

ADAC

Motorbiking – on Safe Roads!

Practical guidelines



ADAC – Making Mobility Safe



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A Building Block Towards Road Safety

Motorcycling is not just motorised locomotion. Biking stands for passion, freedom, and individualism. Alas, even with the seat empty, every motorcyclist has a pillion rider called Risk. Motorcyclists are 14 times more likely to have an accident than car drivers. In 2010 about 630 motorcyclists were killed in road accidents.

Motorcyclists are not protected by crumple zones or seat belts. Usually their machines are not equipped with air bags or an ABS either. When they collide with roadside obstacles or in head-on collisions with on-coming traffic, the consequences for them are usually fatal.

ADAC and DVR convened a work group to discuss adequate measures with experts to minimise the risks motorcyclists face on our roads.

Their ideas and suggestions are many and varied. Equipping crash barriers – notably in bends – with underrun protection systems would massively improve safety. This is what ADAC aims to promote.

“Vision Zero” road safety philosophy

As a district commissioner, mayor, chief of administration or local policy-maker, you are facing the daily challenge of creating decent living conditions for the people in your cities and towns. This obviously includes safe and flexible mobility. Thanks to a variety of measures, the number of road injuries and deaths has been decreasing for many years. But there is one group of road users who are excepted from this positive general trend: the number of major road accidents involving motorcyclists has been stagnant at a very high level. The number of almost 1,000 motorcyclists killed every year is unacceptable. This situation requires redoubled efforts.

Special measures to make roads safer for motorcyclists have been a promising approach. There is a wealth of practical experience in this area. For instance, equipping crash barriers with underrun protection systems is an effective way to make bends known as accident hot-spots safer. Did you know that simply installing additional protective elements in the lower section of a crash barrier can make a notorious trouble

Moreover, the roads inspected under the ADAC road testing programme (EuroRAP), will now also be assessed in terms of their biker-friendliness.

Motorcyclists can attend special ADAC road safety events to learn about the risks and practice their behaviour in critical situation. Since motorcycling is a physically and mentally exacting activity, bikers should embrace the idea of permanent training and practice.

We must aim both at building better roads for motorcyclists and at making them more willing to learn and assume the responsibilities they owe themselves and their families.

With this motorcycling road safety brochure we aim to achieve both. It is a building block in a new ADAC campaign developed in cooperation with DVR.



Ulrich Klaus Becker
ADAC Vice President for Transport



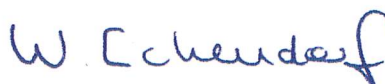
➤ Ulrich Klaus Becker
ADAC Vice
President
for Transport

spot disappear from the headlines? And that a one-time investment of about €5,000 will yield sustainable safety benefits?

As a local decision-maker you will appreciate valuable information that will help you optimise the allocation of limited financial resources in the service of safer, accident-free mobility. This brochure offers you an executive summary of the standard-setting “Technical Bulletin on Improved Road Safety on Popular Motorcycling Routes” (MVMot), which was compiled for your road safety experts.

I hope this brochure reflecting our “Vision Zero” road safety philosophy will help you make the roads in your city or town safer for motorcyclists.

Nothing would be more gratifying for us than your successful road safety activities!



Dr. Walter Eichendorf
President, German Road Safety Council e.V. (DVR)



➤ Dr. Walter Eichendorf
President DVR

➤ Risk Is Your Pillion Rider

For many people, motorcycling is a hobby. The motives of leisure motorcyclists range from travel and touring, going to biker meets, mastering their bikes and riding technique, the sporting challenge to that mystique of freedom and adventure. But many, notably in rural areas, use their various types and sizes of motorcycles as an affordable way to get around.

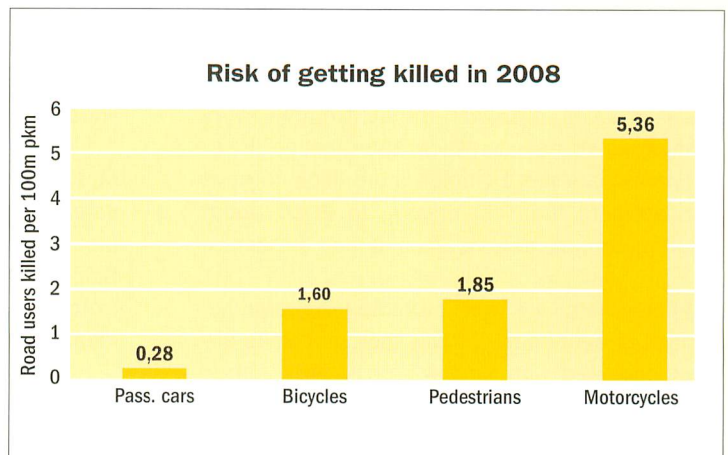
➤ Safety on the scale of four million motorcycles

So it comes as no surprise that the fleet of motorcycles has grown by 175% to four million since 1990. Over the same period the number of car drivers killed dropped by 62% whereas that of motorcyclists did only by 38%. Even if the overall number of road accidents is down – the death toll of 656 motorcyclists (2008) is alarmingly high.

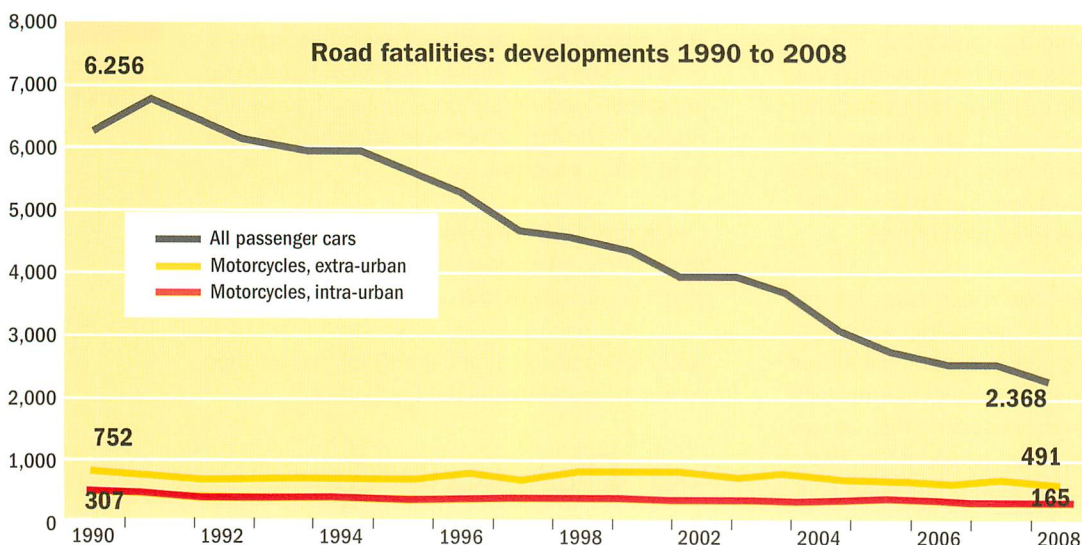
We need not accept this, since there are many things that can be done. The technical and road furniture options that will make our roads safer for motorcyclists include better road guidance with road markings or upright road furniture such as bollards or stanchions, improved signposting along roads or measures to optimise grip or eliminating (potential) obstacles.

➤ Guidelines for decision-makers

The brochure “Motorbiking – on Safe Roads” is meant to offer political and administrative decision-makers and the regional transport accident investigation commissions practical guidelines and advice in identifying motorcycle accident hot-spots on our extra-urban roads.



➤ We would rather that roadside crosses such as this one were a thing of the past.



➤ Motorcycling is different

Motorcycles, whether they are motor-assisted bicycles, mopeds, scooters or full fledged motorbikes, are all single-track vehicles. Unlike cars, they do not have bodywork and a car's crumple zones to protect the rider or pillion. They are unstable at low speeds (<20kph); the rider must keep them balanced with constant steering or posture corrections.

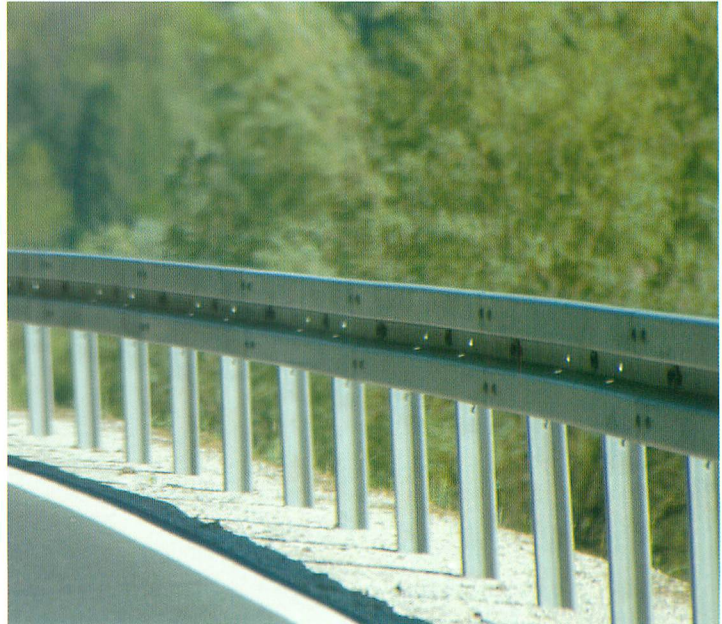
Only at speeds of 40kph and more, the gyroscopic forces in the wheels are sufficient to keep the vehicle upright: now the motorcycle stabilises and runs dead ahead. In order to follow a bend or make a turn riders must "lean" their motorcycles into the turn. This is the crucial difference between any type of motorcycle and two-track vehicles such as passenger cars.

To clarify the issue, let us think of longitudinal grooves/ruts in the pavement: any motorist knows that vehicles will not track well on such surfaces and become harder to control. The same happens with motorcycles when they hit a physical disturbance, such as sunk or raised manhole covers, potholes, diffused and "polished" bitumen or thick road markings. Such obstacles can be critical in cornering or when braking. The quality of the road surface is much more significant for a motorcyclist than it is for other motorists. The smoothness and grip of road surfaces are the two factors determining the contact (traction) between tyres and the road. As such, they are decisive for safe motorcycling.

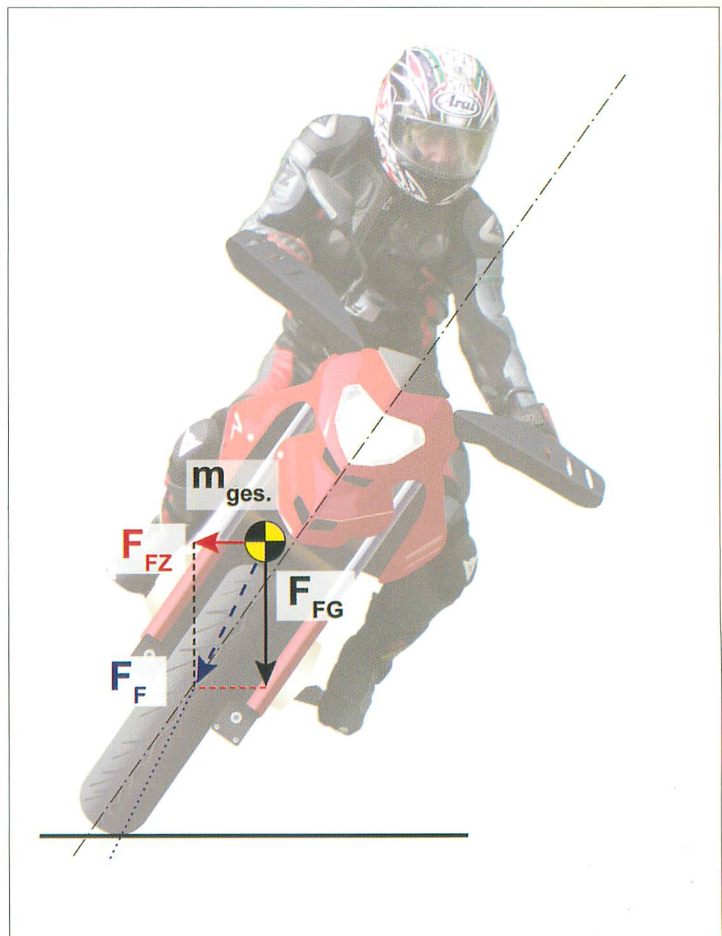
Motorcyclists have an increased risk of crashing on "polished" road surfaces or surfaces of varying grip, e.g. caused by diffused bitumen, iron drain grates or manhole covers.

In such a situation, if the motorcyclist crashes or is projected off the road, this will frequently result in crashing with obstacles (guardrails, trees, traffic signs etc.). The crash zones – here the roadsides – are usually not designed or built with motorcycles in mind. It comes as no surprise then that many motorcyclists suffer serious, often fatal injuries.

Those responsible should always take care that road surfaces are smooth and have sufficient grip in order to avoid accidents – but they should not neglect the crucial safety of roadsides and remove obstacles.



- Harmless for all other motorists but a death-trap for motorcyclists: the posts supporting crash barriers or guardrails.



- The parallelogram of forces in cornering.

➤ Typical hazards on our roads

➤ Substandard road pavement

Anybody knows that longitudinal lane ruts in the pavement interfere with the tracking capabilities of vehicles. Motorcycles, too, will go “off track” when they hit physical disturbances – which are usually hard to detect. Such flaws can be critical in cornering or when braking.

The quality of the road surface is much more significant for motorcyclists than it is for other motorists. The evenness and grip of road surfaces are the two factors determining the contact (traction) between tyres and the road. For instance, polished patches of asphalt resulting from the diffusion of bitumen present an increased risk of crashing for motorcyclists.

➤ Dangers on rural roads: The trouble with bends

Many bikers like to ride through the countryside – but numerous dangers lurk on or along rural roads, often overtaking the motorcyclists’ skills. Crop fields often come up closely to the roadway reducing visibility and obstructing the motorists’ view of the road layout on curvy sections.

➤ The greatest hazards lurk just off the road

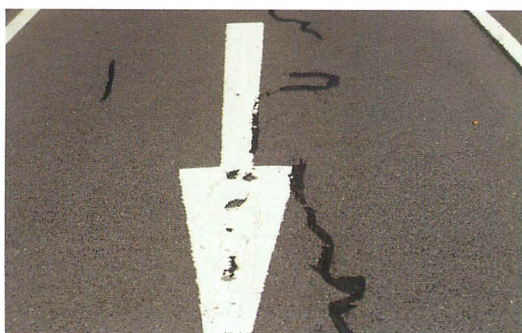
When motorcyclists crash or lose control of their bikes, they face the most serious consequences when they collide with obstacles such as rural walls, guard railing posts, bridge railings, trees or power transmission towers. When the obstacles are sharp-edged, high forces impact small surfaces, which very often results in serious injuries or even fatalities.



➤ Road patches are very dangerous for motorcyclists in wet weather.



➤ Planted or overgrown roadsides obstruct visibility in bends (e.g. crop fields planted with rapeseed or wheat).



➤ Dangerous patchwork.



➤ Serious flaws in the road pavement: patches of varying grip, lane ruts and “patchwork” repair.

➤ The road from the motorcyclist's perspective



- Damaged pavement such as the above can be devastating for motorcyclists.



- Poor visibility - no underrun protection.



- Good visual guidance - no vital underrun protection.



- No protection whatsoever for motorcyclists in slippery or aquaplaning conditions.



- Lane ruts and slick patches of diffused bitumen (polishing) make death-traps of safe-looking roads.



- Ignoring underrun protection can cost lives.

Preventing collisions with roadside obstacles is extremely important. Usually roadsides are not designed, much less optimised, to meet the safety requirements of motorcyclists. Next to providing smooth pavements with good grip, road safety managers should aim first and foremost at removing or “defusing” obstacles in roadside spaces in both directions of travel.

In road sections or single bends that are known as accident hot-spots, one of the causes leading to accidents may be the overall profile of the road section: possibly an unfortunate sequence of corner radii or the unfavourable distances between the bends. Often a combination of factors leads to accidents, e.g. speeding where visibility of the road ahead is insufficient or where there is poor grip.

➤ The Principle of Road Engineering: Safety First

The EU road safety charter called for a 50% reduction in the number of road fatalities by 2010. This objective could have been realistic only through an effective reduction in the number of motorcycling accidents, which are usually very serious. Nevertheless, a 40% reduction is quite close to the stated target. An extension of the programme to 2020 is being prepared.

ADAC and DVR are ready to make their contribution – with this brochure focusing on road and traffic engineering measures aiming at more safety for motorcyclists. In this endeavour, relatively significant effect can be achieved at little expense:

➤ On the roads:

- Improve road surfaces/pavements
- Upgrade contiguous road sections instead of making “patchwork” repairs
- Use double-line centre markings
- Continuous centre markings in bends
- Install rumble strips to warn of dangerous sections
- Re-engineer bends

➤ Crossings and junctions:

- Install dedicated turning lanes in critical spots
- Install flexible bollards instead of rigid road signage
- Use road signage to influence road behaviour

➤ Roadsides:

- Make the outside of roadside bends more “forgiving”
- Install underrun protection on crash barriers/guardrails
- Install closely-spaced flexible guidance posts
- Install guidance systems made of flexible materials
- “Defuse” obstacles by installing protective barriers

Finally:

- Conduct speed checks
- Conduct vehicle checks



➤ Dedicated left-turn lanes create more safety.



➤ Optimum safety in obstacle-free roadside spaces.

The basics of road safety engineering, the procedure and the measures are outlined in the 2007 FGSV “Technical Bulletin on Improved Road Safety on Popular Motorcycling Routes” (Merkblatt zur Verbesserung der Verkehrssicherheit auf Motorradstrecken – MVMot).

➤ Motorcycling accidents – Facts and Figures

➤ Did you know that...

- in 2008, almost one out of every seven road users killed in a road accident was a motorcyclist?
- in 2008, motorcycles were involved in almost 30,500 injury accidents?
- 10% of all injury accidents involved motorcycles?
- 656 motorcyclists were killed in road accidents in 2008 (14.6%)?
- in 2010, the percentage of road fatalities among motorcyclists will presumably not be much lower?

The facts and figures above illustrate the gravity and sheer number of motorcycle road accidents. Seasonal spikes in the number of accidents are also owing to bad weather with many bikers being leisure motorcyclists who usually take their machines for a spin when the weather is fine.

➤ Inexperienced riders

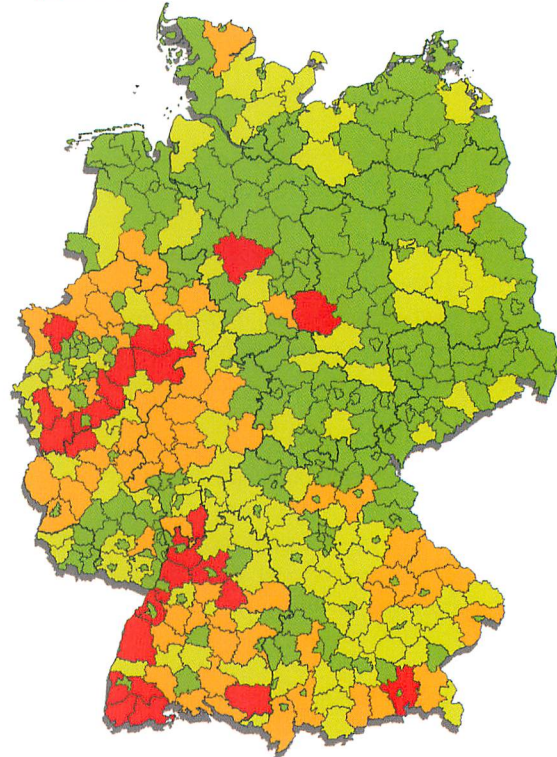
The particular combination of inexperience (seasonal riding) and daredevil carelessness (riding for fun) is a deadly brew for many motorcyclists. In tackling the problem, more awareness can be helpful — as the surprising results of a large-scale ADAC study of road accidents involving motorcycles prove (see right-column figure).

The police say inadequate speed is the cause of most motorcycle accidents. Yet, other reasons are involved in many cases, such as unexpected events causing an inappropriate reaction in the motorcyclists — who might moreover have been lacking in experience.

➤ New bike, fourfold risk

Often the motorcyclists are alone responsible for their own predicament: one in four motorcycle accidents happen with no other road users involved. In this type of crashes, bikers riding a new machine are particularly at risk. Compared with motorcyclists using a machine they are familiar with, the risk for riders of new bikes is fourfold ...

2007 Motorcycling accidents on extra-urban roads (except motorways) in Germany by district



- Looking at a German map at district level, it is apparent that most of the motorcycle accidents happen on popular scenic routes in Bavaria (the Chiemgau region) and in the South West (Black Forest) and West (the Eifel or Bergisches Land regions) of Germany. Motorcycling accidents are statistically less significant in the former East German territories. Source: ADAC Transport Affairs

➤ Did you know that...

- more than two thirds of the motorcyclist fatalities occurred on extra-urban roads or federal highways?
- this is owing to the fact that on this type of roads speeds are higher than in built-up areas and that there are more intersections and junctions than on motorways?
- 83% of the motorcyclists killed crashed under more or less good and dry road conditions (almost always in daylight!); 33% of the 2008 motorcycle accidents were a consequence of inadequate speed?

➤ Motorcycling accidents – Facts and Figures

➤ Did you know that...

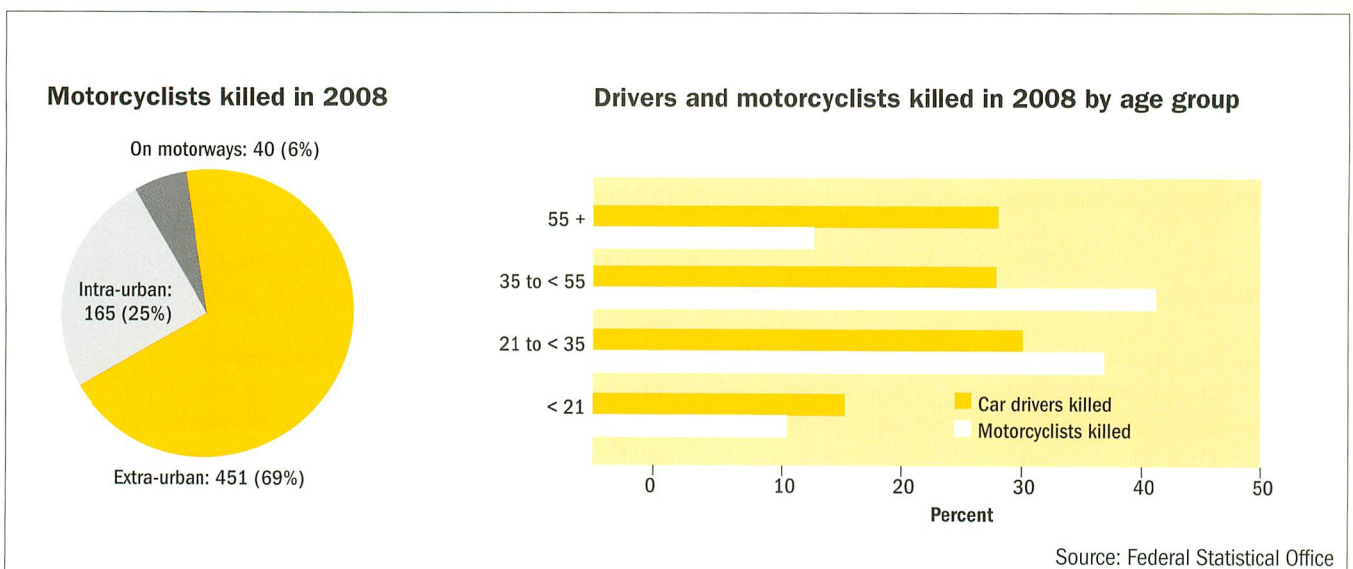
- 10% of the 2008 motorcycle accidents were owed to the incorrect assessment of oncoming traffic?
- over 55% of all rider's fault accidents involve no other road users; they are owed to riders lacking practice and overestimating their own biking skills?
- in 47% of the accidents, the motorcyclists are primarily at fault?
- the group of the 25 to 55-year-olds, male motorcyclists account for over 60% of the accidents?
- the group of the 35 to 55-year-old males is most at risk (40% of the bikers killed)?
- 71% of all passenger car on motorcycle collisions with personal injuries were caused by the car drivers?
- following too closely (tailgating): wrong assessment of the bike's braking response and inadequate brake power application resulting in overbraking crashes;
- overestimating one's own capabilities: treacherous feeling of safety based on accumulated motorcycling experience or an incident-free biking season;
- wrong assessment of own fitness: physical form and concentration are closely interrelated. Bikers very often overrate their fitness and daily form or they over-estimate their energy reserves and go beyond their limits.

➤ The more you practice, the safer you ride

The primary reasons for these accidents were right of way and priority violations, as well as driving errors in cornering, U-turning or starting/joining traffic. Very often, motorcyclists are overlooked. When the motorcyclist is at fault, the following factors are primarily responsible for the crash:

Psychologists and road safety educators have concluded that the motorcyclists involved in accidents very often did not assess their riding skills realistically. It takes five to ten years of motorcycling to give a biker the kind of experience to significantly lower his or her risk level.

- wrong road-scanning technique in cornering;
- insufficient leaning into corners;



➤ Accidents involving motorcyclists by type of road / accidents involving motorcyclists by age group

➤ Suggestions for Making Roads Safer

➤ Roads



➤ Improve road surfaces: pot-holes are a great danger for motorcyclists.



➤ Full resurfacing instead of patchwork repairs.



➤ Double-line centre markings.



➤ Continuous centre lines in bends.



➤ Use rumble strips to warn of accident black spots.

➤ Intersections and junctions



➤ Create stopping zones before especially dangerous intersections and junctions.



➤ Use flexible bollards instead of rigid road markings & signs.



➤ Influence road behaviour in sections with reduced visibility by installing traffic signs.

➤ Roadside



➤ Mitigate roadside risk: underrun protection on crash barriers.



➤ Mitigate roadside risk along the outside of bends: earth walls.



➤ Guidance systems made of flexible materials: flexible bollards.



➤ Guidance systems made of flexible materials: "balisette" bollards.

➤ Measures for Fixing Damage and Problems

➤ Safe roadside spaces: earth berms (instead of guardrails)

In some cases, earth berms can be alternatives to guardrails. They may be most effective where there are no obvious car or HGV accident



➤ Curvy road without underrun protection.

hot spots and the bend does not look problematic.

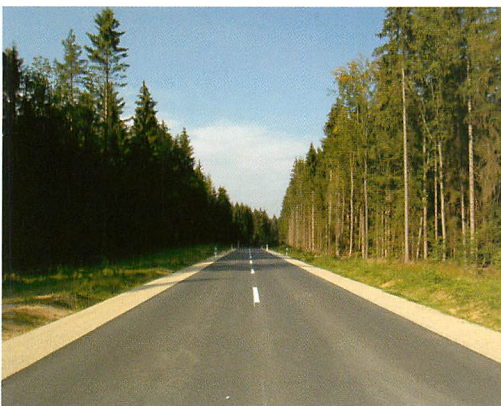


➤ Making the outside bend more forgiving in critical sections by installing earth berms.

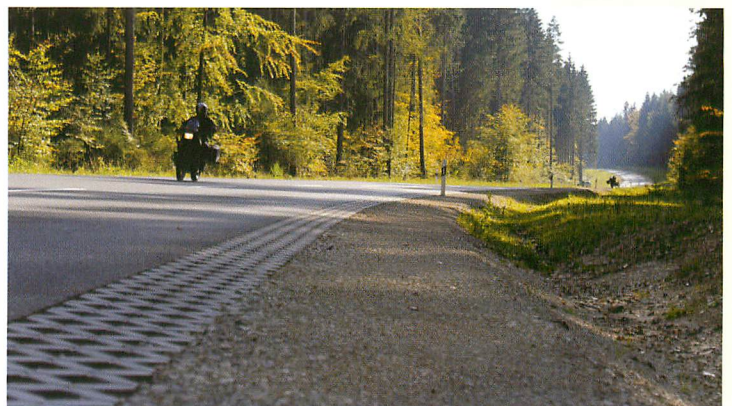
➤ Safe roadside spaces: a hard/reinforced shoulder between the pavement and the talus/embankment

On many extra-urban road sections there are no widened bends. HGV often use this soft shoulder to get through the turn, eroding the shoulder over time. Often when motorcyclists are forced off the road in bends by on-coming HGV, the eroded soft shoulder makes them

crash. Such curve sections can be upgraded easily by reinforcing the shoulder with concrete grid pavers set on a layer of lean concrete to create a stable and smooth buffer zone for the motorcyclist.



➤ A reinforced shoulder between the pavement and the slope of the embankment will act as a buffer zone.



➤ **“Euskirchen” underrun protection system**

One of the technical solutions is equipping existing crash barriers with underrun protection (Euskirchen system). This is a good system provided that no structural elements are protruding from the guardrail surface. When upgrading crash barriers, the offset between the crash rail and the underrun rail or the latter and the upper edge of the shoulder should not exceed 50mm. When an upright motorcyclist collides with the upgraded crash barrier, any vertical structural elements are masked. This upgrade is applicable both to regular single-rail crash barriers and single-rail crash barriers with spaced guardrail posts; the upgrades can be retro-fitted.

➤ **“Euskirchen Plus” Underrun protection system**

A new system, “Euskirchen Plus”, which is being developed, will feature a protective shrouding of perforated plate. This will minimise the motorcyclists’ injury risks in collisions against the upper section of the system. The key advantage of this system is that it can be retro-fitted at little cost and effort to existing guardrails.

The cost of underrun protection

- **Retro-fitting existing guardrails with underrun protection: approx. €30.00 per metre.**
- **For an average curve approx. 150m long, the estimated cost is approx. €5,000.**

This moderate investment will prevent motorcyclists from sliding under the guardrail or from colliding with a guardrail post in a crash, which could kill or seriously injure him/her. **€30.00 per metre of road can save lives.**

Some exemplary projects can be inspected at the “Würgau” hill (Würgauer Berg) along the B22 in Bavaria, on the “Schwarzwald-Hochstraße” (B462) in Baden-Württemberg and along the B48 in the “Pfälzer Wald” in Rhineland-Palatinate.



➤ Before: Long tree-lined bend with rigid steel sign-posts (obstacles on roadsides).



➤ After: New crash barrier equipped with underrun protection to prevent collisions with obstacles, cyclists and pedestrians.



➤ The roadside on this curving road section has been secured by equipping guardrails with underrun protection (“Euskirchen Plus” system).

➤ Measures for Fixing Damage and Problems

➤ Flexible roadside elements: Flexible bollards and “balisette” bollards



➤ Flexible bollards such as these are almost risk-free.



➤ “Balisette” test section on the “Schwarzwald-Hochstraße” (B462) in the Black Forest.



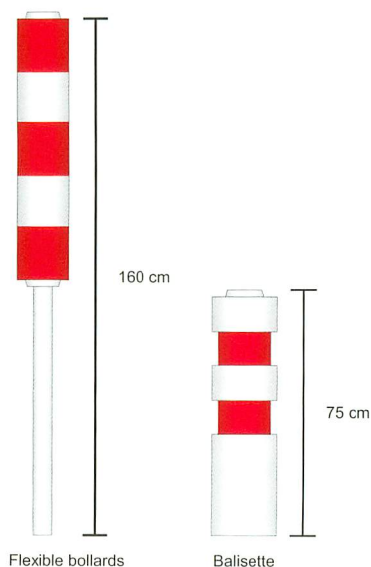
➤ Poor implementation of a good idea: red-and-white curve guidance signs are no longer necessary here.



➤ The inexpensive flexible bollards have passed the real-life test.



➤ Visibility at night ensured: reflective flexible bollards.



➤ **Signposting/securing junctions**



➤ Before: Critical junction in a bend.



➤ After: A staging point for a left turn; visibility of the junction enhanced with supersize guidance posts.

On median splits/islands at intersections and junctions, rigid sign-posting should be replaced with flexible elements. Here, flatter cambered kerb-stones are preferable to high angular kerbs.

Guidance furnishings should be made of flexible materials (e.g. plastic bollards). Flexible bollards are usually installed where there are no guardrails and where there is no remarkable incidence of car or HGV accidents, but where the layout of a curve may be problematic for motorcyclists.



➤ Exemplary left-turn lane at a critical junction.



➤ Before: Median split with signs on steel poles.



➤ After: Traffic signs were replaced with reflective flexible, red-and-white bollards.

> Measures for Fixing Damage and Problems

> Signage at low-visibility intersections or junctions



- > Make signs particularly noticeable (e.g. with bright yellow “type 3” reflective sheeting).



- > Individual signage can be used to forewarn motorists of low-visibility junctions in time.



> “Defusing” obstacles



- > Before: Structures in the immediate roadside area.



- > After: The threatening structures were removed and the access to the bridge secured by extending the guardrail and equipping it with underrun elements.

➤ Pavement upgrading and marking

When upgrading sections of pavement, curve sections should have priority. The engineers should be instructed to avoid changes in grip (e.g. by grooves) in bends; contiguous sections should be upgraded rather than performing “patchwork” repair.



➤ Contiguous upgrading and rehabilitation of pavements to ensure even road tops.

Road edges and sections with lane ruts must be rehabilitated to remove longitudinal grooves. This must be done in a very timely manner. Curve sections featuring varying levels of grip must be upgraded and adjusted for the crossfall.



➤ Test drive revealed poor grip – the pavement was upgraded within eight weeks.



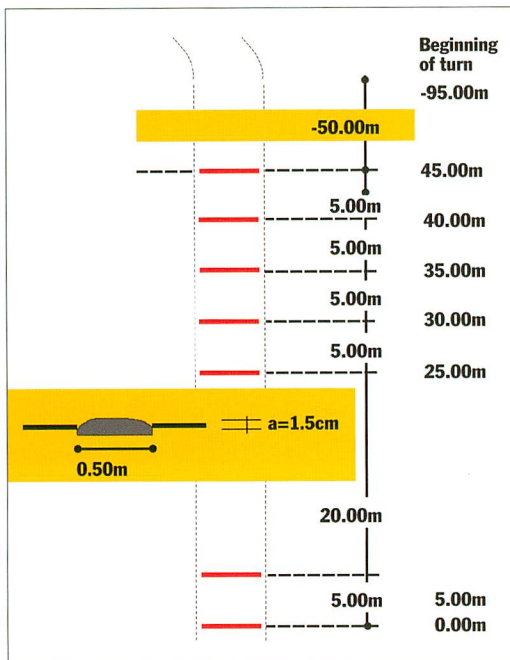
➤ Dangerous state of disrepair – no shoulder profiling; poor condition of road markings.



➤ Cost cutting at the wrong end – this type of disrepair puts motorcyclists in danger.

➤ **The rumble strip pilot (rumble strips installed ahead of accident hot-spots in bends)**

In certain locations, rumble strips can be used to enforce reasonable speeds. However they should always be installed on the last straight section leading into a bend. Also, a reasonable braking distance must be left before the actual bend. To keep motorists from driving around the rumble strips, they must stretch across the whole width of the road. In Germany, a pilot project was conducted with good results along the B48 in the "Pfälzer Wald" (Rhineland-Palatinate).



➤ Rumble strips are well-accepted by motorcyclists.



➤ Rumble strip forewarning (B48 in the "Pfälzer Wald").

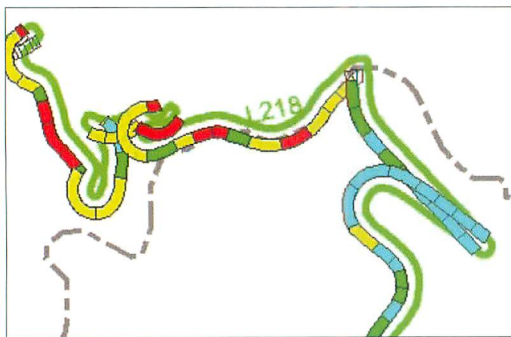
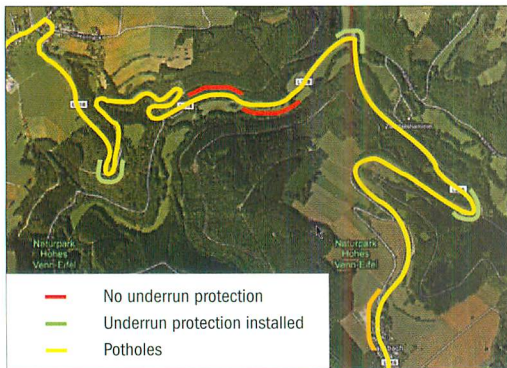


➤ Rumble strips (asphalt, raised approx. 1.5cm; 50cm wide) are an effective way to make motorists slow down.

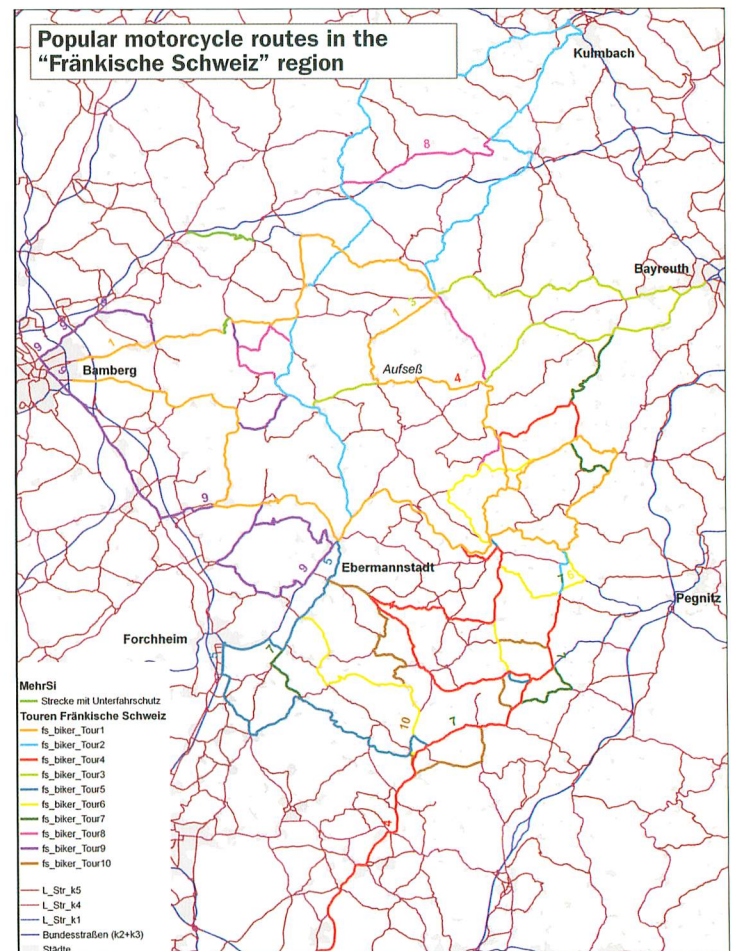
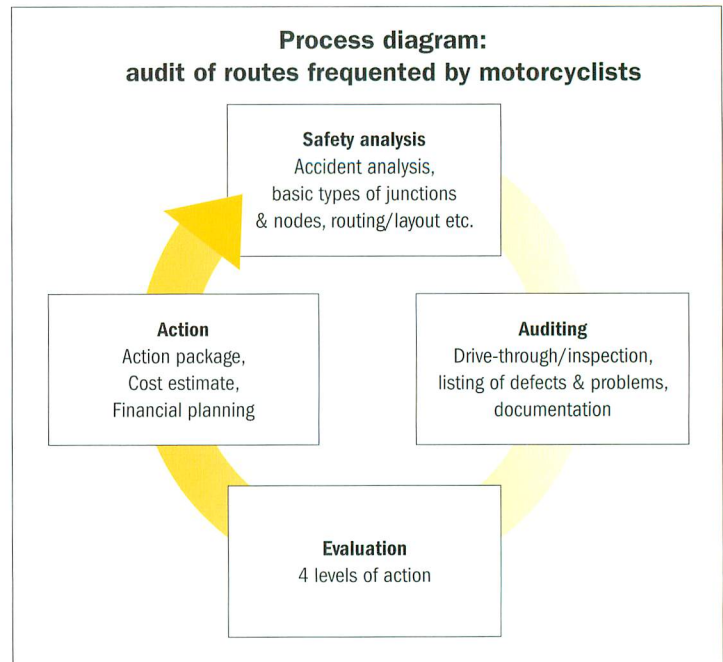
➤ Safety Audits for Motorcycling Routes

To improve road safety for motorcyclists, ADAC recommends that road administrations and authorities conduct safety checks (road net audits) on highly frequented roads – and to implement the measures resulting from the audits in a very timely manner. With the new “forgiving roads” approach, the ADAC roads test demonstrated two years ago how infrastructure improvements can contribute towards reducing the number and gravity of accidents.

➤ “Euskirchen” pilot project



➤ By plotting accidents along a road over several years, the effectiveness of any road improvement measures implemented can be visualised.



➤ Reviewing the Effectiveness of Measures for Optimum Effect

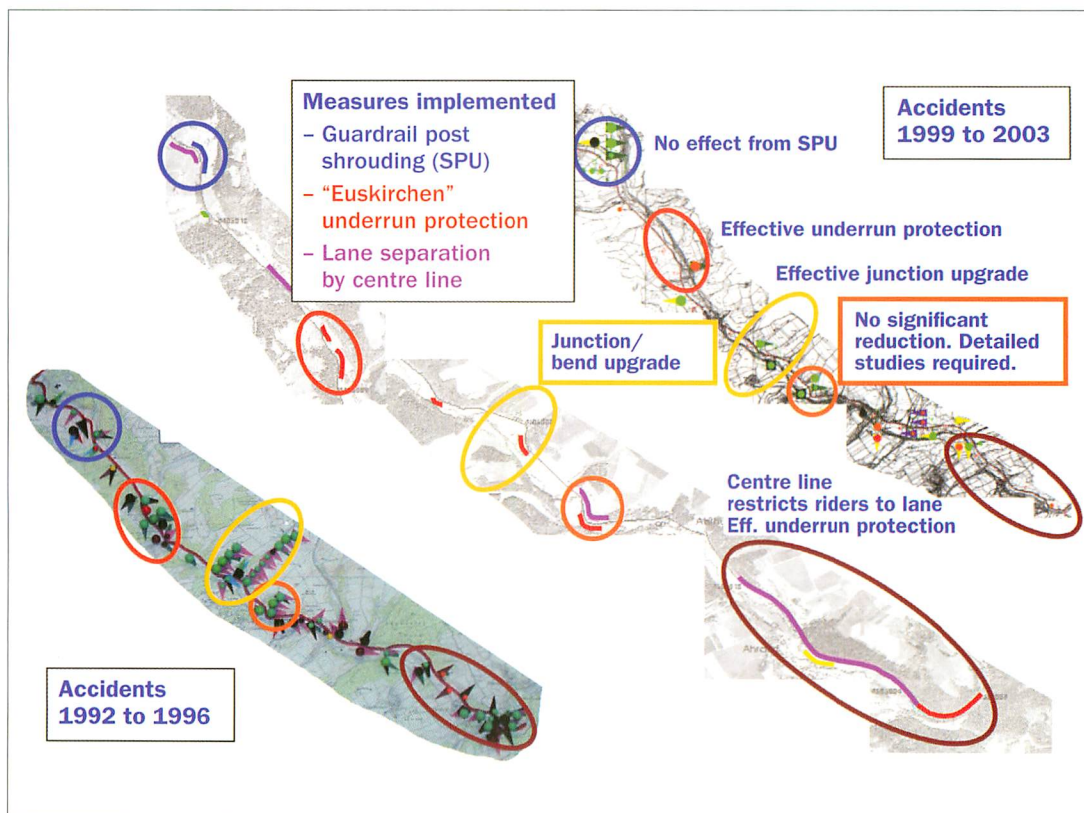
To achieve specific road safety improvements and allow the local administrations and authorities to implement the most effective upgrades, the alternatives must be subjected to a target-oriented evaluation. We know that the effect of road safety upgrades can vary. In order to reliably assess their effectiveness, the motorcycling accidents occurring on the relevant stretches of road must be analysed regularly after the implementation of measures.

The minimum period of observation allowing a reliable verdict on their effectiveness seems to be three years. The use of accident analysis software ensures the quick and effective evaluation of the post-implementation period.

If the upgrades fail to generate a significant improvement in road safety and serious accidents continue to occur on the stretches of road in question, an in-depth comparative analysis of the specific before and after accident diagrams must be conducted to detect changes in accident patterns and identify the remaining road safety deficiencies.

Additional measures may be advisable to achieve sustainable improvements in road safety (e.g. spacing guidance posts closer or extending passive protective features: installing underrun protection).

➤ The effectiveness of individual upgrades from the before/after analysis of accident type maps (“pin” maps)



➤ The graph above presents the results of a before/after study for the “Euskirchen” pilot project (roads in North-Rhine-Westphalia/NRW), covering a period of 5 years before and after the implementation of upgrades. The results show, for instance, that the shrouding of guardrail posts was not effective. However, they also show that underrun protection delivers more safety. Since zero-accident roads are almost impossible to achieve even with complex upgrades, the focus of such activities must be on reducing the gravity of accidents.

➤ Awareness Campaigns

To promote new mutual awareness among motorcyclists and the other motorists, in addition to the activities described in this practical guideline, a number of special educational/awareness campaigns may help both camps change their road behaviour and become more aware of the other's safety problems. Motorcyclists must assess their own abilities realistically to better protect themselves and prevent accidents as far as possible.

➤ Never discount the “human factor”

Motorcyclists should always be prepared to react to the mistakes the other road users make, e.g. never exclusively rely on their right of way even if it is theirs. They should bear in mind that the other motorists are primarily responsible in 71% of all passenger car on motorcycle collisions with personal injuries. Infrastructural improvements are one side of the coin but the “human factor” is also a decisive aspect in reducing the number of accidents.

German Safety Tour

DVR, the German police and the German insurer's accident analysis group (UDV), supported by the German speciality magazines Tourenfahrer (motorcycle tourer) and Motorradfahrer (motorcyclist) have launched the “German Safety Tour”. The campaign aims at reducing the number of motorcycle accidents. In co-operation with the Institute for Biking Safety (ifz) and the Motorradfahrer magazine, the DVR also developed the Good and Safe Motorcycling (Motorradfahren – gut und sicher) brochure, which was distributed as a print media supplement.



The Kulmbach “Star Ride” motorcyclists’ meeting (Kulmbacher Motorradsternfahrt)

In 2010, the 10th Kulmbach “Star Ride” motorcyclists’ meeting was held. This is an attractive event with an interesting programme bringing thousands of motorcyclists and (motor)cycling fans from all over Europe to Kulmbach. The rally is being organised in co-operation with the Bavarian State Ministry of the Interior, the regional Upper Franconia police and the Bavarian driving instructors’ federation, ADAC Northern Bavaria, with the support of the Kulmbacher brewery.

The “Schärfte eure Sinne” (hone your senses)-Campaign

The Institute for Biking Safety (ifz) and DVR have been promoting the “Hone your Senses! Motorcyclists are easily overlooked” campaign since 2006.

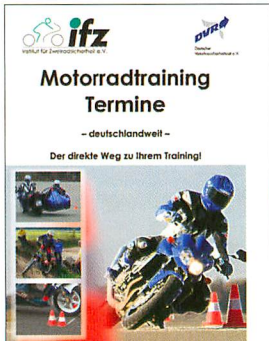
ADAC “Motorbiking – on Safe Roads” guided motorcycle tour for journalists

In October 2009, ADAC organised the “Motorbiking – on Safe Roads” guided motorcycle tour for journalists under the patronage of the Bavarian State Minister of the Interior through the “Fränkische Schweiz” region to present measures contributing towards more road safety along popular motorcycling routes.



➤ Motorcycle refresher training

ADAC is the major provider of a variety of courses for motorcyclists. ADAC motorcycle safety training is provided in different formats at 45 motorist safety training facilities nationwide. The courses cover beginner and refresher requirements in levels ranging from basic, intensive to advanced skills training. Expert instructors supervise captivating exercises such as cornering or effective road and speed-adapted braking and swerving.



DVR also offers a wide range of safety training courses.
www.dvr.de/sht

Special-audience courses are also available, e.g. women for women or for scooter, Enduro or Trial bikers.

Since the inception of motorcycle safety training in 1979, over 350,000 motorcyclists have taken one of the ADAC courses.

ADAC-Fahrsicherheitstraining (ADAC safety training)

Information and reservations

Call +49 (0)180 5 12 10 12

Go to our

www.adac.de/fahrsicherheitstraining website

or ask about us at

any ADAC local service centre



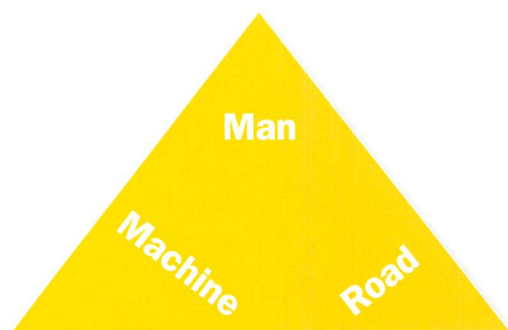
➤ Bottom Line

➤ Man, machine & road

Next to Italy, Germany is the **no. 2** motorcycling nation in Europe. Over 6 million motorised two-wheelers are registered, of which 4.1 million motorcycles requiring a regular licence plate and some 2 million small motor two-wheelers and scooters. It is in the public interest to make all parties accept their obligation to help improve road safety. The experts agree that by specifically addressing the three factors **man, machine & road**, great advances in road safety can be achieved. Investments in road infrastructure and traffic engineering measures always hold the promise of long-term viability (key word: sustainability).

➤ The objective: public debate

A priority task of great import for the future is making road construction authorities, road builders, road planners and the road accident commissions more aware of the necessity of repairing road damage and optimising the roadside spaces. At the same time it is essential to initiate a debate among the political decision-makers and the experts. Furthermore, the recommendations and demands of the experts must be brought to the attention of the decision-makers in the proper authorities and agencies to ensure sustainable funding for the measures required.



➤ 6 points for more road safety

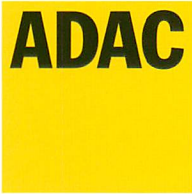
- Make the experts, work groups and political decision-makers more aware of the issue
- Urge those in charge to make the MVMot guidelines their "state of the art"
- Analyse and discuss accident causes, figures and facts
- Detect and repair road damage
- Inform and train road users
- Focused implementation of road construction and traffic engineering measures for more road safety

➤ Recommendations for decision-makers:

Always act on the 10 crucial principles:

- Equip crash barriers with underrun protection in bends
- Replace traffic guidance signs in bends with flexible bollards
- Make obstacles in the roadside area or on the shoulder safer
- Install rumble strips on the approach to accident black spots
- Improve the road surface
- Full resurfacing instead of patchwork repairs
- Create earth walls along the outside of bends instead of installing crash barriers
- Use curve markers on crash barriers
- Use double-line centre markings
- Create stopping zones before especially dangerous intersections and junctions





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**Forschungsgesellschaft für Straßen-
 und Verkehrswesen, FGSV**
 (German Road and Transport Research Association)
www.fgsv.de

The MVMot 2007 published by the FGSV is the basis of the joint efforts of the road authorities, transport authorities and the police. This technical bulletin represents the state of the art. Some Federal States have adopted it as an administrative directive.

