

Traffic Safety Education and Activities in Germany

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1 Introduction

Since the 1960s and 1970s, when the number of fatal road traffic accidents peaked, road safety has been an important issue in Germany. Meanwhile, a continuous rise in the level of motorization (2013: 656 cars per 1,000 inhabitants), technological improvements, improved traffic infrastructure, traffic safety education, and a multitude of other traffic safety measures have led to a decreasing number of road traffic injuries and fatalities (cf. Figure 1).

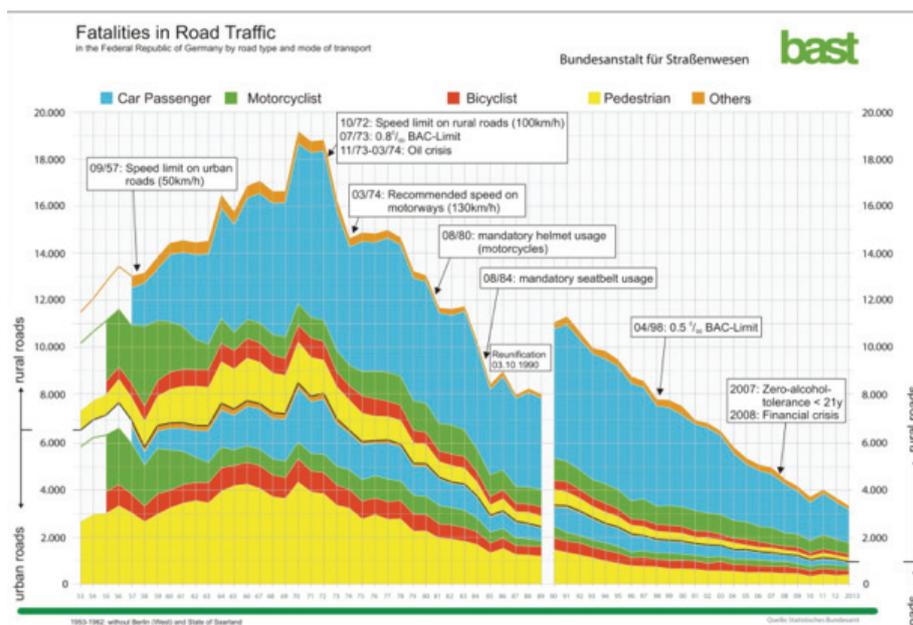


Figure 1. Road traffic accidents – number fatalities by modes of transport

Source: Bundesanstalt für Straßenwesen BASt 2014 #53, modified

The second peak in road traffic accident fatalities in the 1990s was largely due to the increase of motorization in the eastern states of Germany (former German Democratic Republic) after the reunification in 1989 and 1990.

When comparing the numbers of fatal injuries with heavy and slight injuries (cf. Figure 2, Figure 3), one can see that the number of non-fatal injuries is not decreasing as sharply as the number of fatalities is. It is also apparent that most people die in accidents on rural roads, whereas the highest number of injuries occurs in accidents on urban roads. Motorways account for the lowest number of accidents, making them the safest type of roads in Germany. Although they represent only 1.8% of the total German road network, they account for 35% of all driven kilometers.

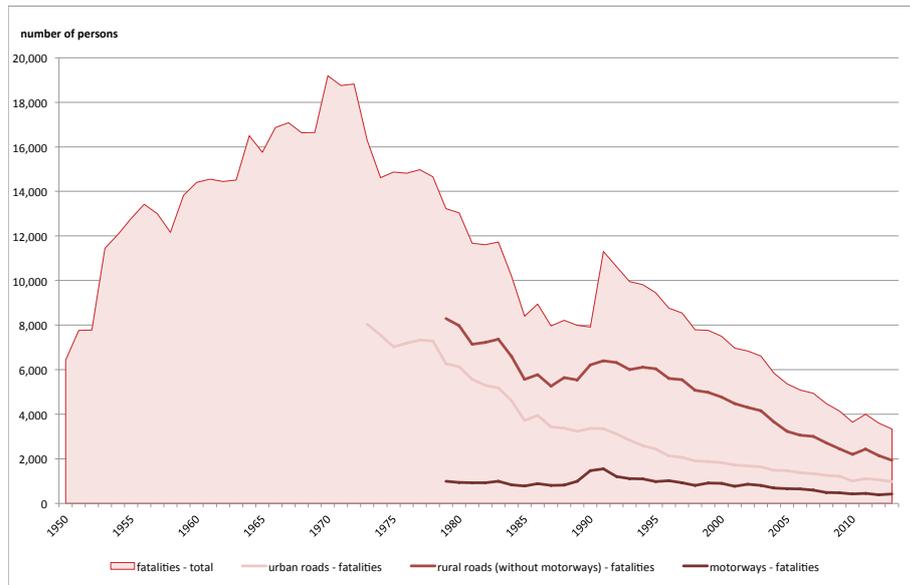


Figure 2. Fatal injuries in road traffic by road group

Source: Statistisches Bundesamt 2014 #54

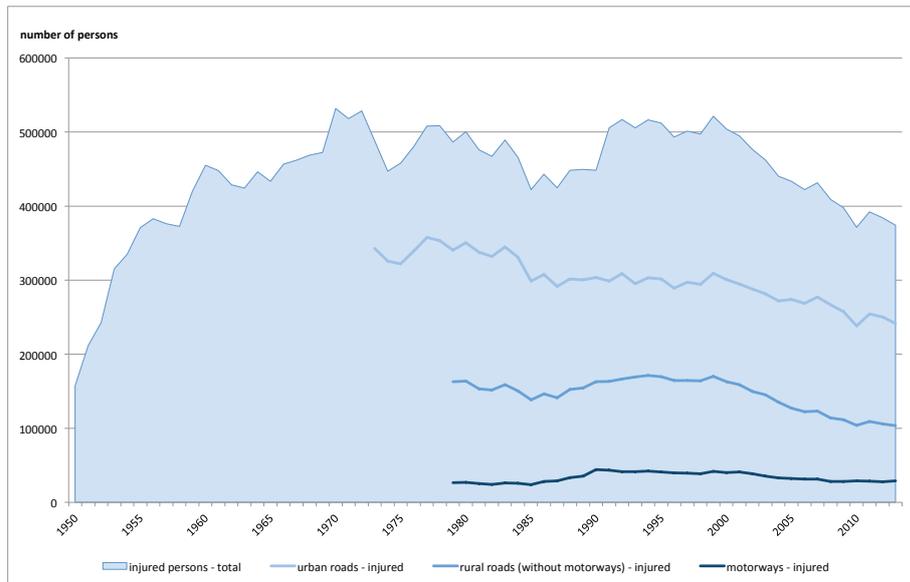


Figure 3: Injuries in road traffic by road group

Source: Statistisches Bundesamt 2014 #54

The issue of traffic safety is a focal point for the Federal Ministry of Traffic and Digital Infrastructure (formerly the Federal Ministry of Traffic, Building and Urban Development), which is also responsible for advances in traffic safety. In tackling these points, the organization divides traffic safety activities into three fields:

- the human field;
- the field of infrastructure; and
- the field of vehicle based technology.

In 2011, the ministry published its latest plan of action for traffic safety to form the basis for most nationwide, traffic safety-related activities and the development of traffic education. The aim of the ministry is to reduce fatalities in road traffic by 40% by 2020. {Bundesministerium für Verkehr, Bau und Stadtentwicklung 2011 #43}

2 Driving Educational Regulations and Legal Regulations

2.1 Driving Licenses

Driving training and license regulations are based on different traffic laws. These laws state how a license can be obtained and withdrawn and in what ways traffic offenders can be punished. The regulations have evolved considerably over the time on the basis of changing technology, experience, and research.

The Road Traffic Act (§2 StVG) establishes the necessity of a driving license in order to drive a car and the desired driving behavior. The curriculum is laid out in the Driving Training Regulations (FahrerschAusBO 2012).

The training program for driving aims to train good, safe, and economic drivers, as well as prepare learners for the driving test. The training has to communicate a driving behavior that includes:

- the ability to control the vehicle in difficult traffic situations;
- the knowledge, comprehension, and application of traffic regulations;
- the ability to perceive and control dangerous situations, including preventing them;
- the knowledge of the effects of driving errors and the ability to make realistic selfassessments;
- the willingness and ability to behave considerately and cooperatively and the awareness of the impact of emotions while driving; and
- the responsibility for life and health, environment, and property. (§1 FahrerschAusBO 2012)

Everyone of minimum age (depending on the allowed vehicle type of the driving license) who

- is qualified to drive a car,
- has attended a driving educational course,
- has taken the driving license tests, and
- has attended a first aid course

is allowed to get a driving license. (§2 StVG)

The education and test for a driving license are divided into a theoretical part and a practical part. Both parts of the education are carried out by licensed private driving schools, while the tests are carried out by the driving license authority.

The theoretical education consists of 12 90-minute-classroom lessons and finishes with a theoretical test (cf Figure 4). The practical part consists of basic driving education, which is defined in terms of content but not in terms of length, and special driving lessons on rural roads, motorways, and at night, for which minimum amounts are defined. For a driving license for standard car, for example, the program consists of basic driving education and 5 lessons (each 45 minutes) on rural roads, 4 on motorways, and 3 at night. The practical part finishes with a practical test. The driving teacher has to give the learner the permission to take the individual test when they are considered to be prepared for it. (FahrerschAusBO 2012)

Figure 4. Example questions from the theoretical driving test

Source: Online Driving License Test 24.01.2014 #36, modified

2.2 Driving Licenses on Probation

Driving licenses on probation were introduced in 1986 to decrease the number of accidents among young drivers. The regulations are stipulated in the §2a of the Road Traffic Act. (§2a StVG)

The first driving license is only given under the condition of probation, which implies stricter rules on allowed alcohol limits and punishments for traffic offenses. The probation period lasts 2 years.

Since 2007, Germany has applied a zero-alcohol-tolerance policy for the duration of the probation period, a policy that also covers all those under the age of 21. (See also "No Alcohol Policy for Young drivers.")

The period can be prolonged for two additional years if the person has been ordered to participate in an additional training course, possible for one time only (see also "Additional Driving Seminar"). The period can also be shortened if the person voluntarily attends an additional training course for young drivers. (cf. §2a StVG)

A compulsory additional training course can be ordered by the Driving License Authority because of alcohol or drug abuse. The following measures are taken in response to traffic violations during probation.

Table 1. Punishments for offenses during probation

offence	measure
one severe or two less severe traffic offence	an additional training course is ordered
after the participation on an additional training course anew severe or two less severe offences	admonishment; recommendation to participate in a psychological counselling within two months
after the expiration of this term anew severe or two less severe offences	withdrawal of the driving licence

Source: Bundesministerium für Verkehr und digitale Infrastruktur #37

2.3 Accompanied Driving

In 2004, an "accompanied driving" pilot project was introduced as a new approach to driving education in Germany. The trial ran for six years and generated studies about the

effects. These studies showed such positive effects that the accompanied driving was fully introduced into driving education nationwide in 2011 based on the Driving License Regulations {Bundesministerium für Verkehr, Bau und Stadtentwicklung #8}

The approach of accompanied driving is grounded in the need to prolong learning time. Through this approach, a young driver does not begin driving autonomously after three to six months of training but can benefit from the knowledge of the accompanying person and has an overall learning time of up to 18 months before driving on his or her own. Based on the Driving License Regulations, the accompanying person is, before and during the trip, supposed to be exclusively a contact to assure the accompanied driver wherever the circumstances permit.

The training concept is designed so that drivers can take the training at driving school from 16½ years onward (1 year earlier than under the old system, cf. Figure 5), take the driving test at the minimum age of 17, and obtain a preliminary driving license, which is then converted into a full driving license when the driver turns 18 {Bundesministerium für Verkehr, Bau und Stadtentwicklung #8}; {Funk 2010 #38}.

With a preliminary driving license come the following additional requirements, based on the §48a FeV:

- The driver has to be accompanied by at least one registered person (the possible number of registered persons is not regulated);
- the accompanying person must be at least 30 years old, in the possession of a valid driving license for at least 5 years, and must not have more than 3 points registered at the Central Register of Traffic Offenders at the time of application; and
- the accompanying person is not allowed to accompany the driver when having a higher blood alcohol content than 0.50 0/00, having a breath alcohol concentration higher than 0.25 mg/l, or being under the influence of intoxicants.

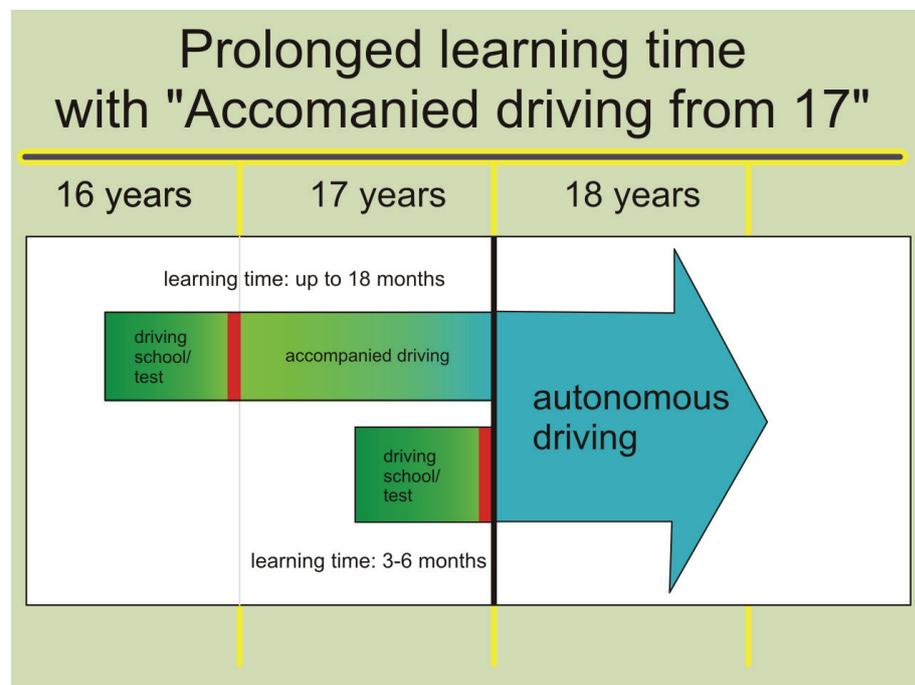


Figure 5. Prolonged learning

Source: Funk 2010 #38, modified

2.4 The Central Card-Index for Traffic Offenses and Registry of Driving Aptitude (Point Systems)

From 1957 until March 2014, the Central Card-Index for Traffic Offenses has recorded and continues to record administrative offenses and felonies in road traffic as well as information on driving licenses (refusal, withdrawal, issuance, and other measures provided by the points system) under §4 of the Road Traffic Act (StVG) and Appendix 13 of the Driving License Regulation (FeV). The registry is administered by the Federal Motor Transport Authority.

A new law was introduced in 2013 to reorder the recording system into a more transparent and fairer one and to increase road safety.

The new recording system will be called the Registry for Driving Aptitude and record only severe administrative offenses, particularly severe administrative offenses, and felonies that affect road safety under Appendix 13 FeV. To comply with this change, the point system was modified to monitor personal driving aptitude. Every traffic offense is recorded by points (1-3) depending on the severity of the offense (cf. Figure 6).

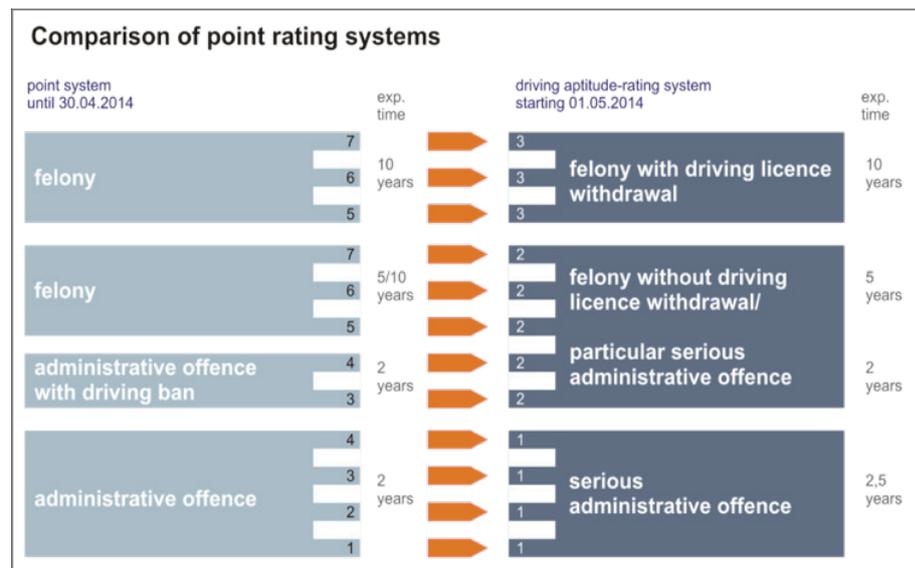


Figure 6. Point values and expiration periods

Source: Bundesministerium für Verkehr und digitale Infrastruktur #39, modified

The accumulated points are assigned to four levels (cf. Figure 7).

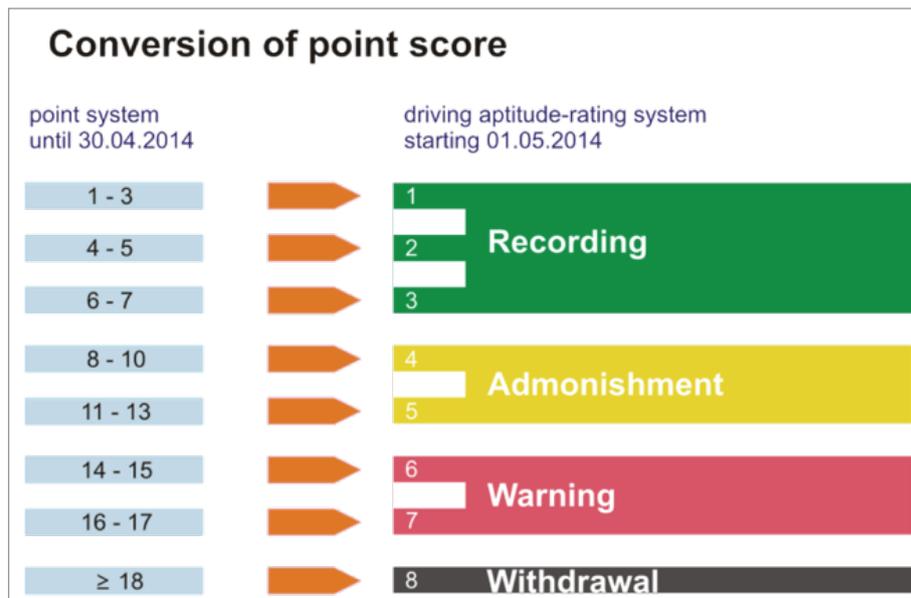


Figure 7. Rating system of the Central Card-Index for Traffic Offences / Registry for Driving Aptitude

Source: Bundesministerium für Verkehr und digitale Infrastruktur #39, modified

- Level 1 (up to 3 points): "Recording"
Points are recorded, but no measures are taken. The concerned person can voluntarily attend a Driving Aptitude Seminar to receive a 1-point deduction.
- Level 2 (4 to 5 points): "Admonishment"
A multiple traffic offender receives an admonishment and information about the driving aptitude assessment system, as well as a referral to a driving aptitude seminar as a way to better his or her personal driving aptitude. Attendance is voluntary, and the concerned person receives a 1-point deduction for taking the seminar. However, a person can receive this type of deduction only once every five years.
- Level 3 (6 to 7 points): "Warning"
A continuous traffic offender receives a fiercer warning with a notice about the impending withdrawal of the driving license after further traffic offenses, as well as a referral to a driving aptitude seminar without any point deductions.
- Level 4 (8 points): "License Withdrawal"

In the new system, the Driving License Authority has to withdraw the driving license of anyone who has proven himself or herself to be incapable of driving. The Driving Aptitude Registry stipulates withdrawal when the driver reaches the 4th level (from 8 points onward).

The expiration period for points can be 2.5 years, 5 years, or 10 years depending on the severity of the offense(s) in question. The record will be deleted one year after the expiration period to avoid measures not being taken if an offense is not directly recorded (cf. Figure 8).

Reorganisation of the Points system

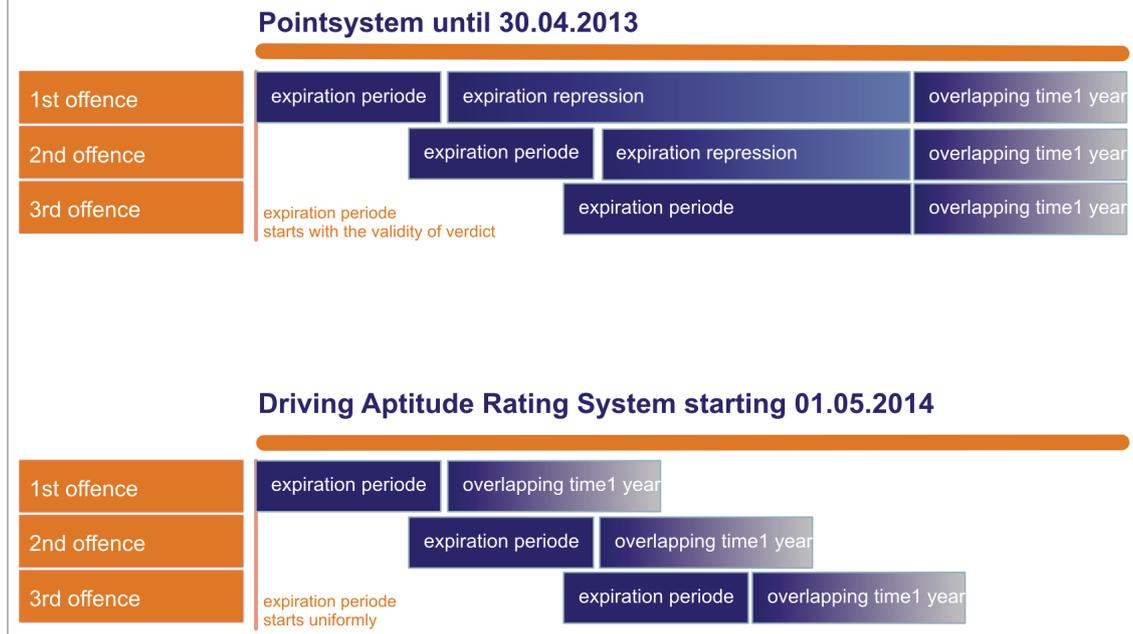


Figure 8: Expirations period under the old and new systems

Source: Bundesministerium für Verkehr und digitale Infrastruktur #39, modified

2.5 Traffic-Psychological Counseling

Traffic-Psychological Counseling is personal counseling that aims to lead counseled drivers to recognize deficits in their attitude toward road traffic and come to the point to change their behavior. The counselor is supposed to identify the cause of the deficits and to show the driver ways to eliminate them.

The Driver's License Authority can order a driver with 14 to 17 points in the Central-Card Index to attend an Additional Driving Seminar. The Authority must also point out the possibility to attend Traffic-Psychological Counseling. Attending this counseling brings 2 points off the driver's total score, but this deduction is only permitted once every five years. If a driver's license is withdrawn, the driver can use the blocking period of six months to attend counseling in preparation of a Medical-Psychological Examination.

The counselor can also help with the following questions:

- What goes into a Medical-Psychological Examination?
- What is required at the examination considering my personal situation?
- Is the current change enough? What else do I need to do to prepare?
- When should I apply for an examination?
- Which medical certificates are necessary for a positive examination?

The Additional Driving Seminar and Traffic-Psychological Counseling only remain within the scope of the driving licenses on probation period; otherwise, they are replaced by the Driving Aptitude Seminar.

{Bundesanstalt für Straßenwesen #45} {Straßenverkehrsgesetz 7.8.2013 #10}

2.6 Medical-Psychological Examination and Report

The Medical-Psychological Examination is an important tool for the assessment of driving aptitude.

To ensure that the examination follows uniform, objective, and authentic criteria, the law stipulates the basis for ordering a Medical-Psychological Report. Examinations are specially ordered in cases of alcohol or drug abuse and if a driver's license has been withdrawn repeatedly. The report has to be provided in a comprehensible and reviewable way.

{Bundesministerium für Verkehr und digitale Infrastruktur 24.01.2014 #7}

Based on §4 StVG, the Driving License Authority generally has to order a Medical-Psychological Report as a requirement for applying for a new driving license.

2.7 Additional Driving Seminar and Driving Aptitude Seminar

The Road Traffic Authority can order a multiple traffic offender to participate in an Additional Driving Seminar when the driver reaches 14 - 17 points. These seminars can also be attended voluntarily by a traffic offender to reduce their points (by 2 – 4 points) at the Central Card-Index for Traffic Offenses if his or her score is below 13, based on §4 StVG. This seminar is conducted by driving schools and aims at improving driving behavior.

The Additional Driving Seminar only remains within the scope of the driving licenses on probation period; otherwise, the seminar will be replaced by the Driving Aptitude Seminar on May 1, 2014. The new seminar also aims at improving driving behavior but with a new approach. It is projected as a pilot for five years, in which time it will be tested and scientifically accompanied by the Federal Road Research Institute. It can be attended voluntarily, and traffic offenders can reduce their points by one if their score at the Registry for Driving Aptitude is below six; however, this type of deduction is only allowed once every five years.

The new Driving Aptitude Seminar is a new combination of a traffic-educational part and a traffic-psychological part that aims to prevent an absolute "marking of time."

The traffic-educational part is conducted by specially trained driving instructors. It consists of two 90-minute sessions that can be carried out in a group of up to six participants or in one-to-one sessions. The content of the sessions is tailored to the traffic offenses of the individual participants (e.g., traffic regulations and their purposes).

The traffic-psychological part is conducted by specially trained traffic psychologists. It focuses on finding individual ways to change risky driving behavior. These strategies are supposed to be tried out, and the practical experiences are then to be discussed with the psychologist. This measure comprises two 75-minute private sessions.

{Bundesministerium für Verkehr und digitale Infrastruktur 24.01.2014 #6}

2.8 Driver Safety Training

The German Road Safety Board and its members developed the concept for Driver Safety Training. Open to drivers of cars, motorcycles, heavy goods vehicles, and coaches, this type of training is financially supported by employers' mutual insurance associations and, for novice drivers, by automobile clubs. About 265,000 drivers take part in the training every year.

The one-day training program consists of a theoretical part and a practical part. The theoretical part is about driving physics, risk prevention, and risk identification. The practical part is about correct seat positioning and steering and also involves exercises such as braking, emergency braking and swerving on different road surfaces, which involves things like aqua-planing and skidding.

The participants use their own cars for the training exercises.

It is difficult to verify the effects that this training program has on accident occurrence, but a study conducted by the German Road Safety Board in 2000 questions the presence of positive effects. The conclusions of the study are that only a small percentage of all car drivers participate in this training and that drivers' willingness to take risks might increase when their driving abilities improve.

{Deutscher Verkehrssicherheitsrat e.V. 2004 #15}

2.9 Allowed Blood Alcohol Level and the Zero-Alcohol Policy for Novice Drivers

Since 1998, the general permitted blood alcohol limit has been 0.50 0/00. A blood alcohol level of over 0.50 0/00 is punishable as an administrative offense under §24 of the Road Traffic Act (StVG). A blood alcohol of 1.1 0/00 is considered indicative of absolute unfitness to drive and is punishable as a felony under the penal code (§315c / §316 StGB).

Young drivers are particularly susceptible to the problem of the combination of drinking while partying and driving; a high rate of young drivers have accidents caused by drinking and driving. Young drivers with a low alcohol level already have a highly increased accident risk. Because of this, a zero-alcohol policy for novice drivers was introduced in 2007. Based on the Road Traffic Act, the policy states that young drivers (under 21 years old) and novice drivers in their probation periods are not allowed to drink any alcohol when driving.

A research study about the effects of this new law accompanied its introduction, looking into accident occurrence and traffic offenses caused by the influence of alcohol.

The study showed that the zero-alcohol policy had a considerable effect on the road safety of young drivers. Data on accidents and traffic offenders showed considerable decreases in not only accidents caused by drunken novice drivers but also the number of alcohol offenses by novice drivers in the year following the introduction of the new law. The study also found a high acceptance of the zero-alcohol policy among young drivers. {Holte 2010 #44}

2.10 Obligations to Use a Seat Belt and Wear a Helmet

Since 1976, Germany has required all car passengers to wear a seat belt and children under the age of 12 to sit in the back of the car. This law was introduced to minimize the impact on drivers in accidents. The effectiveness of these regulations is evident in the decrease of fatalities.

The introduction of the regulation was accompanied by extensive awareness and advertising campaigns. A high percentage of car drivers considered the seat belt to be a kind of chain; many felt that they might burn in the car because of their seat belt or not to be able to unbuckle fast enough in the event of an emergency, even though such cases are extremely rare. The campaigns tried to raise awareness and change the image of the seat belt into a positive one (cf. Figure 9, Figure 10).

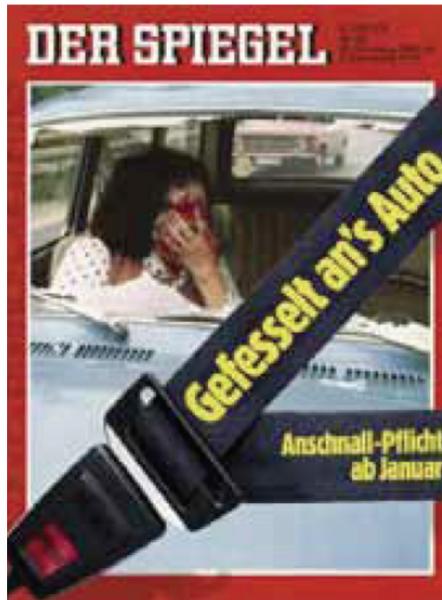


Figure 9. Magazine „Der Spiegel“ with the cover story “Chained to the Car”, 1982

Source: Deutscher Verkehrssicherheitsrat e.V. 2011 #16



Figure 10. First Campaign for using seat belts “Experts wear belts” (1973-1975)

Source: Deutscher Verkehrssicherheitsrat e.V. 2011 #16

Despite the campaigns, the proportion of passengers wearing seat belts increased only from 39% to 58% (overall in all road categories) in March 1984. The low acceptance rate arose mainly from stronger fears about seat belts. In August 1984, a fine for not wearing a seat belt in the front seat was introduced, and the percentage of belted front-seat passengers increased to 92% in September 1984 (cf. Figure 11). The government also introduced a fine in 1986 for not wearing a seat belt in the back seat, which led to an increase of usage of back-seat seat belts, as well. Furthermore, in 1993, a new law stipulated that children under 12 and shorter than 150 cm had to be belted with certified restraint systems for children. Since the fine was raised in 1998, non-belted children have been considered a traffic offense to be registered at the Central Card-Index for Traffic Offenses. In 2010, the percentage of belted passengers was 98%. Still, there are still many children not adequately secured with certified restraint systems.

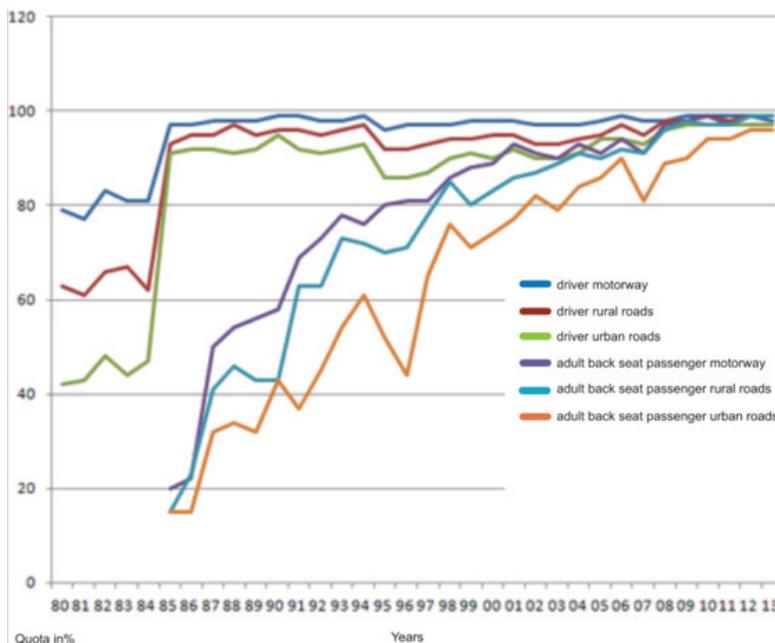


Figure 11. Seat belt usage

Source: Siegener 2014 #1, modified

Because every car passenger has to fasten his or her seat belt, there are limits on the number of passengers who can be transported in a vehicle. The §21 StVO states furthermore that drivers are not allowed to carry passengers on truck beds or in stowage areas.

The §21a Road Traffic Regulations (StVO) regulates exceptions for the usage of seat belts, such as exempting taxi drivers from fastening their seat belts while carrying passengers. This paragraph also states that drivers of motorcycles and other motor vehicles with three or more wheels must wear a helmet if no safety belts are provided. The sanction for not wearing a helmet is only a 15-Euro fine, but the driver is held partially at fault in the case of an accident with head injuries.

The proportion of motorcyclists wearing helmets is about 100% over the last 20 years (cf. Figure 12) in contrast to the proportion of bicyclists wearing helmets (cf. Figure 19), which is 13% overall {Below 2013 #52}.

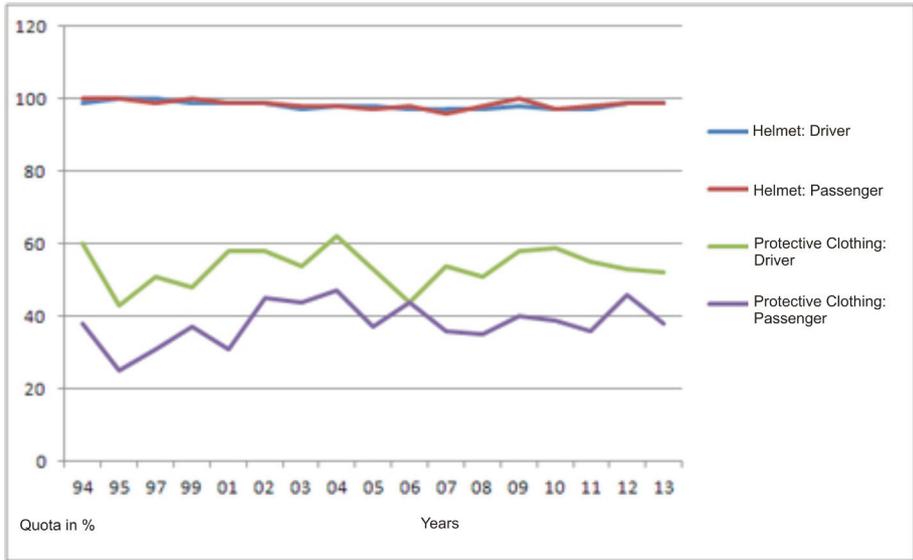


Figure 12. Rate of helmet and protective clothing usage among motorcyclists in town settings (1992–1995: western states only; since 1997: all states)

Source: Siegener 2014 #1, modified

3 Traffic Safety Programs and Campaigns

3.1 National Traffic Safety Program

The National Traffic Safety Program, a framework for national awareness campaigns, research programs, and the implementation of measures for road safety, unites the German Road Safety Council (DVR) and the Federal Ministry of Transport (BMVI) in a collaborative effort aimed at traffic safety.

The latest Program from 2011 defines the aim to reduce fatalities in road traffic accidents by 40% by 2020. It also names the main fields of action where improvements are needed and points out possibilities for doing so.

The program emphasizes the protection of vulnerable road users as well as the decrease of accidents on rural roads. It also needs to account for demographic change and the possibilities of new automotive engineering, such as driver assistant systems.

The program distinguishes between the three fields of action—humans, infrastructure, and automotive engineering—and defines aims and measures for each field.

In the “humans” field, the emphasis is on the protection of vulnerable road users, especially children, cyclists, novice drivers, and elderly persons. The ministry pays particular attention to appropriate child safety devices in cars and voluntary health checks for elderly people. As the percentage of cyclists wearing helmets and the safety of novice drivers both need to improve, the Traffic Safety Program has established practical measures for these specific target groups.

The safety of rural roads is a central concern in the field of infrastructure because, at 60%, rural roads account for the highest share of traffic accidents with fatalities. Additional passing lanes and protection measures are designed to prevent accidents. Other planned measures include the implementations of rumble strips on motorways to keep drivers securely on the road and a pilot project for warning signs on ramps to prevent wrong-way driving. Safety management for the road infrastructure is also playing an important role in the Safety Program, covering Road Safety Audits for planning, safety classification, detailed reviews on traffic situations in blackspots, and the Accident Commissions.

The focus in automotive engineering lies on using and enhancing existing potential as well as eliminating risks. This concerns the active and passive safety. Therefore, different measures are being outlined for passenger cars, electric and hybrid vehicles, motorcycles, bicycles and other two-wheel vehicles, and heavy goods vehicles.

{Bundesministerium für Verkehr, Bau und Stadtentwicklung 2011 #43}

3.2 “Step off the Gas” Campaign

Through 2008, speeding had been the leading cause of accidents with personal damage for several years. The German Road Safety Council (DVR) and the Ministry of Transport, Building and Urban Development (BMVBS) thus designed a campaign to raise awareness of the consequences of speeding.

The campaign went deliberately for shocking pictures; the first campaign year featured different death notices, always with the prompt to step off the gas (original: “Runter vom Gas!”). The images were chosen not only to shock but also to show what can be lost when speeding puts lives in danger. (cf. Figure 13)

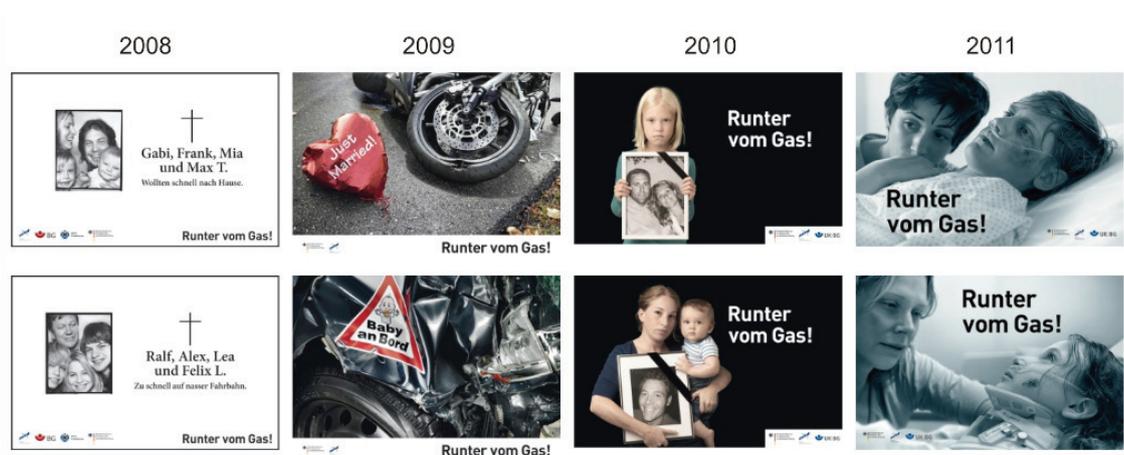


Figure 13. Selection of campaign images 2008-2011

Source: Deutscher Verkehrssicherheitsrat e. V. #40}, modified

The campaign changed slightly in 2011, retaining the aim of reducing traffic deaths and injuries but shifting the campaign theme to "Life is beautiful." The scope also expanded to include other accident causes and risks like distraction, usage of seat belts, passing, usage of bicycle helmets, drinking and driving, etc., while the sender "step off the gas" remained. (cf. Figure 14)



Figure 14. Selection of campaign images 2012-2014

Source: Deutscher Verkehrssicherheitsrat e. V. #40, modified

3.3 Nationwide Speed Control Day

This awareness campaign strives to control excessive speed at specific spots for 24 hours in hopes of opening eyes to the dangers of speeding. The first nationwide speed control day was in 2013. It consists of an intensive information campaign about the fatal consequences of excessive speed and the announcement of control points via the Internet or local media.

Before the Nationwide Speed Control Day came into being, several states had their own separate speed control days. As the State Minister for the Interior in Mecklenburg-Vorpommern has said, it is important to make the control effort nationwide because speeders do not stop at state borders.

One more important component of the campaign is the involvement of the general populace, who can report points where they think speed should be controlled. This input led to many new monitoring points in the State of North Rhine-Westphalia since the fifth Speed Control Day.

Evaluations conducted by the police show that the campaign has demonstrable effects; for example the percentage of all speeding cases accounted for by highly excessive speeding decreased from 57% in 2010 to 30% in 2012, and the average speeding margin in the city of Dortmund decreased from 14 km/h in 2011 to 10 km/h in 2013.

{Ministerium für Inneres und Kommunales NRW 02.10.2013 #19}

3.4 “Consideration in Road Traffic” Campaign

The “Consideration in Road Traffic” campaign started as a pilot in 2012 to raise awareness of considerate behavior, reduce dangerous and conflict situations, and improve the traffic atmosphere, especially in cities with a high share of cyclists.

After the successful implementation of the pilot in two cities in 2012 and 2013, all other cities can now also benefit from the campaign. The campaign is designed to be conducted by the city councils.

Bicycles are used for more than 10% of all journeys in Germany; in some cities and districts, the share is as high as 20%. Overall bike use is increasing nationwide. This trend is generally seen as a positive one, but it also has negative effects: increasing numbers of conflicts and accidents involving cyclists, as well as the perception of an increasingly aggressive traffic atmosphere, are two examples. The growing cyclist population currently has to struggle with an infrastructure and regulations that originate from a car-oriented time.

Studies show that traffic regulations and infrastructural measures cannot reduce all traffic accidents. After all, the chief causes of accidents are often deliberate breaches of rules or deliberately erratic behavior. The prevention of such accidents thus requires changes in road traffic behavior.

From this perspective, the initiators expressed the following specifications for a communicational campaign:

- promoting the considerate behavior of all road users;
- contributing to an improved traffic atmosphere with fewer conflicts; and
- raising risk awareness of users’ own behavior and the knowledge of dangerous road traffic situations.

The campaign was not designed to be instructive but rather based on the assumption that people like to move around in a considerate environment and that every road user in fact knows the applicable traffic rules. Therefore, the campaign uses the means of advertising to promote the “wicked” product “consideration in road traffic” as a beverage can.

Six themes show different road users: a cyclist, a car driver, a pedestrian, a truck driver, a bike, and a motorized courier with the catch copy: “costs nothing”, “brings about peace”, and “saves one’s nerves” (cf. Figure 15). The campaign addresses all road users, but the primary focus is on bicycle safety.

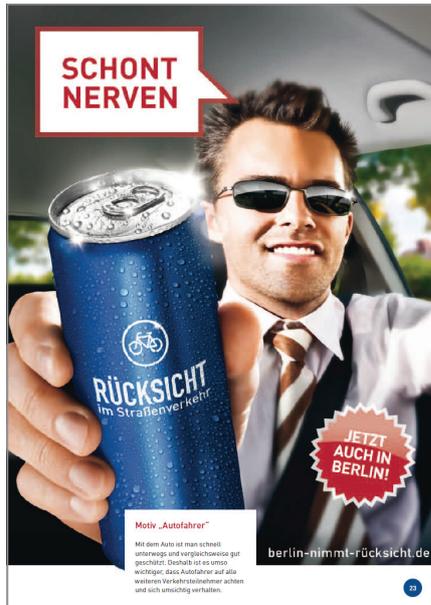


Figure 15. Campaign image: Car driver promoting saved nerves

Source: Bundesministerium für Verkehr, Bau und Stadtentwicklung #41

The main person of the campaign is St. Christopher, the patron saint of travelers. The campaign uses all kinds of media (cf. Figure 16) to promote consideration and gives tips in brochures and on websites (e.g., Facebook, cf. Figure 17) about dangerous traffic situations in which consideration is particularly crucial.



Figure 16. Media pack

Source: Bundesministerium für Verkehr, Bau und Stadtentwicklung #41



Figure 17. Facebook profile of St. Christopher

Source: Facebook Profil St #42

3.5 “Slow Down! School is Starting!”

The school starting campaign called “Slow down! School is starting!” prompts drivers to be considerate toward schoolchildren, conveying its message in a package of colorful media such as banners across roads and colorful baseball caps.

Local Road Safety Organizations organize support teams, with municipalities and regional companies putting up the campaign locally in many cases. The campaign endeavors to make school routes safer, which is why the posters go up when school resumes after summer break and are mostly visible on streets along main school routes to primary schools. {Verkehrswacht Medien Service #46}

3.6 “I’m Wearing a Helmet”

Based on the traffic safety program, the Federal Minister for Transport initiated the “I’m wearing a helmet” campaign in 2011 through the German Road Safety Organization. (cf. Figure 18)



Figure 18. Campaign images from “I’m wearing a helmet”

Source: Deutsche Verkehrswacht e.V. #31}, modified

This particular campaign is a module of the German Road Safety Organization’s broader “ByCycle ... but safe” campaign, which aims to inform people about safe cycling by highlighting accident risks and giving practical help.

As pleasant as the trend toward more widespread bicycle use is, there is still only a minority wearing helmets. Although a helmet can prevent head injuries and reduce accident severity, only 15% of cyclists (over all age groups) wear helmets {Siegener 2014 #1} (cf. Figure 19).

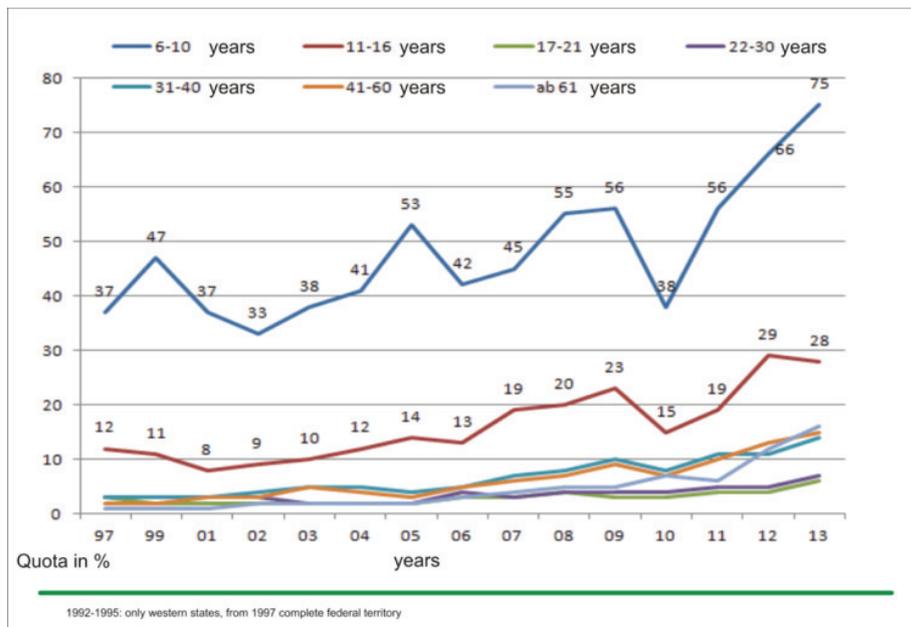


Figure 19. Helmet use by age group

Source: Siegener 2014 #1, modified

The campaign focuses on the advantages of the voluntary bicycle helmet use. To reach as many sections of the population as possible, the theme changes every year to illuminate different aspects of cycling and wearing helmets. The campaign is also supported by celebrities like Andrea Sawatzki, a famous actress. {Deutsche Verkehrswacht e.V. #31}

3.7 German Road Safety Council (DVR)

The German Road Safety Council (DVR), founded in 1969 as a registered association, is an independent pioneer and key force in all matters of road safety.

The central task of the association is to support measures for improving the safety of all road users.

The matters of human behavior, automotive engineering, infrastructure, traffic surveillance, and traffic medicine outline the focus points. The DVR coordinates the activities of its members, develops programs, and adapts them continuously to new standards. One of its main tasks is coordinating all acting groups to work together and effectively. The association advocates positions that support safe lives in politics, social groups, and the media, as well as in national, state, European, and other institutions.

Since 2007, the DVR has used the "Vision Zero" strategy, which operates on the following assumptions:

- People make mistakes.
- Physical human resilience is limited.
- Life is not negotiable.
- People have a right to a safe traffic system and a safe working environment.

These assumptions must be considered in the design of traffic systems. Every system designer, be it a politician, vehicle manufacturer, or administration, has that responsibility.

The DVR has over 200 members from traffic ministries on the state and national levels, as well as accident insurers, the German Road Safety Organization, automobile clubs, vehicle manufacturers, insurers, public transport companies, trade associations, trade unions, churches, other German associations and organizations, and some members from foreign countries.

{Deutscher Verkehrssicherheitsrat e. V. #17}

3.8 Accident Commissions

The task of the Accident Commissions is to identify and analyze blackspots and to decide measures to eliminate them. Above all, the commission has to ensure that passed measures are taken (enabling control) and that impact is controlled.

As it currently stands, the work of the Accident Commissions is an important part of the master plan to improve road safety across Germany. The federation, states, and municipalities bear responsibility for road safety. Permanent members of the commission are representatives of the police, the road traffic authority, and the road authority, whose task it is to combat road traffic accidents in the scope of the local accident analyses based on the Administrative Directive -Road Traffic Regulations for §44.

The measures include constructional measures, traffic regulating measures, measures by law, and traffic police measures. Thereby, it is the duty of the police to ensure the compliance of traffic regulations with the help of traffic surveillance. The road traffic authority gives orders for appointed traffic signs. The road authority then performs these orders and takes responsibility for civil works where necessary.

Targeting blackspots can make significant improvements in road safety. This is because large numbers of accidents in a single spot can often be attributed to a correctable road defect.

The methodology of the Accident Commissions' work is laid out in the code of practice for local accident analyses in accident commissions (M Uko).

{Forschungsgesellschaft für Straßen- und Verkehrswesen 2012 #47}

4 Traffic Education Activities

4.1 Traffic Education for Children

Traffic education starts at an early age. One module of the National Traffic Safety Program is traffic education for children of nursery age (three to six years old) and children in primary schools.

Mobility is a centerpiece in the development of a child. According to a study by Prof. Dr. Renate Zimmer, children can only protect themselves if they learn to observe the environment, sharpen their senses, orient themselves, react quickly, and be able to act according to the situation. These abilities are the best guarantees for children to orient themselves and survive in their moving environment. {Zimmer 2009 #20}

Therefore, nurseries play an important role in advancing mobility-relevant competencies. Traffic or mobility education takes place in nurseries in manifold ways by:

- encouraging physical activities playfully;
- letting children ride training bikes or scooters;
- giving children practical experiences on excursion by going to bus or train stops and using public transportation;
- preparing preschool children for their way to school; and
- practicing how to cross roads at traffic lights, etc., with policemen.

{Verkehrswacht Medien Service #49}

Nurses can access a wide range of media and programs to support traffic education, including the media provided by the German Road Safety Organization or programs like the

German Road Safety Council's "Child and Traffic" program, in which parents learn about exercises on shared routes and how to secure children in cars. {Neumann-Opitz 2011 #50}

The traffic education in primary schools is often paired with cycling training and experiences while on excursions.

4.2 School Route Maps

A guideline for the development of school route maps based on a research project on the "Development, spread, and usage of school route maps" is placed at the disposal of states and municipalities as part of the national traffic safety program."

School route maps are an important support tool for parents and children in finding and walking the safest ways to school. An example is shown below (cf. Figure 20).

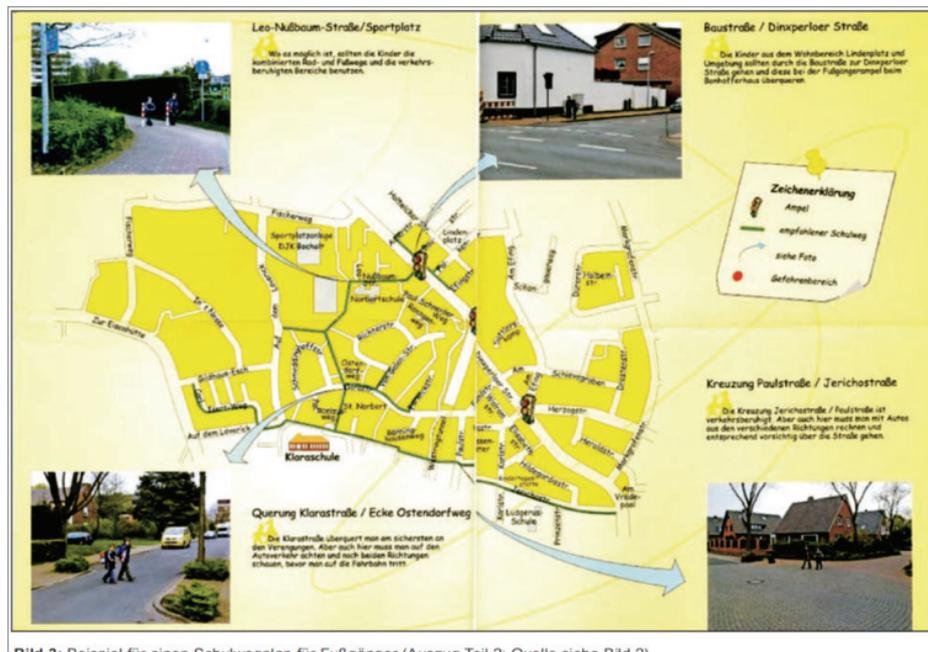


Bild 3: Beispiel für einen Schulwegplan für Fußgänger (Auszug Teil 2; Quelle siehe Bild 2)

Figure 20. Example of school route map for pedestrians

Source: Gerlach 2012 #34

School route maps for primary schools mainly target parents of first-year students, although a newly developed school route map can also support parents of children in other age groups.

As the map emphasizes walking distance, the map area extends about one kilometer in radius around the school, correlating generally with the school district.

School route maps can also address parental drop-off/pick-up traffic, cycling, or school bus usage depending on the children's mode of transport.

A school route map consists usually of the following parts:

- a cover letter to the parents;
- general safety advice for going to school;
- a school route map with the following information:
 - location of school
 - problematic spots along the way to school
 - explanatory pictures and a legend

- guidance for handling problematic spots
- concrete recommendations for ways to school (where applicable)
- spots for crossing
- spots for crossing guards (where applicable)
- scale;
- the publisher;
- the contact person; and
- the year of issue

{Leven 2012 #21}

4.3 Parent Taxi Stops

Insufficient experience is weighing heavily on road traffic. Children ages 10 to 15 cannot recognize and evaluate dangerous situations correctly. This explains the growing number of efforts aiming to shift the mobility behavior of children toward autonomous participation. {Allgemeiner Deutscher Automobil-Club e.V. , Resort Verkehr 2013 #24}

Therefore, the national traffic safety program of 2009 mentioned the problem of "parental taxi traffic" at schools.

"Parental taxi traffic" is an underestimated danger around schools. Parents often violate parking rules in front of schools and thereby interfere with other road users.

The German Road Safety Organization advises against giving children a lift to school for the following reasons:

- teachers and police state that a large part of the traffic problems around primary schools originates from parental traffic;
- it is better for children to walk because the exercise is good for health and fitness;
- walking to school improves concentration in class;
- children gain important experiences as road users (cf. Figure 21);
- sharing a common way to school stimulates social behavior; and
- walking to school is more eco-friendly.

{Verkehrswacht Medien Service #48}

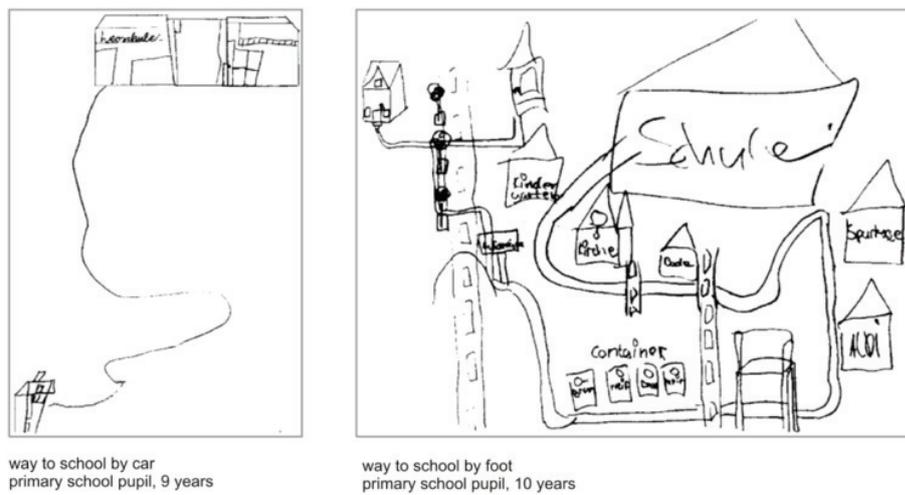


Figure 21. Children's drawings of their ways to school

Source: Verkehrsclub Deutschland 2004 #28, modified

The "Parental taxis at primary schools: A code of practice," published by the automobile club ADAC in 2013, helps to estimate the scope of the problem area and suggests measures to reduce the traffic or find a more compatible arrangement such as deconcentration via Parent Taxi Stops (cf. Figure 22).



Figure 22. Examples of Parent Taxi Stops

Source: Allgemeiner Deutscher Automobil-Club e.V. , Resort Verkehr 2013 #24}, modified

Recommendations from the guide:

For the taxi stop:

- The implementation should be agreed upon by the local authorities
- Nurseries should be taken into consideration, as they create overlapping traffic
- The measures should be accompanied by publicity efforts to encourage acceptance among parents and residents
- The taxi stop should be combined with other mobility projects like "Walking Buses" (children walking together in a bigger group) or days of action

For the way from the taxi stop to school:

- The distance from the taxi stop to the school should be at least 250 meters to ensure that the children get exercise and learn competence in road traffic
- The route should be safe and interesting to ensure a high acceptance among children and parents
- The route should not feature difficult crossings; if such crossings are unavoidable, they should be secured by traffic lights, "zebra" crossings, or crossing guards
- The route should be in a zone with slow car traffic
- The route should be adequately illuminated and cleared of snow in the winter
- The route should feature good lines of sight, especially at the driveways of private properties

{Leven 2012 #21}

4.4 Cycling Training

Cycling training is an important part of traffic education in Germany, with 95% of all students taking part every year. It has a permanent place in the schedules of primary schools: first- and second-year students are gradually introduced to cycling (cf. Figure 23), and third- and fourth-year students are given theoretical and practical assessments of training success.



Figure 23. Pre-training in the first and second year of primary school

Source: Verkehrswacht Medien Service #22

Although children can often cycle when starting primary school, they are rarely able to control their vehicles if they have to meet different demands at once. That is why children are allowed to cycle only on sidewalks until they complete their cycling training.

Exercises need to lead systematically from easy tasks for handling the vehicle to complex ones where mental, movement-related, and social demands have to be tackled simultaneously, including staying in the lane, driving one-handed, looking around, recognizing signals from other cyclists, and reacting appropriately. They learn the necessary competencies bit by bit; driving a scooter is a perfect pre-training for children to train their balance.

The cycling training in the third and fourth years is divided into a theoretical part conducted by schoolteachers and a practical part normally conducted by police. Basic exercises are still trained within a protected area like a schoolyard or specially designed training ground. Because of the complexity of real traffic situations, it is also important to do training sessions in real traffic. It is not until that point that children can recognize the real diversity of traffic situations.

Rules help children only if the children learn how to apply them in road traffic. Intersections where the right cyclist receives priority are particularly dangerous because other riders tend to ignore that priority. Children are especially easy to overlook if they drive across the road straight or use cycling lanes on the left-hand side. Flexible behavior with sufficient foresight is more important than being in the right because of the necessity to pay attention to others' behavior and anticipate other's mistakes.

{Verkehrswacht Medien Service #22}

5 Infrastructure

5.1 Road Safety Audits

The issues of road safety within the phases of planning, construction, and maintenance are included in technical guidelines, but there are still road construction measures being planned and executed that do not exploit the possible potential of safe road design given the state of technology. Although this may be due to the process of considering different needs, it might also be due to delays in scientific findings being included in the guidelines.

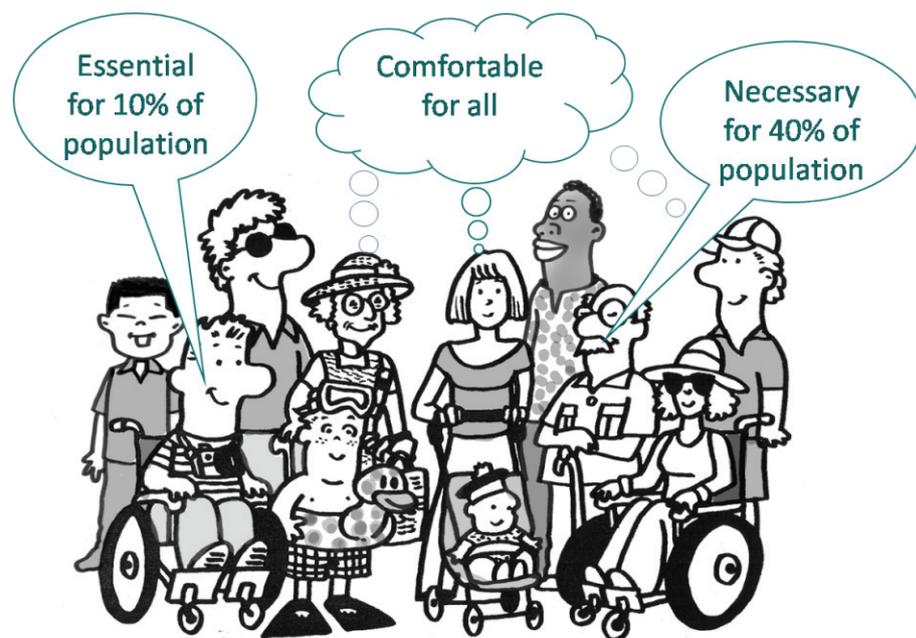
The "Guidelines for Road Safety Audits" supplement the existing guidelines for designing, building, and maintaining roads. The Road Safety Audit is a tool for quality management and part of a comprehensive quality management system. The systematic application of audits in the planning process is supposed to ensure a safe road environment for all road users.

Road Safety Audits identify safety deficits systematically and impartially. The aim of a Road Safety Audit is to design new or revamped roads as safely as possible to minimize the risk of accidents. In the post-audit planning process, the safety issues addressed by the audit have to be dealt with like all the other issues. So far, audits are required only for rural roads and motorways and optional for urban roads.

Only certified auditors are allowed to conduct these audit reports. They are trained based on the "Guidelines for the Training and Certification of Road Safety Auditors."

5.2 Design for All

Everyone should be able to distinguish and use road infrastructure at high levels of convenience. Therefore, infrastructure design should allow those with visual impairments to find their way, the disabled are able to move smoothly, the elderly can navigate to their destinations, and the rest of the population can use facilities easily (cf. Figure 24).



© Design for All Foundation

Figure 24. Design for all

Source: Design for All Foundation #55

Guided by these aims, the “Design for All” concept plays a role in every project concerning road infrastructure to help improve road safety and enhance the usability of the urban road network.

This is a continuous process, supported by different research projects, aimed at finding solutions and compromises that suit everyone.

References

1. Laws and Provisions

- 1.1. StVO (3/6/2013): Straßenverkehrs-Ordnung (StVO). Source: www.juris.de, #11.
- 1.2. StVG (8/7/2013): Straßenverkehrsgesetz, #10.
- 1.3. Bundesministerium für Verkehr, Bau und Stadtentwicklung: Verordnung über die Zulassung von Personen zum Straßenverkehr (Fahrerlaubnis-Verordnung - FeV). FeV, revised 5/3/2013. Source: www.juris.de, #8.
- 1.4. Bundesministerium für Verkehr, Bau und Stadtentwicklung (7/17/2009): Allgemeine Verwaltungsvorschrift zur Straßenverkehrs-Ordnung (VwV-StVO). VwV-StVO. Available online at http://www.verwaltungsvorschriften-im-internet.de/bsvwvbund_26012001_S3236420014.htm, #51.
- 1.5. Bundesministerium für Verkehr, Bau und Stadtentwicklung (1/10/2013): Fahrschüler-Ausbildungsordnung. FahrschAusbO 2012. Source: www.juris.de, #9.

2. Webdocuments

- 2.1. Bundesanstalt für Straßenwesen BAST (Ed.) (2014): Getötete im Straßenverkehr. in der Bundesrepublik Deutschland nach Ortslage und Art der Verkehrsbeteiligung. Available online at http://www.bast.de/DE/Statistik/Unfaelle-Downloads/getoetete-grafik.pdf?__blob=publicationFile&v=3, checked on 9/26/2014, #53
- 2.2. Bundesanstalt für Straßenwesen (Ed.): Medizinisch Psychologische Beratung. Available online at http://www.bast.de/cln_030/nn_42254/DE/Qualitaetsbewertung/MPU/beratungsperrfrist.html, checked on 1/31/2014, #45.
- 2.3. Bundesministerium für Verkehr und digitale Infrastruktur (BMVI): Die Medizinisch-psychologische Untersuchung (MPU) wird überarbeitet. Available online at <http://www.bmvi.de/SharedDocs/DE/Artikel/LA/medizinisch-psychologische-untersuchung-mpu.html?linkToOverview=js>, checked on 1/24/2014, #7.
- 2.4. Bundesministerium für Verkehr und digitale Infrastruktur (BMVI): Fahreignungsseminar. Available online at <http://www.bmvi.de/SharedDocs/DE/Artikel/LA/fahreignungsseminar.html?linkToOverview=js>, checked on 1/24/2014, #6.
- 2.5. Bundesministerium für Verkehr und digitale Infrastruktur (BMVI) (Ed.): Geplantes FahreignungsregisterNeues Fahreignungs-Bewertungssystem. Available online at http://www.bmvi.de/DE/VerkehrUndMobilitaet/Verkehrsteilnehmer/Fahreignungsregister/fahreignungsregister_node.html, checked on 1/31/2014, #39.
- 2.6. Bundesministerium für Verkehr und digitale Infrastruktur (BMVI): Glossar: Fahreignungsregister. Available online at <http://www.bmvi.de/SharedDocs/DE/Artikel/LA/glossar-fahreignungsregister.html?nn=84752>, checked on 1/24/2014, #2.
- 2.7. Bundesministerium für Verkehr und digitale Infrastruktur (BMVI): Neues Fahreignungs-Bewertungssystem. Das neue Fahreignungsregister (FAER) steht für mehr Verkehrssicherheit! Available online at <http://www.bmvi.de/SharedDocs/DE/Artikel/LA/neues-fahreignungs-bewertungssystem-ueberblick.html?linkToOverview=js>, checked on 1/24/2014, #5.
- 2.8. Bundesministerium für Verkehr und digitale Infrastruktur (BMVI) (Ed.): Regelungen des Fahreignungs-Bewertungssystems. Available online at <http://www.bmvi.de/SharedDocs/DE/Artikel/LA/regelungen-des-fahreignungs-bewertungssystems.html?nn=84752>, checked on 1/24/2014, #4.
- 2.9. Bundesministerium für Verkehr und digitale Infrastruktur (BMVI) (Ed.): Regelungen über die Erfassung im Fahreignungsregister (FAER). Available online at <http://www.bmvi.de/SharedDocs/DE/Artikel/LA/regelungen-ueber-die-erfassung-im-fahreignungsregister.html?nn=84752>, checked on 1/24/2014, #3.

- 2.10. Bundesministerium für Verkehr und digitale Infrastruktur (BMVI) (Ed.): Verkehr und Mobilität-Fahrerinnen und "Begleitetes Fahren ab 17". Available online at <http://www.bmvi.de/SharedDocs/DE/Artikel/LA/fahrerinnen-und-begleitetes-fahren-ab-17.html?linkToOverview=js>, checked on 1/31/2014, #37.
- 2.11. Design for All Foundation (Ed.): Design for All. Available online at <http://designforall.org/design.php>, checked on 9/26/2014. #55
- 2.12. Deutsche Verkehrswacht e.V. (DVW) (Ed.): Fahrrad ... aber sicher. Available online at <http://www.deutsche-verkehrswacht.de/home/angebote/radfahrer/fahradaber-sicher.html>, checked on 1/31/2014, #33.
- 2.13. Deutsche Verkehrswacht e.V. (DVW) (Ed.): Über die Aktion: Ich trag Helm. Available online at <http://www.ich-trag-helm.de/ueber-die-aktion/>, checked on 1/30/2014, #31.
- 2.14. Deutscher Verkehrssicherheitsrat e. V. (DVR) (Ed.): DVR - Kurzdarstellung. Available online at <http://www.dvr.de/dvr/titel.htm>, checked on 1/27/2014, #17.
- 2.15. Deutscher Verkehrssicherheitsrat e. V. (DVR) (Ed.): "Runter vom Gas!". Verkehrssicherheitskampagne des BMVBS und DVR. Available online at https://www.dvr.de/aktionen/runter-vom-gas_2011.htm, #40.
- 2.16. Facebook Profil St. Christopherus. Available online at <https://www.facebook.com/christophorus.schutzpatron.der.reisenden?fref=ts>, checked on 1/29/2014, #42.
- 2.17. Ministerium für Bauen, Wohnen, Stadtentwicklung und Verkehr NRW (2/22/2013): MBWSV NRW - Zahl der Unfalltoten sinkt in NRW stärker als im Bund. Available online at http://www.mbwsv.nrw.de/presse/pressemitteilungen/Archiv_2013/2013_02_22_Zahl_der_Unfalltoten_in_NRW_sinkt/index.php, #18.
- 2.18. Ministerium für Inneres und Kommunales NRW (10/2/2013): MIK NRW: Erfolgsmodell Blitz-Marathon jetzt bundesweit - Innenminister Jäger: Polizei bremst am 10. Oktober in ganz Deutschland. Available online at <http://www.mik.nrw.de/presse-mediathek/aktuelle-meldungen/aktuelles-im-detail/news/erfolgsmodell-blitz-marathon-jetzt-bundesweit-innenminister-jaeger-polizei-bremst-am-10-oktober.html>, #19.
- 2.19. Online Driving Licence Test. Available online at <http://www.fuehrerscheintestonline.de/auto/fuehrerscheintest>, checked on 1/24/2014, #36.
- 2.20. Verkehrswacht Medien Service (Ed.): "BREMS DICH! - Schule hat begonnen." - Schulanfangsaktion. Available online at http://www.verkehrswacht-medien-service.de/brems_dich.html, checked on 1/31/2014, #46.
- 2.21. Verkehrswacht Medien Service (Ed.): Mit dem "Elterntaxi" zur Schule? Available online at http://www.verkehrswacht-medien-service.de/szs_elterntaxi.html, checked on 1/31/2014, #48.
- 2.22. Verkehrswacht Medien Service (Ed.): Radfahrausbildung. Kernstück schulischer Verkehrserziehung. Available online at http://www.verkehrswacht-medien-service.de/radfahrausbildung_kern.html, checked on 1/29/2014, #22.
- 2.23. Verkehrswacht Medien Service (Ed.): Verkehrserziehung im Kindergarten. Available online at http://www.verkehrswacht-medien-service.de/szs_einleitung.html, checked on 1/31/2014, #49.

3. Printed Documents

- 3.1. Allgemeiner Deutscher Automobil-Club e.V., Resort Verkehr (Ed.) (2013): Das "Elterntaxi" an Grundschulen. Ein Leitfaden für die Praxis, #24.
- 3.2. Below, Ariane von (2013): Gurte, Kindersitze, Helme und Schutzkleidung - 2012. Kontinuierliche Erhebung zum Schutzverhalten von Verkehrsteilnehmern 2012. Edited by Bundesanstalt für Straßenwesen (Forschung kompakt, 06/13), #52.
- 3.3. Bormann, Carla (2013): Nationale Verkehrssicherheitskampagne des Bundesverkehrsministeriums (BMVBS) und des Deutschen Verkehrssicherheitsrates (DVR) 2008 - 2013. Runter vom Gas. Deutscher Verkehrssicherheitsrat e.V. (DVR). Wuppertal, 10/31/2013, #14.
- 3.4. Bundesminister für Verkehr, Bau und Stadtentwicklung (Ed.) (2013): Rücksicht im Straßenverkehr. Das Handbuch zur Kampagne, #23.
- 3.5. Bundesministerium für Verkehr, Bau und Stadtentwicklung (Ed.): Rücksicht im Straßenverkehr. Das Handbuch zur Kampagne, #41.
- 3.6. Bundesministerium für Verkehr, Bau und Stadtentwicklung (Ed.) (2011): Verkehrssicherheitsprogramm 2011, #27.

- 3.7. Bundesministerium für Verkehr, Bau und Stadtentwicklung (Ed.) (2011): Verkehrssicherheitsprogramm 2011, #43.
- 3.8. Deutsche Verkehrswacht e.V. (DVW) (Ed.): Ich trag Helm, #32.
- 3.9. Deutscher Verkehrssicherheitsrat e. V. (DVR); Deutsche Verkehrswacht e.V. (DVW) (Eds.): Verkehrssicherheitsprogramm 2009, #26.
- 3.10. Deutscher Verkehrssicherheitsrat e.V. (DVR) (Ed.): Jahresbericht 2012, #13.
- 3.11. Deutscher Verkehrssicherheitsrat e.V. (DVR) (Ed.) (2004): Auf den Punkt 2. Studien zum Pkw-Sicherheitsstraining (SHT). Bonn, #15.
- 3.12. Deutscher Verkehrssicherheitsrat e.V. (DVR) (Ed.) (2011): Der Sicherheitsgurt - Lebensretter Nr. 1. Bonn (Schriftenreihe Verkehrssicherheit, 15), #16.
- 3.13. Deutsches Institut für Wirtschaftsforschung (DIW) (2012): Verkehr in Zahlen. 2012/2013. 41. Jg. Hamburg: Dt. Verkehrs-Verlag, #35.
- 3.14. Forschungsgesellschaft für Straßen- und Verkehrswesen (2002): Empfehlungen für das Sicherheitsaudit von Straßen (ESAS): FGSV Verlag (298), #29.
- 3.15. Forschungsgesellschaft für Straßen- und Verkehrswesen (2009): Merkblatt für die Ausbildung und Zertifizierung der Sicherheitsauditoren von Strassen. MAZS. Ausg. 2009, [Stand] Juli 2009. Köln: FGSV (FGSV, 298 : R2), #30.
- 3.16. Forschungsgesellschaft für Straßen- und Verkehrswesen (2012): Merkblatt zur Örtlichen Unfalluntersuchung in Unfallkommissionen (M Uko): FGSV Verlag (316/1), #47.
- 3.17. Funk, Walter (2013): Verkehrserziehung in Kindergärten und Grundschulen. Bremen: Fachverl. NW in der Carl Schünemann Verl. GmbH (Berichte der Bundesanstalt für Straßenwesen: M, Mensch und Sicherheit, 238), #25.
- 3.18. Funk, Walter; Dittrich, Laura (2010): Begleitetes Fahren ab 17 - Prozessevaluation des bundesweiten Modellversuchs. Bremerhaven: Wirtschaftsverl. NW, Verl. für neue Wissenschaft (Berichte der Bundesanstalt für Straßenwesen : M, Mensch und Sicherheit, 213), #38.
- 3.19. Gerlach, Jürgen (2012): Entwicklung, Verbreitung und Anwendung von Schulwegplänen. Bremerhaven: Wirtschaftsverlag NW, Verl. für neue Wissenschaft (Berichte der Bundesanstalt für Straßenwesen: M, Mensch und Sicherheit, 230), #34.
- 3.20. Holte, Hardy; Assing, Kai; Pöppel-Decker, Martin; Schönebeck, Susanne (2010): Alkoholverbot für Fahrradfänger. Evaluation der Wirksamkeit. Bremerhaven: Wirtschaftsverl. NW, Verl. für Neue Wiss (Berichte der Bundesanstalt für Straßenwesen : M, Mensch und Sicherheit, H. 211), #44.
- 3.21. Leven, Tanja; Leven, Jens; Gerlach, Jürgen (2012): Schulwegpläne leichtgemacht. Der Leitfaden. Edited by Bundesanstalt für Straßenwesen, #21.
- 3.22. Neumann-Opitz, N.; Bartz, R. (2011): Verkehrserziehungsprogramme in der Lehreraus-/Fortbildung und deren Umsetzung im Schulalltag. Am Beispiel der Moderatorenkurse "EVA", "XpertTalks", "sicherfahren" und "Risk" ; [Bericht zum Forschungsprojekt F1100.4403001]. Bremerhaven: Wirtschaftsverl. NW Verl. für neue Wiss (Berichte der Bundesanstalt für Straßenwesen M, Mensch und Sicherheit, 216), #50.
- 3.23. Siegener, Winfried; Rödelstab, Thomas (2014): Sicherung durch Gurte, Helme und andere Schutzsysteme 2013. Kontinuierliche Erhebung zum Schutzverhalten von Verkehrsteilnehmern 2013. Bericht zum Forschungsprojekt 83.023, Bundesanstalt für Straßenwesen (unveröffentlicht). Edited by Bundesanstalt für Straßenwesen BASt (Forschung kompakt, 11/14). #1
- 3.24. Statistisches Bundesamt (Ed.) (2014): Verkehrsunfälle. Zeitreihen. 2013. #54
- 3.25. Verkehrsclub Deutschland (VCD) (Ed.) (2004): Schulweg ohne Auto. Tipps und Informationen für Grundschulen, #28.
- 3.26. Zimmer, R. (2009): Beiträge der Verkehrserziehung und Mobilitätsbildung zur frühkindlichen Bildung. Edited by Deutsche Verkehrswacht, Gesamtverband der Deutschen Versicherungswirtschaft. Bonn, #20.

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