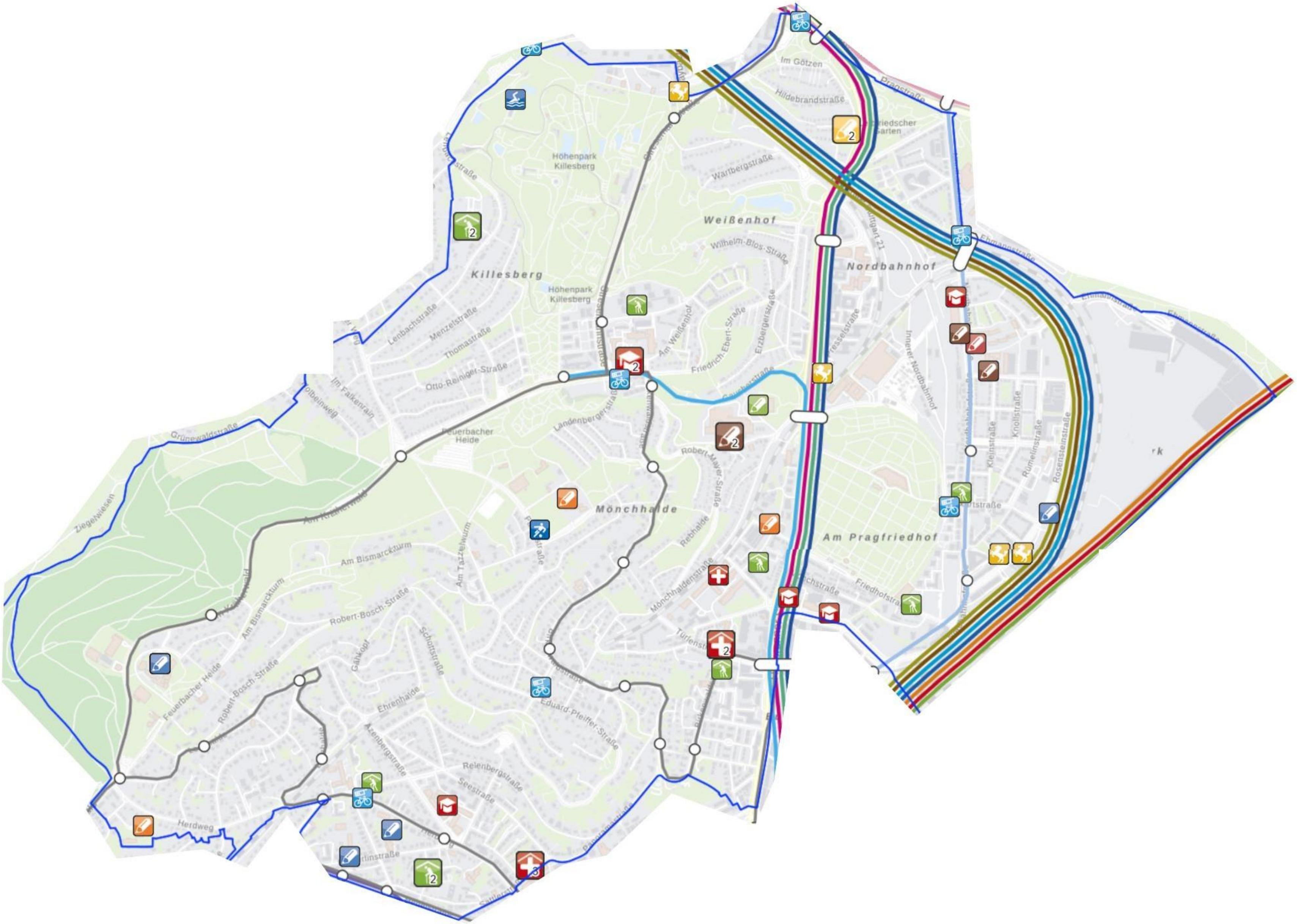
Main description of the district	Mitte is the historic core of Stuttgart with numerous political administrative buildings, palaces, shopping streets and the main train station. The district is being completely renovated and statistically has top values in almost every area: No. 1 is the district with the strongest population growth, residents of working age, single-person households, the proportion of apartments, employees, youth unemployment. In Mitte, the car density is 33.9% lower than the average for Stuttgart, and the decline is the highest at 8.2%. The open spaces in Mitte are of course the smallest.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Süd	3	Plieningen	30	Süd	8	Plieningen	50	Plieningen	-9	Degerloch	7
	West	6	Stammheim	24	West	8	Vaihingen	42	Birkach	-3	Feuerbach	7
	Ost	7	Mühlhausen	22	Ost	14	Stammheim	40	Botnang	-2	Sillenbuch	6

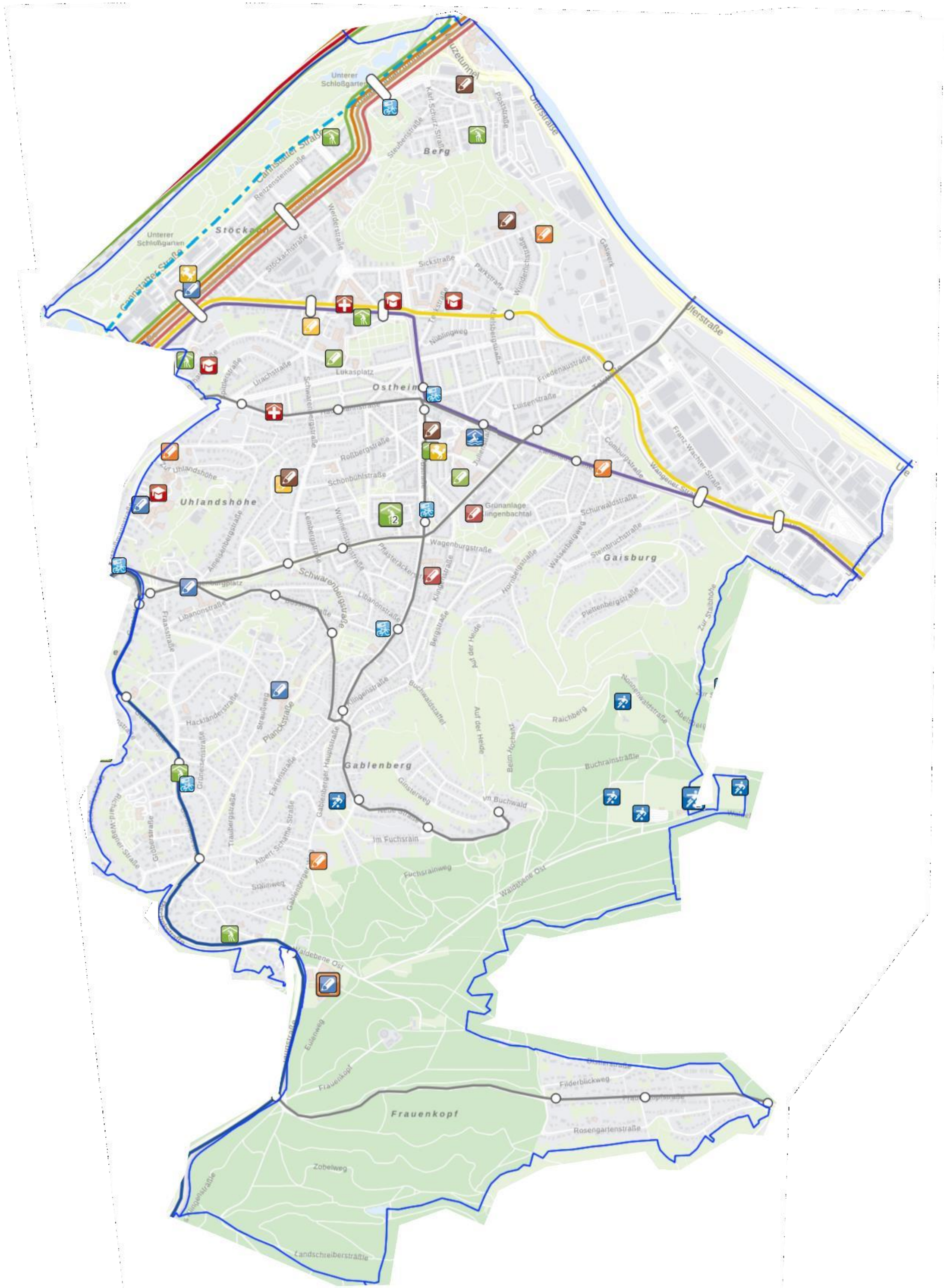
Accessibility of multimodal options of the environmental network	Public transport: The biggest point of criticism is that the main station is significantly separated from the rest of the public transport due to the construction work. All connections are bundled in S-Mitte, Charlottenplatz is the transshipment point, which is extremely complicated and is by no means an easily accessible relocation hotspot due to its many stairs. 85% of the educational institutions and care facilities reach public transport under 300 meters, sports areas 100%.	Bike: 20 bike sharing stations, especially in the city ring, the highest number. A main cycle route runs through S-Mitte.	Other: -
Travel options to different districts from the environmental network	Public transport: You can easily get to all districts from S-Mitte. To S-West, Bad Cannstatt with the S-Bahn. To S-Süd, S-Ost and S-Nord with the subway. The connections to S-Nord are slightly deficient, since this is largely covered by bus traffic.	Bike: Bad Cannstatt is the only place where the topography is flat, otherwise you have to drive up the hill in all respects.	Other: -
Possibilities to improve multimodality	Public transport: The main station will be the better hub in the future because Charlottenplatz is too complicated to change trains. In the case of a terminus station, a pedestrian overpass should be planned, which connects all platforms from Budapester Platz and then continues into the Schlossgarten in order to reach the Neckartor underground station.	Bike: Despite a super dense bike-sharing network, there should be a lot more cargo bikes right in the retail-heavy city center so that shopping can be done in an environmentally friendly way.	Other: -

S-Nord


Im Götzen
Hildebrandstraße
Wartbergstraße
Höhenpark Killesberg
Weißenhof
Wilhelm-Blos-Straße
Nordbahnhof
Killesberg
Höhenpark Killesberg
Lenbachstraße
Menzelstraße
Thomastraße
Otto-Reiniger-Straße
Friedrich-Ebert-Straße
Landenbergerstraße
Feuerbacher Heide
Grünewaldstraße
Robert-Mayer-Straße
Mönchhalde
Am Pragfriedhof
Ziegenwiesen
Am Bismarckturm
Robert-Bosch-Straße
Feuerbacher Heide
Mönchhaldenstraße
Eduard-Pfeiffer-Straße
Ehrenhalde
Azenbergstraße
Relenbergstraße
Seestraße
Herdweg
Rosensteinstraße
Kleinstraße
Knollstraße

District name	Nord		District parts	Relenberg, Lenzhalde, Am Bismarckturm, Killesberg, Weißenhof, Nordbahnhof, Am Pragfriedhof, Am Rosensteinpark, Auf der Prag, Mönchshalde, Heilbronner Straße			Inhabitants	27727				
Main description of the district	Architecturally, North has a UNESCO World Heritage Site via the Weißenhofsiedlung and is surrounded by railway facilities, service industries and residential areas halfway up, and includes the Killesberg green area. S-North has the oldest downtown district and has the third highest emigration balance. The U3-year-olds have the highest level of coverage, and for all other children, Nord is always in the top 3. Nord is the richest district in terms of net income, but has the highest car density of any inner-city district.											
Mobility behavior after PsyVKN	"I can do what I want by using PT"				"I like to travel by bike"				"I can do very well in everyday life without a car"			
Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Mitte	8	Plieningen	43	Feuerbach	7	Plieningen	66	Botnang	-19	Degerloch	4
	Feuerbach	11	Hedelfingen	37	Zuffenhausen	11	Birkach	57	Hedelfingen	-16	Mitte	3
	West	15	Birkach	34	Mitte	14	Möhringen	54	Plieningen	-16	Sillenbuch	0
Accessibility of multimodal options of the environmental network	Public transport: S-Nord is the inner-city district that has the fewest public transport options. The district lives mainly from bus connections, only at Pragfriedhof and Nordbahnhof there is underground and S-Bahn traffic. 75% of the schools can be reached with short distances, 85% of the senior citizens' facilities, 45% of the sports areas. Relenberg and Mönchalde are not accessible from each other.				Bike: There are 6 bike sharing stations, most of which are at bus stops, some of which are in between in residential areas. There is a main bike path.				Other: -			
Travel options to different districts from the environmental network	Public transport: The subway provides connections to S-Mitte and S-Ost. The U12 goes to Hallschlag to Bad Cannstatt, the core area of which cannot be reached from S-Nord without changing trains at the Pragsattel. The public transport separation from Relenberg and Mönchhalde has only one relation, 40 in Vogelsang, 43 to the Pragsattel. To S-Ost is limited to bus 40 and 42, otherwise there are only connections from S-North.				Bike: S-North belongs to a hill of the boiler. In principle, therefore, descending cycling distances are expected, only district-internal vertical meters have to be cycled until it goes down, e.g. to get to Feuerbach or Bad Cannstatt. To the S-West it goes at ground level, to the S-East the other side of the hill begins.				Other: -			
Possibilities to improve multimodality	Public transport: For an inner-city district, S-Nord has too few public transport offers, despite the sometimes more frequent bus frequency. The construction of a north cross, which gives a direct connection to Bad Cannstatt, would be a regional upgrade. For the south-east connection, a short link could be made via Wolframstraße from the city library				Bike: The main cycle path could be made larger on the Nordbahnhofsarasse. On Herdweg, where there are several schools and a sloping area in the direction of S-Mitte, a bicycle rental station would be worthwhile to get better access to rail public transport. Due to its educational importance for micromobility, the Herdweg itself could also be significantly upgraded through measures that favor bicycles.				Other: -			

S-Ost



Berg
Stöckach
Ostheim
Uhlandshöhe
Gaisburg
Gablenberg
Frauenkopf

District name	Ost	District parts	Gänsheide, Uhlandshöhe, Stöckach, Berg, Ostheim, Gaisburg, Gablenberg, Frauenkopf	Inhabitants	48929

Main description of the district	S-Ost is characterized by workers' settlements and industrial areas on the Neckar. It lies topographically on the edge of the basin and also pulls it up. The third most residents live here, as well as the third most families. More and more people are moving to the south-east, they have the largest proportion of people who have lived for more than 15 years in the inner city area. East is the poorest inner-city borough by net income, has average high school transition rates. East has the third lowest car density in Stuttgart, which is about 11% lower than the average.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Mitte	7	Plieningen	44	Bad Cannstatt	10	Plieningen	54	Plieningen	-23	Mitte	4
	Untertürkheim	11	Birkach	35	Mitte	11	Plieningen	54	Birkach	-19	Untertürkheim	0
	Süd	13	Stammheim	35	Wangen	12	Weilimdorf	51	Stammheim	-13	Feuerbach	-1

Accessibility of multimodal options of the environmental network	Public transport: S-Ost has no S-Bahn connection, just a wide bus and subway network. More than two thirds of the sports areas can be reached in the near distance, only 22% of the senior citizens' facilities, 42% of the educational facilities. The hospital has a subway station for this.	Bike: There is an important main cycle route in the castle garden. S-Ost is on the edge of the basin, which is why the district is hilly. It has 6 bike sharing stations, 4 of which are at public transport stops.	Other: -
Travel options to different districts from the environmental network	Public transport: Due to its double subway connection, S-Ost has optimal connections to the Neckar districts and to S-Mitte, S-Süd and S-West. To S-Nord there are only bus options with the 40, 42 via the main station, otherwise change at Charlottenplatz. The underground lines from Berg and Stöckach also go to Bad Cannstatt, otherwise the through connection is limited to bus 45. The U15 runs directly to Sillenbuch in the afternoon, otherwise you have to change at the television tower.	Bike: After S-Mitte and Bad Cannstatt you mostly have to ride downhill. S-South may already have slight inclines, especially as you drive further into the borough. To S-North it also goes up topographically with detours. After Wangen you drive down parallel to the subway and due to a one-sided car blockade, it is often faster.	Other: -
Possibilities to improve multimodality	Public transport: The valley road, which leads quickly to Bad Cannstatt, could have an additional public transport connection. For example, the NeckarPark could be connected to S-Ost by subway, or a new bus could run directly to the main train station via the second tube of the Wagenburg tunnel. A link to S-Nord between Stöckach and the city library should also be considered. In the future, connectivity to the regionally operating S-Bahn should again be provided by a subway connection to the main station. The further away the senior citizens' facilities are from stations, the more protected and free of obstacles the footpath must be - e.g. over elevated footpaths with right of way, such as at the Bubenbad.	Bike: A cycle and footbridge from Stöckach to the Europaviertel with a connection to the main station would have great potential to save distances and also reduce the risk of getting stuck in traffic. Another bike station should be introduced at the U15 stop "Stelle" and, among other things, the Gänsheidestraße should be made more attractive for bicycle traffic in the direction of Degerloch.	Other: Cable car planning could play a role in S-Ost, because this has clear traffic flows with high capacities on both sides with NeckarPark and S-Mitte and could represent a hub with the U15 in S-Ost. For the ideal, however, there is no direct subway connection to Degerloch, a real node at NeckarPark and, in particular, sympathy among the population for such a cable car project. A cable car would also be an option to S-Nord as a link to the main station, but here a route through residential areas would be necessary and therefore less likely to be implemented.

S-Süd


Südheim
Kaltental
Weinsteige
Neue Weinsteige
Hohlinger Straße
Reitweg
Blockhüttenweg
Saubuckelweg
Fuchsweg
Reisenenwald
Mauswegle
Bihlerstaige
Burgstallstraße
Winterhaldenweg
Karl-Kloß-Straße
Hestlacher Kuhn
Grünzug Eiernest
Tulpenstraße
Theaterweg
Olgaweg
Charlottenweg
Eugenweg
Kaltentalweg
Weinhaldenstraße
Oberes Bopserstraßchen
Neue Weinsteige
Schwabstraße
Tübinger Straße
Mühlhaldenweg
Hahnstraße
Keltenstraße
Eisterweg
Baumruste
Hasenstraße
Gebeisbergstraße
Rosenbergstraße
Rosenmeute
Wannenstraße
Humboldtstraße
Hohenzollernstraße
Marktstraße
Friedrich-Wenz-Weg
Zeppelinweg
Burgstraße
Schlittenbahn
Vogelrainweg
Dachswaldweg
Rohrackerstraße
Hummelwiesenweg
Enzerboldstraße
Feldbergstraße
Alte Straße
Schwarzwaldstraße
Rohrackerweg
Kaiserstraße
Zeppelinstraße
Lerchenstraße
Zeilerstraße
Klarastraße
Absenbergstraße
Muhrstraße
Hauffweg
Sonnenbergstraße
Rotsteinweg
Dobelstraße
Hutbaum
Lehenstraße
Im Unteren Kiesle
Am Burgholz
Z'n Schlumpeche
Wermhaldenstraße
Sülzhaldenweg
Melitta-Bentz-Straße
Bopserwaldstraße
Bopserstraße

District name	Süd	District parts	Bopser, Lehen, Weinsteige, Karlshöhe, Heslach, Südheim, Kaltental	Inhabitants	44227

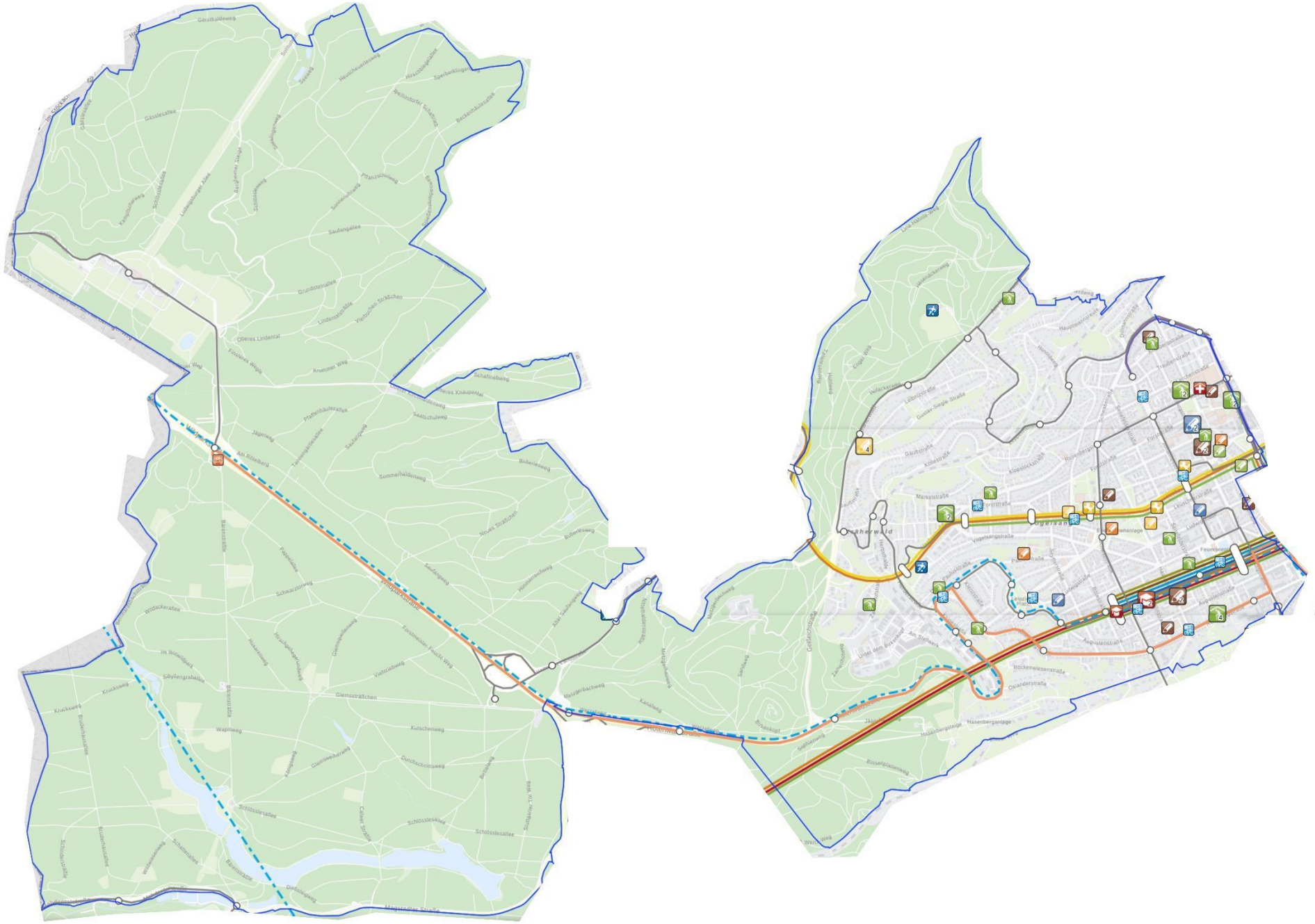
Main description of the district	The south is closely connected to the city center, has a good hospital infrastructure, a cog railway and, with Marienplatz, a popular place to stay. The second-lowest proportion of retirees and the second-highest proportion of the employed population reflects the typical demographics of an inner-city borough. At 14.3%, the emigration balance is clearly visible. The proportion of births is in the top 3 in Stuttgart, the density of U15 recipients of unemployment benefits is lowest. S-Süd is the second most densely populated and has a 9.9% lower car density than Stuttgart as a whole.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Mitte	3	Plieningen	34	West	6	Plieningen	55	Plieningen	-16	Mitte	5
	West	3	Plieningen	34	Mitte	7	Birkach	48	Weilimdorf	-12	Feuerbach	3
	Degerloch	10	Mühlhausen	31	Ost	18	Mühlhausen	41	Birkach	-8	West	2

Accessibility of multimodal options of the environmental network	Public transport: S-Süd is not connected to the S-Bahn network. Kaltental only has a connection to the U1 and a bus at Waldeck. 90% of the sports halls reach public transport with short distances, but educational institutions only 33% - inner city low.	Bike: 8 rental stations exist. Kaltental is over-represented with 3, the district is the highest. Main cycle route 1 leads through S-Süd.	Other: The cable car and rack railway are two options that are integrated in the VVS. There is also a MTB route that ends in the south.
Travel options to different districts from the environmental network	Public transport: There are subways to S-Mitte, currently no connection to the main station. To the S-East there are subways with transfers, Vaihingen is served by the U1 and bus 82, S-West with numerous bus tangencies and the U34. Degerloch is accessed with the Zacke, alternatively you can change to the subway. There is no topographical public transport solution between S-Süd and Möhringen without changing trains - bypasses are necessary via Vaihingen or Degerloch.	Bike: From S-Süd to S-Mitte you always have to master hills. S-Süd is in the Nesenbachtal.	Other: The cable car to the forest cemetery and the cog railway are two tangents to Degerloch.
Possibilities to improve multimodality	Public transport: considerations of laying an underground train from Erwin-Schöttle-Platz via the Schwab tunnel would only make sense if the Schwabstraße were to form a ring. A bus line could be installed between Waldeck and Sonnenbeg over a restricted path in order to improve the S-Süd-Möhringen relation. Even more likely is a connection from the forest cemetery directly to Degerloch via bus 41.	Bike: The Karl-Kloss-Straße could become an important bike connection that leads to today's bike path through the forest without frills.	Other: -

S-West



District name	West	District parts	Kräherwald, Hölderlinplatz, Rosenberg, Feuersee, Rotebühl, Vogelsang, Hasenberg, Wildpark, Solitude	Inhabitants	52777

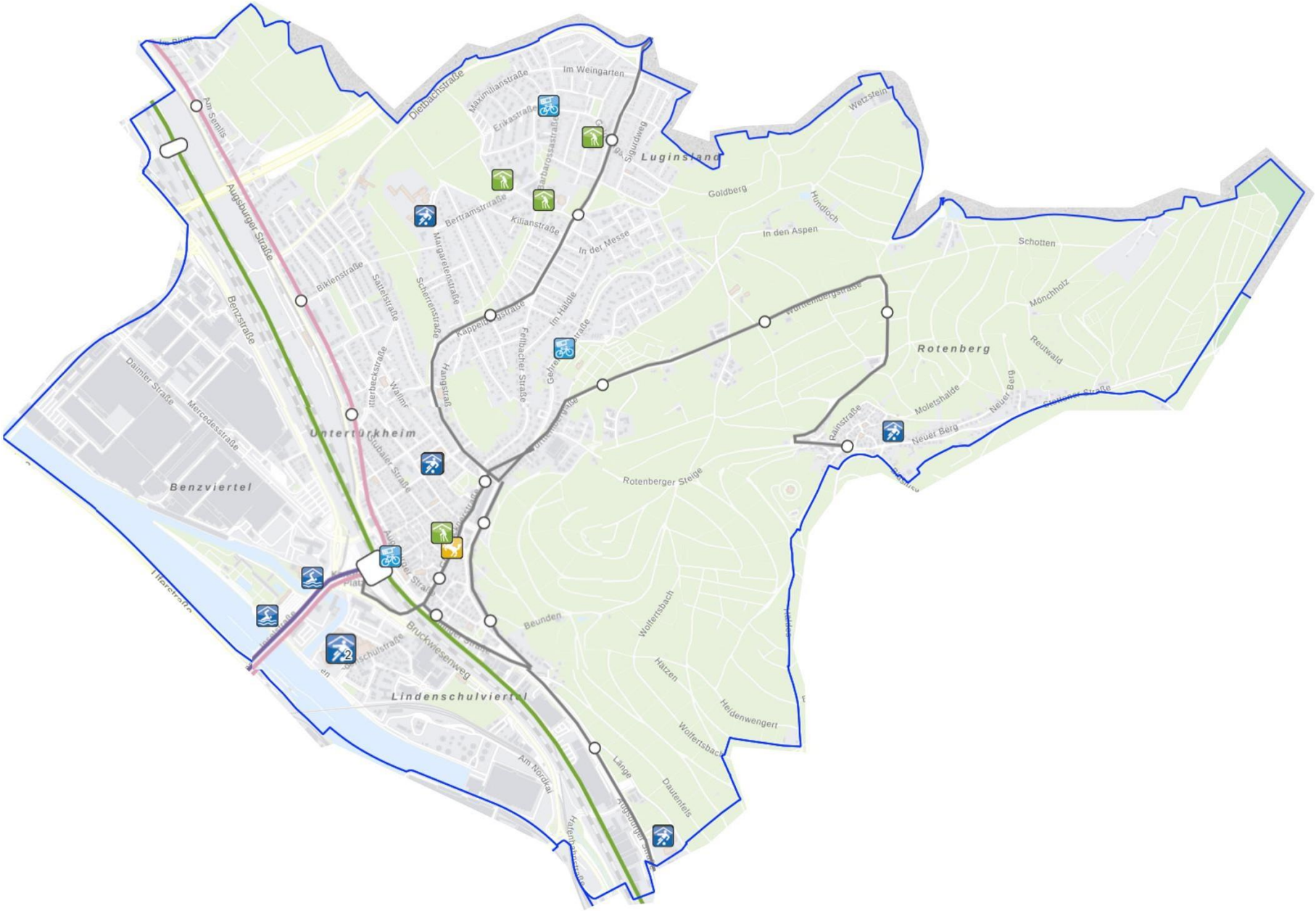
Main description of the district	S-West is the largest inner city district in terms of area, which is accessible via the S-Bahn and also opens up many forest areas in the west. West Stuttgart has the second most residents in Stuttgart and has the second highest proportion of 18 to 65 year olds. Here is the second highest proportion of families with children under the age of 18. The dense population also means the second lowest proportion of single-family homes. It has the highest proportion of employed persons and the third lowest unemployment rate at 3.6%. S-West has the second lowest car vehicle density and the second highest decline in car ownership.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Süd	3	Plieningen	35	Süd	5	Plieningen	53	Plieningen	-13	Vaihingen	8
	Mitte	6	Birkach	32	Mitte	8	Birkach	46	Birkach	-12	Bad Cannstatt	7
	Bad Cannstatt	7	Stammheim	30	Bad Cannstatt	19	Stammheim	41	Münster	-9	Untertürkheim	7

Accessibility of multimodal options of the environmental network	Public transport: The west achieves high accessibility everywhere with many routes. The accessibility for the Westbahnhof as well as for the Kräherwald is limited to the bus. On the other hand, schools and sports areas achieve top values of 100% near distance, senior facilities 91%.	Bike: S-West is a very hilly district. There is the main cycle route F at the Kräherwald. Otherwise, the district has nine bike-sharing locations. Between Hölderlinplatz and Feuersee there is one that is currently also seen as a ring closure function.	Other: -
Travel options to different districts from the environmental network	Public transport: S-West probably has the most public transport options, but they have different levels of accessibility at the same time. At the U-Bahn, Botnang is connected to the Vogelsang and S-Mitte. In addition to several tangential bus lines, the U34 reaches S-Süd directly. There is no public transport connection to Weilimdorf, which also has a border at Solitude, but there is an S-Bahn to Vaihingen. From the Kräherwald the public transport travel times are significantly longer and the options are only limited to the bus going to S-Nord.	Bike: The hill ensures that there are different topographical conditions for bike connections depending on the location. S-Mitte goes downhill, to the S-Süd the Schwab tunnel or the Karlshöhe bypass to Marienplatz is the only shallow breakthrough possibility. After Vaihingen you will be guided over the Pfaffensee, where many meters of altitude have to be mastered.	Other: -
Possibilities to improve multimodality	Public transport: It is also possible for West itself to use the Wildparkstraße in order to develop Weilimdorf. In principle, the Kräherwald must be better connected to the S-Bahn. For this, the congested 40 to the main station can be prioritized and the 50 can be extended to the university via Geißeichstraße. Opportunities to reactivate the Westbahnhof depend particularly on whether the Gäubahn remains connected to the main station. A U4 extension via Schwabstrasse could increase connectivity within the borough. To S-Nord you could connect the bus lines to Pragstattel.	Bike: Due to the high density of bicycles in the district, it can be worth planning a large tangential to the south. A redesigned Schwabstraße is also relevant for cycling.	Other: -

Untertürkheim



District name	Untertürkheim	District parts	Gehrenwald, Flohberg, Untertürkheim, Benzviertel, Lindenschulviertel, Bruckwiesen, Luginsland, Rotenberg	residents	16729

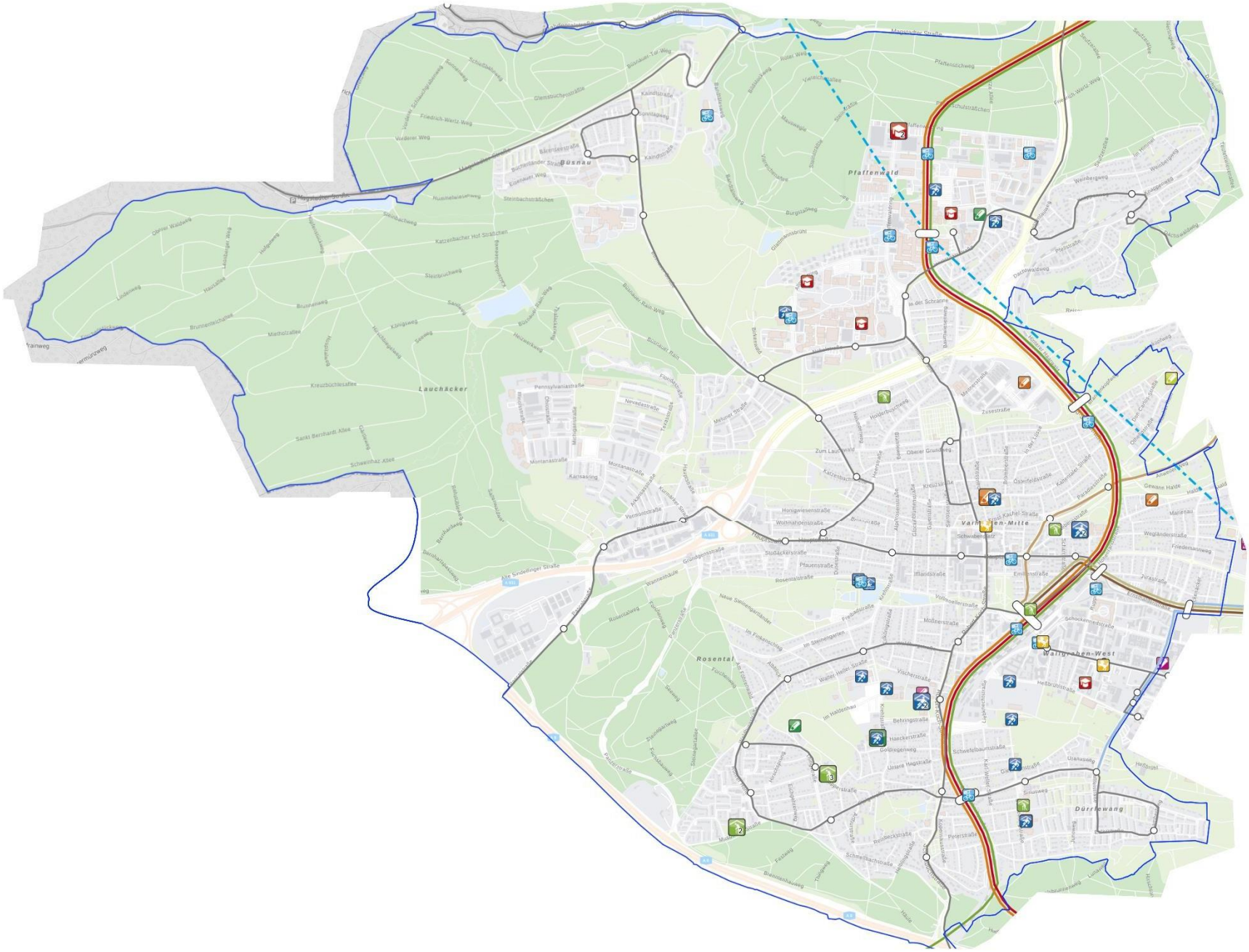
Main description of the district	Untertürkheim is the industrial center of Stuttgart, lies on the Neckar and is surrounded by vineyards on the Rotenberg. The second-highest proportion of people moving away is here, the lowest proportion of caring for kindergarten children and under-3s is here. Untertürkheim has the third-highest proportion of employed people in Stuttgart. The slightly increased car density is constant, the living space is rather small.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Obertürkheim	3	Plieningen	45	Wangen	5	Vaihingen	68	Mühlhausen	-21	West	7
	Wangen	3	Birkach	40	Hedelfingen	10	Möhringen	63	Plieningen	-18	Vaihingen	7
	Bad Cannstatt	5	Möhringen	37	Obertürkheim	11	Plieningen	62	Münster	-17	Obertürkheim	6

Accessibility of multimodal options of the environmental network	Public transport: In Untertürkheim there are both U-Bahn and S-Bahn connections and buses are used for remote areas. Sports areas are 100% in close proximity, albeit only on buses outside the Lindenschulviertel. Schools are also covered in the local area. The peripherally located senior citizens' facilities also have a bus connection.	Bike: There are three rental stations, two of which are in residential areas without stops. Untertürkheim has a hillside location. There is the Neckar-Rad main cycle route, but it branches off in front of the Neckarhafen via the Lindenschulviertel.	Other: -
Travel options to different districts from the environmental network	Public transport: The S-Bahn mainly connects Untertürkheim with the city centre, Bad Cannstatt and Obertürkheim. The two subway lines also allow good connections to Wangen and Hedelfingen, as well as south-east. Bus connections still go to the Rotenberg and to Obertürkheim.	Bike: The only way to get to the north by bike is via the slope at Luginsland. Otherwise it is mostly flat in the neighboring districts. Except for a footbridge and the underpasses at the station, there are difficulties to get across the railway tracks.	Other: -
Possibilities to improve multimodality	Public transport: The permanent use of the Schusterbahn could significantly reduce the connection times to Münster and Zazenhausen. A bus connection between Mercedes-Benz-Welt and Untertürkheim Bf could also lead to shorter distances at NeckarPark. A ring bus could be introduced between Untertürkheim, Rotenberg, Uhlbach and Obertürkheim via Markgräflerstraße, which would also be used for tourist purposes.	Bike: A pedestrian and bicycle underpass at NeckarPark would have the capacity to connect "Blick" to the S-Bahn via an underpass and, in particular, to massively accelerate cycle routes from Remstal to NeckarPark. Running the Neckar cycle path on the Neckar side via the oil port would bypass the crossing at Karl-Benz-Platz. The connection to Cannstatt via Augsburger Straße should be given a protective strip for cyclists.	Other: -

Vaihingen



District name	Vaihingen	District parts	Vaihingen-Mitte, Österfeld, Höhenrand, Wallgraben-West, Rosental, Heerstraße, Lauchäcker, Dachswald, Pfaffenwald, Büsnau, Rohr, Dürrlewang	residents	46132

Main description of the district	Vaihingen is located in the west of Stuttgart, which can open up Filderebene and Kessel. It is located close to the motorway junction and includes a regional train station for the south of Baden-Württemberg. Vaihingen has the third-highest coverage rate for under-3-year-olds, the third-lowest unemployment rate and the third-highest proportion of insured persons. Vaihingen has the second highest number of passenger cars, which is only slowly declining. Otherwise there are no statistical outliers.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Möhringen	7	Stammheim	42	Möhringen	9	Stammheim	62	Botnang	-17	Bad Cannstatt	8
	West	10	Münster	39	Degerloch	19	Mühlhausen	61	Weilimdorf	-17	West	8
	Degerloch	13	Mühlhausen	39	Süd	24	Obertürkheim	56	Plieningen	-12	Untertürkheim	7

Accessibility of multimodal options of the environmental network	Public transport: Vaihingen has a regional train station, where several underground trains also end. A dense bus network is characteristic, which is maintained between Dürrlewang, Rohr, Lauchhau, Büsnau and the university. However, the accessibility of stable public transport offers is significantly less in the western part than in the center, where the frequencies are much more frequent. 80% of educational facilities have short distances, senior citizens' facilities 71%, and sports facilities only 60%.	Bike: With 11 bike sharing stations, Vaihingen is the front runner when it comes to bike rental. They operate at bus stops, universities and sparsely populated parts of the city. There are two main cycling routes.	Other: -
Travel options to different districts from the environmental network	Public transport: Several S-Bahn trains run both to the S-West and in the direction of Leinfelden. Möhringen is continuously served by two branches with three subways. To S-Süd there is both the U1 and a bus over the Dachswald. Sindelfingen in the west can be reached with the 84 bus.	Bike: Small hills have to be mastered within Vaihingen, otherwise it is mostly flat. To S-Süd you drive downhill. You only have to drive up a steeper slope from Rohr in the direction of Oberaichen.	Other: -
Possibilities to improve multimodality	Public transport: The west should be better developed, for which there are several political options. Rohr could benefit from a subway extension via Waldburgstraße in the direction of Möhringen and Degerloch, but would then have double service due to its circular structure. Due to the high population density, subway stops along the main road to the patch barracks would have great potential, but the U1 route hardly offers any advantage in terms of time. The future plans to shift the Gäubahn long-distance traffic in Vaihingen to the S-Bahn can cause capacity problems in S-Bahn traffic, which is why such measures would only have to be taken as a compensatory measure. It is also about prioritizing the ÖVC on the main road in order not to get stuck in traffic. There could be another bus from the Eiermann campus that goes via Lauchäcker to the S-Bahn stop Universität.	Bike: The slope in the direction of Oberaichen must be better protected in order to increase the proportion here. So far there is no cycle expressway on the Wildparkstraße, although there is no comparatively attractive cycle path on the route.	Other: The idea of a cable car for the western access to the Eiermann area exists.

Wangen

Uferstraße
Viehwasen
Jägerhalde
Im Degen
Nähterstraße
Ackerweg
Geislinger Straße
Ulmer Straße
Klarasteige
Staibhöhenweg
Im Schleifrain
Wangen
Abelsbergweg
Zur Staibhöhe
In den Stubenweinbergen
Wangener Höhenweg
Unteres Dürrbachstraße
Rennweg
Rotweg/Kirchweg
Hobbergstraße
Hedelfinger Straße
Kesselstraße
Heiligenwiesen
Am Mittelkai
Rot

District name	Wangen	District parts	Wangen	Inhabitants	9360

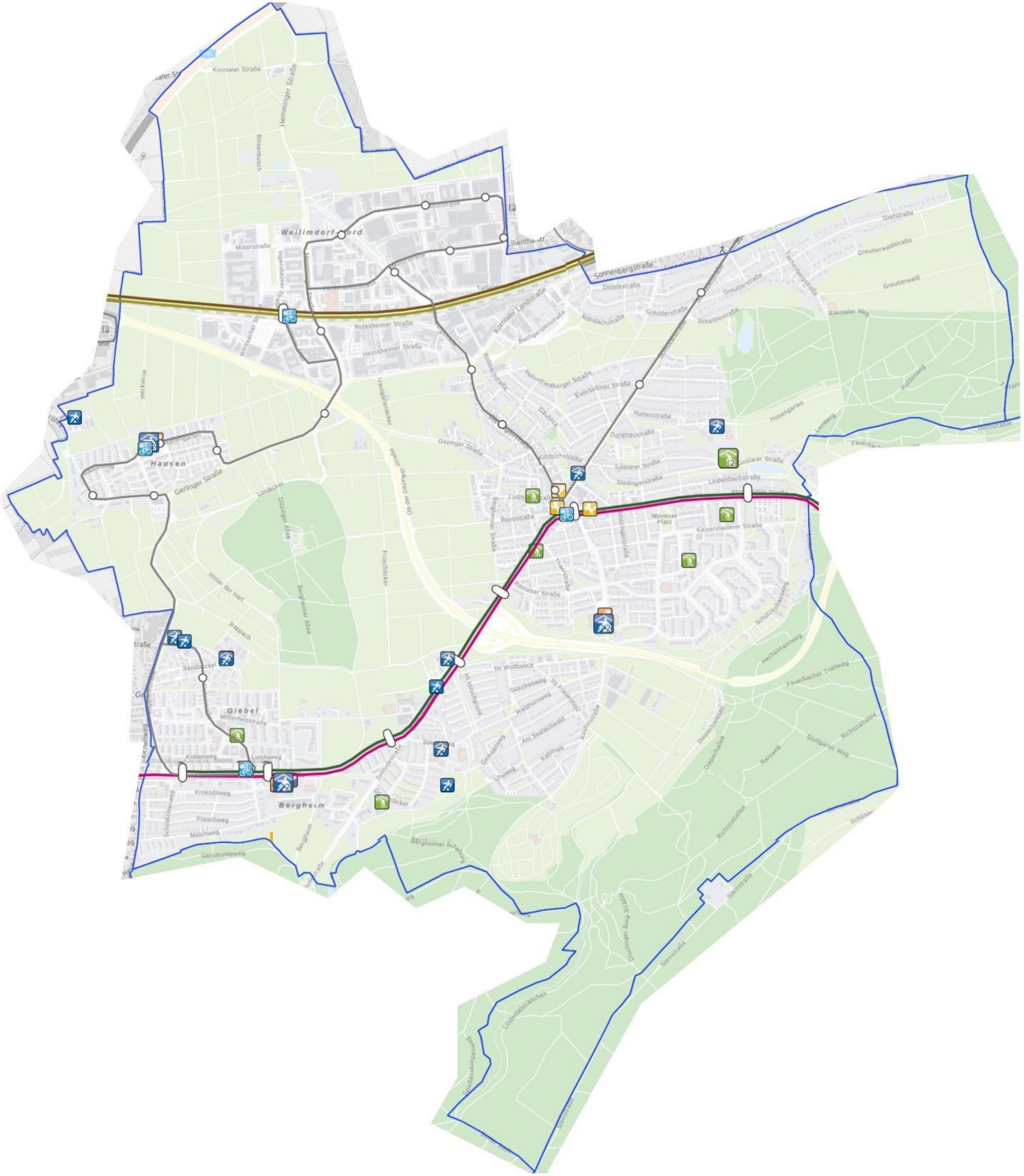
Main description of the district	Wangen is located in the Upper Neckar suburbs and is home to industry, commerce and a wholesale market. At 3.5%, the district recorded the third-highest decline in car density. There is the second highest proportion of people with a migration background. Wangen has the second lowest living space per apartment, has the third lowest transition rate to grammar school and the lowest proportion of women with social obligations. At 7%, the number of unemployed is the second highest in Stuttgart. It is the poorest district by net income.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Hedelfingen	2	Plieningen	46	Hedelfingen	5	Vaihingen	58	Plieningen	-24	Untertürkheim	3
	Untertürkheim	3	Weilimdorf	43	Untertürkheim	5	Botnang	56	Birkach	-20	Mitte	2
	Obertürkheim	12	Stammheim	42	Obertürkheim	12	Plieningen	55	Sillenbuch	-15	Hedelfingen	1

Accessibility of multimodal options of the environmental network	Public transport: Wangen is well connected to the subway network and is the only district in the city that has no buses. From the furthest point of the Jägerhalde you walk 600 meters, otherwise there are short distances to public transport hubs at 70%. The next S-Bahn is in Untertürkheim. There are still routes including its own railway bridge for freight traffic between the port and the former gas power plant.	Bike: There is a bike sharing station. No main cycle route.	Other: -
Travel options to different districts from the environmental network	Public transport: Untertürkheim can be reached with the U4 and U13. Hedelfingen with the U9 and U13, to the south-east with the U4 and U9. Bad Cannstatt can only be reached via the Tangentiale U13. South up to Rohracker you need bus 62 from Hedelfingen, to the Frauenkopf or to Waldebene Ost there is only a long way with many changes around the outside or a steep footpath.	Bike: Degerloch and Sillenbuch can only be reached on the Filder level after climbing over 273 meters in altitude. Otherwise, the path to the other Neckar districts is flat; to the south-east, depending on the location, there may be a climb to get into the basin.	Other: -
Possibilities to improve multimodality	Public transport: Wangen's public transport offer to the other districts is almost complete, an optional offer to come legally from Wangen via the Waldebene Ost to the U15 station Geroksruhe, despite the service road, closes the network. In Untertürkheim, this bus would even have a connection to the S-Bahn network and the Schusterbahn.	Bike: Wangen could build a further route from Inselstraße via Wasenstraße parallel to the goods route to the sports hall and from there to the truck stop in order to open up its sports halls. From the Untertürkheim and Obertürkheim S-Bahn stations, cycling would then be faster than public transport.	Other: -

Weilimdorf



District name	Weilimdorf	District parts	Weilimdorf, Weilimdorf-Nord, Bergheim, Giebel, Hausen, Wolfsbusch	residents	31982

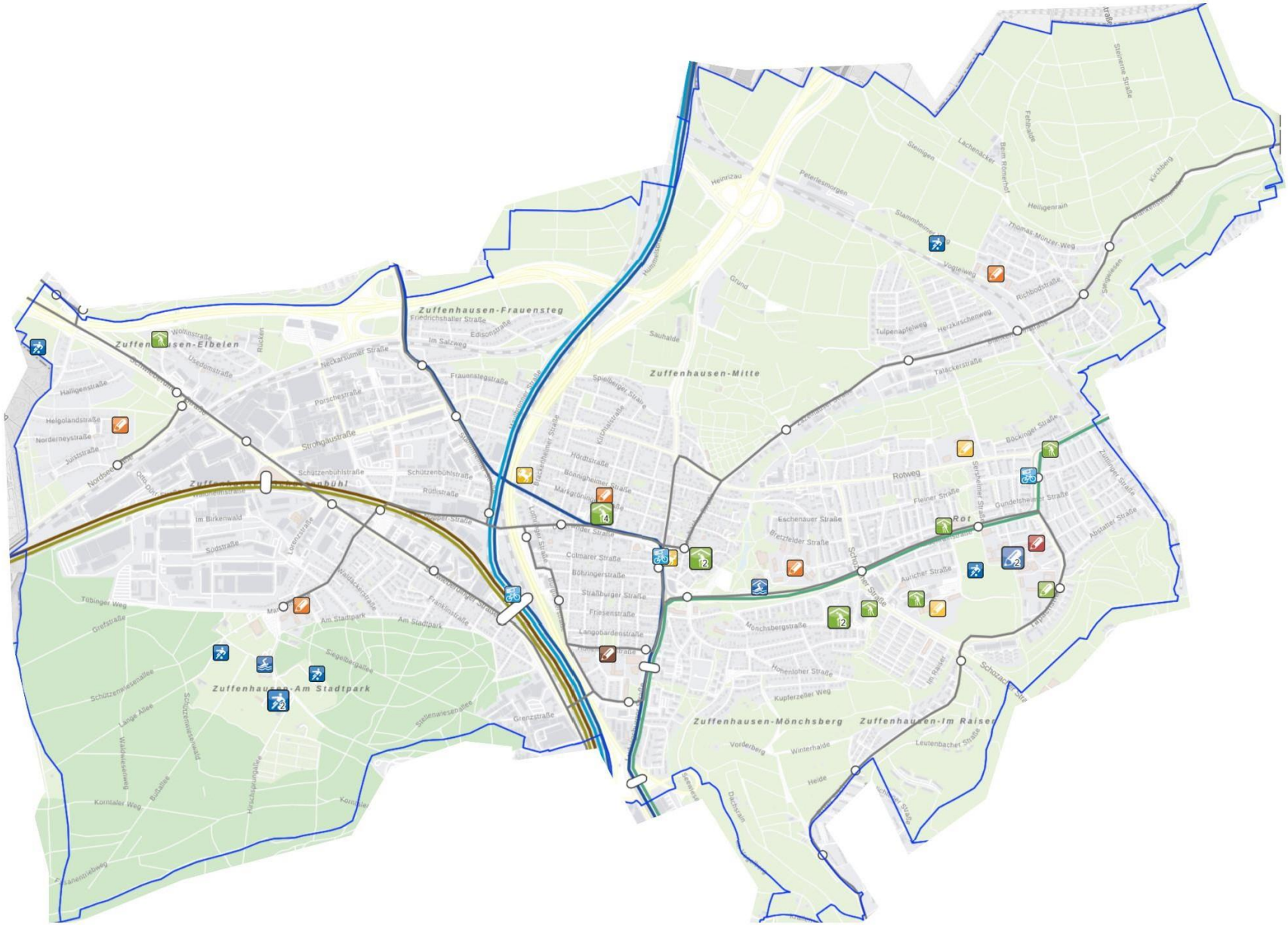
Main description of the district	Weilimdorf is a sought-after residential and commercial location in the north of Stuttgart and is close to Feuerbach. Weilimdorf has the largest proportion of school-age children, the third-highest proportion of births and the largest household size of 2.1 people in Stuttgart. It has the second highest proportion of single-family homes, and the highest increase in car density.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Feuerbach	8	Plieningen	54	Feuerbach	14	Plieningen	77	Plieningen	-27	Mitte	4
	Mitte	20	Hedelfingen	45	Zuffenhausen	20	Birkach	73	Botnang	-18	Feuerbach	3
	West	23	Birkach	43	Nord	23	Sillenbuch	66	Vaihingen	-17	West	-2

Accessibility of multimodal options of the environmental network	Public transport: Accessibility in the district is unevenly distributed. In Weilimdorf-Nord there is a bus that is supposed to take you to the S-Bahn connection. Bergheim, Giebel, Wolfsbusch and Weilimdorf-Süd, on the other hand, are to be served by the U6 and U13, supplemented by bus routes. Nur Hausen is only connected by bus 90 between Giebel and Weilimdorf.	Bike: There are three bike-sharing stations in Weilimdorf, which have been divided into different parts of the city at public transport hubs. The leading main cycle route in Weilimdorf is intertwined in residential areas, despite the existing car bypass, the city center with its retail and café-rich straight Pforzheimer Straße is technically problematic.	Other: Stuttgart Weilimdorf has two local buses. In Weilimdorf center from Mon-Fri. A local bus from Hausen and Giebel to Wolfbusch Friedof on Thursdays.
Travel options to different districts from the environmental network	Public transport: Gerlingen in the west can be reached via the U6, while Ditzingen can only be accessed from Korntal or Gerlingen. In the south, Schloss Solitude, which geographically belongs to S-West, can only be reached via two transfers. Feuerbach is accessible from all sides of Weilimdorf by S-Bahn and U-Bahn.	Bike: Topographically, the route to Feuerbach and to the north to Korntal and Ditzingen and to the west to Gerlingen is flat, only to Solitude is there an extreme climb.	Other: -
Possibilities to improve multimodality	Public transport: Well more than Solitude Castle, Weilimdorf should be better connected to the south by public transport. The current alignment via Feuerbach could be relieved, a Stuttgart Westring could be created by sharing the six-lane Wildparkstraße to the university site in Vaihingen.	Bike: In Weilimdorf, Pforzheimer Strasse should be declared the main cycle route, which also rigorously protects cycle traffic, for example as part of a service road as a shared space zone.	Other: Integration of the local bus into the VVS tariff.

Zuffenhausen



District name	Zuffenhausen	District parts	Am Stadtpark, Schützenbühl, Elbelen, Frauensteg, Mitte, Hohenstein, Möchsberg, Im Raiser, Neuwirtshaus, Rot, Zazenhausen	residents	38732

Main description of the district	Zuffenhausen is a district in the north-east of Stuttgart, which stands out due to its high proportion of businesses and its own S-Bahn connection. There is the highest proportion of immigrants here, as well as the highest proportion of under-6-year-olds. The second most births are in Zuffenhausen, which explains this high representation. Zuffenhausen has the lowest living space available per inhabitant. The unemployment rate peaks at 7.3%, the fourth poorest borough by net income. In terms of car density, Zuffenhausen is average for Stuttgart.

Mobility behavior after PsyVKN	"I can do what I want by using PT"		"I like to travel by bike"		"I can do very well in everyday life without a car"	

Travel time to other districts	Best (PT)		Worst (PT)		Best (Bike)		Worst (Bike)		Best (cars vs. EN)		Worst (cars vs. EN)	
	Stammheim	7	Plieningen	50	Feuerbach	12	Plieningen	74	Hedelfingen	-18	Stammheim	8
	Feuerbach	11	Birkach	44	Stammheim	16	Birkach	65	Plieningen	-16	Mitte	3
	Mühlhausen	13	Hedelfingen	38	Mühlhausen	17	Vaihingen	62	Münster	-15	Mühlhausen	0

Accessibility of multimodal options of the environmental network	Public transport: In general, there is a wide range of public transport, and accessibility in Zuffenhausen is only partially satisfactory. From the residential areas, Zuffenhausen-Mitte has to walk more than 300 meters to the nearest public transport connection in 40% of cases, and to the subway in 70% of cases. Zazenhausen only owns bus 53, which takes you to the S-Bahn station - Rot and Im Raiser with the 52 via longer detours, Mönchsberg has on average the longest walk to the next stop. The 8 care facilities all have short distances to bus stops, 66% for schools and only 60% for sports areas.	Bike: There are three rental stations available directly at the bus stops. Zuffenhausen has numerous one-way streets, not all of which have yet been opened to bicycle traffic. The main cycle route F goes through Zuffenhausen.	Other: -
Travel options to different districts from the environmental network	Public transport: In the north, Stammheim is well connected with two bus lines and the U15. The S-Bahn connects the larger town of Kornwestheim in the north directly, as well as the Neuwirtshaus district directly with Weilimdorf, Korntal and Feuerbach. The U7 connects Zuffenhausen to the northern part of Mühlhausen, for Zazenhausen there is the slower bus 53, which ends right next to the Mühlhausen underground station. The quickest connection to Bad Cannstatt is by changing to the U13 via the Pragsattel, the direct bus 52 now only reaches the Neckarvorstadt via the Burgholzhof, which is much slower. Münster is not usually served directly by regional train, which is why there are long journey times with the 52 with changes and footpaths.	Bike: Since Zuffenhausen is hilly at Burgholzhof, as at the station, and flattens out in Zazenhausen, there are mostly inclines within Zuffenhausen. After Münster and Mühlhausen it goes downhill, after Bad Cannstatt you either have to overcome the Burgholzhof or you have to drive over the Pragsattel. In the north to Stammheim and in the west to Weilimdorf it goes up 76 meters.	Other: -
Possibilities to improve multimodality	Public transport: In order to reach the southern ring road and all Neckar districts more quickly, the Schusterbahn should be expanded as an S-Bahn from Zazenhausen. A north ring could also be built for this, which would extend the feeder line from Weilimdorf further over the Schusterbahn. In order to better connect the Rot and Im Raiser districts to the city center, they would have to be connected directly to the S-Bahn station. Alternatively, Zazenhausen could become this location, since from December 2025 trains could go directly to the S21 underground station via the Schusterbahn.	Bike: In Zazenhausen, which is both on the edge of the beach and topographically below, a rental station with e-bikes could help improve connectivity to public transport. A bike-sharing station at the Himmelsleiter/ Zazenhausen train station makes sense when expanding. In principle, more one-way streets could be opened for bicycle traffic.	Other: In order to connect Zazenhausen to the U7 and its train station, a call bus or other on-demand service can be run via Stamitzweg.

Public Transportation Travel Times

District	01 - Mitte (Charlottenplatz)	02 - Nord (Killesberg)	03 - Ost (Ostendplatz)	04 - Süd (Marienplatz)	05 - West (Feuersee)	06 - Bad Cannstatt (Bf)	07 - Birkach (Dürnauer Weg)	08 - Botnang	09 - Degerloch	10 - Feuerbach (Bf)	11 - Hedelfingen	12 - Möhringen (Bf)	13 - Mühlhausen	14 - Münster (Freibergstr.)	15 - Obertürkheim (Bf)	16 - Plieningen (Post)	17 - Sillenbuch	18 - Stammheim	19 - Untertürkheim (Bf)	20 - Vaihingen (Bf)	21 - Wangen (Marktplatz)	22 - Weilimdorf (Löwen-Markt)	23 - Zuffenhausen (Rathaus)
01 - Mitte (Charlottenplatz)	x	8	7	3	6	13	21	17	8	12	20	13	22	16	19	30	11	24	18	19	16	20	15
02 - Nord (Killesberg)	8	x	20	18	15	18	34	30	17	11	37	22	32	29	29	43	22	26	26	28	33	24	17
03 - Ost (Ostendplatz)	7	20	x	13	16	16	35	31	22	19	17	27	30	22	23	44	23	35	11	27	13	30	26
04 - Süd (Marienplatz)	3	18	13	x	3	15	25	20	10	17	25	21	31	27	23	34	20	34	20	15	21	31	25
05 - West (Feuersee)	6	15	16	3	x	7	32	16	17	9	23	21	26	28	15	35	24	30	12	10	23	23	21
06 - Bad Cannstatt (Bf)	13	18	16	15	7	x	34	30	21	12	19	26	24	16	8	43	26	33	5	18	16	26	24
07 - Birkach (Dürnauer Weg)	21	34	35	25	32	34	x	47	9	35	31	19	49	46	35	10	18	53	40	27	39	43	44
08 - Botnang	17	30	31	20	16	30	47	x	29	19	41	34	43	35	35	57	36	52	32	32	37	33	33
09 - Degerloch	8	17	22	10	17	21	9	29	x	22	31	5	32	29	29	17	8	36	27	13	27	30	27
10 - Feuerbach (Bf)	12	11	19	17	9	12	35	19	22	x	32	26	23	20	21	48	27	24	18	23	28	8	11
11 - Hedelfingen	20	37	17	25	23	19	31	41	31	32	x	37	38	30	4	38	21	47	5	37	2	45	38
12 - Möhringen (Bf)	13	22	27	21	21	26	19	34	5	26	37	x	37	34	35	14	17	41	37	7	36	35	32
13 - Mühlhausen	22	32	30	31	26	24	49	43	32	23	38	37	x	7	37	54	47	28	36	39	36	37	13
14 - Münster (Freibergstr.)	16	29	22	27	28	16	46	35	29	20	30	34	7	x	37	49	42	34	29	39	29	32	25
15 - Obertürkheim (Bf)	19	29	23	23	15	8	35	35	29	21	4	35	37	37	x	42	21	42	3	27	12	35	33
16 - Plieningen (Post)	30	43	44	34	35	43	10	57	17	48	38	14	54	49	42	x	50	59	45	27	46	54	50
17 - Sillenbuch	11	22	23	20	24	26	18	36	8	27	21	17	47	42	21	50	x	41	31	21	28	39	31
18 - Stammheim	24	26	35	34	30	33	53	52	36	24	47	41	28	34	42	59	41	x	37	42	42	25	7
19 - Untertürkheim (Bf)	18	26	11	20	12	5	40	32	27	18	5	37	36	29	3	45	31	37	x	24	3	32	30
20 - Vaihingen (Bf)	19	28	27	15	10	18	27	32	13	23	37	7	39	39	27	27	21	42	24	x	35	37	35
21 - Wangen (Marktplatz)	16	33	13	21	23	16	39	37	27	28	2	36	36	29	12	46	28	42	3	35	x	43	36
22 - Weilimdorf (Löwen-Markt)	20	24	30	31	23	26	43	33	30	8	45	35	37	32	35	54	39	25	32	37	43	x	24
23 - Zuffenhausen (Rathaus)	15	17	26	25	21	24	44	33	27	11	38	32	13	25	33	50	31	7	30	35	36	24	x

Bike Travel Times

District	01 - Mitte (Charlottenplatz)	02 - Nord (Killesberg)	03 - Ost (Ostendplatz)	04 - Süd (Marienplatz)	05 - West (Feuersee)	06 - Bad Cannstatt (Bf)	07 - Birkach (Dürnauer Weg)	08 - Botnang	09 - Degerloch	10 - Feuerbach (Bf)	11 - Hedelfingen	12 - Möhringen (Bf)	13 - Mühlhausen	14 - Münster (Freibergstr.)	15 - Obertürkheim (Bf)	16 - Plieningen (Post)	17 - Sillenbuch	18 - Stammheim	19 - Untertürkheim (Bf)	20 - Vaihingen (Bf)	21 - Wangen (Marktplatz)	22 - Weilimdorf (Löwen-Markt)	23 - Zuffenhausen (Rathaus)
01 - Mitte (Charlottenplatz)	x	22	14	8	8	15	37	33	29	22	30	38	34	25	32	50	34	40	24	42	24	39	25
02 - Nord (Killesberg)	14	x	19	21	19	16	57	19	45	7	31	54	22	16	34	66	50	26	28	49	25	22	11
03 - Ost (Ostendplatz)	11	29	x	18	18	10	49	45	43	27	18	47	32	25	22	54	39	40	14	54	12	51	27
04 - Süd (Marienplatz)	7	28	18	x	6	19	48	24	36	25	40	37	41	29	37	55	40	41	30	38	27	40	29
05 - West (Feuersee)	8	23	20	5	x	19	46	26	39	23	33	36	39	29	36	53	39	41	38	38	27	40	27
06 - Bad Cannstatt (Bf)	20	31	10	22	22	x	58	47	48	25	22	55	21	11	22	68	51	43	14	58	16	41	25
07 - Birkach (Dürnauer Weg)	29	52	34	36	36	41	x	57	21	54	27	20	62	52	32	14	17	71	37	29	31	69	57
08 - Botnang	22	19	37	15	17	35	60	x	47	18	50	46	41	35	53	67	55	38	44	41	44	27	32
09 - Degerloch	17	32	28	15	23	27	14	36	x	33	24	8	45	35	30	21	12	50	37	16	26	49	36
10 - Feuerbach (Bf)	24	14	23	22	22	20	61	24	49	x	35	57	26	20	38	70	54	22	32	58	29	17	9
11 - Hedelfingen	34	45	21	43	38	24	42	61	48	39	x	55	35	25	7	52	32	56	8	60	4	47	43
12 - Möhringen (Bf)	21	43	32	26	24	37	17	40	12	45	36	x	73	50	41	22	24	62	46	10	37	52	47
13 - Mühlhausen	38	34	32	44	42	21	76	51	65	29	40	57	x	11	40	87	71	32	35	77	38	46	22
14 - Münster (Freibergstr.)	31	29	25	33	32	12	67	45	55	24	33	65	13	x	10	76	59	33	23	69	27	41	17
15 - Obertürkheim (Bf)	36	45	25	40	39	25	47	62	54	37	8	62	39	29	x	50	39	58	11	74	12	57	44
16 - Plieningen (Post)	43	65	42	49	47	56	18	67	31	65	34	28	79	66	43	x	27	72	44	33	39	81	67
17 - Sillenbuch	21	43	20	28	27	29	12	50	13	43	14	23	53	40	19	23	x	59	24	31	18	58	44
18 - Stammheim	39	32	38	37	39	37	76	43	65	19	51	74	24	30	55	77	70	x	45	74	45	26	13
19 - Untertürkheim (Bf)	26	38	19	34	32	13	53	54	57	36	10	63	33	20	11	62	43	50	x	68	5	49	36
20 - Vaihingen (Bf)	28	43	37	24	24	38	25	34	19	45	43	9	61	48	56	26	31	62	50	x	47	46	48
21 - Wangen (Marktplatz)	30	40	15	34	34	20	47	56	42	35	5	50	34	21	12	55	36	52	5	58	x	53	39
22 - Weilimdorf (Löwen-Markt)	35	23	40	34	35	33	73	29	62	14	55	62	28	33	51	77	66	23	42	58	41	x	20
23 - Zuffenhausen (Rathaus)	26	20	27	27	27	24	65	27	53	12	37	61	17	17	42	74	57	16	33	62	33	25	x

Car Travel Times

Districts	01 - Mitte (Charlottenplatz)	02 - Nord (Killesberg)	03 - Ost (Ostendplatz)	04 - Süd (Marienplatz)	05 - West (Feuersee)	06 - Bad Cannstatt (Bf)	07 - Birkach (Dürnauer Weg)	08 - Botnang	09 - Degerloch	10 - Feuerbach (Bf)	11 - Hedelfingen	12 - Möhringen (Bf)	13 - Mühlhausen	14 - Münster (Freibergstr.)	15 - Obertürkheim (Bf)	16 - Plieningen (Post)	17 - Sillenbuch	18 - Stammheim	19 - Untertürkheim (Bf)	20 - Vaihingen (Bf)	21 - Wangen (Marktplatz)	22 - Weilimdorf (Löwen-Markt)	23 - Zuffenhausen (Rathaus)
01 - Mitte (Charlottenplatz)	x	11	11	8	7	13	18	15	15	19	21	17	25	19	21	21	17	23	18	22	18	24	18
02 - Nord (Killesberg)	11	x	14	15	13	15	23	11	21	8	21	19	18	14	23	27	22	21	23	19	22	16	10
03 - Ost (Ostendplatz)	11	14	x	11	12	10	16	21	15	18	11	20	21	15	14	21	15	22	11	24	11	23	16
04 - Süd (Marienplatz)	8	15	11	x	5	14	17	14	11	20	21	14	27	20	21	18	15	27	18	16	18	19	20
05 - West (Feuersee)	7	13	12	5	x	14	20	14	13	14	19	15	23	19	20	22	18	22	19	18	18	21	17
06 - Bad Cannstatt (Bf)	13	15	10	14	14	x	25	21	20	10	12	24	15	10	13	27	21	18	10	26	11	20	12
07 - Birkach (Dürnauer Weg)	18	23	16	17	20	25	x	24	8	27	16	11	36	29	18	8	8	33	24	17	19	28	30
08 - Botnang	15	11	21	14	14	21	24	x	17	15	31	15	28	23	31	21	27	26	30	15	29	15	19
09 - Degerloch	15	21	15	11	13	20	8	17	x	30	16	7	29	22	19	12	9	33	22	13	20	22	24
10 - Feuerbach (Bf)	19	8	18	20	14	10	27	15	30	x	22	26	19	15	24	33	29	15	23	26	22	11	8
11 - Hedelfingen	21	21	11	21	19	12	16	31	16	22	x	24	23	17	6	20	12	28	8	30	3	29	19
12 - Möhringen (Bf)	17	19	20	14	15	24	11	15	7	26	24	x	34	27	26	13	16	33	28	7	28	20	30
13 - Mühlhausen	25	18	21	27	23	15	36	28	29	19	23	34	x	6	20	37	33	21	15	36	22	26	13
14 - Münster (Freibergstr.)	19	14	15	20	19	10	29	23	22	15	17	27	6	x	16	33	28	23	12	31	15	23	10
15 - Obertürkheim (Bf)	21	23	14	21	20	13	18	31	19	24	6	26	20	16	x	26	17	29	9	33	9	30	21
16 - Plieningen (Post)	21	27	21	18	22	27	8	21	12	33	20	13	37	33	26	x	12	35	27	15	22	27	34
17 - Sillenbuch	17	22	15	15	18	21	8	27	9	29	12	16	33	28	17	12	x	34	18	21	13	31	27
18 - Stammheim	23	21	22	27	22	18	33	26	33	15	28	33	21	23	29	35	34	x	33	35	33	20	15
19 - Untertürkheim (Bf)	18	23	11	18	19	10	24	30	22	23	8	28	15	12	9	27	18	33	x	31	6	26	18
20 - Vaihingen (Bf)	22	19	24	16	18	26	17	15	13	26	30	7	36	31	33	15	21	35	31	x	29	20	28
21 - Wangen (Marktplatz)	18	22	11	18	18	11	19	29	20	22	3	28	22	15	9	22	13	33	6	29	x	29	22
22 - Weilimdorf (Löwen-Markt)	24	16	23	19	21	20	28	15	22	11	29	20	26	23	30	27	31	20	26	20	29	x	15
23 - Zuffenhausen (Rathaus)	18	10	16	20	17	12	30	19	24	8	20	30	13	10	21	34	27	15	18	28	22	15	x

Public Transportation vs. Car Travel Times Advantages

District	01 - Mitte (Charlottenplatz)	02 - Nord (Killesberg)	03 - Ost (Ostendplatz)	04 - Süd (Marienplatz)	05 - West (Feuersee)	06 - Bad Cannstatt (Bf)	07 - Birkach (Dürnauer Weg)	08 - Botnang	09 - Degerloch	10 - Feuerbach (Bf)	11 - Hedelfingen	12 - Möhringen (Bf)	13 - Mühlhausen	14 - Münster (Freibergstr.)	15 - Obertürkheim (Bf)	16 - Plieningen (Post)	17 - Sillenbuch	18 - Stammheim	19 - Untertürkheim (Bf)	20 - Vaihingen (Bf)	21 - Wangen (Marktplatz)	22 - Weilimdorf (Löwen-Markt)	23 - Zuffenhausen (Rathaus)
01 - Mitte (Charlottenplatz)	x	3	4	5	1	0	-3	-2	7	7	1	4	3	3	2	-9	6	-1	0	3	2	4	3
02 - Nord (Killesberg)	3	x	-6	-3	-2	-3	-11	-19	4	-3	-16	-3	-14	-15	-6	-16	0	-5	-3	-9	-11	-8	-7
03 - Ost (Ostendplatz)	4	-6	x	-2	-4	-6	-19	-10	-7	-1	-6	-7	-9	-7	-9	-23	-8	-13	0	-3	-2	-7	-10
04 - Süd (Marienplatz)	5	-3	-2	x	2	-1	-8	-6	1	3	-4	-7	-4	-7	-2	-16	-5	-7	-2	1	-3	-12	-5
05 - West (Feuersee)	1	-2	-4	2	x	7	-12	-2	-4	5	-4	-6	-3	-9	5	-13	-6	-8	7	8	-5	-2	-4
06 - Bad Cannstatt (Bf)	0	-3	-6	-1	7	x	-9	-9	-1	-2	-7	-2	-9	-6	5	-16	-5	-15	5	8	-5	-6	-12
07 - Birkach (Dürnauer Weg)	-3	-11	-19	-8	-12	-9	x	-23	-1	-8	-15	-8	-13	-17	-17	-2	-10	-20	-16	-10	-20	-15	-14
08 - Botnang	-2	-19	-10	-6	-2	-9	-23	x	-12	-4	-10	-19	-15	-12	-4	-36	-9	-26	-2	-17	-8	-18	-14
09 - Degerloch	7	4	-7	1	-4	-1	-1	-12	x	8	-15	2	-3	-7	-10	-5	1	-3	-5	0	-7	-8	-3
10 - Feuerbach (Bf)	7	-3	-1	3	5	-2	-8	-4	8	x	-10	0	-4	-5	3	-15	2	-9	5	3	-6	3	-3
11 - Hedelfingen	1	-16	-6	-4	-4	-7	-15	-10	-15	-10	x	-13	-15	-13	2	-18	-9	-19	3	-7	1	-16	-19
12 - Möhringen (Bf)	4	-3	-7	-7	-6	-2	-8	-19	2	0	-13	x	-3	-7	-9	-1	-1	-8	-9	0	-8	-15	-2
13 - Mühlhausen	3	-14	-9	-4	-3	-9	-13	-15	-3	-4	-15	-3	x	-1	-17	-17	-14	-7	-21	-3	-14	-11	0
14 - Münster (Freibergstr.)	3	-15	-7	-7	-9	-6	-17	-12	-7	-5	-13	-7	-1	x	-21	-16	-14	-11	-17	-8	-14	-9	-15
15 - Obertürkheim (Bf)	2	-6	-9	-2	5	5	-17	-4	-10	3	2	-9	-17	-21	x	-16	-4	-13	6	6	-3	-5	-12
16 - Plieningen (Post)	-9	-16	-23	-16	-13	-16	-2	-36	-5	-15	-18	-1	-17	-16	-16	x	-38	-24	-18	-12	-24	-27	-16
17 - Sillenbuch	6	0	-8	-5	-6	-5	-10	-9	1	2	-9	-1	-14	-14	-4	-38	x	-7	-13	0	-15	-8	-4
18 - Stammheim	-1	-5	-13	-7	-8	-15	-20	-26	-3	-9	-19	-8	-7	-11	-13	-24	-7	x	-4	-7	-9	-5	8
19 - Untertürkheim (Bf)	0	-3	0	-2	7	5	-16	-2	-5	5	3	-9	-21	-17	6	-18	-13	-4	x	7	3	-6	-12
20 - Vaihingen (Bf)	3	-9	-3	1	8	8	-10	-17	0	3	-7	0	-3	-8	6	-12	0	-7	7	x	-6	-17	-7
21 - Wangen (Marktplatz)	2	-11	-2	-3	-5	-5	-20	-8	-7	-6	1	-8	-14	-14	-3	-24	-15	-9	3	-6	x	-14	-14
22 - Weilimdorf (Löwen-Markt)	4	-8	-7	-12	-2	-6	-15	-18	-8	3	-16	-15	-11	-9	-5	-27	-8	-5	-6	-17	-14	x	-9
23 - Zuffenhausen (Rathaus)	3	-7	-10	-5	-4	-12	-14	-14	-3	-3	-18	-2	0	-15	-12	-16	-4	8	-12	-7	-14	-9	x

Statistics

Pnorm

Anzahl von Ich fühle mich aufgrund meiner Prinzipien persönlich verpflichtet, auf meinen Wegen im Alltag umweltfreundliche Verkehrsmittel zu benutzen						
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.	(Leer)
Bad Cannstatt	41,03%	46,15%	7,69%	5,13%	0,00%	0,00%
Birkach	59,09%	40,91%	0,00%	0,00%	0,00%	0,00%
Botnang	13,33%	80,00%	6,67%	0,00%	0,00%	0,00%
Degerloch	50,00%	41,67%	8,33%	0,00%	0,00%	0,00%
Feuerbach	17,65%	70,59%	5,88%	5,88%	0,00%	0,00%
Hedelfingen	17,39%	69,57%	8,70%	4,35%	0,00%	0,00%
Möhringen	20,00%	73,33%	6,67%	0,00%	0,00%	0,00%
Mühlhausen	13,04%	69,57%	8,70%	8,70%	0,00%	0,00%
Münster	21,28%	55,32%	19,15%	4,26%	0,00%	0,00%
Obertürkheim	10,00%	70,00%	20,00%	0,00%	0,00%	0,00%
Plieningen	45,45%	50,00%	4,55%	0,00%	0,00%	0,00%
Sillenbuch	29,41%	52,94%	17,65%	0,00%	0,00%	0,00%
Stammheim	26,32%	68,42%	5,26%	0,00%	0,00%	0,00%
Stuttgart-Mitte	43,90%	46,34%	2,44%	4,88%	2,44%	0,00%
Stuttgart-Nord	16,67%	75,00%	0,00%	8,33%	0,00%	0,00%
Stuttgart-Ost	33,33%	58,33%	8,33%	0,00%	0,00%	0,00%
Stuttgart-Süd	33,33%	55,56%	5,56%	5,56%	0,00%	0,00%
Stuttgart-West	33,33%	59,26%	3,70%	3,70%	0,00%	0,00%
Untertürkheim	17,65%	47,06%	23,53%	11,76%	0,00%	0,00%
Vaihingen	41,38%	48,28%	6,90%	0,00%	3,45%	0,00%
Wangen	27,27%	59,09%	13,64%	0,00%	0,00%	0,00%
Weilimdorf	38,10%	50,00%	11,90%	0,00%	0,00%	0,00%
Zuffenhausen	35,29%	47,06%	5,88%	5,88%	5,88%	0,00%
(Leer)	14,29%	52,38%	19,05%	14,29%	0,00%	0,00%
Gesamtergebnis	30,80%	55,84%	9,28%	3,53%	0,56%	0,00%

Anzahl von Ich fühle mich verpflichtet, durch die Wahl meiner Verkehrsmittel einen Beitrag zum Klimaschutz zu leisten						
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.	(Leer)
Bad Cannstatt	43,59%	46,15%	5,13%	5,13%	0,00%	0,00%
Birkach	63,64%	31,82%	4,55%	0,00%	0,00%	0,00%
Botnang	40,00%	53,33%	6,67%	0,00%	0,00%	0,00%
Degerloch	58,33%	25,00%	16,67%	0,00%	0,00%	0,00%
Feuerbach	29,41%	58,82%	5,88%	5,88%	0,00%	0,00%
Hedelfingen	26,09%	60,87%	8,70%	4,35%	0,00%	0,00%
Möhringen	46,67%	46,67%	6,67%	0,00%	0,00%	0,00%
Mühlhausen	39,13%	43,48%	8,70%	8,70%	0,00%	0,00%
Münster	34,04%	44,68%	17,02%	4,26%	0,00%	0,00%
Obertürkheim	20,00%	40,00%	30,00%	10,00%	0,00%	0,00%
Plieningen	72,73%	27,27%	0,00%	0,00%	0,00%	0,00%
Sillenbuch	35,29%	35,29%	23,53%	0,00%	5,88%	0,00%
Stammheim	31,58%	47,37%	15,79%	5,26%	0,00%	0,00%
Stuttgart-Mitte	45,24%	38,10%	7,14%	7,14%	2,38%	0,00%
Stuttgart-Nord	25,00%	58,33%	8,33%	8,33%	0,00%	0,00%
Stuttgart-Ost	33,33%	41,67%	25,00%	0,00%	0,00%	0,00%
Stuttgart-Süd	38,89%	44,44%	11,11%	5,56%	0,00%	0,00%
Stuttgart-West	55,56%	37,04%	3,70%	3,70%	0,00%	0,00%
Untertürkheim	11,76%	47,06%	17,65%	23,53%	0,00%	0,00%
Vaihingen	35,71%	57,14%	7,14%	0,00%	0,00%	0,00%
Wangen	54,55%	31,82%	9,09%	4,55%	0,00%	0,00%
Weilimdorf	19,05%	42,86%	35,71%	2,38%	0,00%	0,00%
Zuffenhausen	47,06%	35,29%	5,88%	5,88%	5,88%	0,00%
(Leer)	19,05%	52,38%	9,52%	19,05%	0,00%	0,00%
Gesamtergebnis	38,78%	43,60%	12,06%	5,01%	0,56%	0,00%

Snorm

Anzahl von Menschen, die mir wichtig sind, denken, dass ich anstatt des Pkws öffentliche Verkehrsmittel nutzen sollte						
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.	(Leer)
Bad Cannstatt	12,82%	15,38%	33,33%	33,33%	5,13%	0,00%
Birkach	9,09%	13,64%	36,36%	36,36%	4,55%	0,00%
Botnang	13,33%	33,33%	40,00%	13,33%	0,00%	0,00%
Degerloch	0,00%	25,00%	41,67%	33,33%	0,00%	0,00%
Feuerbach	5,88%	5,88%	52,94%	29,41%	5,88%	0,00%
Hedelfingen	13,04%	17,39%	56,52%	13,04%	0,00%	0,00%
Möhringen	6,67%	20,00%	33,33%	33,33%	6,67%	0,00%
Mühlhausen	17,39%	17,39%	26,09%	39,13%	0,00%	0,00%
Münster	13,04%	21,74%	36,96%	23,91%	4,35%	0,00%
Obertürkheim	10,00%	10,00%	40,00%	40,00%	0,00%	0,00%
Plieningen	9,09%	22,73%	40,91%	27,27%	0,00%	0,00%
Sillenbuch	5,88%	23,53%	29,41%	41,18%	0,00%	0,00%
Stammheim	15,79%	15,79%	52,63%	15,79%	0,00%	0,00%
Stuttgart-Mitte	9,52%	30,95%	30,95%	23,81%	4,76%	0,00%
Stuttgart-Nord	16,67%	16,67%	33,33%	33,33%	0,00%	0,00%
Stuttgart-Ost	16,67%	50,00%	16,67%	16,67%	0,00%	0,00%
Stuttgart-Süd	11,11%	16,67%	55,56%	16,67%	0,00%	0,00%
Stuttgart-West	11,11%	33,33%	33,33%	18,52%	3,70%	0,00%
Untertürkheim	5,88%	11,76%	64,71%	17,65%	0,00%	0,00%
Vaihingen	6,90%	20,69%	37,93%	34,48%	0,00%	0,00%
Wangen	9,09%	31,82%	36,36%	18,18%	4,55%	0,00%
Weilimdorf	7,14%	26,19%	38,10%	28,57%	0,00%	0,00%
Zuffenhausen	0,00%	29,41%	47,06%	23,53%	0,00%	0,00%
(Leer)	14,29%	19,05%	38,10%	28,57%	0,00%	0,00%
Gesamtergebnis	10,20%	22,26%	38,96%	26,53%	2,04%	0,00%

Anzahl von Menschen, die mir wichtig sind, würden mich unterstützen, wenn ich für meine Wege im Alltag anstatt des Pkws öffentliche Verkehrsmittel nutzen würde						
	(Leer)	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	0,00%	35,90%	41,03%	12,82%	7,69%	2,56%
Birkach	0,00%	57,14%	4,76%	19,05%	9,52%	9,52%
Botnang	0,00%	40,00%	46,67%	6,67%	6,67%	0,00%
Degerloch	0,00%	50,00%	41,67%	8,33%	0,00%	0,00%
Feuerbach	0,00%	29,41%	41,18%	23,53%	5,88%	0,00%
Hedelfingen	0,00%	43,48%	43,48%	8,70%	4,35%	0,00%
Möhringen	0,00%	46,67%	20,00%	26,67%	6,67%	0,00%
Mühlhausen	0,00%	26,09%	43,48%	21,74%	8,70%	0,00%
Münster	0,00%	23,40%	34,04%	17,02%	17,02%	8,51%
Obertürkheim	0,00%	10,00%	60,00%	20,00%	10,00%	0,00%
Plieningen	0,00%	45,45%	36,36%	13,64%	0,00%	4,55%
Sillenbuch	0,00%	17,65%	52,94%	29,41%	0,00%	0,00%
Stammheim	0,00%	15,79%	57,89%	15,79%	10,53%	0,00%
Stuttgart-Mitte	0,00%	35,71%	30,95%	16,67%	14,29%	2,38%
Stuttgart-Nord	0,00%	16,67%	41,67%	16,67%	25,00%	0,00%
Stuttgart-Ost	0,00%	33,33%	66,67%	0,00%	0,00%	0,00%
Stuttgart-Süd	0,00%	22,22%	38,89%	16,67%	22,22%	0,00%
Stuttgart-West	0,00%	51,85%	29,63%	3,70%	7,41%	7,41%
Untertürkheim	0,00%	35,29%	23,53%	17,65%	17,65%	5,88%
Vaihingen	0,00%	31,03%	48,28%	10,34%	6,90%	3,45%
Wangen	0,00%	38,10%	33,33%	14,29%	9,52%	4,76%
Weilimdorf	0,00%	42,86%	42,86%	7,14%	7,14%	0,00%
Zuffenhausen	0,00%	23,53%	41,18%	17,65%	17,65%	0,00%
(Leer)	0,00%	14,29%	47,62%	19,05%	14,29%	4,76%
Gesamtergebnis	0,00%	33,64%	39,03%	14,68%	9,85%	2,79%

PBC

Anzahl von Ich kann das, was ich tun will, mit öffentlichen Verkehrsmitteln erledigen						
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.	(Leer)
Bad Cannstatt	20,51%	61,54%	12,82%	5,13%	0,00%	0,00%
Birkach	13,64%	36,36%	45,45%	4,55%	0,00%	0,00%
Botnang	13,33%	66,67%	20,00%	0,00%	0,00%	0,00%
Degerloch	25,00%	58,33%	16,67%	0,00%	0,00%	0,00%
Feuerbach	23,53%	58,82%	11,76%	5,88%	0,00%	0,00%
Hedelfingen	13,04%	78,26%	8,70%	0,00%	0,00%	0,00%
Möhringen	13,33%	53,33%	33,33%	0,00%	0,00%	0,00%
Mühlhausen	4,35%	73,91%	17,39%	4,35%	0,00%	0,00%
Münster	8,70%	30,43%	52,17%	8,70%	0,00%	0,00%
Obertürkheim	10,00%	60,00%	30,00%	0,00%	0,00%	0,00%
Plieningen	18,18%	54,55%	18,18%	4,55%	4,55%	0,00%
Sillenbuch	29,41%	52,94%	17,65%	0,00%	0,00%	0,00%
Stammheim	10,53%	57,89%	31,58%	0,00%	0,00%	0,00%
Stuttgart-Mitte	21,43%	38,10%	30,95%	9,52%	0,00%	0,00%
Stuttgart-Nord	25,00%	58,33%	0,00%	16,67%	0,00%	0,00%
Stuttgart-Ost	58,33%	25,00%	16,67%	0,00%	0,00%	0,00%
Stuttgart-Süd	33,33%	61,11%	5,56%	0,00%	0,00%	0,00%
Stuttgart-West	37,04%	59,26%	3,70%	0,00%	0,00%	0,00%
Untertürkheim	11,76%	47,06%	35,29%	5,88%	0,00%	0,00%
Vaihingen	31,03%	58,62%	6,90%	3,45%	0,00%	0,00%
Wangen	18,18%	59,09%	18,18%	4,55%	0,00%	0,00%
Weilimdorf	2,38%	69,05%	23,81%	4,76%	0,00%	0,00%
Zuffenhausen	41,18%	23,53%	17,65%	17,65%	0,00%	0,00%
(Leer)	9,52%	47,62%	33,33%	9,52%	0,00%	0,00%
Gesamtergebnis	18,92%	53,43%	22,63%	4,82%	0,19%	0,00%

Anzahl von Ich kann meinen Alltag sehr gut ohne Auto gestalten					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	26,32%	42,11%	23,68%	7,89%	0,00%
Birkach	18,18%	31,82%	50,00%	0,00%	0,00%
Botnang	13,33%	53,33%	26,67%	6,67%	0,00%
Degerloch	33,33%	50,00%	16,67%	0,00%	0,00%
Feuerbach	11,76%	64,71%	17,65%	5,88%	0,00%
Hedelfingen	8,70%	69,57%	13,04%	8,70%	0,00%
Möhringen	13,33%	53,33%	33,33%	0,00%	0,00%
Mühlhausen	4,35%	47,83%	34,78%	13,04%	0,00%
Münster	14,89%	21,28%	40,43%	21,28%	2,13%
Obertürkheim	10,00%	40,00%	40,00%	10,00%	0,00%
Plieningen	22,73%	36,36%	31,82%	9,09%	0,00%
Sillenbuch	29,41%	29,41%	35,29%	5,88%	0,00%
Stammheim	15,79%	42,11%	26,32%	15,79%	0,00%
Stuttgart-Mitte	28,57%	38,10%	16,67%	16,67%	0,00%
Stuttgart-Nord	33,33%	41,67%	8,33%	16,67%	0,00%
Stuttgart-Ost	58,33%	25,00%	8,33%	8,33%	0,00%
Stuttgart-Süd	33,33%	50,00%	11,11%	5,56%	0,00%
Stuttgart-West	44,44%	44,44%	3,70%	3,70%	3,70%
Untertürkheim	17,65%	35,29%	35,29%	11,76%	0,00%
Vaihingen	41,38%	48,28%	6,90%	3,45%	0,00%
Wangen	13,64%	59,09%	18,18%	9,09%	0,00%
Weilimdorf	9,52%	47,62%	28,57%	14,29%	0,00%
Zuffenhausen	23,53%	29,41%	29,41%	17,65%	0,00%
(Leer)	9,52%	33,33%	38,10%	19,05%	0,00%
Gesamtergebnis	21,71%	42,30%	25,05%	10,58%	0,37%

Anzahl von Für mich ist es schwer, die Wege in meinem Alltag mit öffentlichen Verkehrsmitteln anstatt mit dem PKW zurückzulegen					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	12,82%	12,82%	41,03%	33,33%	0,00%
Birkach	4,55%	50,00%	27,27%	18,18%	0,00%
Botnang	6,67%	6,67%	60,00%	26,67%	0,00%
Degerloch	0,00%	16,67%	41,67%	41,67%	0,00%
Feuerbach	5,88%	23,53%	52,94%	17,65%	0,00%
Hedelfingen	4,35%	8,70%	69,57%	17,39%	0,00%
Möhringen	6,67%	26,67%	46,67%	20,00%	0,00%
Mühlhausen	21,74%	30,43%	34,78%	13,04%	0,00%
Münster	12,77%	42,55%	25,53%	19,15%	0,00%
Obertürkheim	30,00%	10,00%	50,00%	10,00%	0,00%
Plieningen	13,64%	31,82%	31,82%	18,18%	4,55%
Sillenbuch	11,76%	29,41%	23,53%	35,29%	0,00%
Stammheim	10,53%	31,58%	36,84%	21,05%	0,00%
Stuttgart-Mitte	14,29%	14,29%	42,86%	26,19%	2,38%
Stuttgart-Nord	8,33%	8,33%	50,00%	25,00%	8,33%
Stuttgart-Ost	8,33%	8,33%	33,33%	50,00%	0,00%
Stuttgart-Süd	0,00%	22,22%	38,89%	38,89%	0,00%
Stuttgart-West	3,70%	11,11%	22,22%	62,96%	0,00%
Untertürkheim	17,65%	17,65%	35,29%	29,41%	0,00%
Vaihingen	3,45%	6,90%	44,83%	44,83%	0,00%
Wangen	4,55%	22,73%	40,91%	31,82%	0,00%
Weilimdorf	7,14%	35,71%	45,24%	11,90%	0,00%
Zuffenhausen	29,41%	23,53%	29,41%	17,65%	0,00%
(Leer)	15,00%	40,00%	25,00%	15,00%	5,00%
Gesamtergebnis	10,39%	23,56%	38,78%	26,53%	0,74%

Anzahl von Wenn ich will, ist es einfach für mich, öffentliche Verkehrsmittel anstatt des Pkws für meine Wege im Alltag zu nutzen					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	30,77%	43,59%	17,95%	7,69%	0,00%
Birkach	14,29%	28,57%	57,14%	0,00%	0,00%
Botnang	0,00%	86,67%	6,67%	6,67%	0,00%
Degerloch	41,67%	41,67%	16,67%	0,00%	0,00%
Feuerbach	17,65%	52,94%	17,65%	11,76%	0,00%
Hedelfingen	21,74%	65,22%	8,70%	4,35%	0,00%
Möhringen	13,33%	46,67%	26,67%	13,33%	0,00%
Mühlhausen	8,70%	43,48%	26,09%	21,74%	0,00%
Münster	17,02%	29,79%	34,04%	19,15%	0,00%
Obertürkheim	30,00%	30,00%	20,00%	20,00%	0,00%
Plieningen	22,73%	45,45%	22,73%	4,55%	4,55%
Sillenbuch	23,53%	35,29%	35,29%	5,88%	0,00%
Stammheim	10,53%	47,37%	31,58%	10,53%	0,00%
Stuttgart-Mitte	19,05%	47,62%	19,05%	14,29%	0,00%
Stuttgart-Nord	25,00%	33,33%	16,67%	25,00%	0,00%
Stuttgart-Ost	54,55%	27,27%	9,09%	9,09%	0,00%
Stuttgart-Süd	44,44%	38,89%	11,11%	5,56%	0,00%
Stuttgart-West	59,26%	29,63%	7,41%	3,70%	0,00%
Untertürkheim	17,65%	52,94%	23,53%	5,88%	0,00%
Vaihingen	51,72%	34,48%	10,34%	0,00%	3,45%
Wangen	27,27%	54,55%	9,09%	4,55%	4,55%
Weilimdorf	14,29%	38,10%	35,71%	11,90%	0,00%
Zuffenhausen	17,65%	41,18%	17,65%	23,53%	0,00%
(Leer)	14,29%	33,33%	38,10%	14,29%	0,00%
Gesamtergebnis	24,35%	42,19%	22,68%	10,22%	0,56%

PMN

Anzahl von Meine Alltagsorganisation erfordert ein hohes Maß an Mobilität					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	33,33%	38,46%	25,64%	2,56%	0,00%
Birkach	45,45%	31,82%	13,64%	9,09%	0,00%
Botnang	6,67%	66,67%	26,67%	0,00%	0,00%
Degerloch	33,33%	50,00%	16,67%	0,00%	0,00%
Feuerbach	11,76%	41,18%	41,18%	5,88%	0,00%
Hedelfingen	13,04%	78,26%	8,70%	0,00%	0,00%
Möhringen	20,00%	33,33%	33,33%	13,33%	0,00%
Mühlhausen	21,74%	65,22%	8,70%	4,35%	0,00%
Münster	21,28%	53,19%	19,15%	4,26%	2,13%
Obertürkheim	10,00%	50,00%	40,00%	0,00%	0,00%
Plieningen	31,82%	45,45%	22,73%	0,00%	0,00%
Sillenbuch	23,53%	47,06%	29,41%	0,00%	0,00%
Stammheim	10,53%	68,42%	21,05%	0,00%	0,00%
Stuttgart-Mitte	28,57%	45,24%	19,05%	4,76%	2,38%
Stuttgart-Nord	25,00%	33,33%	41,67%	0,00%	0,00%
Stuttgart-Ost	16,67%	58,33%	16,67%	8,33%	0,00%
Stuttgart-Süd	5,56%	55,56%	38,89%	0,00%	0,00%
Stuttgart-West	14,81%	37,04%	37,04%	11,11%	0,00%
Untertürkheim	17,65%	64,71%	17,65%	0,00%	0,00%
Vaihingen	20,69%	65,52%	13,79%	0,00%	0,00%
Wangen	36,36%	31,82%	27,27%	4,55%	0,00%
Weilimdorf	4,76%	64,29%	26,19%	4,76%	0,00%
Zuffenhausen	11,76%	58,82%	5,88%	11,76%	11,76%
(Leer)	28,57%	42,86%	23,81%	4,76%	0,00%
Gesamtergebnis	21,11%	51,30%	22,96%	3,89%	0,74%

Anzahl von Ich muss ständig mobil sein, um meinen alltäglichen Verpflichtungen nachzukommen					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	21,05%	31,58%	26,32%	21,05%	0,00%
Birkach	22,73%	18,18%	36,36%	22,73%	0,00%
Botnang	0,00%	20,00%	46,67%	33,33%	0,00%
Degerloch	25,00%	33,33%	41,67%	0,00%	0,00%
Feuerbach	11,76%	23,53%	23,53%	41,18%	0,00%
Hedelfingen	21,74%	21,74%	34,78%	21,74%	0,00%
Möhringen	13,33%	33,33%	13,33%	40,00%	0,00%
Mühlhausen	13,04%	26,09%	34,78%	26,09%	0,00%
Münster	14,89%	38,30%	29,79%	12,77%	4,26%
Obertürkheim	10,00%	30,00%	40,00%	20,00%	0,00%
Plieningen	13,64%	18,18%	50,00%	18,18%	0,00%
Sillenbuch	17,65%	35,29%	35,29%	11,76%	0,00%
Stammheim	10,53%	15,79%	42,11%	31,58%	0,00%
Stuttgart-Mitte	9,52%	38,10%	33,33%	16,67%	2,38%
Stuttgart-Nord	8,33%	16,67%	41,67%	33,33%	0,00%
Stuttgart-Ost	18,18%	27,27%	36,36%	18,18%	0,00%
Stuttgart-Süd	0,00%	44,44%	33,33%	22,22%	0,00%
Stuttgart-West	7,41%	29,63%	33,33%	29,63%	0,00%
Untertürkheim	17,65%	5,88%	52,94%	23,53%	0,00%
Vaihingen	3,45%	41,38%	34,48%	20,69%	0,00%
Wangen	27,27%	22,73%	22,73%	27,27%	0,00%
Weilimdorf	4,76%	11,90%	45,24%	38,10%	0,00%
Zuffenhausen	5,88%	41,18%	41,18%	11,76%	0,00%
(Leer)	14,29%	47,62%	38,10%	0,00%	0,00%
Gesamtergebnis	12,83%	28,62%	35,50%	22,49%	0,56%

WetRes

Anzahl von Bei kühlem Wetter fahre ich ungern Rad					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	25,64%	38,46%	23,08%	5,13%	7,69%
Birkach	27,27%	40,91%	13,64%	13,64%	4,55%
Botnang	33,33%	46,67%	6,67%	6,67%	6,67%
Degerloch	16,67%	58,33%	16,67%	8,33%	0,00%
Feuerbach	41,18%	35,29%	11,76%	11,76%	0,00%
Hedelfingen	21,74%	43,48%	34,78%	0,00%	0,00%
Möhringen	26,67%	40,00%	20,00%	13,33%	0,00%
Mühlhausen	43,48%	47,83%	4,35%	0,00%	4,35%
Münster	27,66%	31,91%	19,15%	17,02%	4,26%
Obertürkheim	50,00%	40,00%	10,00%	0,00%	0,00%
Plieningen	40,91%	50,00%	0,00%	9,09%	0,00%
Sillenbuch	23,53%	52,94%	0,00%	23,53%	0,00%
Stammheim	21,05%	52,63%	21,05%	0,00%	5,26%
Stuttgart-Mitte	35,71%	28,57%	21,43%	14,29%	0,00%
Stuttgart-Nord	41,67%	41,67%	16,67%	0,00%	0,00%
Stuttgart-Ost	33,33%	33,33%	16,67%	16,67%	0,00%
Stuttgart-Süd	16,67%	50,00%	22,22%	11,11%	0,00%
Stuttgart-West	25,93%	33,33%	22,22%	14,81%	3,70%
Untertürkheim	35,29%	23,53%	23,53%	11,76%	5,88%
Vaihingen	13,79%	48,28%	27,59%	10,34%	0,00%
Wangen	31,82%	36,36%	18,18%	4,55%	9,09%
Weilimdorf	26,19%	50,00%	19,05%	4,76%	0,00%
Zuffenhausen	35,29%	58,82%	0,00%	5,88%	0,00%
(Leer)	38,10%	38,10%	14,29%	9,52%	0,00%
Gesamtergebnis	29,63%	41,48%	17,22%	9,26%	2,41%

Anzahl von Ich fahre auch bei schlechtem Wetter Rad					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	17,95%	25,64%	17,95%	30,77%	7,69%
Birkach	27,27%	36,36%	13,64%	22,73%	0,00%
Botnang	13,33%	33,33%	20,00%	26,67%	6,67%
Degerloch	8,33%	41,67%	25,00%	16,67%	8,33%
Feuerbach	29,41%	29,41%	11,76%	29,41%	0,00%
Hedelfingen	22,73%	31,82%	18,18%	27,27%	0,00%
Möhringen	13,33%	33,33%	26,67%	26,67%	0,00%
Mühlhausen	21,74%	17,39%	26,09%	30,43%	4,35%
Münster	19,15%	23,40%	27,66%	27,66%	2,13%
Obertürkheim	0,00%	20,00%	20,00%	60,00%	0,00%
Plieningen	27,27%	27,27%	22,73%	22,73%	0,00%
Sillenbuch	17,65%	23,53%	23,53%	35,29%	0,00%
Stammheim	26,32%	42,11%	0,00%	26,32%	5,26%
Stuttgart-Mitte	19,05%	33,33%	23,81%	23,81%	0,00%
Stuttgart-Nord	8,33%	41,67%	25,00%	25,00%	0,00%
Stuttgart-Ost	16,67%	41,67%	25,00%	16,67%	0,00%
Stuttgart-Süd	16,67%	33,33%	22,22%	27,78%	0,00%
Stuttgart-West	14,81%	25,93%	25,93%	22,22%	11,11%
Untertürkheim	23,53%	11,76%	23,53%	35,29%	5,88%
Vaihingen	34,48%	31,03%	13,79%	20,69%	0,00%
Wangen	22,73%	18,18%	18,18%	36,36%	4,55%
Weilimdorf	23,81%	28,57%	19,05%	28,57%	0,00%
Zuffenhausen	11,76%	41,18%	11,76%	35,29%	0,00%
(Leer)	0,00%	19,05%	33,33%	47,62%	0,00%
Gesamtergebnis	19,48%	28,76%	20,78%	28,57%	2,41%

Anzahl von Beim Radfahren kann ich mich gut entspannen					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	17,95%	51,28%	12,82%	10,26%	7,69%
Birkach	45,45%	31,82%	18,18%	4,55%	0,00%
Botnang	26,67%	40,00%	20,00%	0,00%	13,33%
Degerloch	25,00%	58,33%	8,33%	0,00%	8,33%
Feuerbach	23,53%	47,06%	17,65%	11,76%	0,00%
Hedelfingen	21,74%	65,22%	13,04%	0,00%	0,00%
Möhringen	26,67%	46,67%	20,00%	6,67%	0,00%
Mühlhausen	30,43%	30,43%	34,78%	0,00%	4,35%
Münster	25,53%	38,30%	19,15%	10,64%	6,38%
Obertürkheim	10,00%	30,00%	50,00%	10,00%	0,00%
Plieningen	27,27%	59,09%	9,09%	4,55%	0,00%
Sillenbuch	41,18%	47,06%	5,88%	0,00%	5,88%
Stammheim	21,05%	57,89%	15,79%	0,00%	5,26%
Stuttgart-Mitte	26,19%	38,10%	21,43%	11,90%	2,38%
Stuttgart-Nord	25,00%	25,00%	33,33%	16,67%	0,00%
Stuttgart-Ost	25,00%	58,33%	8,33%	8,33%	0,00%
Stuttgart-Süd	22,22%	50,00%	22,22%	5,56%	0,00%
Stuttgart-West	29,63%	29,63%	18,52%	11,11%	11,11%
Untertürkheim	17,65%	47,06%	29,41%	0,00%	5,88%
Vaihingen	31,03%	55,17%	10,34%	3,45%	0,00%
Wangen	36,36%	45,45%	4,55%	9,09%	4,55%
Weilimdorf	21,43%	64,29%	4,76%	7,14%	2,38%
Zuffenhausen	29,41%	23,53%	35,29%	11,76%	0,00%
(Leer)	14,29%	38,10%	23,81%	19,05%	4,76%
Gesamtergebnis	25,93%	45,56%	17,59%	7,22%	3,70%

Anzahl von Ich bin gerne mit dem Rad unterwegs					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	43,59%	25,64%	17,95%	5,13%	7,69%
Birkach	77,27%	13,64%	9,09%	0,00%	0,00%
Botnang	53,33%	33,33%	6,67%	0,00%	6,67%
Degerloch	75,00%	8,33%	16,67%	0,00%	0,00%
Feuerbach	52,94%	29,41%	5,88%	11,76%	0,00%
Hedelfingen	56,52%	39,13%	4,35%	0,00%	0,00%
Möhringen	60,00%	26,67%	13,33%	0,00%	0,00%
Mühlhausen	47,83%	39,13%	8,70%	0,00%	4,35%
Münster	31,91%	40,43%	21,28%	4,26%	2,13%
Obertürkheim	50,00%	30,00%	10,00%	10,00%	0,00%
Plieningen	86,36%	9,09%	0,00%	4,55%	0,00%
Sillenbuch	76,47%	17,65%	5,88%	0,00%	0,00%
Stammheim	57,89%	36,84%	0,00%	0,00%	5,26%
Stuttgart-Mitte	50,00%	26,19%	11,90%	9,52%	2,38%
Stuttgart-Nord	41,67%	25,00%	25,00%	8,33%	0,00%
Stuttgart-Ost	58,33%	33,33%	0,00%	8,33%	0,00%
Stuttgart-Süd	66,67%	16,67%	5,56%	11,11%	0,00%
Stuttgart-West	59,26%	18,52%	3,70%	7,41%	11,11%
Untertürkheim	35,29%	47,06%	5,88%	5,88%	5,88%
Vaihingen	65,52%	27,59%	3,45%	3,45%	0,00%
Wangen	63,64%	27,27%	0,00%	4,55%	4,55%
Weilimdorf	45,24%	42,86%	2,38%	7,14%	2,38%
Zuffenhausen	35,29%	35,29%	11,76%	11,76%	5,88%
(Leer)	23,81%	33,33%	19,05%	23,81%	0,00%
Gesamtergebnis	52,96%	29,44%	9,07%	5,74%	2,78%

AutoErl

Anzahl von Auto fahren bedeutet für mich Freiheit					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	15,38%	25,64%	41,03%	17,95%	0,00%
Birkach	4,55%	22,73%	22,73%	45,45%	4,55%
Botnang	0,00%	13,33%	66,67%	20,00%	0,00%
Degerloch	0,00%	16,67%	66,67%	16,67%	0,00%
Feuerbach	11,76%	11,76%	47,06%	29,41%	0,00%
Hedelfingen	4,35%	17,39%	60,87%	17,39%	0,00%
Möhringen	6,67%	13,33%	66,67%	13,33%	0,00%
Mühlhausen	4,35%	39,13%	52,17%	4,35%	0,00%
Münster	14,89%	29,79%	36,17%	19,15%	0,00%
Obertürkheim	0,00%	60,00%	40,00%	0,00%	0,00%
Plieningen	4,55%	18,18%	50,00%	27,27%	0,00%
Sillenbuch	5,88%	29,41%	41,18%	23,53%	0,00%
Stammheim	5,26%	21,05%	57,89%	15,79%	0,00%
Stuttgart-Mitte	11,90%	26,19%	30,95%	30,95%	0,00%
Stuttgart-Nord	8,33%	16,67%	33,33%	41,67%	0,00%
Stuttgart-Ost	8,33%	0,00%	75,00%	16,67%	0,00%
Stuttgart-Süd	0,00%	38,89%	33,33%	27,78%	0,00%
Stuttgart-West	3,70%	25,93%	37,04%	29,63%	3,70%
Untertürkheim	5,88%	41,18%	52,94%	0,00%	0,00%
Vaihingen	3,45%	6,90%	62,07%	27,59%	0,00%
Wangen	4,55%	22,73%	45,45%	22,73%	4,55%
Weilimdorf	7,14%	16,67%	54,76%	21,43%	0,00%
Zuffenhausen	5,88%	29,41%	29,41%	29,41%	5,88%
(Leer)	19,05%	33,33%	38,10%	4,76%	4,76%
Gesamtergebnis	7,59%	23,89%	45,93%	21,67%	0,93%

Anzahl von Autofahren bedeutet für mich Spaß und Leidenschaft					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	5,13%	28,21%	33,33%	30,77%	2,56%
Birkach	4,55%	13,64%	18,18%	59,09%	4,55%
Botnang	0,00%	6,67%	20,00%	73,33%	0,00%
Degerloch	0,00%	8,33%	33,33%	58,33%	0,00%
Feuerbach	11,76%	11,76%	23,53%	52,94%	0,00%
Hedelfingen	4,35%	0,00%	30,43%	65,22%	0,00%
Möhringen	0,00%	13,33%	20,00%	66,67%	0,00%
Mühlhausen	0,00%	4,35%	47,83%	47,83%	0,00%
Münster	13,04%	13,04%	23,91%	47,83%	2,17%
Obertürkheim	0,00%	30,00%	30,00%	40,00%	0,00%
Plieningen	4,55%	0,00%	31,82%	63,64%	0,00%
Sillenbuch	0,00%	17,65%	29,41%	52,94%	0,00%
Stammheim	0,00%	10,53%	42,11%	47,37%	0,00%
Stuttgart-Mitte	9,52%	30,95%	21,43%	38,10%	0,00%
Stuttgart-Nord	8,33%	0,00%	41,67%	50,00%	0,00%
Stuttgart-Ost	8,33%	16,67%	16,67%	50,00%	8,33%
Stuttgart-Süd	0,00%	27,78%	61,11%	11,11%	0,00%
Stuttgart-West	3,70%	11,11%	37,04%	44,44%	3,70%
Untertürkheim	5,88%	17,65%	47,06%	29,41%	0,00%
Vaihingen	0,00%	6,90%	34,48%	58,62%	0,00%
Wangen	0,00%	9,09%	27,27%	59,09%	4,55%
Weilimdorf	4,76%	11,90%	50,00%	33,33%	0,00%
Zuffenhausen	5,88%	5,88%	29,41%	52,94%	5,88%
(Leer)	15,00%	25,00%	35,00%	25,00%	0,00%
Gesamtergebnis	5,02%	14,13%	32,90%	46,65%	1,30%

Anzahl von Mein fahrerisches Geschick beim Autofahren anwenden zu können, macht mir Spaß					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	17,95%	35,90%	28,21%	17,95%	0,00%
Birkach	18,18%	9,09%	27,27%	40,91%	4,55%
Botnang	0,00%	20,00%	53,33%	26,67%	0,00%
Degerloch	8,33%	25,00%	33,33%	33,33%	0,00%
Feuerbach	17,65%	29,41%	23,53%	29,41%	0,00%
Hedelfingen	8,70%	26,09%	47,83%	17,39%	0,00%
Möhringen	6,67%	26,67%	33,33%	33,33%	0,00%
Mühlhausen	4,35%	47,83%	39,13%	8,70%	0,00%
Münster	6,52%	39,13%	23,91%	26,09%	4,35%
Obertürkheim	20,00%	40,00%	30,00%	10,00%	0,00%
Plieningen	9,09%	22,73%	50,00%	18,18%	0,00%
Sillenbuch	0,00%	35,29%	41,18%	23,53%	0,00%
Stammheim	5,26%	21,05%	42,11%	31,58%	0,00%
Stuttgart-Mitte	11,90%	35,71%	23,81%	26,19%	2,38%
Stuttgart-Nord	8,33%	41,67%	25,00%	25,00%	0,00%
Stuttgart-Ost	16,67%	16,67%	33,33%	16,67%	16,67%
Stuttgart-Süd	5,56%	33,33%	44,44%	16,67%	0,00%
Stuttgart-West	3,70%	33,33%	29,63%	25,93%	7,41%
Untertürkheim	17,65%	29,41%	17,65%	23,53%	11,76%
Vaihingen	3,45%	13,79%	58,62%	20,69%	3,45%
Wangen	9,09%	13,64%	50,00%	22,73%	4,55%
Weilimdorf	7,14%	19,05%	47,62%	26,19%	0,00%
Zuffenhausen	11,76%	29,41%	23,53%	29,41%	5,88%
(Leer)	14,29%	14,29%	23,81%	33,33%	14,29%
Gesamtergebnis	9,46%	27,83%	35,44%	24,30%	2,97%

Anzahl von Wenn ich im Auto sitze, fühle ich mich sicher und geschützt					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	20,51%	51,28%	15,38%	10,26%	2,56%
Birkach	13,64%	22,73%	22,73%	36,36%	4,55%
Botnang	0,00%	33,33%	26,67%	40,00%	0,00%
Degerloch	16,67%	33,33%	25,00%	25,00%	0,00%
Feuerbach	5,88%	29,41%	23,53%	41,18%	0,00%
Hedelfingen	4,35%	17,39%	47,83%	30,43%	0,00%
Möhringen	0,00%	33,33%	20,00%	46,67%	0,00%
Mühlhausen	8,70%	47,83%	8,70%	34,78%	0,00%
Münster	26,09%	32,61%	32,61%	6,52%	2,17%
Obertürkheim	10,00%	40,00%	10,00%	40,00%	0,00%
Plieningen	9,09%	36,36%	27,27%	27,27%	0,00%
Sillenbuch	17,65%	47,06%	5,88%	29,41%	0,00%
Stammheim	15,79%	21,05%	36,84%	26,32%	0,00%
Stuttgart-Mitte	19,05%	47,62%	19,05%	11,90%	2,38%
Stuttgart-Nord	8,33%	50,00%	25,00%	16,67%	0,00%
Stuttgart-Ost	33,33%	41,67%	16,67%	8,33%	0,00%
Stuttgart-Süd	5,56%	55,56%	27,78%	11,11%	0,00%
Stuttgart-West	7,41%	29,63%	25,93%	29,63%	7,41%
Untertürkheim	41,18%	29,41%	11,76%	17,65%	0,00%
Vaihingen	10,34%	41,38%	24,14%	24,14%	0,00%
Wangen	13,64%	27,27%	31,82%	18,18%	9,09%
Weilimdorf	9,52%	35,71%	33,33%	21,43%	0,00%
Zuffenhausen	29,41%	23,53%	17,65%	23,53%	5,88%
(Leer)	33,33%	38,10%	28,57%	0,00%	0,00%
Gesamtergebnis	15,40%	36,55%	24,49%	21,89%	1,67%

Anzahl von Ich schätze es, beim Auto fahren selber darüber entscheiden zu können, mit welchen Personen ich zusammen fahren will					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	35,90%	38,46%	17,95%	5,13%	2,56%
Birkach	18,18%	22,73%	27,27%	27,27%	4,55%
Botnang	6,67%	66,67%	20,00%	6,67%	0,00%
Degerloch	16,67%	50,00%	16,67%	8,33%	8,33%
Feuerbach	23,53%	52,94%	17,65%	5,88%	0,00%
Hedelfingen	8,70%	43,48%	39,13%	4,35%	4,35%
Möhringen	26,67%	40,00%	20,00%	13,33%	0,00%
Mühlhausen	34,78%	34,78%	26,09%	4,35%	0,00%
Münster	36,17%	19,15%	31,91%	8,51%	4,26%
Obertürkheim	50,00%	40,00%	10,00%	0,00%	0,00%
Plieningen	4,55%	50,00%	18,18%	27,27%	0,00%
Sillenbuch	29,41%	41,18%	11,76%	17,65%	0,00%
Stammheim	26,32%	36,84%	26,32%	10,53%	0,00%
Stuttgart-Mitte	28,57%	38,10%	16,67%	14,29%	2,38%
Stuttgart-Nord	16,67%	50,00%	25,00%	8,33%	0,00%
Stuttgart-Ost	25,00%	33,33%	16,67%	25,00%	0,00%
Stuttgart-Süd	38,89%	38,89%	5,56%	16,67%	0,00%
Stuttgart-West	14,81%	40,74%	14,81%	25,93%	3,70%
Untertürkheim	29,41%	47,06%	23,53%	0,00%	0,00%
Vaihingen	17,24%	34,48%	34,48%	10,34%	3,45%
Wangen	18,18%	36,36%	22,73%	9,09%	13,64%
Weilimdorf	23,81%	30,95%	38,10%	7,14%	0,00%
Zuffenhausen	29,41%	17,65%	29,41%	11,76%	11,76%
(Leer)	33,33%	23,81%	19,05%	19,05%	4,76%
Gesamtergebnis	25,19%	36,67%	23,52%	11,85%	2,78%

PrvtOV

Anzahl von In öffentlichen Verkehrsmitteln kommen mir Personen auf unangenehme Weise zu nahe					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	10,26%	20,51%	41,03%	23,08%	5,13%
Birkach	0,00%	4,55%	36,36%	59,09%	0,00%
Botnang	0,00%	0,00%	26,67%	73,33%	0,00%
Degerloch	8,33%	0,00%	33,33%	58,33%	0,00%
Feuerbach	5,88%	5,88%	35,29%	52,94%	0,00%
Hedelfingen	0,00%	4,35%	39,13%	56,52%	0,00%
Möhringen	6,67%	6,67%	6,67%	80,00%	0,00%
Mühlhausen	0,00%	8,70%	30,43%	60,87%	0,00%
Münster	17,02%	27,66%	31,91%	21,28%	2,13%
Obertürkheim	0,00%	10,00%	50,00%	40,00%	0,00%
Plieningen	0,00%	4,55%	40,91%	54,55%	0,00%
Sillenbuch	11,76%	11,76%	23,53%	52,94%	0,00%
Stammheim	0,00%	21,05%	26,32%	52,63%	0,00%
Stuttgart-Mitte	14,29%	19,05%	45,24%	21,43%	0,00%
Stuttgart-Nord	0,00%	16,67%	58,33%	25,00%	0,00%
Stuttgart-Ost	8,33%	16,67%	33,33%	41,67%	0,00%
Stuttgart-Süd	0,00%	22,22%	55,56%	22,22%	0,00%
Stuttgart-West	7,41%	11,11%	33,33%	48,15%	0,00%
Untertürkheim	5,88%	11,76%	47,06%	35,29%	0,00%
Vaihingen	0,00%	13,79%	20,69%	65,52%	0,00%
Wangen	4,55%	13,64%	40,91%	40,91%	0,00%
Weilimdorf	2,38%	7,14%	50,00%	40,48%	0,00%
Zuffenhausen	5,88%	17,65%	23,53%	52,94%	0,00%
(Leer)	14,29%	33,33%	52,38%	0,00%	0,00%
Gesamtergebnis	6,11%	14,07%	37,22%	42,04%	0,56%

Anzahl von In öffentlichen Verkehrsmitteln wird meine Privatsphäre auf unangenehme Weise eingeschränkt					
	1 trifft voll zu	2 trifft eher zu	3 trifft eher nicht zu	4 trifft gar nicht zu	5 k.A.
Bad Cannstatt	10,26%	15,38%	20,51%	48,72%	5,13%
Birkach	0,00%	0,00%	13,64%	86,36%	0,00%
Botnang	0,00%	0,00%	0,00%	100,00%	0,00%
Degerloch	0,00%	8,33%	16,67%	75,00%	0,00%
Feuerbach	5,88%	0,00%	5,88%	88,24%	0,00%
Hedelfingen	0,00%	0,00%	4,35%	95,65%	0,00%
Möhringen	6,67%	6,67%	0,00%	86,67%	0,00%
Mühlhausen	0,00%	0,00%	8,70%	91,30%	0,00%
Münster	10,64%	27,66%	29,79%	31,91%	0,00%
Obertürkheim	0,00%	10,00%	0,00%	90,00%	0,00%
Plieningen	0,00%	0,00%	27,27%	68,18%	4,55%
Sillenbuch	0,00%	17,65%	23,53%	58,82%	0,00%
Stammheim	0,00%	0,00%	5,26%	94,74%	0,00%
Stuttgart-Mitte	11,90%	9,52%	35,71%	38,10%	4,76%
Stuttgart-Nord	0,00%	8,33%	33,33%	58,33%	0,00%
Stuttgart-Ost	8,33%	0,00%	33,33%	58,33%	0,00%
Stuttgart-Süd	0,00%	11,11%	27,78%	61,11%	0,00%
Stuttgart-West	0,00%	3,70%	29,63%	66,67%	0,00%
Untertürkheim	5,88%	0,00%	29,41%	64,71%	0,00%
Vaihingen	0,00%	0,00%	20,69%	79,31%	0,00%
Wangen	0,00%	13,64%	9,09%	77,27%	0,00%
Weilimdorf	0,00%	7,14%	4,76%	88,10%	0,00%
Zuffenhausen	5,88%	5,88%	23,53%	64,71%	0,00%
(Leer)	0,00%	31,82%	54,55%	13,64%	0,00%
Gesamtergebnis	3,51%	8,69%	20,15%	66,73%	0,92%

Bad Cannstatt	Ich fühle mich aufgrund meiner Prinzipien persönlich verpflichtet, auf meinen Wegen im Alltag umweltfreundliche Verkehrsmittel zu benutzen	Ich fühle mich verpflichtet, durch die Wahl meiner Verkehrsmittel einen Beitrag zum Klimaschutz zu leisten	Menschen, die mir wichtig sind, denken, dass ich anstatt des Pkws öffentliche Verkehrsmittel nutzen sollte	Menschen, die mir wichtig sind, würden mich unterstützen, wenn ich für meine Wege im Alltag anstatt des Pkws öffentliche Verkehrsmittel nutzen würde	Ich kann das, was ich tun will, mit öffentlichen Verkehrsmitteln erledigen	Ich kann meinen Alltag sehr gut ohne Auto gestalten	Für mich ist es schwer, die Wege in meinem Alltag mit öffentlichen Verkehrsmitteln anstatt mit dem PKW zurückzulegen	Wenn ich will, ist es einfach für mich, öffentliche Verkehrsmittel anstatt des Pkws für meine Wege im Alltag zu nutzen	Meine Alltagsorganisation erfordert ein hohes Maß an Mobilität	Ich muss ständig mobil sein, um meinen alltäglichen Verpflichtungen nachzukommen	Bei kühlem Wetter fahre ich ungern Rad	Ich fahre auch bei schlechtem Wetter Rad	Beim Radfahren kann ich mich gut entspannen	Ich bin gerne mit dem Rad unterwegs	Auto fahren bedeutet für mich Freiheit	Autofahren bedeutet für mich Spaß und Leidenschaft	Mein fahrerisches Geschick beim Autofahren anwenden zu können, macht mir Spaß	Wenn ich im Auto sitze, fühle ich mich sicher und geschützt	Ich schätze es, beim Auto fahren selber darüber entscheiden zu können, mit welchen Personen ich zusammen fahren will	In öffentlichen Verkehrsmitteln kommen mir Personen auf
1 trifft voll zu	14	15	4	12	8	10	2	12	10	5	10	6	6	16	4	2	4	5	11	3
2 trifft eher zu	16	15	5	14	21	15	4	15	14	11	13	8	19	9	7	7	13	18	13	6
3 trifft eher nicht zu	1	2	11	3	2	5	15	5	8	8	7	6	3	5	16	12	9	6	6	14
4 trifft gar nicht zu	2	1	9	3	2	2	11	1	1	7	1	9	3	1	6	11	7	4	2	8

Birkach																					
1 trifft voll zu	13	14	2	12	3	4	1	3	10	5	6	6	10	17	1	1	4	3	4	0	0
2 trifft eher zu	9	7	3	1	8	7	11	6	7	4	9	8	7	3	5	3	2	5	5	1	0
3 trifft eher nicht zu	0	1	8	4	10	11	6	12	3	8	3	3	4	2	5	4	6	5	6	8	3
4 trifft gar nicht zu	0	0	8	2	1	0	4	0	2	5	3	5	1	0	10	13	9	8	6	13	19

Botnang																					
1 trifft voll zu	2	6	2	6	2	2	1	0	1	0	5	2	4	8	0	0	0	0	1	0	0
2 trifft eher zu	12	8	5	7	10	8	1	13	10	3	7	5	6	5	2	1	3	5	10	0	0
3 trifft eher nicht zu	1	1	6	1	3	4	9	1	4	7	1	3	3	1	10	3	8	4	3	4	0
4 trifft gar nicht zu	0	0	2	1	0	1	4	1	0	5	1	4	0	0	3	11	4	6	1	11	15

Degerloch																					
1 trifft voll zu	6	7	0	6	3	4	0	5	4	3	2	1	3	9	0	0	1	2	2	1	0
2 trifft eher zu	5	3	3	5	7	6	2	5	6	4	7	5	7	1	2	1	3	4	6	0	1
3 trifft eher nicht zu	1	2	5	1	2	2	5	2	2	5	2	3	1	2	8	4	4	3	2	4	2
4 trifft gar nicht zu	0	0	4	0	0	0	5	0	0	0	1	2	0	0	2	7	4	3	1	7	9

Hedelfingen																					
1 trifft voll zu	4	6	3	10	3	2	1	5	3	5	5	5	5	13	1	1	2	1	2	0	0
2 trifft eher zu	16	14	4	10	18	16	2	15	18	5	10	7	15	9	4	0	6	4	10	1	0
3 trifft eher nicht zu	2	2	13	2	2	3	16	2	2	8	8	4	3	1	14	7	11	11	9	9	1
4 trifft gar nicht zu	1	1	3	1	0	2	4	1	0	5	0	6	0	0	4	15	4	7	1	13	22

Möhringen																					

1 trifft voll zu	3	7	1	7	2	2	1	2	3	2	4	2	4	9	1	0	1	0	4	1	1
2 trifft eher zu	11	7	3	3	8	8	4	7	5	5	6	5	7	4	2	2	4	5	6	1	1
3 trifft eher nicht zu	1	1	5	4	5	5	7	4	5	2	3	4	3	2	10	3	5	3	3	1	0
4 trifft gar nicht zu	0	0	5	1	0	0	3	2	2	6	2	4	1	0	2	10	5	7	2	12	13

Mühlhausen																					
1 trifft voll zu	3	9	4	6	1	1	5	2	5	3	10	5	7	11	1	0	1	2	8	0	0
2 trifft eher zu	16	10	4	10	17	11	7	10	15	6	11	4	7	9	9	1	11	11	8	2	0
3 trifft eher nicht zu	2	2	6	5	4	8	8	6	2	8	1	6	8	2	12	11	9	2	6	7	2
4 trifft gar nicht zu	2	2	9	2	1	3	3	5	1	6	0	7	0	0	1	11	2	8	1	14	21

Münster																					
1 trifft voll zu	10	16	6	10	4	7	4	8	7	6	12	9	11	14	7	6	3	12	16	8	5
2 trifft eher zu	26	21	9	16	14	10	19	14	25	16	14	11	18	17	13	5	17	14	8	11	12
3 trifft eher nicht zu	6	5	16	7	22	17	12	15	9	14	9	12	8	10	16	11	10	13	14	14	12
4 trifft gar nicht zu	2	2	10	7	3	9	9	7	2	6	8	11	4	2	8	21	12	3	4	10	15

Obertürkheim																					
1 trifft voll zu	1	2	1	1	1	1	3	3	1	1	5	0	1	5	0	0	2	1	5	0	0
2 trifft eher zu	7	4	1	6	6	4	1	3	5	3	4	2	3	3	6	3	4	4	4	1	1
3 trifft eher nicht zu	2	3	4	2	3	4	5	2	4	4	1	2	5	1	4	3	3	1	1	5	0
4 trifft gar nicht zu	0	1	4	1	0	1	1	2	0	2	0	6	1	1	0	4	1	4	0	4	9

Plieningen																					
1 trifft voll zu	9	14	2	9	4	4	3	5	6	2	8	5	5	17	1	1	2	2	1	0	0
2 trifft eher zu	10	6	5	8	12	8	6	9	9	3	11	6	12	2	3	0	5	7	10	1	0
3 trifft eher nicht zu	1	0	8	3	3	6	7	5	5	11	0	5	2	0	10	5	9	5	3	7	4
4 trifft gar nicht zu	0	0	5	0	1	2	4	1	0	4	1	4	1	1	6	14	4	6	6	12	15

Sillenbuch																					
1 trifft voll zu	4	5	1	3	5	5	2	4	4	3	2	3	6	11	1	0	0	3	4	1	0
2 trifft eher zu	8	5	4	8	7	5	4	5	6	5	9	4	7	3	4	2	4	6	6	2	2
3 trifft eher nicht zu	3	4	4	4	3	4	3	5	5	6	0	3	1	1	6	4	7	1	2	4	4
4 trifft gar nicht zu	0	0	6	0	0	1	6	1	0	1	4	5	0	0	4	9	4	5	3	8	9

Stammheim																					
1 trifft voll zu	4	5	3	2	1	2	2	1	2	2	3	4	3	10	1	0	1	3	5	0	0
2 trifft eher zu	13	9	3	11	11	8	6	9	12	2	10	8	11	7	4	2	4	4	6	4	0
3 trifft eher nicht zu	1	3	9	3	6	5	7	6	4	8	4	0	3	0	10	8	7	7	5	5	1
4 trifft gar nicht zu	0	1	3	2	0	3	3	2	0	6	0	5	0	0	3	8	6	4	2	9	17

S-Mitte																					
1 trifft voll zu	5	6	0	6	3	6	3	3	4	0	4	4	5	8	0	0	0	0	2	1	1
2 trifft eher zu	8	4	6	4	7	5	0	8	8	7	4	6	6	4	2	2	6	7	6	2	0
3 trifft eher nicht zu	0	3	4	2	4	3	5	1	1	4	4	3	1	0	5	5	3	3	3	6	4
4 trifft gar nicht zu	0	1	4	2	0	0	6	2	1	3	2	1	2	2	7	7	5	4	3	5	9

S-Nord																					
1 trifft voll zu	1	2	1	2	1	2	1	2	3	1	5	0	2	4	1	1	1	1	2	0	0
2 trifft eher zu	8	6	2	3	7	5	1	4	3	2	4	5	3	3	2	0	4	5	5	2	1
3 trifft eher nicht zu	0	1	3	2	0	1	6	2	4	4	1	2	3	2	4	5	3	2	2	5	3
4 trifft gar nicht zu	1	1	4	3	2	2	1	2	0	3	0	3	2	1	3	4	2	2	1	3	6

S-Ost																					
1 trifft voll zu	4	4	2	4	7	7	1	6	2	2	4	2	3	7	1	1	2	4	3	1	1
2 trifft eher zu	7	5	6	8	3	3	1	3	7	3	4	5	7	4	0	2	2	5	4	2	0
3 trifft eher nicht zu	1	3	2	0	2	1	4	1	2	4	2	3	1	0	9	2	4	2	2	4	4
4 trifft gar nicht zu	0	0	2	0	0	1	6	1	1	2	2	2	1	1	2	6	2	1	3	5	7

S-Süd																					
1 trifft voll zu	6	7	2	4	6	6	0	8	1	0	3	3	4	12	0	0	1	1	7	0	0
2 trifft eher zu	10	8	3	7	11	9	4	7	10	8	9	6	9	3	7	5	6	10	7	4	2
3 trifft eher nicht zu	1	2	10	3	1	2	7	2	7	6	4	4	4	1	6	11	8	5	1	10	5
4 trifft gar nicht zu	1	1	3	4	0	1	7	1	0	4	2	5	1	2	5	2	3	2	3	4	11

S-West																					
1 trifft voll zu	9	15	3	14	10	12	1	16	4	2	7	4	8	16	1	1	1	2	4	2	0
2 trifft eher zu	16	10	9	8	16	12	3	8	10	8	9	7	8	5	7	3	9	8	11	3	1
3 trifft eher nicht zu	1	1	9	1	1	1	6	2	10	9	6	7	5	1	10	10	8	7	4	9	8
4 trifft gar nicht zu	1	1	5	2	0	1	17	1	3	8	4	6	3	2	8	12	7	8	7	13	18

Untertürkheim																					
1 trifft voll zu	3	2	1	6	2	3	1	3	3	3	6	3	2	5	1	1	2	6	4	1	1
2 trifft eher zu	7	7	2	3	7	5	3	8	8	0	2	2	6	6	6	3	5	4	6	2	0
3 trifft eher nicht zu	2	2	8	2	5	6	5	3	3	7	4	3	5	1	7	5	2	2	4	7	4
4 trifft gar nicht zu	2	3	3	2	0	0	5	0	0	4	1	5	0	1	0	5	3	2	0	4	9

Vaihingen																					
1 trifft voll zu	11	9	2	9	8	11	1	15	6	1	4	9	9	19	1	0	1	2	5	0	0
2 trifft eher zu	14	16	6	14	17	14	2	10	18	12	14	9	16	7	2	2	4	12	10	4	0
3 trifft eher nicht zu	2	2	10	2	2	2	13	3	4	9	7	4	2	1	18	9	16	7	9	6	5
4 trifft gar nicht zu	0	0	10	2	1	1	12	0	0	6	3	6	1	1	7	17	6	7	3	18	23

Wangen																					
1 trifft voll zu	6	12	2	8	4	3	1	6	8	6	7	5	8	14	1	0	2	3	4	1	0
2 trifft eher zu	13	7	7	7	13	13	5	12	7	5	8	4	10	6	5	2	3	6	8	3	3
3 trifft eher nicht zu	3	2	8	3	4	4	9	2	6	5	4	4	1	0	10	6	11	7	5	9	2
4 trifft gar nicht zu	0	1	4	2	1	2	7	1	1	6	1	8	2	1	5	13	5	4	2	9	17

Weilimdorf																					
1 trifft voll zu	16	8	3	18	1	4	3	6	2	2	11	10	9	19	3	2	3	4	10	1	0
2 trifft eher zu	21	18	11	18	29	20	15	16	27	5	21	12	27	18	7	5	8	15	13	3	3
3 trifft eher nicht zu	5	15	16	3	10	12	19	15	11	19	8	8	2	1	23	21	20	14	16	21	2
4 trifft gar nicht zu	0	1	12	3	2	6	5	5	2	16	2	12	3	3	9	14	11	9	3	17	37

Zuffenhausen																					
1 trifft voll zu	6	8	0	4	7	4	5	3	2	1	6	1	5	6	1	1	2	4	4	1	1
2 trifft eher zu	7	5	5	7	4	5	3	7	10	6	10	7	4	6	4	1	4	4	3	3	1
3 trifft eher nicht zu	1	1	8	2	2	4	5	2	1	7	0	2	6	2	5	4	4	3	5	4	4
4 trifft gar nicht zu	1	1	3	3	3	3	3	4	2	2	0	6	1	1	5	9	5	4	2	8	10

Non-Stuttgarter																					
1 trifft voll zu	24	23	8	15	12	12	12	8	21	11	24	12	15	25	11	7	12	20	21	9	5
2 trifft eher zu	28	31	12	24	22	20	18	24	28	27	20	14	23	21	21	23	19	27	25	15	15
3 trifft eher nicht zu	9	5	28	17	25	21	21	20	14	23	13	19	18	12	21	18	17	15	12	32	28
4 trifft gar nicht zu	5	7	17	8	7	14	13	13	2	5	9	21	8	7	13	19	15	3	7	10	16

Stuttgarter age: 16-25 years																					
1 trifft voll zu	40	51	11	45	32	29	5	32	25	18	25	24	30	71	1	1	6	11	20	5	3
2 trifft eher zu	65	49	25	50	55	51	19	52	65	32	52	41	54	25	20	15	30	36	44	7	3
3 trifft eher nicht zu	2	7	51	7	19	23	45	18	14	34	19	22	19	8	59	30	41	28	22	36	12
4 trifft gar nicht zu	0	0	18	5	1	4	37	4	3	22	9	19	3	2	24	57	24	29	16	59	89

Stuttgarter age: 26-39 years																					
1 trifft voll zu	45	65	23	63	32	38	13	52	37	21	45	35	41	99	13	9	14	24	41	9	5
2 trifft eher zu	103	73	42	64	99	83	34	70	85	46	82	53	84	43	29	19	45	59	66	23	10
3 trifft eher nicht zu	12	17	56	21	31	31	70	34	37	61	31	32	29	15	88	55	66	40	38	56	24
4 trifft gar nicht zu	5	11	44	17	4	12	49	10	6	37	7	44	10	8	35	81	36	41	19	78	126

Stuttgarter age: 40-65 years																					
1 trifft voll zu	41	49	7	44	12	24	18	27	25	16	41	31	45	73	13	9	15	20	38	9	6
2 trifft eher zu	73	55	31	47	83	55	41	60	71	37	53	31	59	44	33	14	35	57	44	25	15
3 trifft eher nicht zu	16	25	53	23	33	43	51	37	38	53	25	30	17	10	60	48	52	33	39	47	32
4 trifft gar nicht zu	8	8	44	18	11	17	29	14	5	33	20	45	15	10	33	68	37	28	15	58	86

Stuttgarter age: 65+ years																					
1 trifft voll zu	12	13	6	7	11	12	6	10	1	1	18	2	7	11	3	1	2	7	11	1	0
2 trifft eher zu	22	21	7	19	19	10	10	12	17	8	10	10	15	16	19	3	13	11	11	5	3
3 trifft eher nicht zu	6	6	15	8	11	11	14	10	19	14	3	4	9	4	12	16	10	9	11	20	9
4 trifft gar nicht zu	1	1	11	4	1	8	11	9	5	19	4	19	2	3	8	21	17	14	7	15	29

Stuttgart Academics (Bachelor, Master, Promotion)																					
1 trifft voll zu	79	86	12	72	51	58	15	61	42	21	43	36	53	103	13	9	17	26	45	13	8
2 trifft eher zu	84	68	42	56	89	75	33	71	84	54	86	55	80	40	36	20	47	73	58	26	16
3 trifft eher nicht zu	10	16	68	26	31	34	64	32	45	58	29	39	26	19	78	58	71	39	47	68	46
4 trifft gar nicht zu	7	9	52	17	8	11	68	14	7	45	17	43	13	12	53	91	41	38	25	72	110

Stuttgart Non-Academics																					
1 trifft voll zu	53	83	29	84	35	41	23	56	38	28	80	49	60	134	11	5	18	29	63	10	4
2 trifft eher zu	169	122	57	113	157	122	61	117	145	61	106	74	127	90	65	30	74	83	98	27	11
3 trifft eher nicht zu	25	37	100	33	55	68	111	55	59	98	44	48	46	14	130	87	88	68	58	85	28
4 trifft gar nicht zu	5	10	64	21	7	22	57	25	12	65	18	77	12	9	44	126	66	70	27	131	209

Poster of the PsyVKN

Wissenschaftliche Befragung zu Ihrem Mobilitätsverhalten in Stuttgart

Für Leute aus Stuttgart und seine Gäste

Bis 31.12.2022 teilnehmen

umfrageonline.com/c/p9zv3mfd

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