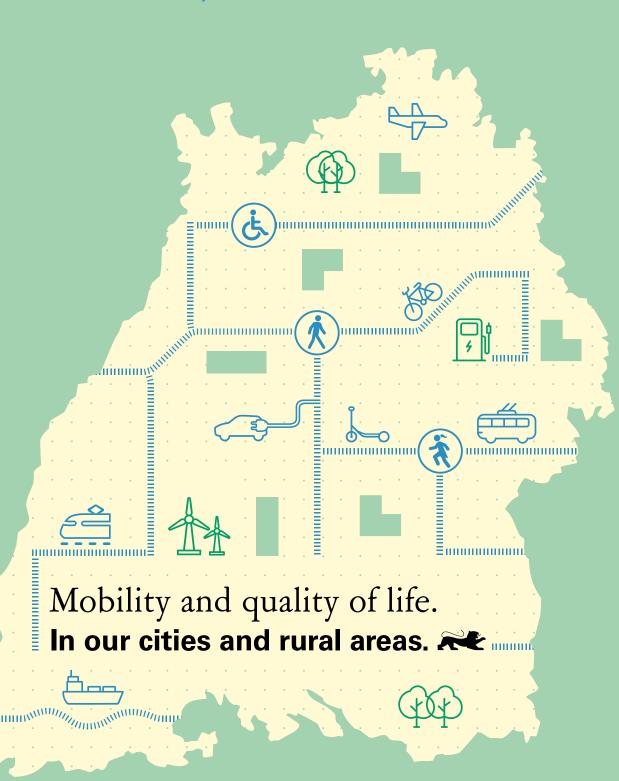
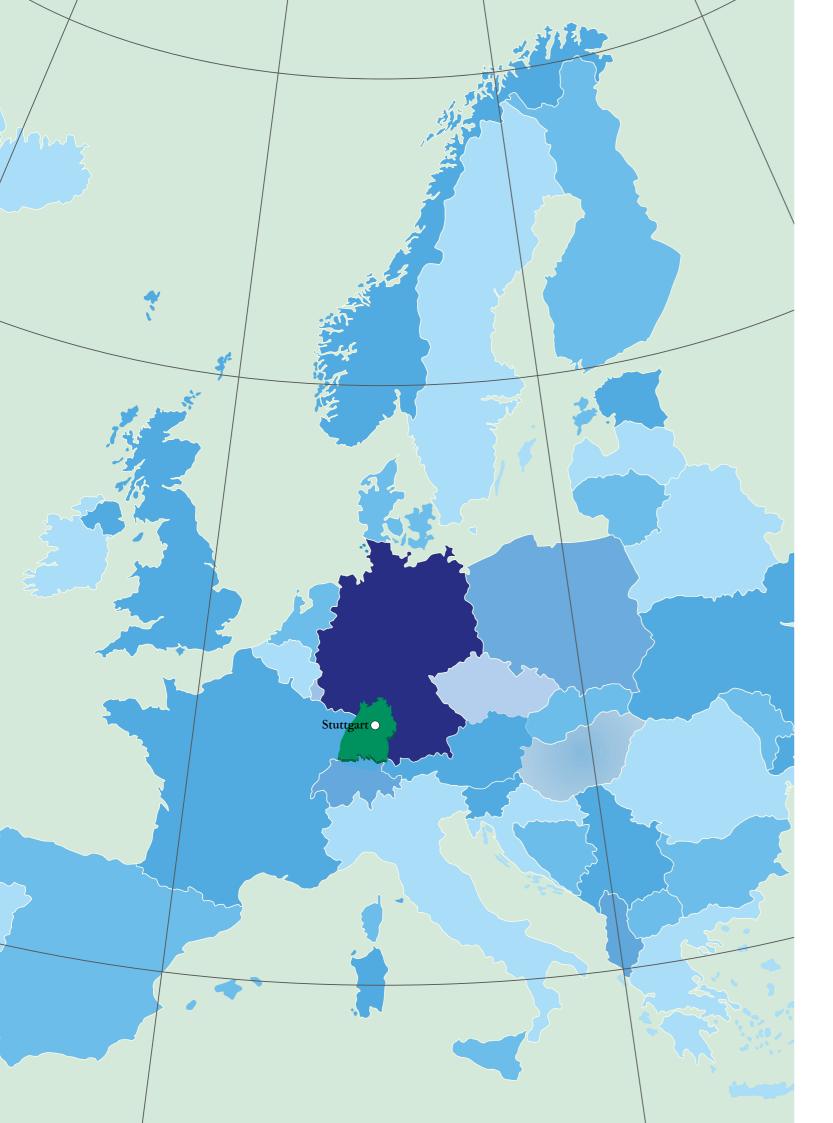


## Projects and Goals

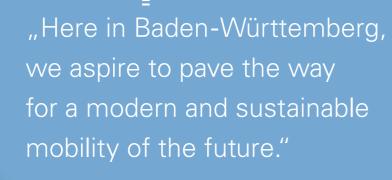




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Winfried Hermann, Member of the Landtag, Transport Minister



"A modern transport policy means:

Protecting the environment and people against harmful air pollutants and converting to climate-neutral drive systems."

Prof. Dr. Uwe Lahl, Head of Ministry





### **PREFACE**

#### Towards the future of mobility

The stated goal of the federal state government reads: "Here in Baden-Württemberg, we aspire to pave the way for modern and sustainable mobility of the future". To ensure that we achieve this goal, we need to take a fundamentally different approach and redirect our efforts in a wide range of areas. Quality of life, mobility, air monitoring and protection of the environment present major challenges for policy makers, society and industry. Around one third of greenhouse gas emissions in Baden-Württemberg come from the traffic sector, primarily from road traffic. The changeover to sustainable energy sources and climate friendly drives as well as the networking of various types of private transportation and public transport is vital. This shift in transport policy presents major challenges, yet it also offers numerous opportunities, including for our economy in terms of offering sustainable products and services. We want to lead the way when it comes to future-proof mobility in order to safeguard Baden-Württemberg's standing as a location for the automotive industry and also to develop our region into a hotbed for the sustainable mobility industry.

When we talk about future mobility, we are referring to sustainable, environmentally friendly, economically successful and socially inclusive mobility. The change in transport policy refers to a shift towards electric cars and other environmentally friendly drives, an increase in the number of buses and trains available, a rise in the number of journeys made by bike and by foot and the intelligent networking of different modes of transport. Yet this is only possible if we approach the issue of mobility at all levels; with urban developers, road constructors, the research sector, industry, municipalities, Europe and, last but not least, the citizens of Baden-Württemberg. The time has come to make the change!

We are well aware that we cannot make the switch to sustainable mobility overnight. This process must be linked to the energy revolution in the transport sector and the new mobility patterns and concepts. We have already achieved great things, yet we still have a lot to do.

This brochure has been developed to give you an insight into our work. It further highlights our plans and projects on the road to new, sustainable mobility.

Winfried Hermann, MdL

Minister of Transport for the State of Baden-Württemberg (Mal lahl

Prof. Dr. Uwe Lahl
Head of the Ministry of Transport
for the State of Baden-Württemberg





Traffic has been increasing worldwide for decades. More road traffic, more air traffic, more ship traffic, more freight traffic. The globalisation of production and consumption and cheap traffic offers have fed the boom in transport and travel. What might be good for the economy and great for the individual has resulted in a massive global increase in greenhouse gases. This is why, in order to reach the targets laid out in the Paris Agreement, the EU and the German federal government have committed to reducing  $CO_2$  emissions in the traffic sector by 80 percent to 95 percent by the middle of the century. The state is also facing up to its responsibility.

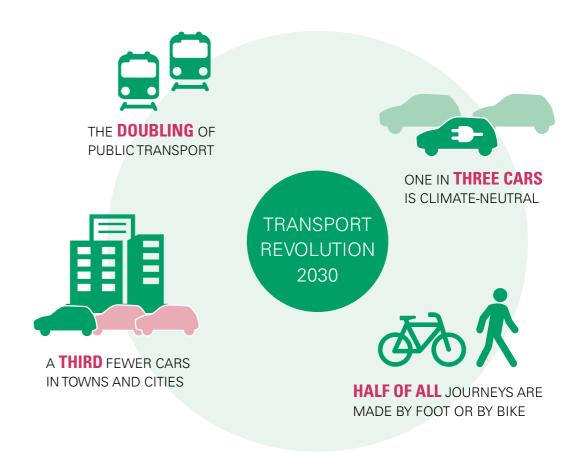
Around 34 percent of greenhouse gases in Baden-Württemberg come from the transport sector and predominantly from road traffic. Transport is the only area in Germany in which emissions have not dropped since 1990. That is why, the entire mobility system must be permanently changed over to renewable energies.

The state has set goals for reducing CO<sub>2</sub> emissions. These are specified in the Integrated Energy and Climate Protection

Plan for all sectors and target in particular the development of more environmentally friendly forms of mobility, namely cycling and foot traffic as well as public transport. The German Ministry of Transport supports this through supporting measures, e.g., mobility data, electromobility, mobility stations, railway vehicles, regional bus lines and transshipment terminals for combined transport.

In 2017, the German Ministry of Transport highlighted in a climate protection scenario what is additionally required in order to achieve the climate protection goals in the transport sector. This, for example, demands a far greater investment in the rail infrastructure than earmarked in the Traffic Forecast for 2030 and a doubling of public transport.





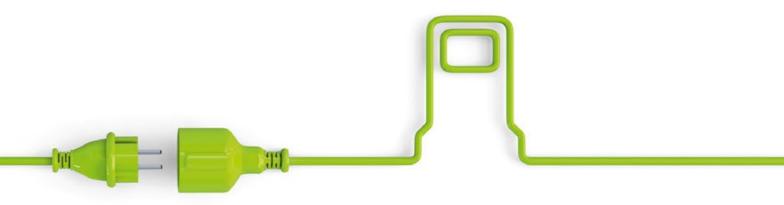
## THE MOBILITY SECTOR IS UNDERGOING A MAJOR TRANSFORMATION AROUND THE WORLD

Digitalisation, electrification, autonomous driving and flexibleusage concepts present new opportunities for climate-compatible mobility as well as major social challenges. Transport and mobility are likewise prerequisites for employment and prosperity. The federal state government has initiated the strategy dialogue for the BW automobile

industry'. The German Ministry of Transport offers consultation on ,transport solutions' to companies, research bodies and society on what form sustainable mobility should take in practice. Additionally, effective measures and instruments are discussed which combine climate protection and mobility.

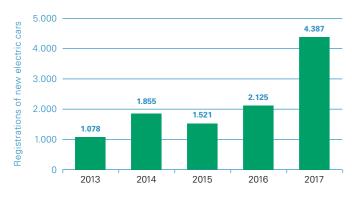
For more information go to

→ www.vm.baden-wuerttemberg.de/klimaschutz





### REGISTRATIONS OF NEW ELECTRIC CARS OVER THE PAST 5 YEARS IN BADEN-WÜRTTEMBERG



Source: Kraftfahrt-Bundesamt [German Federal Motor Transport Authority]

here is an unmistakable trend towards the electrification of transport. This applies not only to road traffic but also to rail traffic, taxis and buses. Bikes are currently undergoing the most rapid electrification. For us, electrification refers to drives powered by electricity as well as fuel cells. At the present, battery-powered drives are the most efficient, but other versions can also be a good solution for certain applications. What is significant is that the electricity comes from renewable sources.

The transport revolution combined with the energy revolution is an important step towards reaching the Paris climate goals. That's why the state continues to expand its support of electromobility and the associated charging infrastructure.

#### **ELECTROMOBILITY III STATE INITIATIVE**

With the ,State initiative III electromobility market growth in BW', funding for electromobility was expanded to the tune of € 43.5 million for the period from 2017 to 2021 with the goal of achieving effective market growth. A total of € 25 million is available to the German Ministry of Transport.

Today around 20 percent of all German electric cars are already being driven in Baden-Württemberg. The state government aims to increase the number of vehicles with electric drives (electric battery and plug-in hybrid) in Baden-Württemberg to 200,000 by 2020. In 2017 around twice as many electric vehicles were registered than in 2016 and a further increase is to be expected.



To ensure that the manufacturing industries are provided with reliable framework conditions for the development of innovative vehicle concepts, the German Ministry of Transport supports the long-term establishment of ambitious CO<sub>2</sub> limits for fleets at European level. As the home of the car, Baden-Württemberg is striving to become the leading market for electromobility as well as the leading provider of alternative drives, innovative usage concepts and networked resource-saving mobility.

#### THE ,SAFE' SUPPORT INITIATIVE

Even with a limited range, electric vehicles are suitable for day-to-day use since the majority of daily journeys made by car are less than 30 kilometers long. The key prerequisite here is a network of filling stations for electrical operating vehicles, so-called charging stations. On this basis, the state is supporting the expansion of a charging infrastructure. Even today more than 2,000 charging points are available in Baden-Württemberg. With "SAFE", the state is planning to introduce a blanket safety charging network for electric vehicles offering at least one charging option with a minimum output of 22 kW within a grid measuring around 10 by 10 kilometers. A rapid charging network with a charging capacity of 50 kW is to be integrated in a 20 x 20 km grid. The majority of electric vehicles can be charged at the rapid charging stations with sufficient electricity to cover 100 km within 20 minutes. With these measures, the state is ensuring a truly comprehensive charging infrastructure throughout Baden-Württemberg.

#### **ELECTROMOBILITY FUNDING PROGRAMMES**

The state government's vehicle fleet serves as an important example. Since the launch of the electromobility programme back in 2012, up to the start of April 2018 a total of 280 electric and hybrid vehicles as well as far in excess of 500 pedelecs have been funded for the state government's fleet. State employees are able to charge their own electric bikes free of charge and tax-free at their workplace. In turn, this enables employees to take a more sustainable and environ-mentally friendly approach towards mobility.

With the state initiative III, Baden-Württemberg is creating incentives and facilitating access and the switch to electromobility for a range of business branches, institutions and public corporations. The extended funding comprises the procurement of electric and hybrid buses, electric trucks, borrowable pedelecs for local public transport stations and e-freight bikes. Furthermore, the purchasing of electric cars by taxi operators, rental car companies, driving schools, car sharing companies and care and social services is encouraged with the BW e-voucher. The funding of e-freight bikes and the BW e-voucher are particularly popular with applicants from a variety of sectors.



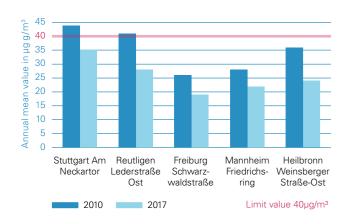
For more information go to

→ www.vm.baden-wuerttemberg.de/elektromobilitaet

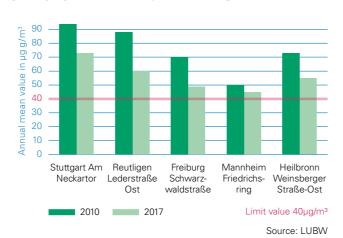
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## ANNUAL MEAN VALUE OF $PM_{10}$ PARTICLE CONCENTRATIONS AT MEASURING STATIONS IN BADEN-WÜRTTEMBERG



## ANNUAL MEAN VALUE OF NO<sub>2</sub> AT MEASURING STATIONS IN BADEN-WÜRTTEMBERG



ir pollutants such as fine dust PM<sub>10</sub> and nitrogen dioxide (NO<sub>2</sub>) have a negative effect on our health, especially our airways, on a daily basis. Older people and children as well as those with respiratory diseases, are particularly affected. Air pollutants are harmful for everyone.

Thanks to air pollution control measures and technical progress, the applicable air quality values for fine dust in Baden-Württemberg have been met virtually right across the board over the past decades. The upper daily average limit for PM<sub>10</sub> has been exceeded in Stuttgart only since 2014. In 2017, the permissible annual mean value for nitrogen dioxide was achieved at 10 measurement points for the first time. However, further considerable efforts are required in inner-

city high pollution areas close to streets in order to meet the permissible annual mean value for nitrogen dioxide there. This goes first and foremost for Stuttgart and Reutlingen, but also for several other towns.

The greatest progress until now has been achieved via technical measures (installation of particle filters as a prerequisite for the green badge) at the emission source, e.g., regulations on the engine and filter technology. Further additional measures have also been taken, e.g., new and larger green environmental zones, the stabilisation of traffic (speed restrictions, optimisation of traffic light control etc.) and the modernisation of municipal bus and vehicle fleets. However, endeavours to control air pollution are being frustrated by the high real emissions of nitrogen oxides (NO<sub>x</sub>) from Euro 5- and

Euro 6 diesel vehicles. Nevertheless, thanks to traffic planning to embrace more environmentally friendly means of transport such as biking, walking, train and bus travel, a number of towns and cities in Baden-Württemberg have achieved additional progress. The state government is counting on this and is interlinking its traffic and air pollution control policies.

The maximum immission values for fine dust PM<sub>10</sub> and nitrogen dioxide are to be met by all towns and cities in Baden-Württemberg by 2020. To this end, numerous measures to control air pollution are being taken in many places. Yet, if more strict measures such as traffic restrictions are necessary to achieve these goals, the existing air pollution control plans will be updated and new plans will be created.

#### **FURTHER ESSENTIAL MEASURES:**

- Traffic stabilisation by means of intelligent traffic control to prevent traffic jams and stop-and-go traffic through, for example, needs-based traffic light changes and speed limits (including for out-of-town routes and access roads).
- The creation of low-emission street zones through the conversion of traffic lanes for motorised private transport

into bike and bus lanes or grass verges in order to increase the distance between the source of emissions and housing developments.

- Changeover to low-emission vehicles (EURO 6/VI) and electric drives especially for delivery and courier services, care services, car sharing vehicles and taxis as well as the upgrading of buses to meet the most recent emissions standard (Euro VI).
- Moreover, the state government continues to back the introduction of the blue badge for environmentally friendly cars and effective hardware upgrades for diesel vehicles on the road.

Comprehensive funding is available for innovative measures in the form of the immediate programmes at federal level and the state funds for air pollution control. For the state government, air pollution control continues to be the top priority.

For more information go to

→ www.vm.baden-wuerttemberg.de/luftreinhaltung





Il areas of life, products, production processes, from services through to communication, have been radically altered. It is therefore no exaggeration to talk of a digital revolution. The mobility sector in particular is facing comprehensive changes: Whether it is local public transport, private cars, traffic planning or site management, everything is being digitalised.

The German Ministry of Transport is using digitalisation to develop and implement improved mobility concepts. These can play a central role in enabling greater mobility with less traffic, reducing air pollution and noise emissions and achieving the climate and environmental protection goals. At present, the German Ministry of Transport is working on 35 digital mobility projects for which around € 58 million has been made available.

#### **MOBILITY DATA ARCHITECTURE**

Alongside the development of high-performance Internet access, an interlinked, open and safe mobility data architecture is the precondition for sustainable, digital-based mobility. For example, real-time data on traffic on the roads (so-called "Floating Car Data") was collected for the entire state. This data is available to institutions and traffic control projects. To improve the foundations for data-based innovation in the mobility sector, the funding line "Mobility data architecture for innovative application" (MobiArch BW) was launched.

A novel data hub has been created within the scope of the pilot project moveBW sponsored by the German Ministry of Transport. This compiles real-time data for the Stuttgart region on the situation on the roads with a timetable and fault data from the local public transport system as well as municipal strategies for routing and makes these available via existing information channels and a dedicated app. The results are to be transferred into a permanent operator model for the Stuttgart region in 2019 and subsequently expanded to include other regions in the state.



#### TRAFFIC MANAGEMENT

Data landscapes open up new possibilities for traffic management which the German Ministry of Transport for Baden-Württemberg is exploiting through, for example, intelligent light signal systems which are tailored to vehicle concentrations based on real-time traffic data. An app is being developed together with the German Ministry of the Interior which will aid the digital recording of minor accidents in order to unblock accident sites more quickly. A new construction site information system is helping to coordinate sites throughout the state. With "Quality street construction 4.0 (Smart Site)", two construction sites are being managed almost completely digitally for the very first time. This has served to optimise the construction process, significantly improve construction quality and also reduce the construction time

With real-time traffic information the focus is also on recording of free parking and car sharing parking spaces in real time, determining journey times on the motorway network and providing warnings about traffic jams. The new app "VerkehrsInfo BW" [traffic info BW] has been upgraded to include a number of new functions. It already provides detailed and up-to-date information on traffic events on the streets at all times and for the entire state.

Mobility data is also being used specifically to promote bike traffic: A bike route planner has been created and the bike network digitalised. As such, current data is made available for prioritising the construction and preservation of cycle paths as well as for qualified traffic routing. Furthermore, an app is also being prepared, which will allow cyclists to report errors in the signposting of the RadNETZ Baden-Württemberg [bike network]. Investments are also being made in bike counting stations in order to improve the data basis for needs-based infrastructure planning.

#### **AUTONOMOUS DRIVING**

The German Ministry of Transport is playing a central role in the development of autonomous driving in order to render this both sustainably and safely. In the Karlsruhe/Bruchsal/Heilbronn region, the nationwide unique test field for autonomous driving in Baden-Württemberg which opened in May 2018 enjoys the support of the state government. In addition, as part of the DIAMANT project, a dialogue has been maintained since 2018 between users, operators and

manufacturers of autonomous vehicles for local public transport and the testing of a fully automated shuttle bus has been facilitated on a bus line in Ludwigsburg. A funding programme to determine the effects of automated and autonomous driving on traffic is currently being prepared.

#### **E-TICKETING AND FUNDING APPROACHES**

E-ticketing is to be introduced throughout the state for local public transport. By the end of 2020, the fundamentals for e-charges will have been developed with the state-wide e-ticket system. This will be enhanced by innovative, steering pricing and charge concepts, which are set to be launched on the market following the development of the control infrastructure.



Testfield autonomous driving

As a concomitant step, the German Ministry of Transport is involving both experts and the general public in the design and shaping of digital mobility. Against this backdrop, the German Ministry of Transport arranged a think tank to look at the digital mobility of the future. This resulted in an "Open Innovation Programme" which brings together designers, offers testing opportunities for ideas and facilitates the first steps towards permanent implementation. The think tank includes the "Digital Mobility Hack" for joint software development and the "Mobility Scholarship BW" which helps innovators to realise their vision.

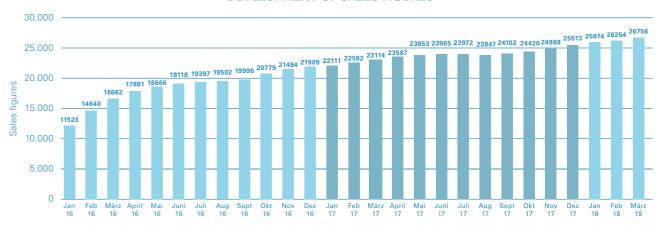
For more information go to

→ www.digitale-mobilitaet-bw.de



## JobTicket\\B\W

**DEVELOPMENT OF SALES FIGURES** 



Details on local transport and tariff associations, cumulative, as at: August 2018

The JobTicket BW has proven a successful model. It creates the incentive to make a permanent switch from car to local public transport. It is most effective where the air is worst and traffic jams are most frequent.

Winfried Hermann, Transport Minister

n Baden-Württemberg around 5.4 million employees commute between their home and place of work on a daily basis. Almost two thirds of them cover less than 15 km in one direction, the ideal distance for a bike or pedelec. Only one in twenty travels more than 50 km to work. Nevertheless, the majority of commuters choose to take their car to work.

The goal of mobility management is to handle all the traffic flows from a company or authority in a more environmentally friendly and efficient manner. In addition to having a positive impact on the environment, well organised mobility management can result in direct advantages for the respective institution and its employees in the form of greater employee motivation, improved health, cost reductions and a better image. The state supports and advises companies on the introduction and improvement of mobility management.

Given that commuter traffic makes a significant contribution to climate-harming emissions, the role model function of the state administration in terms of climate protection (Section 7 Para. 1 Baden-Württemberg Climate Protection Law) demands that the mobility of employees of the state both on the way to work and when in service, is shaped by a commitment to sustainability. Accordingly, over the past years the state has implemented numerous measures for achieving official mobility management.

#### **JOBTICKET BW**

Baden-Württemberg was the first federal state to subsidise a jobticket with € 25 a month and for a period of two years. Private companies are now expected to copy this example.

#### **ELECTRIFICATION OF THE STATE VEHICLE FLEET**

The German Ministry for Transport thus supports the state ministries and authorities with the procurement of electric and hybrid vehicles, freight pedelecs, pedelecs and e-bikes as well as infrastructure. A total of around 300 electric and hybrid vehicles and pedelecs have been funded since 2012.

## ASSISTANCE WITH BIKE STORAGE FACILITIES AND INFRASTRUCTURE

In order to make cycling a more attractive option for state administration employees, the German Ministry for Transport is assisting the state's offices with the creation and set-up of bike infrastructure projects.

#### SUSTAINABLE PARKING SPACE MANAGEMENT

For reasons relating to cost savings and cost efficiencies, climate protection and air pollution control, management of the state's approx. 57,500 parking spaces is being gradually expanded. In the first phase, around 6,600 spaces located in the heart of Baden-Württemberg's larger towns and cities will be taken under the state's management.

## WORKING FROM HOME AND FLEXIBLE WORKING HOURS

Working remotely and regularly from home means greater flexibility in terms of working hours and location. In turn, this makes it easier to reconcile the demands on the job, family life and dependants. It also reduces long journeys to work and thus plays a role in protecting the climate.



For more information go to

→ www.vm.baden-wuerttemberg.de/mobilitaetsmanagement



ROUTE GUIDANCE SYSTEMS ......

CONSTRUCTION SITE WARNING SYSTEMS .....

FREE-FLOWING TRAFFIC

OPENING OF THE HARD SHOULDER

f you are stuck in traffic, you start getting cross; if you are stuck in traffic on a daily basis, you start to wonder why nothing is changing. When you drive past a traffic jam, you inevitably feel sorry for those affected. There are numerous reasons for traffic jams: Too much traffic at any given time, bottlenecks, construction sites, accidents. There are new technical means of reducing or even preventing traffic jams. This, however, demands the willingness on the part of drivers to switch to buses, trains or bikes where possible. Another option in order to reduce the number of vehicles on the roads is car sharing. Policies can and indeed must contribute to preventing traffic jams by developing and optimising the traffic infrastructure. Nevertheless, such policies require that those on the road act in a sensible and responsible manner.

Together with appropriate expansion, renovation and modernisation of the roads and structures to ensure a properly developed road network, the state government pursues a



Journey time monitoring system

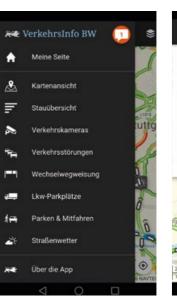
three-pronged policy in combating traffic jams: Traffic control - traffic management - traffic information.

#### TRAFFIC CONTROL

The number of systems to control traffic in Baden-Württemberg is set to be increased significantly over the coming years. The dynamic traffic signs and the information they display help to increase traffic safety, harmonise the flow of traffic and, as a consequence, lower overall emissions. Drivers can adjust to the traffic events in the section they are traveling and adapt their driving accordingly. Reliable diversion recommendations on the new routes help road users to get to their destinations more quickly and effectively, and make better use of the motorway network capacities. The temporary opening of the hard shoulder in order to allow traffic to flow, leads to a tangible increase in capacity and helps to reduce local traffic loads. Intelligent traffic lights recognise high traffic volumes in fast and accord priority to these.

#### TRAFFIC MANAGEMENT

Traffic does not end at the limits of our responsibility. That's why, a comprehensive traffic management system is required. In the future, a new construction site coordination and information system will allow sites to be coordinated more effectively in terms of timing and locations, and thus will ensure that the detour routes are free. The rapid clearance of breakdowns and disturbances, including with the help of digital media recording accidents, is a top priority. For this reason, the German Ministry of the Interior and the German Ministry of Transport are working hand in hand. Motorway maintenance authorities and motorway police are equipped to enable the rapid clearance of disruptions. In addition, mobile privacy screens will serve to protect accident victims and the emergency services from curious glances and keep traffic flowing.





VerkehrsInfo BW app

#### TRAFFIC INFORMATION

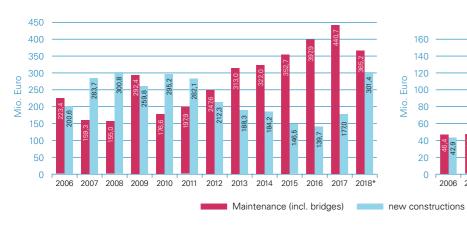
Journey times on motorways, information about construction sites, free lorry spaces, free car parking and car sharing spaces and information on events on the motorways, help road users to plan their journeys both before setting off and whilst en route. The VerkehrsInfo BW app offers a wide range of information. Thanks to ,Floating Car Data', which improves real-time information considerably, this offer will be expanded in the future. One of the main focal points of the state government is the avoidance of serious accidents which have a major impact on the flow of traffic. With the help of this app, which gives advance warning of traffic jams, this risk will soon be minimised.

For more information go to

- → www.vm.baden-wuerttemberg.de/strasse
- → www.svz-bw.de/app.html



### INVESTMENTS IN NEW CONSTRUCTIONS AND EXPANSIONS AS WELL AS THE MAINTENANCE OF FEDERAL MOTORWAYS



## INVESTMENTS IN NEW CONSTRUCTIONS AND EXPANSIONS AS WELL AS THE MAINTENANCE OF STATE ROADS



aden-Württemberg is proud of its outstanding tranport links with its well-developed road network.
The days of increasing traffic figures are slowly
coming to an end, which is partly due to demographic changes.
In the future, buses, trams and trains will have to handle a
larger share of traffic volume within the scope of sustainable
mobility developments. The need to expand the road network is thus restricted to the busy major roads and road junctions, as well as the construction of local bypasses to reduce
traffic volumes for residents.

The biggest challenge is the renovation and modernisation of infrastructure. The construction of roads, bridges and tunnels over the past decades has resulted in a large amount of resources which have seen better days and are in need of an overhaul. The funds available for this have been increased

drastically in recent years. The renovation backlog has been significantly reduced, nevertheless, a lot of money will be required for renovating bridges, retaining walls and tunnels in the coming years.

## THE STATE GOVERNMENT SHALL CONTINUE TO FOCUS ON THE MAINTENANCE AND RENOVATION OF THE ROAD INFRASTRUCTURE

Based on condition assessments and evaluations, around € 120 million are required annually in order to improve the condition of state roads and bridges in the medium term. A further € 20 million are required to strengthen bridges on state roads (increase in load bearing capacity). Given the topography and above-average traffic volumes in Baden-Württemberg, the maintenance of ailing bridges is a top priority.

#### **MANAGEMENT OF MOTORWAYS**

Effective 1 January 2021, a dedicated federal motorway agency (Infrastrukturgesellschaft für Autobahnen und anderer Bundesfernstraßen IGA) and a motorway federal office will assume their duties concerning the management of federal motorways.

In addition to its duties in relation to state roads, the road construction authority of Baden-Württemberg will continue to plan, construct and operate federal roads within the scope of its administration duties.



In the space of just a few years, the state government has almost doubled the budget available for renovating roads and bridges. The use of funding has also been improved and is now more closely aligned to specific requirements. In order to use the available budget for maintenance and renovation as efficiently as possible, money is no longer assigned according to regions, but based on urgency.

Working to renovate the infrastructure will remain a key challenge in the coming years. In Baden-Württemberg alone, 200 bridges on state roads have to be upgraded at a cost of € 600 million. Sufficient financing and personnel are required to achieve this goal.

## EXPANSION AND NEW CONSTRUCTIONS ONLY IN JUSTIFIED CASES

The state government has developed a plan with measures for state roads which bases road construction policies on a sustainable and realistic foundation. It would have taken 70 years to realise all 734 projects included in the 2010 general traffic plan. Therefore, an objective assessment procedure was carried out in order to select the most important measures for realisation over the next 10 years. The plan with measures for state roads now comprises 73 expansion and 31 new construction projects as well as 19 railroad crossings.

With its new 2016 requirement plan for federal motorways in the state, Baden-Württemberg has been awarded the contract for 117 measures as ongoing or fixed undertakings and as urgent projects with an investment volume of  $\mathfrak{C}$  9.5 billion. Due to the number of projects and the limited human resources, the investment volume had to be used in the most

effective way possible. With the implementation concept for the requirement plan, an honest outlook was ensured and binding guidelines for the order of measures were created. The aim is to have laid out all implementation concept measures in an ordered planning process by 2030 at the latest.

With particularly contentious and disputed road construction projects, the state government endeavours to identify adapted solutions for which a consensus can be found. It is hoped that acceptable solutions for all parties will be found during dialogue and participation processes.

When planning road construction and in connection with the implementation concept, the impact of traffic on humans and the environment is regarded as an independent criterion.

The elimination of bottlenecks in the road network does not necessarily demand expanded or new roads. Intelligent traffic management, such as the temporary opening of the hard shoulder, traffic telematics and the solutions from mobility services, can help in reducing traffic jams.

Many investments are being made in the construction of federal motorways at the moment. The road construction authority is currently focusing its efforts on benefiting to the greatest possible extent from the good financing conditions.

For more information go to

→ www.vm.baden-wuerttemberg.de/strasse



#### COMPLETE OVERVIEW OF THE REGIONAL RAIL TRANSPORT ELECTRIFICATION CONCEPT

Regional rail transport lines





Total distance 4,081 km

xpansion of the railway infrastructure is one of the state's most important transport policy goals. The overcrowded main connections have to be expanded in particular. The creation of a comprehensive, attractive rail transport system also demands the modernisation of the remaining network.

The railway network in Baden-Württemberg is 4,100 km long, of which around 60 percent is electrified. Accordingly, around 40 percent of the network is powered by diesel.

Electrification of another 514 km (around 13 percent) of the network is currently either underway or planned.

The state government has set itself the target of electrifying the state's entire network, either by electrification of the route infrastructure (overhead lines) or via vehicle-based solutions (hybrid vehicles).

In the following cases the construction of overhead lines is the ideal choice:

#### **CLOSURE OF GAPS IN THE NETWORK**

When the gaps between electrified routes are closed, this has advantages for regional rail traffic and can increase the amount of electrically operated trains overproportionately.

#### **CREATION OF DETOUR ROUTES**

In the event of faults, detours can be offered. The tunnel construction accident in Rastatt highlighted the fact that electrified diversions are essential in order to be able to offer detours for freight transport which, for the most part, is transported by electric vehicles.

#### **LINE EXTENSIONS**

The electrification of shorter connecting routes via electrified networks would allow the continuous electrification of longer train lines.

The federal government is responsible for the expansion of the DB railway network. In spring 2013, the state announced the expansion of numerous railway routes, particularly in rural areas, as part of the new plan for federal traffic routes. However, the federal government has not provided sufficient funding for this. In order to progress with its projects, Baden-Württemberg has invested more in the development of infrastructure than any other state, and not just in the well-known Stuttgart 21 project.

#### ADDITIONAL PROJECTS WITH STATE INVOLVEMENT:

- The state has financed the construction of a new route from Stuttgart – Wendlingen – Ulm to the tune of € 950 million.
- To make the expansion of the Rhine Valley railway more environmentally and human friendly, the federal and state governments have agreed to the construction of a route for the citizens of Markgräflerland, the optimisation of the Freiburg freight bypass and the so-called route, which runs parallel to the motorway to the south of Offenburg. The state is contributing around € 400 million to this project and thus around half of the additional costs.
- The state is also covering around half the costs (approx.
   € 112 million) of the southern railway route Ulm Friedrichshafen Lindau.

- It has additionally assumed the planning costs for the expansion of the "Gäubahn" route from Stuttgart Singen.
- The state is funding new city railway networks in conurbations (e.g., the Breisgau city railway).
- It is also funding regional railway traffic projects, e.g., the expansion of the "Schönbuchbahn" and, in future, the reactivation of the "Hermann-Hesse-Bahn Calw – Weil der Stadt" railway.
- In order to electrify the High Rhine route Basel Schaffhausen Singen, together with Switzerland and the region, the state is financing draft and approval planning.
  This is also being funded by the EU as an INTERREG project.
- The preservation of closed railway routes with potential for the future.



In the future, the federal government must assume greater responsibility to ensure sufficient financing for railway network expansion around the country. A special federal programme is essential for the electrification concept developed by the state.

For more information go to

→ www.vm.baden-wuerttemberg.de/schiene





NEWTRAINS OFFERING ENHANCED COMFORT AND MORE SPACE



10-15% MORETRAINS



REDUCED COSTS PER KM COVERED BYTRAIN



INCREASED COMPETITION

n increase in the proportion of local traffic on the rails is a central component of sustainable mobility and, a story of success. Nevertheless, the already good supply should and must be further developed and the number of passengers doubled by 2030. The basis for this is the target concept 2025 for regional rail transport.

To integrate passengers more effectively, a passenger advisory council was set up in 2012. As such, since 2013, it has been possible to include the suggestions made by passengers for pending timetable periods via a participation portal. The council is made up of representatives from various user groups as well as associations which represent the interests of passengers.

However, there are also gaps in the railbound public transport system. Regional bus services close these gaps by transporting passengers on an hourly basis and thus connecting the bus and train services. Eleven regional bus services are currently funded in Baden-Württemberg. The state is planning to extend its funding to € 10 million annually up until 2021.

## TARGET CONCEPT 2025: AT LEAST ONE TRAIN PER HOUR IN THE ENTIRE STATE FROM EARLY IN THE MORNING TILL LATE AT NIGHT

In 2014, the state government agreed upon its 2025 target concept for regional rail transport. With this, consistent standards of supply on the state's railway routes have been laid out for the first time. The key points are listed below:

- The equal treatment of all regions in terms of supply:
- A basic service of hourly buses between 5 a.m. and midnight for all routes in the state.
- One train pair per hour per 5,000 passengers/day and section.
- Hourly express connections between regional centres.
- Regional rail transport networking through integral interval timetable: Attractive travel times for other connections.
- Convenient regional rail transport: Clear calculation of seating capacities, restriction of the number of standing spaces.
- New quality standards such as real-time information, a uniform and appealing state-wide design for trains and free WiFi in new vehicles.

Transparent and fair benchmarks for municipal co-financing: Clear delimitation between state-financed regional rail transport standard services and additional services financed by third parties.

Definite improvements in the frequency of travel will serve to enhance regional rail transport services.

#### **NEW TRAINS, NEW UNIFORM FARES**

Up until 2016, DB Regio had operated 2/3 of all train services. The end of the so-called major transport contract also marks the dawn of a new age for railway transport in Baden-Württemberg. In the future, services from Abellio and GoAhead will join the DB Regio trains. The state's own company Südwestdeutsche Eisenbahngesellschaft (SWEG) and the German subsidiary of the Swiss federal railway will continue to operate in the state.

Europe-wide calls for tenderings were initiated in accordance with the legal situation. The new companies will add a breath of fresh air to the railways. Since 2014, a total of 17 new contracts have been signed.

#### CALLS FOR TENDERINGS FOR LOCAL TRAFFIC:

The state, with its local traffic company (NVBW), is responsible for ordering regional trains. The operators of these trains are determined in a competitive process. The most favourable bid is awarded the contract. The operator then assumes responsibility for assuring that the trains run on time, are clean and that a certain level of service quality is offered. The state carries out controls to ensure that the operators meet their contractual obligations.

In the tenderings with new vehicles, all bidders selected the BW model whereby new vehicles are procured by the Landesanstalt Schienenfahrzeuge Baden-Württemberg (SFBW) and then leased to the railway undertakings. The state's awarding strategy which, among other things, aimed to achieve greater competition in the regional rail transport sector, has proven successful.

The challenge over the coming years will lie in the commencement of operations in the newly tendered networks. The start of these operations will bring a variety of clear benefits for customers: Including new vehicles featuring the state design, air-conditioning, WiFi as well as an extended range of services. Passengers travelling between Stuttgart – Singen and Stuttgart – Crailsheim have already enjoyed an initial taste of things to come.

#### "BWEGT" - THE NEW MOBILITY BRAND



The state has launched a new umbrella brand bwegt together with a marketing campaign to accompany this change process. The focus lies firmly on quality, reliability and safety in the local railway transport system (—) www.bwegt.de).

Success is totally dependent on having sufficient personnel in the local transport sector. Identifying measures to counter the lack of specialist employees is a challenge for the entire sector. With a new initiative which looks into HR issues in the local transport sector (Runder Tisch: Personal im Nahverkehr), the state is encouraging the communication and agreement between railway undertakings and unions in order to achieve solutions. From the perspective of the state, a sector-wide collective agreement regulating the change of operators between the respective parties is one approach to ensure that the pending change of operators goes smoothly.

#### PUT TO THE TEST: NEW, CLIMATE-FRIENDLY TRAINS

Baden-Württemberg has initiated a Europe-wide call for tenders for CO<sub>2</sub>-neutral vehicles with alternative drive technology for the "Ortenau" network. Alongside the procurement of vehicles, the call for tenders also includes the maintenance and repair of vehicles.

Via the SFBW, the state continues to promote the supply of electricity from exclusively renewable energy sources as of the designated start of operations at the end of 2022. Possible drive technologies include vehicles based on hydrogen/fuel cell technology and overhead line/battery powered vehicles from multiple manufacturers. For this reason, no specific technology is stipulated in the call for tenderings.

 $22 \mid 23$ 



### FROM A TERMINUS TO A THROUGH STATION: S 21 AND THE NEW ROUTE FROM WENDLINGEN TO ULM

The Stuttgart-Ulm railway project is one of Baden-Württemberg's largest infrastructure projects and is omnipresent in the greater Stuttgart area, in the Alb region and in the Ulm city area, and not least due to the progressing construction work. The construction project consists of two components: The alignment of the Stuttgart rail hub ("Stuttgart 21") with the construction of the new, underground main station and connection to the airport and the trade fair grounds to the regional and long-distance traffic networks and the construction of the high-speed Wendlingen-Ulm line which will also be connected to the new rail hub.

For some time now, it has been known that the Stuttgart 21 project will be considerably more expensive than originally planned. The DB supervisory board agreed to an increase in the financing framework from  $\in$  4.5 billion to  $\in$  6.5 billion back in March of 2013. Following a further examination of the construction schedule and cost situation, which has been presented at the end of 2017, DB now calculates the total value at  $\in$  7.7 billion. Allowing for another risk buffer, the DB supervisory board agreed an increase in the financing framework to  $\in$  8.2 billion in January 2018. At the same time, the construction period has been extended and the potential completion date has been put back. DB currently does not anticipate Stuttgart 21 to be completed before the end of 2025 and without the initial routing "Gäubahn" via the Stuttgart airport. This route will be completed one to two years later.

However the newly constructed Wendlingen-Ulm line is hoped to be completed by 2022. Run-up operation on the new constructed route is being considered.



In December 2016 DB brought legal action against the state of Baden-Württemberg, the state capital Stuttgart, the Verband Region Stuttgart and Flughafen Stuttgart GmbH due to increased costs. DB is demanding an amendment to the financing contract from the 2nd of April 2009. It wants all the project partners involved to cover 65 percent of the further additional costs. The state, however, regards further financing of additional costs beyond the contractually agreed € 4.5 billion as unjustified since the state (€ 930 million) and its partners only approved the subsidisation of the project to a restricted scope. Since DB is the sole project sponsor and

client, it must accept all the risks associated with this major project. There are no grounds for further payments to DB.

Irrespective of the discussion on additional costs, the project partners, alongside Stuttgart 21, agreed upon a package of measures to improve the capacity in the Filder region in March 2015. These comprise another platform line at the airport terminal station, the Rohr curve without any crossings and a new regional stop in Stuttgart-Vaihingen. Preparations are now underway in order to add a second track to the previous plans for the single-tracked Wendlingen curve (the so-called ,Große Wendlinger Kurve' [Large Wendlingen Curve]). This will increase the capacity and operational quality of the rail connection on the new Wendlingen-Ulm line and between Tübingen and Stuttgart. Due to the very tight schedule for construction of the Large Wendlingen Curve, the state has paid for the planning costs in advance. However, support from the federal and municipal level is required to finance cons-truction.

Under the heading "The future of hubs in Stuttgart", Baden-Württemberg and the Verband Region Stuttgart as well as other players, such as the state capital Stuttgart and DB are examining options and ways to further optimise railway traffic once Stuttgart 21 starts operating. As part of this, various operational concepts and the necessary infrastructure measures are being considered. This includes the future use of the panorama route and the introduction of the European Train Control System (ETCS) on city railways. The focus hereby lies on taking the strain off Stuttgart's city railways and off the northern flow between the high-speed railway line from Mannheim and the Stuttgart-Feuerbach tunnel, a part of the Stuttgart 21 project.

An addition to this new Wendlingen-Ulm route is already under construction: A regional traffic stop is being created in Merklingen which offers an ideal access point to railway transport from the Laichinger Alb region. This project is being financed by the state and a special municipal association and should start operating together with the newly constructed route.

For more information go to

→ www.vm.baden-wuerttemberg.de/stuttgart21



S21 - Location of the underground main station



he state government is an advocate of an improved bus, tram and train system. The goal is to double the number of passengers by 2030. Conurbations and peripheral areas offer a huge amount of potential. Additionally, the state government would like to develop the local public transport further, in order to create a comprehensive and reliable system, especially in rural areas, and with the help of innovative approaches such as dial-a-bus services.

#### TRAFFIC FINANCING LAWS

Secure financing is essential for the ambitious development of local public transport. The continuation of the local authority traffic financing act by the federal government, which the state government has been fighting for many years, was agreed to by the German Bundestag and Federal Council in June 2017. The state government is also planning to gradually triple funding by 2021 to a billion euros per year. This is great news for Baden-Württemberg as high investments are still necessary for many on-going and planned projects.

#### **PROMOTING BUSES AND TRAMS**

The state's support provided for buses is concentrated on low-emission, barrier-free, low-floor buses. Over the past two years, a particular focus was placed on buses travelling in environmental zones in order to make a further contribution to reducing air pollution. The state also funds the procurement of electric and hybrid buses.

The state government also supports the replacement purchase and overhaul of rail vehicles. A total of  $\in$  60 million is available until the end of 2019. With this money, 92 light rail and tram vehicles, dual-system vehicles and railway vehicles are being funded. The state is thereby contributing to the further modernisation and enhancement of the local public transport system by supporting municipal transport companies and dedicated associations who cannot afford the large investments for older vehicles on their own.

The state's reform of local public transport financing, which became effective as of 1st January 2018 with greater incentives to expand the services offered, stipulates that urban and rural districts are assigned around  $\in$  200 million by the state to finance scheduled bus services. In the second stage starting in 2021, funding will be gradually increased by  $\in$  50 million. This enables the districts to make extensive and targeted improvements to the local public transport.

Funding for the regional bus service programme shall increase continuously up until 2020 to € 10 million annually. Regional buses are quick and high-quality vehicles which, as a replacement for non-existent railway lines, run at least once an hour. In the second stage, which started in 2017, funding has been directed into the connection of all medium-sized and smaller towns to the regional rail transport system and the closure of gaps between medium-sized towns. At the start of 2018, 11 regional buses were operational in the state, of which half were based in rural areas.

#### LOCAL PUBLIC TRANSPORT AGREEMENT

In addition to the introduction of the JobTicket BW for state employees (see chapter 5), a comprehensive programme through to 2025 has been concluded for local public transport in the Stuttgart region. The state, state capital Stuttgart, the Verband Region Stuttgart and the surrounding districts reached this agreement together. Amongst other things, it envisages the further development of the railway infrastructure in the Stuttgart region, the restoring of the reliability of the city railway as the back bone of public transport, the introduction of a metropolis express system, the establishment of express bus services between central points and transport hubs, the guaranteeing of uniform standards for bus traffic as shuttles to the city railway and the coordination of regional traffic management (e.g., improved park & ride services, car sharing, bike rental systems).

A whole range of additional projects are already being realised for expanding the local public transport system:

 The introduction of the BW state rate on the 9th of December in 2018. To this end, BW-Tarif GmbH, a cooperation between the state, the Verband Region Stuttgart (VRS) and railway under-takings operating in BW, was founded.

- The state local authority traffic financing act [LGVFG] has been designed to be ecological, sustainable and aligned to the needs of municipalities. The goal of sustainable mobility has been enshrined in law. Besides the funding possibilities for real-time information, e-ticketing and projects in rural areas, upgrading measures to make local public transport barrier-free are also being supported.
- A special programme to support the barrier-free conversion of bus stops, low-level access into low-level buses and the integration of barrier-free conversions of bus stops as regularly funded measures within the scope of the state local authority traffic financing act.
- A train station modernisation programme backed by the state and Deutsche Bahn to develop train stations into central mobility hubs. Under the motto "train stations of the future", in addition to barrier-free accessibility, links to other modes of transport and reception buildings are to be upgraded. The state and DB want to provide a total of around € 300 million for this purpose. The stations will be selected based on objective and transparent criteria (e.g. number of passengers, the station's hub function, operational/technical modernisation needs, barrier-free state). It is hoped that a framework agreement will have been concluded by 2018.

THE VERKEHRS- UND TARIFVERBUND [TRANSIT AND TARIFF ASSOCIATION] FARE REFORMS – SIMPLER AND CHEAPER:

Effective 01/04/2019, the fare zones and sector limits will be structured so that the number of fare zones in Stuttgart and the four administrative districts in the network will be reduced from 52 to only five ring zones. In the interests of air pollution control, the state and partners in the Transport and Tarif Authority of Stuttgart will be subsidising the new fare with an amount of € 42 million over a period of six years.

52 FARE ZONES

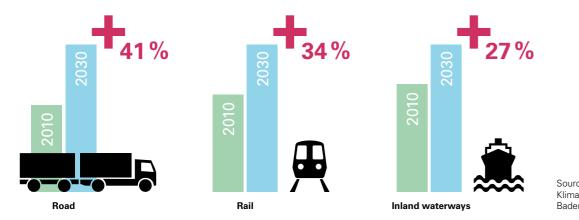
5 RINGS

Source: VVS

27



#### ANTICIPATED DEVELOPMENT OF FREIGHT TRANSPORTATION UNTIL 2030



he volume of freight transport is growing continuously, a fact which is not solely due to progressive globalisation. Alongside rail and waterways, it is the roads which are used for transporting freight – with problematic consequences. Traffic jams and environmental pollution are two of the most serious issues.

At the present around 29 percent of CO<sub>2</sub> emissions in the German transport sector are caused by road freight transport. And the traffic forecasts anticipate further growth.

In Baden-Württemberg by 2030 an increase in freight traffic volume of around 39 percent is expected by 2030 compared to 2010. In terms of the modal split, i.e. the distribution of the transport volume between the various modes of transport, only very minimal changes are anticipated: Road freight transport will continue to dominate in 2030 with around

75 percent in 2030 whilst the railways will carry just 18 percent of the volume and the waterways merely 7 percent.

An increase of this scale cannot be solely managed by transferring freight to the rails.

Although the federal government is responsible for many areas, the state is actively involved in shaping freight transport. The aim is to make road freight transport more environmentally friendly, to shift traffic to sustainable modes of transport and also to find and implement sustainable and ecological solutions for commercial transport in inner cities.

In 2017, efforts to establish a freight traffic concept for Baden-Württemberg commenced and this has been driven forward by the industry. This comprises the roads, rails and inland waterways, as well as city logistics.

#### **ROAD TRAFFIC**

In the road traffic sector, the state is backing improved traffic management. By avoiding traffic congestion and with comprehensive traffic information and optimised traffic management, transport on the road can be rendered more sustainable.

The pilot projecte Way BW (see image on the right) is also pursuing the goal of making freight transport more sustainable. It is making a valuable contribution to the research of overhead line technology for road freight transport. This pilot project aims to demonstrate the feasibility of the electrification of main roads using overhead lines. The selected pilot route on the B462 road in the Murg valley between Kuppenheim and Gernsbach-Obertsrot features a number of characteristics which could bring significant advances in the research of overhead line technology for road traffic. The used overhead line truck includes a battery which is being charged when in contact with the overhead lines. This allows sections without overhead lines to be bypassed. The planning and awarding of construction work are to be completed in 2018. The overhead line infrastructure will then be set up in 2019. A three-year period of real operation will then run between 2020 and 2022. A railway line which runs in parallel enables a comparison of hybrid overhead line trucks against rail freight transport.

The German Ministry of Transport is also supporting an expansion of tolls to include more roads and further vehicle and weight classes. In particular, the toll gap for vehicles between 3.5 and 7.5 tonnes must be closed and the inclusion of external costs improved. Now, it all depends on the federal government and the EU to move forward with these ambitious goals.

#### **RAIL AND SHIP TRAFFIC**

The railway infrastructure in Baden-Württemberg is used intensively and operated to its capacity along the main axes. In case of disruptions and line closures on the railway network, ensuring flexibility for freight traffic is of paramount importance. Therefore, the state wants to facilitate additional capacities and alternative routes on the railway network.

In terms of transfer, the state is promoting the networking of various modes of transport. It is planned to bring all parties involved in the handling of goods together in regional forums. The capacities of existing transshipment hubs are to be pooled and the necessary capacities must be generated at new transshipment hubs.

The state continues to advocate the quicker modernisation and extension of the Neckar floodgates for ships measuring 135 m and is involved in the planning of costs for this federal task.

An increasing amount of space in harbour areas and along railway lines is being used for other purposes, even though this is desperately needed for freight traffic and logistics. This often leads to a conflict of interests between those involved. We want to preserve the use of these areas for logistics. The state wants to connect all logistics players and the municipalities and promote cooperation.



#### **CITY LOGISTICS**

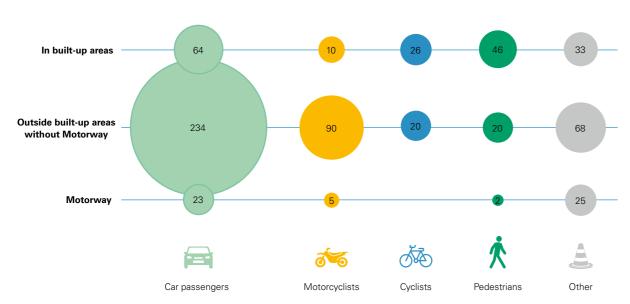
Last but not least, consumer behaviour, the economy and the rapid growth in online trade all present major challenges for towns and communities. These problems are exacerbated by the issue of air pollution control in some regions. With this in mind, the state is now engaging in dialogue with the municipalities. In the future, the municipalities should be in the position to plan the space required for logistics more effectively, for existing districts and when designating new sites. The success of this process, however, depends to a great extent on the participation of the economy and can only function if all parties work together.

For further information go to

→ www.vm.baden-wuerttemberg.de/gueterverkehr



#### NUMBER OF ROAD USER FATALITIES 2017 IN BADEN-WÜRTTEMBERG



Source: Statistisches Landesamt Baden-Württemberg, 2018

#### THE TRAFFIC SAFETY CONCEPT

Every single road death is one too many. The state government refuses to accept that each year the number of road fatalities (2017: 458) totals the population of a small village. Furthermore, accidents in Baden-Württemberg result in economic losses of almost € 3 billion annually. The state government is therefore committed to improving traffic safety and has set itself the ambitious goal of "Vision Zero", which aims to ensure no fatalities or serious injuries on the roads. The number of traffic fatalities is to be reduced by 40 percent by 2020 (based on accident figures from 2010).

The state government's traffic safety concept includes a whole package of measures ranging from structural improvements to prevention work and more controls. The around 90 individual measures will be introduced gradually by the German Ministry of Transport, the German Ministry of the Interior and other players.

The coalition agreement between B'90/Die GRÜNEN (the Green Party) and the CDU in Baden-Württemberg stipulates the revision and updating of the traffic safety concept. Further major efforts are required in order to come closer to

achieving the set intermediate goal by 2020. New solution approaches are also to be identified above and beyond the measures present. Among others these include:

- The protection of tree-lined roads through the consistent use of vehicle restraint systems such as crash barriers.
- The defusing of areas with high accident rates; the minimisation of the impact of accidents on motorcyclists via underrun protection on crash barriers.
- Demands for stricter sanctions for traffic violations which
  pose a high risk. Together with increased traffic monitoring, the sanctions should help to ensure that the existing
  rules are observed.

#### FURTHER MEASURES TO INCREASE TRAFFIC SAFETY:

- The consequences of accidents involving heavy lorries are
  often serious. As such, the mandatory and permanent use
  of active safety systems such as emergency brake assistants
  and turning assistants offer major potential for improving
  traffic safety.
- Measures to support bycycle traffic are also a priority for the German Ministry of Transport. The ,Radroutenplaner' [cycle to school route planner] has been developed as an online instrument for creating good cycle routes to school in order to ensure that children and adolescents can cycle to school safely.
- Effective road inspections and the application of the findings can reduce the risk of accidents and increase road safety. With the expansion of the road safety screening, an optimised online tool is now available for road inspection and accident committees for the entire superordinate road

- network. All information of relevance for road safety (e.g. accident data, the condition of roads, photos of routes and the nature, the number and speed of vehicles) is compiled here and presented in the road safety profiles. This allows areas with a higher risk of accidents to be detected.
- Successful road safety work generally requires the involvement of all road users. To raise awareness, a number of public campaigns have been launched:



- → Campaign for preventing illegal car races www.illegale-autorennen.de
- → "Watch Out Keep your Eyes on the Road!" on the risks of being distracted when driving www.watchout-bw.de
- → "Mobile for longer", driving safety training for older citizens www.längermobil.de

For more information go to

→ www.vm.baden-wuerttemberg.de/verkehrssicherheit

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Campaign for preventing illegal car races





A greater drive for noise protection – for towns and communities which offer real quality of life and a quieter environment.

Thomas Marwein MdL, noise protection officer for the state government

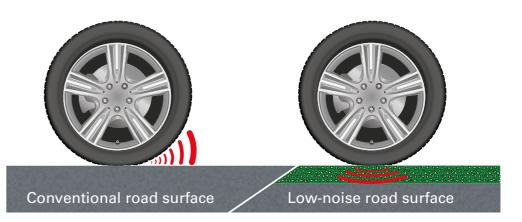
oise is the greatest and, at the same time, most underestimated source of environmental pollution or humans. Noise not only means stress, it can also lead to health problems and impairments. Accordingly, the state of Baden-Württemberg attaches considerable importance to the issue of noise protection, including at a political level, by appointing a noise protection officer. Above and beyond the successes we have already had at state level, we also aim to set the course for greater noise protection at a federal and European level. The state is thus working on numerous measures and projects to reduce noise.

For example, the German Ministry of Transport is supporting towns and communities with noise campaign planning by means of (online) information offerings, consultations on a case by case basis and specialist conferences. Thanks to the noise campaign plans of the towns and communities, numerous specific noise minimisation measures have already been

initiated. In particular, the existing opportunities for action in the interest of noise reduction have been seized in order to set a speed limit of 30 km/h on main through roads. At the specialist conference on the protection of quiet zones in December 2017, the German Ministry of Transport provided communities with new stimuli for planning noise protection. The noise campaign planning road shows, which will get started in the autumn of 2018 will provide local communities with practical recommendations for their noise protection campaign plans.

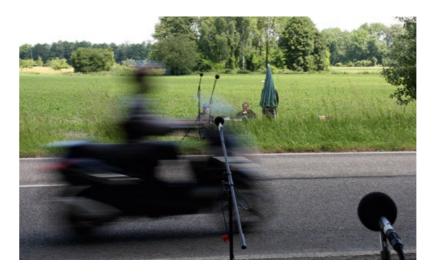
#### FURTHER MEASURES:

 All three passenger airports in Baden-Württemberg, Stuttgart, Karlsruhe/Baden-Baden and Friedrichshafen now have differentiated landing fees according to noise and pollutant emissions. The number of exemptions for night flights is very low. Against the backdrop of the planned changes and expansion plans at the Zurich airport, the



state government is keen on protecting the interests of Southern Baden.

• The trigger values for noise remediation on state roads were dropped by 2 dB(A) for residential areas in 2016 and thus the options available for noise minimisation by mean of noise-reducing road covers, protective walls and sound-proof windows have been broadened. If the prerequisites for noise remediation are in place, the use of noise-minimising asphalt surfaces will be ensured when maintaining the roads.



• The motorbike noise displays developed on behalf of the German Ministry for Transport are in use along several of the state's motorcycle roads. They present an additional measure for traffic inspection and accident committees as well as for municipalities reducing excessive noise and speeding. They comprise a reflector post counter with an integrated microphone and a dialogue display with speed measurement function, which encourages the motorcyclist directly to assume a more moderate and considerate driving style when a clearly defined level is exceeded. The project has been successfully tested in practice and the number of particularly loud motorbikes was significantly reduced on the test routes. And the speed and noise levels were reduced on average, too.

- As part of the four-track construction and expansion of the Rhine valley railway, over the course of a participation process lasting for several years, the original expansion plans of the Deutsche Bahn AG were transformed into an environmentally and human friendly routing concept which meets high noise protection standards.
- With Baden-Württemberg's approval, the law to prevent noisy freight cars was passed in 2017. The railway noise protection law [Schienenlärmschutzgesetz] stipulates that, as of the start of the working timetable 2020/2021, loud freight trains will not be allowed to travel on the German rail network anymore.
- The German Ministry of Transport organised a noise conference in June 2018. This provided a platform for identifying new stimuli and ideas for noise protection, for facilitating an insight into the latest noise management developments and for encouraging networking between experts.
- The brochure ,Sichtschutz mit Schallschutz' on visual protection with sound insulation from the Fraunhofer Institute for Building Physics was created with fundings from the German Ministry of Transport. It provides a practical guide for private sound insulation investments.

For more information go to

→ www.vm.baden-wuerttemberg.de/laermschutz



We want to significantly increase the number of journeys made by foot and bike by 2020. The majority of people can be mobile without the need for an external energy source.

Winfried Hermann, Transport Minister

he most environmentally friendly way to travel is by foot. Cycling also improves the quality of life for all whilst simultaneously protecting the environment. However, the health factor is the biggest factor in favour of travelling by bike and by foot. Indeed, this is often a quicker way to travel than with the car.

#### TRAVELLING BY BIKE: QUICK, CLEAN AND HEALTHY

The bike is the modern and flexible answer to a variety of current social challenges such as air pollution control, noise, traffic jams and health issues due to a lack of exercise. Therefore, the state government systematically supports cycle traffic as a key aspect of future mobility. In Baden-Wuerttemberg the state aims to increase the number of bike journeys up to 20 percent by 2030.

The strategic basis for funding and promoting cycle traffic through to 2025 is the RadSTRATEGIE Baden-Württemberg [bike strategy] agreed by the cabinet in 2016. It is directed at all those involved in promoting bike traffic:

Ministries, municipalities, the economy and associations.

The goal of RadSTRATEGIE is to anchor cycle traffic into the landscape, to establish a cycle culture in Baden-Württemberg and to support the municipalities as the central players for encouraging cycling.

#### **RadNETZ BADEN-WÜRTTEMBERG**

An integral building block for encouraging cycling is the RadNETZ Baden-Württemberg [bike network]. The RadNETZ provides cycle routes along the state's most important places of establishment. The network has a length of around 7,000 kilometers. The RadNETZ is connecting around 700 municipalities. While selecting the routes, particular attention has been paid to the needs of everyday cyclists, as well as to a reliable signage system. The state's long-distance cycle routes are also integrated into this network. The RadNETZ has been gradually expanded since 2016 and signs have been added throughout in order to create an attractive and state-of-the-art network (www.radnetz-bw.de).

#### QUICK CYCLE PATHS

A new focus in the development of the cycle traffic infrastructure is on fast cycle paths. These special routes for commuters make cycling longer distances of up to 15 kilometers even more attractive. Within the scope of a potential analysis, the German Ministry of Transport identified 32 routes in the "priority need" category. The feasibility of more than 40 routes is currently being assessed with the support of the state. The state is now implementing three routes as pilot projects and under its own responsibility. Ten routes are to be completed by 2025 (www.radschnellverbindungen-bw.de).

#### **RadKULTUR**

It is not enough to just build cycle paths in order to get people to switch to their bikes: they have to be approached directly.

That is why the German Ministry of Transport has been systemati-



cally pursuing a policy of communication within the scope of the RadKULTUR [bike culture] initiative since 2012 (www.radkultur-bw.de).

The RadKULTUR programme supports towns and administrative districts in putting bikes in the spotlight and motivating people to use their bikes as means of transport in their everyday routine. A further focal point of the policy is on cycling to work, as well as funding and supporting municipalities. Since 2012, RadKULTUR has supported 22 municipalities and has reached around 500,000 people – including around 200,000 citizens, who have been directly involved in the on-site offers and campaigns organised by the municipalities.

In 2017, Karl Drais' dandy horse, the prototype of the modern bike, celebrated its 200th anniversary. Together with numerous partners, the German Ministry of Transport used this anniversary as an occasion to strengthen the sense of identification to this invention from Northern Baden.

#### MOBILE ON YOUR OWN TWO FEET

For many people, walking is the main way of getting around on a daily basis. In light of the motorisation of movement, this fundamental fact has been neglected. We want to change this with deliberate and fair measures to encourage walking. In the coalition agreement, the state government has committed itself to making Baden-Württemberg more pedestrian-friendly.

The German Ministry of Transport has produced a document on pedestrian traffic ,Fußverkehr – sozial und sicher. Ein Gewinn für alle' [Pedestrian traffic – social and safe. A win win for everybody]. The brochure provides background information on the importance and positive effects of pedestrian traffic.

A key project for promoting walking are the ,pedestrian checks'. Here, the situation for pedestrians is discussed during on-site inspections and workshops together with citizens, politics and local administrative offices. Strating from there, measures are developed to encourage people to get walking. 33 municipalities have already taken part in the pedestrian checks.



One of the central issues of the pedestrian checks is crossing streets. Due to this aspect, the German Ministry of Transport is committed to developing more pedestrian crossings as a safe and convenient way to cross roads.

For more information go to

- → www.vm.baden-wuerttemberg.de/radverkehr and
- → www.vm.baden-wuerttemberg.de/fussverkehr

 $34 \mid \qquad \qquad \mid 3$ 



The German Ministry of Transport works in a variety of ways to maintain and strengthen biological diversity, from space-saving road construction to close to nature roadside greenery.

Winfried Hermann, Transport Minister

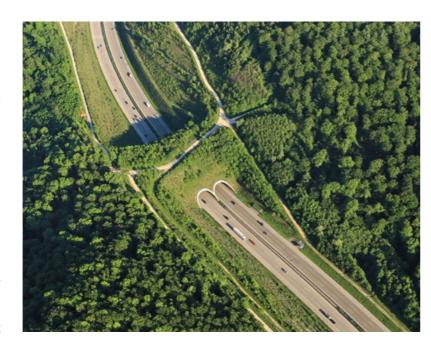
ur many transport routes including motorways, main roads, state roads and district roads help us to get from A to B quickly. Yet, for many animals and plants, these roads, railways and residential areas have a profound impact on their habitat. In order to reconnect the habitats and territories of the animals and plants affected and to maintain, secure and strengthen biological diversity, the state government has initiated a number of measures.

The state funds and supports the environmentally friendly planning, construction and operation of all transport routes. When planning streets in particular, the state attaches particular importance to ensuring that the standards are environmentally compatible.

#### **RELINKING**

When constructing new and expanding existing traffic routes, special attention must be paid to animal bridges and other crossways for animals in order to link up natural habitats and national wild animal corridors. Habitats are also being

reconnected in the existing road network, both by building new crossways and by optimising existing ones. In 2015, the German Ministry of Transport published its concept for the relinking of roads in which the most important sections for relinking in the road network were identified and prioritised.



Over the coming years, relinking measures will be planned and constructed in order to realise the state's relinking concept. Two high-priority amphibian protection systems have already been established and the Imberg green bridge on the A8 motorway, east of Merklingen, is almost complete. Furthermore, the work on 13 high-priority sections of the state concept has begun with the planning of measures.

#### **ROADSIDE GREENERY**

Baden-Württemberg boasts around 27,000 hectares of grass and forest areas alongside its roads, otherwise known as roadside greenery. If these areas are created and maintained in the right way, they can play an important role in preserving biological diversity. The German Ministry of Transport has prepared a guide for the road construction authority on how to increase biodiversity and maintain roadside greenery in an ecologically friendly manner. For example, it describes how much can be done to help preserve threatened species by carefully selecting when to tend to the various areas. Great importance is also attached to the use of indigenous plants and seeds.

#### STRENGTHENING BIOLOGICAL DIVERSITY

In order to counter the increasing decline in animal and plant species, the state government set up a special two-year programme to strengthen biological diversity in December 2017. In 2018 and 2019, the German Ministry of Transport will use a total of  $\mathfrak{C}$  3 million from the funds available to the traffic sector in order to ecologically upgrade large areas of roadside greenery and to fund the construction of amphibian protection systems on district and municipal roads.

A model project was launched to reduce landscaping costs whilst, at the same time, enhance the biological diversity of roadside greenery in June 2017. During this three-year project, which is being supervised by the Nürtingen-Geislingen University of Applied Sciences, selected embankment sections along roads in seven administrative districts are to be de-eutrophicated by removing cuttings and areas of perennial flowering plants are to be created on suitable embankments. Among other things, this project will investigate whether the initial additional costs for these measures will pay off in the medium term or if landscaping costs will be indeed reduced



in the long term whilst, at the same time, making a major contribution to maintaining and promoting biological diversity.

Nature and the countryside are protected by law and must be preserved as the basis of life and as a valuable resource for humans and animals. Measures for protecting the nature and preserving the countryside in order to counterbalance or compensate for the unavoidable impact of road construction, represent an important contribution here. Ensuring the continuation and upkeep of these measures, the expansion of the use of so-called eco-accounts for measures which have been brought forward and the improved integration of superordinate nature and species protection concepts, such as the state-wide habitat corridor, are among the ministry's key goals to this end. Therefore, in the future, the focus will be more firmly on identifying and exploiting the potential offered by largescale and worthwhile nature conservation measures. Thanks to the activities of the German Ministry of Transport in this field, rapid project processing, a high degree of planning security and maximum efficiency are all guaranteed.

For more information go to

→ www.vm.baden-wuerttemberg.de/wiedervernetzung



# Air traffic also has to be compatible with the climate and environment.

Winfried Hermann, Transport Minister

n the age of globalisation, air traffic is becoming increasingly important. In Baden-Württemberg alone there are three major airports and a large number of landing sites. As an industrial location in the heart of Europe, Germany profits in particular from the export of goods and services by plane. At the same time, however, air traffic has a negative impact on both humans and the environment. In order to minimise this impact, the state government not only exercises its influence at a federal level, but also assumes its responsibility as a shareholder of the airports.



Significantly different landing fees were established in the fee structures for the Stuttgart, Karlsruhe/Baden-Baden and Friedrichshafen airports. These are based both on pollutant and noise emissions. As such, above average loud and high emitting aircrafts have to pay a considerably higher landing fee than modern, quiet and lower emitting planes. This creates an incentive to make air traffic more compatible with the interests of those who live in the vicinity of airports and the

The mission statement for the Stuttgart airport, which is mainly owned by the state, is "Fairport Stuttgart". This means "fair payment and fair employment conditions", the use of renewable energies, energy efficiency and deployment of a block-type thermal power station. The sustainability strategy also envisages the increased use of electric vehicles. An intermediate goal on the path to a climate-neutral airport should be achieved by 2018: A completely electrically powered and emission-free passenger and luggage transport system. And if an additional terminal is to be built, then only in the form of an plus energy house and climate-friendly building.

With three passenger airports and 18 landing sites, Baden-Württemberg has a very good air traffic infrastructure. Further airports in other states and in neighbouring countries can also be easily accessed. No additional expansion is required here.

In the aircraft noise dispute with the Zurich airport, the state government continues to work intensively in order to protect the interests of those in the Southern Baden region. Given Baden-Württemberg's rejection, Germany has not yet ratified the aircraft noise state treaty with Switzerland. This treaty would actually result in more aircraft noise in Southern Baden. Moreover, the resistance from Baden-Württemberg also means that the Federal Ministry of Transport has yet to improve the realisation of the east approach concept, which would lead to an increase in air traffic in Southern Baden in favour of the regions south of the airport. In its statements issued to Switzerland, the state and the region have also decisively opposed the intended infrastructure measures to boost the capacity of the Zurich airport.



For more information go to

→ www.vm.baden-wuerttemberg.de/luftverkehr





A change in transport policy will only be possible if we all get involved. As such, we are committed to ensuring sustainable transport policies, both in Germany and Europe.

Winfried Hermann, Transport Minister

he federal states shape law-making and the administration of the federal government and are involved in matters relating to the European Union via the Federal Council. Virtually no federal laws are passed without the involvement of the Federal Council. The Federal Council must expressly approve around 40 percent of federal laws before they can come into force. They can raise an objection against the remaining laws, however this can be overturned by the German Bundestag. In addition to these participation rights, the Federal Council can also exercise its right of initiative and also submit draft proposals. Furthermore, it can highlight important political issues during resolutions and demand that the federal government take action.

The German Ministry of Transport embraces this important opportunity to become involved in decision-making. Thanks to the numerous speeches made by the minister in the Federal Council plenary meetings and the intensive cooperation of the Baden-Württemberg Ministry of Transport in Federal Council procedures, concepts and mission statements for a sustainable transport policy have been conveyed directly in the political decision-making processes in Berlin. The German Ministry of Transport can also influence transport policy areas via the Federal Council in which the state is not able to make its own regulations, but which are of major relevance for Baden-Württemberg.

Key areas of action such as infrastructure and traffic financing as well as rail policies are decided upon at federal level. In modern Europe with its cross-border mobility in terms of the transportation of freight and people, numerous important transport policy decisions are already being made at European level. Germany is represented by the federal government during negotiations in Brussels and the German influence in European decision making cannot be understated.

#### **CONFERENCE OF THE TRANSPORT MINISTERS**

That is also why the German Ministry of Transport is very actively involved in the conference of transport ministers. Here the state ministers responsible for transport vote upon all transport policy issues of fundamental relevance. Furthermore the conference of transport ministers serves to ensure the direct exchange with the federal traffic minister and to agree upon joint political activities in the states vis-à-vis the federal government. For example, at the suggestion of Minister Hermann, the first working group for state bike traffic was set up and headed by Baden-Württemberg in April 2018.

The German Ministry of Transport is not only engaged in the traffic policy debate at a national level, but it is also active within Europe. It regularly takes part in European Commission consultations and applies its expert knowledge and the interests of Baden-Württemberg in decision-making processes. Furthermore, events and technical discussions focusing on the key issues of both national and European traffic policies have been held in Berlin and Brussels. A prompt and comprehensive exchange of information between Brussels and the German Ministry of Transport in Stuttgart is ensured through the work of the departmental commissioner in the state representation in Berlin and the one in Brussels.

#### **AIR POLLUTION CONTROL**

Air pollution control is one of the focal points of the work of the German Ministry of Transport, both in Germany and throughout Europe. Given the high level of air pollution in many cities and over the past years, the ministry is committed to implementing effective solutions in the Federal Council. Baden-Württemberg proposed the introduction of a blue badge for environmentally friendly cars to the Federal Council back in 2016. To this day, the federal government has refused to introduce this regulation. Baden-Württemberg will continue to work in order to achieve a majority of votes in favour of the blue badge. The National Diesel Forum was established at a national level, following a state dialogue with manufacturers and retrofitters on the issue of exhaust gas cleaning of diesel cars in the spring of 2017. The ministry is active in three of four working groups in the



fields of mobility and air pollution control, and strives to ensure that both the technical and legal prerequisites are established to guarantee the most effective and quickest possible retrofitting of diesel vehicles

## FURTHER PRIORITIES OF THE GERMAN MINISTRY OF TRANSPORT AT A NATIONAL AND EUROPEAN LEVEL WERE.

- The engagement in the expansion of the railway infrastructure, including the accessibility of stations and improvements in noise control. The German Ministry of Transport also aims; to improve and expand the amount of freight traffic by rail,
- to secure sufficient financing for the construction, operation and preservation of transport infrastructure by the federal government,
- the involvement in the clarification of unresolved technical and legal questions regarding autonomous driving and e-mobility at a national level,
- initiatives for increased road safety for pedestrians and cyclists, e.g. through the introduction of brake and turning assistance systems for vehicles and the prevention of distractions.
- In Europe, the German Ministry of Transport is focused on improving environmental protection in the traffic sector and is an advocate of the ambitious CO<sub>2</sub> limits for cars and light utility vehicles.

For more information go to

→ www.vm.baden-wuerttemberg.de/ministerium



I was impressed at how early on and how comprehensively we were informed about the project this evening. All my questions were answered by the experts and planners present.

Participant at the citizen information event ,Erprobung von Oberleitungs-LKW – eWayBW' [Testing of the overhead truck line – eWayBW]

emocracy is good, lived and breathed democracy is better. That's why the federal state government wants to involve citizens in political processes, more closely. Projects in the sustainable mobility and transport sector are often protracted, disputed and require a lot of clarification. For this reason, those affected should be actively involved in the decision-making process, as much as possible.

Today, the structures to ensure streamlined processes with good civic participation in the transport sector are in place. However, the presentation of simple and easy-to-understand information at an evening citizens' event is frequently preceded by a complex and well-structured preparation phase involving all administration levels.

Examples of successfully implemented civic participation processes:

## CONTINUATION OF PARTICIPATION: CIVIC PARTICIPATION TO DEVELOP A BIKE STRATEGY (RADSTRATEGIE)

In a unique participation process across Germany, more than 2,000 cyclists were questioned, invited to workshops and their ideas and suggestions were then pooled in a one-day closed meeting at the German Ministry of Transport. Furthermore, an advisory council for cyclists was established.

## CONSENSUS IN THE PROJECT ADVISORY COUNCIL ON THE EXPANSION OF THE RHINE VALLEY RAILWAY

Early and comprehensive civic participation is essential, particularly when it comes to large infrastructure projects. Not done until reaching a certain point, a lot of work and time are involved. The expansion of the Rhine valley railway was corrected extensively over the course of a five-year participation process and with the expert involvement of citizen initiatives. Ultimately a consensus was reached on routing and noise protection.

## EXTENSIVE INFORMATION FOR CITIZENS ON STUTTGART'S CLEAN AIR PLAN

During the establishment of the clean air plan for the state capital of Stuttgart, an informal public consultation process was organised in order to accompany the procedures required by law.

### CITIZEN INFORMATION EVENTS ON NEW TRANSPORT TECHNOLOGIES

Experience has shown that: If new approaches to presenting information are taken (visualisations, simulations), all media forms are used (Internet, social media, mailshots) and all data is made available and processed (expert reports, studies, accompanying academic research etc.), acceptance levels increase and there are fewer misunderstandings. Sufficient and accurate information can help to alleviate fears, create trust and thus cement our democracy. In a pilot process to test the overhead truck line (eWayBW), the public was engaged in the plans at a very early stage in the plans and also given detailed information on the premises, background information and the project.

## PROVISION OF INFORMATION ON THE EXPANSION OF THE STUTTGART-VAIHINGEN STATION

Another example is the information event on the expansion of the Vaihingen station. In January 2017, the German Ministry of Transport, together with DB Station & Service AG and the state capital Stuttgart arranged an event to inform interested citizens about the state of affairs and plans. The event resulted in a good exchange between those involved and those affected regarding the next steps.

## CIVIC PARTICIPATION FOR THE IMPLEMENTATION OF QUICK BIKE CONNECTIONS

Together with the regional councils and the local districts and municipalities, the standards introduced to ensure early civic and public participation have been rigorously applied to the planned introduction of quick bike connections.

For more information go to

→ www.vm.baden-wuerttemberg.de/burgerbeteiligung



 $42 \mid 43 \mid$ 



Climate protection does not end at the borders of Baden-Württemberg. When it comes to sustainable mobility, we regard our pioneering role as an international responsibility, which we are keen to accept.

Winfried Hermann, Transport Minister

obility brings people beyond borders together and serves to strengthen a sense of solidarity both in Europe and around the world. Particularly in border regions, cross-border mobility projects are of direct benefit to the local population and economy. That's why, the German Ministry of Transport works to close the gaps in transport routes and promote innovative mobility concepts together with Baden-Württemberg's bordering countries. We are constantly in search of role models from around the world from whom we can learn. At the same time, by fostering international contacts we hope to transport exemplary solutions from Baden-Württemberg around the world in order to generate the broadest and most sustainable impact possible. On the European and international stage the endeavours of the German Ministry of Transport, have been strengthened and continued with the creation of the department for international relations.

#### **CROSS-BORDER MOBILITY**

In addition to new international contacts, existing links with, for example, Switzerland, have been fostered and developed. The focus here lies essentially on (cross-border) rail links between both countries. In border regions sustainable and efficient mobility which serves the interests of individuals can only be achieved through joint efforts. Cooperation with Switzerland was strengthened through visits and intensive dialogue as well as via the regular transport conferences with the canton of Zurich.

We also enjoy a close relationship with France, which has served to improve cross-border mobility on the Upper Rhine in particular. Through the German/French Hambach Declaration, the German Ministry of Transport is committed to ensuring that former cross-border railway lines are either put back into operation or improved. The new tram line between

Strasbourg and Kehl, which has been supported by the federal state, can be seen as a tangible success in this context. Moreover, the German Ministry of Transport facilitates cross-border bike and pedestrian links as well as a cross-border information and traffic management system for the Rhine ferryboats.

The well-established committees at Lake Constance and the Upper Rhine are of central importance for the successful cooperation in border regions with partners from Austria, Liechtenstein, France and Switzerland. The ministry is represented in the working group responsible for mobility and transport issues as well as the commissions of the Upper Rhine Conference and the International Lake Constance Conference. In addition to the Alpine region, we are also in regular contact with partners from the Danube region and the regions of Catalonia, Lombardy and Auvergne-Rhône-Alpes [the four motors of Europe].

## STRENGTHENING NATIONAL RELATIONSHIPS AND PROMOTING COOPERATION

General exchange formats and bilateral specialist relationships are becoming increasingly important. Regular visits are arranged with the North Brabant region focusing on electromobility; a delegation trip to Oslo and the Akershus region also provided an opportunity to shine the spot light on this issue. The ministry also works together with other departments. Currently, efforts are being made to reach a partner-ship declaration with the state of California in order to achieve climate protection goals.

The German Ministry of Transport is a sought-after partner abroad. The range of tasks we face is as diverse as our international contacts who we welcome as delegations. We regularly receive enquiries, especially from China, on issues relating to sustainable road and bridge construction as well as general public transport issues.



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#### Further details:

Ministry of Transport: →www.vm.baden-wuerttemberg.de

Noise Protection Officer: →www.laermschutzbeauftragte-bw.de

New Mobility: →www.neue-mobilitaet-bw.de

CyclingCULTURE: →www.radkultur-bw.de

Cycle Route Planner: →www.radroutenplaner-bw.de

Timetable Information: →www.efa-bw.de

Multi-Modal App: →http://namoreg.efa-bw.de

bwegt - The New Mobility Brand: →www.bwegt.de

Road Traffic Management Centre: →www.svz-bw.de

Construction Site Information System: →www.baustellen-bw.de

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