RECOMMENDATION ON VULNERABLE ROAD USERS: PEDESTRIANS

[CEMT/CM(98)19/FINAL]

Although the number of pedestrian road accident victims has dropped over the past twenty years, and in many cases more sharply than for other categories of users, pedestrians still account for a substantial proportion of road accident victims in a large number of ECMT Member countries. In particular, there has been no significant improvement with regard to the people most at risk-children, and especially the youngest children, and the elderly.

The inventory drawn up in Chapter 1 of the study shows, *inter alia*, that the vast majority of accidents involving pedestrians (accounting for nine-tenths of the victims) occur in built-up areas. In contrast, the risk that a pedestrian will be killed if involved in an accident is three to four times higher outside built-up areas. Accidents at night or in poor weather are especially disturbing because their frequency is on the rise and, in addition, little research has been done on them.

The actual speed in urban areas, where car traffic and pedestrians coexist, is of vital importance when it comes to road safety for pedestrians. Firstly the speed has a great impact on the car users possibility to observe pedestrians and to stop when a critical situation occur. Secondly, the speed is the determining factor concerning severity when a pedestrian is hit by a car.

Human behaviour plays a critical role in accidents involving pedestrians — the behaviour of drivers of motor vehicles, who need to allow for the potential mistakes of pedestrians, and that of pedestrians themselves, who need to learn how to get along with other road users who are better protected and move more swiftly.

In addition, recent years have seen a change in the attitude of potential road users: today's leisure-time society, encouraged by shorter working hours, has prompted individuals to care more about their health and, for this reason, to do more walking. It has also heightened people's desire for mobility and caused the authorities to take this factor more into account when shaping land-use policies and deciding where to build infrastructure.

In view of this situation, it is imperative that work should continue at every level, both nationally and internationally, to improve pedestrian safety, because pedestrians are the most vulnerable road users of all. The need for this mobilisation is magnified by the fact that most European countries are grappling with problems caused by their ageing populations, and that the risks visible today are bound to increase in the future if nothing is done about them now.

The Council of Ministers of the ECMT, meeting in Copenhagen on 26 and 27 May 1998,

HAVING REGARD to the report on pedestrian safety, reproduced in document CEMT/CM(98)17;

TAKING ACCOUNT of the work in this area carried out by other international organisations, and in particular by the OECD, which in 1996 published the results of a study on the safety of vulnerable road users by its Programme of Co-operation in the field of Road Transport Research;

AWARE:

- That pedestrian safety is a serious problem that requires a comprehensive and coherent approach and a radical change in **behaviour to ensure real conviviality between the various road users.**

- **That such safety requires assurance of a right to mobility that takes handicaps in traffic into account and touches upon a little discussed aspect of transport-health.**

- **Of the importance of incorporating** pedestrian safety into all decisions concerning locomotion-related policies at national and local levels.

REFERS to previous Resolutions adopted by the ECMT in this area, primarily:

- Resolution No. 34, of December 1975, on pedestrian safety.

- Resolution No. 40, of May 1979, on measures required for the improvement of road traffic at night.

- Resolution No. 50, of May 1987, on road safety of children.

- Resolution No. 91/3, of May 1991, on the improvement of road safety for the elderly.

- Recommendation CEMT/CM(96)11/Final, of May 1996, on speed moderation with regard to speed limits in urban areas.

NOTES certain provisions of these Resolutions that are still relevant, including recommendations that the Member countries should:

- "Give pedestrian safety an important role in their national road safety policies; ensure, to this end, that measures concerning pedestrian safety are given due weight in their legislation, regulations and national programmes of action, and that adequate resources are made available to carry out such action".

- Always encourage "the installation of facilities that would make urban roads appreciably safer for pedestrians".

- "When constructing new roads and improving existing ones, [give] careful attention ... to other aspects of the road network at night, such as the choice of road surfacing materials, provision of public lighting, particularly in urban areas, at pedestrian crossings, heavily trafficked urban roads, rural intersections and other hazardous (high-risk) locations".

- "[Encourage] pedestrians ... to make themselves plainly visible, notably by wearing light-coloured clothing or, better still, reflective devices".

- "In accordance with the Vienna Convention on Road Traffic, [instruct pedestrians] to use the side of the road facing on-coming traffic and if this is already prescribed, [enforce] compliance..."

- Include "as part of the [instruction given to pedestrian] road users", especially at school, "references to accidents at night".

- "Pay special attention, outside residential areas, to the design and location of crossing facilities used by children, especially near the schools and in places where children move a lot in the traffic".

- "Inform all road users of the difficulties experienced by the elderly in traffic and to remind them of their obligations towards such persons".

- "Encourage information campaigns aimed at drawing the attention of the elderly to traffic problems and risks by means of straightforward, factual and unambiguous messages".

- "Give special consideration to the elderly when designing or improving road infrastructure..."

- "With regard to road networks, [strive for that] speed limits in urban areas where protected road users and vulnerable ones coexist, be adapted to a level that promote a safe interplay between them,"...

NOTES that the formulation of principles of pedestrian safety is not only an objective of transport policy, but also a societal problem insofar as road users are all pedestrians at one point or another, and overcoming their insecurity entails a comprehensive approach with regard both to infrastructure and to vehicles and users;

RECOMMENDS that the Member countries:

- ***As a general measure:***

  – Collect data needed to assess the safety of pedestrians in road traffic more effectively and more regularly, in order to refine knowledge of the problem.

- ***Regarding the organisation of traffic:***

  – Take pedestrians into account, giving them the same importance as other means of transport when travel and traffic plans are being drawn up, similarly to what was recommended in the 1997 Resolution on cyclists [CEMT/CM(97)11].

- ***Regarding infrastructure :***

  – Endeavour above all to create a safe environment for pedestrians whenever infrastructure is created or improved, that this concern underlie any land-use planning and, in particular, that urban speed limits be lowered in areas in which some better protected road users and other more vulnerable ones coexist, so that a safer mix of traffic is achieved; the Recommendations on speed moderation adopted in 1996 in Budapest are particularly relevant in this regard.

- Ensure effective co-ordination of the units in charge of traffic design and management, incorporating pedestrian safety into all planning and ensuring consistency from the outset in infrastructure, road signs and traffic rules.

- Enlist the participation of residents of the neighbourhoods involved, so that they may contribute via their suggestions, from the town planning stage, to the improvement of pedestrian safety.

- Ensure that any footbridges and subways be properly maintained and accessible to all users, including those with reduced mobility, and assess cost effectiveness before considering any new infrastructure.

- Pay special attention to pedestrian safety in the most highly exposed areas, and particularly in the vicinity of schools and on the way to schools, and in places where there are likely to be large numbers of pedestrians.

- ***Regarding motor vehicles:***

  - Make all necessary improvements when vehicles, light or heavy, are being designed, so that the impact on pedestrians is minimised in the event of an accident; in particular, ban dangerous accessories on vehicles if vehicle use does not require them.

  - Systematically ensure optimal traffic visibility in all vehicles involved, for both drivers and pedestrians.

  - Encourage organisations that set and enforce industrial standards to apply them so as to enhance pedestrian safety.

- ***Regarding users:***

  - Continuously raise the public's awareness of safety and the need for conviviality among road users and particularly pedestrians, who are most vulnerable.

  - Pay special attention in this regard to training and educational aspects, beginning when children are very young.

  - Raise awareness among those responsible for transport at businesses and workplaces of the importance of ensuring the safety of their transport with an impact on vulnerable road users, especially pedestrians.

  - Encourage people to walk as much as possible, given that it is economical, environmentally beneficial and healthy.

INSTRUCTS the Committee of Deputies:

- To forward the report to the relevant units of the United Nations' Economic Commission for Europe (UN/ECE), inasmuch as the report contains proposed amendments to the Convention of 1968 on Road Traffic, concerning behaviour at pedestrian crossings and work on vehicle design.

- To keep developments concerning pedestrian safety under review and report back to the Council in due course.

ROAD SAFETY VULNERABLE ROAD USERS REPORT

ON THE SAFETY OF PEDESTRIANS

[CEMT/CM(98)18]

Introduction

For a very long time the ECMT has been concerned with the safety of pedestrians, who are among the most vulnerable road users because they have no physical protection to reduce the consequences of accidents. In 1975, the Council of Ministers adopted a report on this subject and recommended the adoption of a set of measures and rules in favour of pedestrian safety. These recommendations have been complemented by other proposals presented in specific reports adopted in recent years by the ECMT and prepared by the Road Safety Group. Here we would cite the resolutions on measures to be taken to improve road safety at night (1979), on road safety for children (1987), on improving the safety of old people (1991) and most recently on speed moderation (1995), all of which already took account of the problem of the safety of pedestrians. Moreover, in 1996 the OECD published the results of a study on the safety of vulnerable road users in connection with its Research Programme on Road Safety. This study has also been used to draw up this report.

Although the number of pedestrians involved in road accidents has fallen over the past twenty years, often by a greater proportion than the number of victims among other categories of road user, the fact remains that in many European countries, the pedestrian share of road accident victims still remains high. This is why the Road Safety Group decided to update and refine the knowledge relating to pedestrian safety, drawing in particular on the latest data concerning pedestrian accidents. This report also responds to a preoccupation of the Ministers of Transport, who intend to pay constant attention to the safety of the most vulnerable road users, and forms part of a wider area of study which, in addition to road safety itself, takes into account the demographic trend in ECMT Member countries – ageing of the population – and the emphasis now being given to mobility, land use planning, environmental and public health issues. This study is the second of three volumes on cyclists, pedestrians and users of powered two-wheelers These three volumes will be subsequently issued as a single study. This report is in two main parts: the first discusses the general trends in road accidents involving pedestrians, and the second stresses the complexity of the pedestrian safety issue which requires a comprehensive and consistent approach to aspects relating to road infrastructure, the vehicle and road user behaviour.

AN INVENTORY

1. General situation

Drawing up what is commonly known as an inventory on the basis of the road accident statistics requires certain preliminary precautions. Pedestrians are no exception to this rule.

Firstly, by taking only the **general trends** recorded for the years 1980, 1985, 1990 and 1995, some countries may be fully or partly only excluded from these trends even if they cover the vast majority of countries.

In the field of road accidents, comparisons are particularly difficult because of the heterogeneity of the situations (vehicle stock, traffic conditions, etc.).

In the following analysis, "peak" situations (i.e. the most representative age groups) or "abnormal" situations (i.e. situations or conditions in which pedestrians are most often accident victims) have been examined. These peak or abnormal situations – while they "benefit" from the general observation, that is a reduction in the number of accidents in which pedestrians are victims -- nevertheless remain constant over time, or even increase.

The first observation is in fact an over-proportional reduction in the number of pedestrian victims of road accidents.

While in 1980 pedestrians represented on average 15 to 30% or even more of the total number of road deaths, in 1995 this proportion was generally around 10 to 20% (cf. Table B in Annex).

This first encouraging observation is also confirmed as regards the number of people killed (i.e. victims dying within 30 days of the accident)[1] or seriously injured[2].

The fall in the number of pedestrians slightly injured is proportionally less significant. It should be noted that "slightly injured"[2] means that the victim does not need long-term hospitalisation.

Despite this positive trend, the fact remains that, in the ECMT countries as a whole, the number of pedestrians involved in road accidents is unacceptable and illustrates the relevance of this report and the need to make even greater efforts with regard to pedestrian safety.

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1 Where these data are available.

2 The following is the definition used by the UN/ECE:

"Serious injuries: Fractures, concussion, internal lesions, crushing, severe cuts and laceration, severe general shock requiring medical treatment and any other serious lesions entailing detention in hospital. **Slight injuries**: Secondary injuries such as sprains or bruises. Persons complaining of shock, but who have not sustained other injuries, should not be considered in the statistics as having been injured unless they show very clear symptoms of shock and have received medical treatment or appeared to require medical attention."

This is all the more important in that the peak or abnormal situations remain practically unchanged for the reference years. There has thus not been a more homogenous distribution of victims according to age, spatial situation or traffic conditions, and this despite the already very precise recommendations and the many measures introduced in Member countries.

In addition, although these data have not emerged from a systematic survey in the context of this report, we would point out that on the basis of the complementary information furnished by certain delegations, male victims are more numerous than female below the age of 60 to 70. This phenomenon is then inversed due to the fact that women are considerably more numerous in this age group (over 60/70).

This observation obviously has to be considerably qualified according to the situations specific to each country, and in particular in the case of old people. But the first observation for its part remains more generally relevant.

Lastly, certain data which would give a more detailed picture are often lacking or are collected in very different ways from one country to another, which requires the utmost caution when analysing available information and should be an incentive to improve knowledge of the problems.

2. Trends by age group - cause for concern

As regards the distribution of the victims by age group, it has to be said that there has been no significant change regarding the age groups most at risk (cf. Table C in Annex), i.e.:

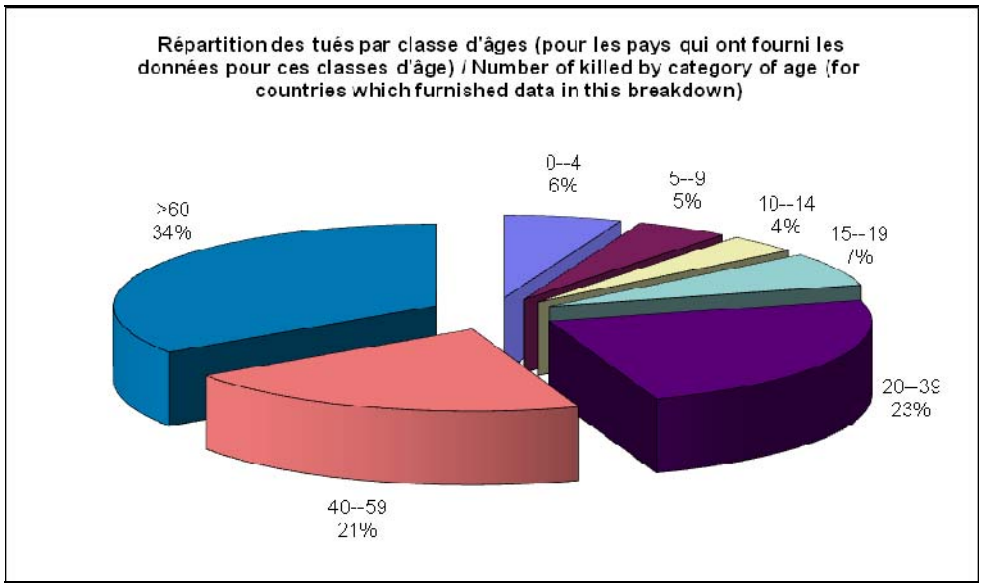
- Children.
- Old people.

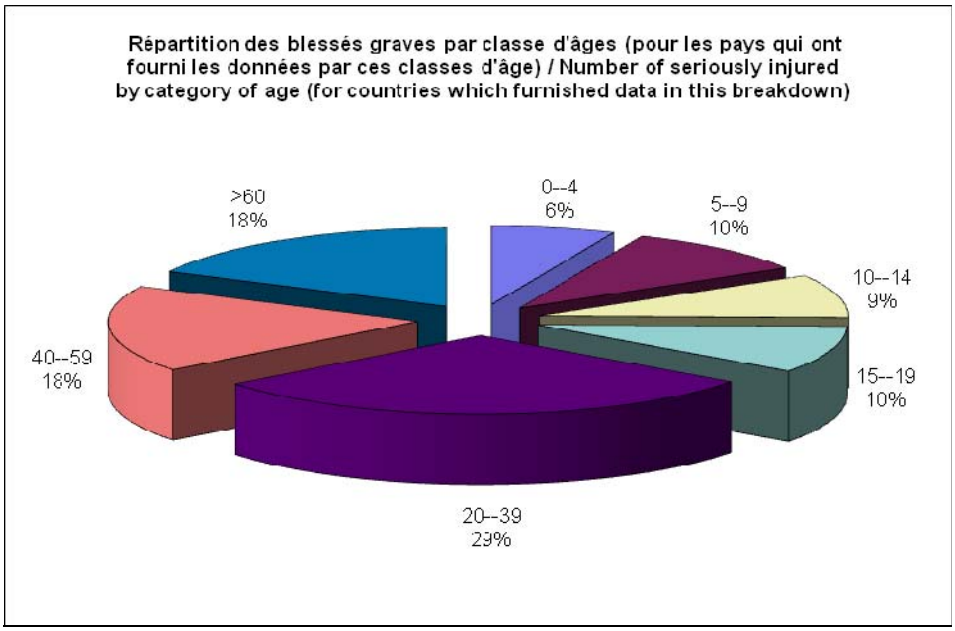
In other words, and but for rare exceptions, children and old people are for the reference years and in a constant fashion always over-represented in the statistics of accidents involving pedestrians.

It should be noted that as far as children are concerned, the injuries suffered may be more serious than in the case of adults, because of their size.

In the case of old people, there are problems of rehabilitation and of irreversible handicap which are made more acute by their more limited capacity to recover mobility.

Lastly it should be pointed out that in line with the comment in the outline of the general situation, the sex distribution of the victims in these two age groups is sometimes different for children and old people.





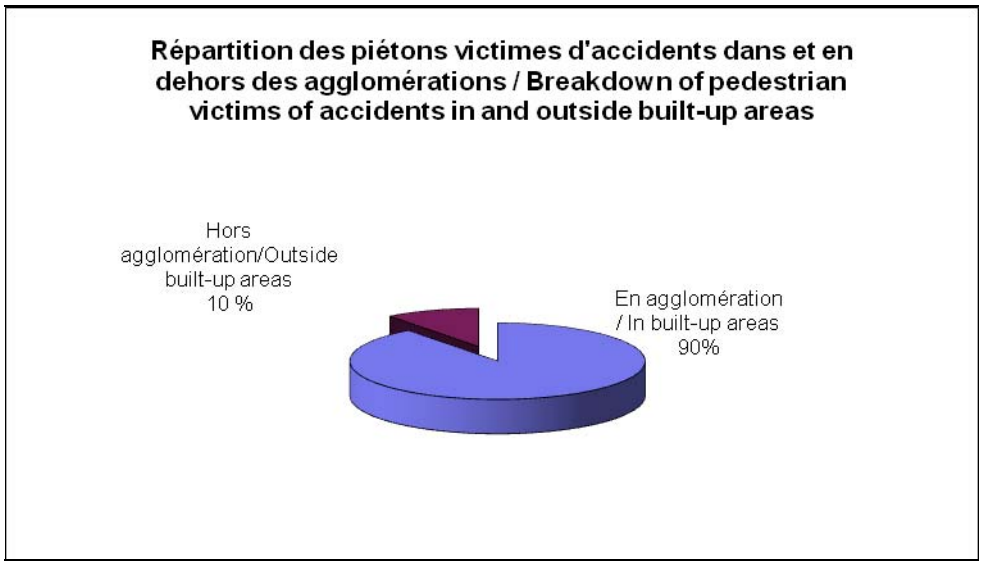
3. Distribution in and outside built-up areas

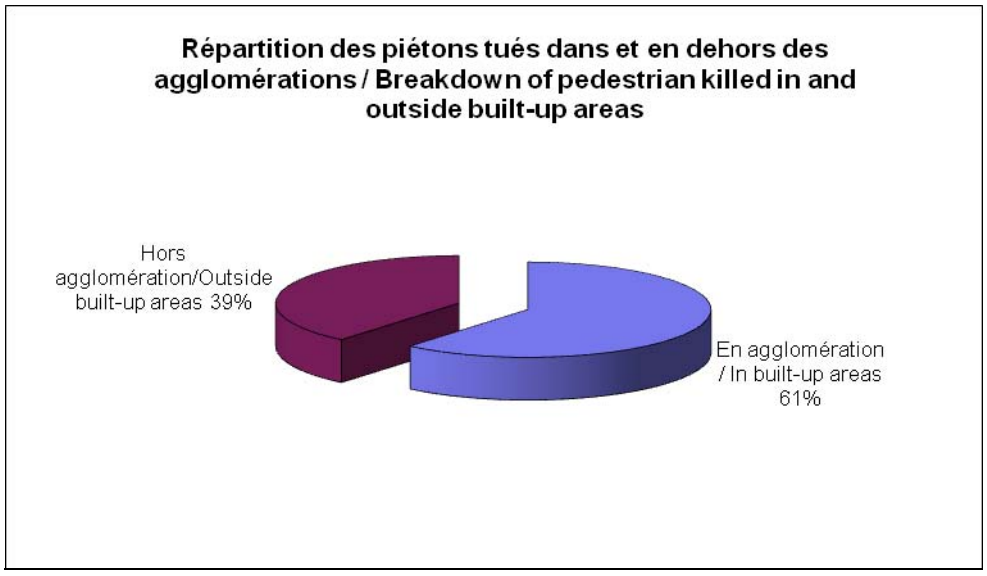
The vast majority of accidents in which pedestrians are involved occur in built-up areas. They account for up to nine-tenths of casualties.

The consequences of these accidents are not so serious however. The number of pedestrians killed represents six to seven tenths of the total number of pedestrians killed and in certain countries has tended to decline for the reference years.

Outside built-up areas however, accidents are more serious although the number of pedestrian victims is lower, since a tenth of victims are pedestrians, and the risk of a pedestrian being killed is three to four times higher. This proportion is tending to rise over time (cf. Table D in Annex).

One explanation might be the higher vehicle speeds, but other concomitant factors must not be forgotten: the absence of infrastructures reserved to pedestrians, a more acute visibility problem, the even more negative effects of drink driving, etc.





4. Accidents at pedestrian crossings

The number of pedestrians suffering accidents at pedestrian crossings, protected or otherwise, varies greatly from one country to another. What is more, the data received are often very rudimentary or even non-existent in some cases.

Analysis of this situation is thus particularly difficult, all the more so because the marking of pedestrian crossings is a practice used to a very different extent from one country to another, and is based on rules or directives which, where they exist, also vary greatly.

Aid for pedestrians and particular measures (police, school patrols, provision of traffic lights, street lighting, etc.) also varies greatly.

In view of the available information, the insecurity at pedestrian crossings calls for attention, and thinking here should be in terms of a global approach to the problem, including the greatest possible coherence between regulations, signs and signals and infrastructures.

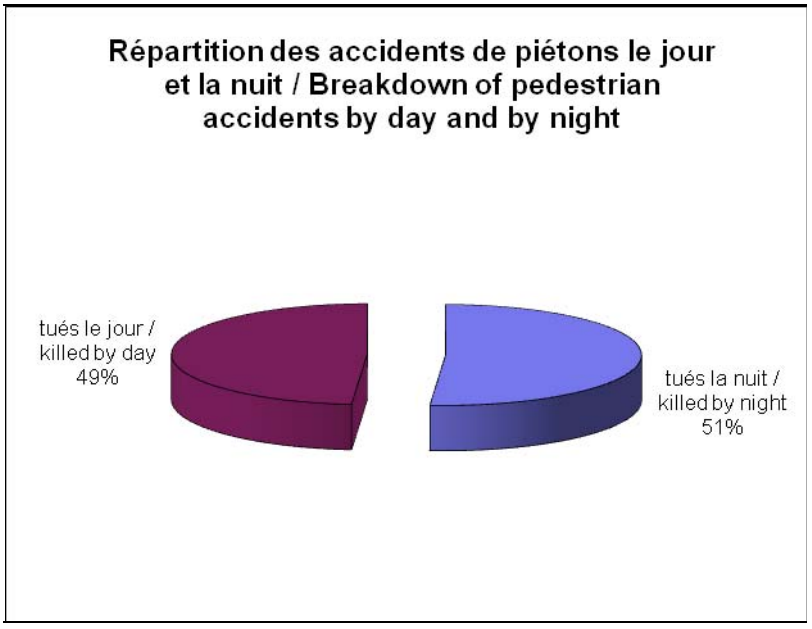
5. Accidents at night and in bad weather conditions

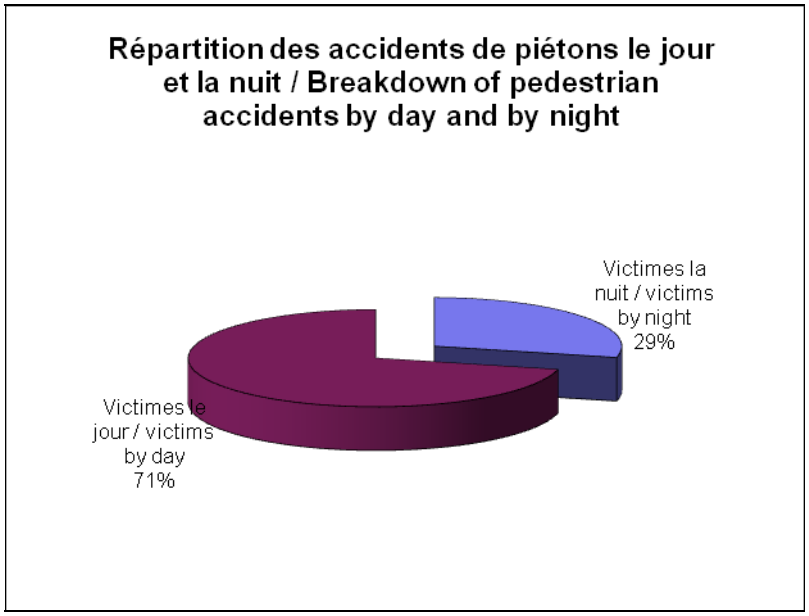
The picture is disquieting as regards the number of victims, the seriousness of the accidents and the constancy of this situation for the reference years, with even an aggravation of this phenomenon in some cases.

Where data are available, it can be seen that in many countries almost half of the pedestrian deaths occur at night or in bad weather conditions.

Many factors may contribute to this situation: visibility obviously, causing poor perception of the pedestrian, speed, drink, tiredness, etc.

This is without a doubt a field that needs further investigation. We also need to evaluate and assess the relevance of the recommendations and measures already implemented (cf. Table E in Annex).





6. Exposure to risks

Seeking the causes of accidents suffered by pedestrians means that we first of all need to know their mobility, since this is the variable which determines the pedestrian's exposure to the risk of accident.

The majority of the mobility studies carried out in certain European countries have been carried out from the urban standpoint however, and have focused mainly on understanding the behaviour of motorised traffic, forgetting somewhat the importance of walking in the overall mobility of the population.

Studies concerning the mobility of pedestrians with respect to the population as a whole are, for this reason, few and incomplete. Nevertheless, certain studies do highlight the important share of pedestrian activity in a number of towns, where 50% of the trips are made on foot, i.e. twice as many as public transport or car trips.

In addition, most European countries deal only in a marginal and generalised way with accidents to pedestrians, which just shows the secondary role assigned to the pedestrian in road traffic considerations.

There is a whole series of external circumstances which influence accidents to pedestrians: weather conditions, the number of vehicles, the population or activity. Thus:

- As the level of precipitation and the number of cloudy days increase, so the number of pedestrian accidents increases too.
- The number of children or elderly people and their proportion within the population influences the number of pedestrian accidents.
- Exposure to risks usually rises with the level of socio-economic activities; in areas with the highest activity rates, pedestrians tend to be more exposed to accident risks.

- The relation between the presence of vehicles in the zone and the number and consequences of the road accidents is also positive. The bigger the car stock, the greater the number of vehicle/pedestrian conflict situations.

7. Causes of accidents involving pedestrians

7.1 Role of pedestrians

To find the causes of pedestrian accidents, it is necessary to know how and why they occur and the external factors contributing to them.

For instance, a study carried out in Spain in 1995 revealed that in almost 50% of cases, the accident happens when the pedestrian is *"crossing the road away from the intersection"*, as against 25% when he is *"crossing the road at the intersection"*. Other circumstances have less influence on pedestrian accidents.

As for the human causes of these accidents, the same study shows that carelessness on the part of the pedestrian himself is an important contributory factor as most of the pedestrians run over commit an offence at the time of the accident.

The kinds of behaviour by pedestrians resulting in the greatest accident risks are:

- Over drinking.
- Not using retroreflective devices.
- Crossing the road in breach of the rules.
- Not using pedestrian crossings.
- Not respecting pedestrian signals.
- Not keeping to the rules when walking on the roadway or the verge.

The most serious risks arise:

- On pedestrian crossings with traffic lights, when pedestrians ignore the red lights.
- When pedestrians do not use the crossing provided.
- When there is no pedestrian crossing and vehicles do not have their lights on despite the lack of visibility.
- In this same case, when the pedestrian crosses at some distance from the intersection.
- When pedestrians wait on the roadway before crossing although there is a pavement or verge.
- When they walk on the roadway.

Lastly, it should be stressed:

- That pedestrians make little or no use of footbridges and subways, for a number of reasons (too much trouble, insecurity, etc.).

- That the places where from time to time there are large numbers of pedestrians for various reasons (schools, discotheques, sports centres, etc.) are also exposed to risk, particularly at night or in bad weather.

7.2 Role of drivers

Although the fact that pedestrians may be at fault in the event of accidents must be highlighted, the considerable role and responsibility of drivers in accidents cannot be ignored, for any mistakes by drivers have immediate detrimental effects on pedestrians.

Logically, and this is very clear from the statistics on pedestrian accidents, most of these accidents occur when there is an interaction in the same physical space (the roadway) between pedestrians and vehicles. Owing to their behaviour, drivers also have a great deal to answer for with regard to the risks for pedestrians, because of their carelessness, absent-mindedness or their failure to respect pedestrian crossings and red lights.

Speed or the presence of alcohol in the driver of a vehicle may also cause accidents and aggravate their consequences.

By way of example, according to 1995 data:

- In Switzerland, the inappropriate speed of the drivers who hit them was responsible for 18.2% of the pedestrian deaths and 8.3% of the victims. In the Netherlands, excessive speed also seems to be acknowledged as one of the most frequent causes of road accidents suffered by pedestrians. In Hungary, excessive speed accounts for 38.6% of pedestrian fatalities and 15% of casualties.

- The influence of alcohol, both in the case of the driver of the vehicle and in that of the pedestrian, plays an important role in the number of victims. In Bulgaria and Lithuania, alcohol is present in over 12% of the accidents involving pedestrians, either in the driver or pedestrian.

Driver behaviour varies according to the type of regulation at intersections. If the intersection is regulated by traffic lights, the usual driver actions constituting a risk are: going through an orange or red light, and starting off while pedestrians are still crossing the road. If there is a pedestrian crossing at the intersection, the risk taken by drivers is greater, because they tend to swerve rather than brake.

Lastly, the driver may be involved indirectly. Although drivers by and large respect the traffic rules rather well when they are playing an active role, i.e. when they are driving, their passive road behaviour (the way they park, for example) may condition the behaviour of pedestrians, forcing them to take unnecessary risks due to the position of parked vehicles. Vehicles parked on pedestrian crossings or on corners are a common sight. This prevents passage of pedestrians or obliges them to walk on the roadway, to cross outside the pedestrian crossings, or take some other action involving risk.

Taking the foregoing into account, human behaviour plays a decisive role in accidents involving pedestrians. Drivers must therefore take into account the possibility of mistakes by pedestrians, since the pedestrian is also a road user in his own right, and the approach should be not only to target the pedestrian but also and perhaps especially the driver. This approach is all the more necessary as any road user is, at one time or another, a pedestrian.

PEDESTRIAN SAFETY: A COMPLEX PROBLEM

A) A topical problem...

Two observations can be made on the basis of what has been said so far:

- On both the national and international levels, pedestrian safety has been paid the greatest attention by the authorities.

- The number of pedestrian accident victims as a proportion of total road accident victims has tended to fall over the past fifteen years.

There is no doubt that the policies pursued by Member countries have brought some encouraging results.

But the number of pedestrian accident victims remains high and, what is more, the reduction in number of victims has done nothing to eliminate or attenuate the peak phenomenon or the abnormal situations, quite the contrary.

Which requires a global and coherent approach

Tackling the pedestrian safety problem requires a global approach, embracing:

- Users: training, information and raising their awareness of road safety problem, traffic rules and their control.

- Infrastructures: if the aim is to encourage alternative means of locomotion, it is up to those responsible for land use planning to take pedestrians into account and not focus only on traffic.

- Vehicles too, even though this aspect is complex to deal with.

The approach must result on the ground in an optimal coherence between the traffic rules, signs and signals and the infrastructures, which takes into account the specificity of the pedestrian as a road user and in particular the fact of his great vulnerability.

Mainly with regard to urban areas, road safety also depends on appropriate land use planning and a coherent locomotion system, as stressed in the introduction. Until recently, a town was no longer designed around its central figure, the citizen, and he must now recover his rightful position. A town must be on a human scale and, if this is to be possible, the citizen must be able to move within it as a pedestrian.

With a multiple user: the pedestrian

Understanding the problem of the pedestrian in relation to traffic means taking account not only of his specificity, but also the multiple categories of pedestrian according to age (children, adults, old

people), their experience of the traffic phenomenon (road sense in children), their mobility in traffic (children, persons with reduced mobility), and the type of trips they make.

The responses required will thus vary greatly within the global approach that we propose.

An improvement designed to help blind people (barrier, for example) will be perceived by other pedestrians as an obstacle in their path.

Paradoxically, we often address one and the same person differently according to his current status in road traffic: now as a pedestrian, now as a driver. It is depressing to see that once he has become a driver, the ex-pedestrian fails to take account of the difficulties encountered by pedestrians. The same person thus has to be addressed in different ways, but they must be complementary.

Which requires a radical change in behaviour to ensure real harmony

The road, and even more so the street, is intended to be a link between men, a place of exchange. For the pedestrian, the road, and too often still the street, are perceived as obstacles in his path.

Changing this state of affairs means not only determined action on the conventional three fronts – user, road, vehicle – but, more fundamentally a societal choice based on harmony.

We raised the paradox of having to address the same person in different ways according to whether he is currently a pedestrian or a driver: here it is often the opposition -- and hence the balance of forces -- between two road users that is taken into account.

Their complementarities are generally ignored. Responsible behaviour -- even though it underlies all our highway codes — is still too rarely mentioned.

Each user is entitled to his full place in traffic.

When we speak of vulnerable users, this can only be with reference to the specific characteristics of the user, and must not imply his relegation to a second class role in traffic, a role in which our action would consist of overprotecting him.

This observation of vulnerability should make us take measures to alleviate this by ensuring an equal and real place for each and every one.

Through the right to mobility

In our societies, life expectancy has increased enormously (see Table F).

For old people, especially if they have mobility problems, finding themselves in traffic frequently means having to fight it. The difficulties are amplified to such an extent that many old people limit their trips or even give them up altogether.

However, as pointed out in the general approach, everybody should be entitled to go wherever he wishes in the utmost safety.

Accordingly, thought should be given in every situation to the alternative between the development of infrastructure to enable everybody to move around, or land use planning to encourage the siting of activities at a reasonable distance from the citizens/pedestrians.

The advantages of the latter approach are that the duration of exposure to traffic risks is reduced and that excessive numbers of people at a particular spot are avoided.

Which takes into account handicaps in traffic

In evoking the right to mobility for old people we would be incomplete if we did not raise the question of taking into account the handicaps that certain categories of pedestrians may encounter in traffic without their necessarily being old people.

One immediately thinks of people with disabilities, and given the different forms that these disabilities can take, the responses to them need to be specific.

Certain types of provision should be systematic (for example: taking account of people with reduced mobility in the design of footpaths), others more selective (for example: devices to help blind people at traffic lights).

In our approach, the term "handicap" is used in the broadest of senses and is intended to include the problems encountered by children, who experience very specific difficulties in traffic, which amount to so many handicaps: small size, limited road sense, etc.

And meets a need that is too often ignored: health

The use of non-polluting alternative means of locomotion — cycling, walking — is beneficial not only for the environment but also for people's health.

This double qualitative aspect should be seen not simply as having a positive effect on health, but also as an effort to keep fit.

B) An infrastructure problem

As the improvement of pedestrian safety requires a comprehensive strategy – which therefore includes infrastructure – a new approach should be taken to land use planning, the design of public highways and their equipment, the ranking of networks, the general organisation of travel and movements and town planning, in order to reduce the problems with which pedestrians are still too often confronted, encourage walking, bring about a change for the better in driver behaviour, and even influence the choice of transport mode. Quite obviously the action to be taken will differ depending on whether it is intended for a rural municipality, a medium-sized or large urban centre, or an old or a new city. Other factors also have to be taken into account, such as the financial aspects, the type of urban development, social and economic activities, etc. It also seems that arrangements should be made, enabling the public to put forth its viewpoint and participate in planning.

Ten or so years ago, an OECD study mentioned in an ECMT report on the safety of elderly persons in traffic [CEMT/CM(91)15] stressed that any future traffic planning had to take into account the population groups who had most difficulty in coping with the increasingly complex road traffic situation. These ideas are still topical and are relevant to the more general issue of pedestrian safety.

To identify locally the weak points of the road network from the safety standpoint, and reduce their number in order to remedy the road safety problems that we find in urban areas in particular — whether they are connected with inadequacy of the infrastructure or equipment or to shortcomings in the organisation of trips — it is essential to have the most accurate picture possible of the accident record.

This picture is provided by the road safety indicators (statistics, accident parameters) described earlier in this report.

The studies carried out in this field are divided into two phases. The first consists of examining the situation and calling into question certain existing infrastructures and equipment, on the basis of concrete case studies, to then be able to make general recommendations. The second, concerned with the longer term, should make it possible to define a set of principles on the subject, based on studies in greater depth.

Summarizing, the measures which improve road safety obey the following four broad principles:

- Reduce vehicle speeds.
- Ensure "driver/pedestrian" visibility.
- Reduce the length of the path the pedestrian has to take to cross the road.
- Do not create exaggerated constraints that the pedestrian may not respect.

These consideration were also taken into account in the Report on consistency between infrastructure, road traffic and road signs and in the respective Recommendations [document CEMT/CM(94)5].

This amounts to seeing the street through the pedestrian's eyes, enabling the various means of locomotion to co-exist and taking into account the users' needs in terms of transport, safety and the living environment.

1. Development of infrastructure for pedestrians

Pedestrian crossings should allow users to cross the roadway in safety. They cannot therefore be considered simply as a road marking, but as a traffic guidance component forming part of a whole. In other words their location and layout must always be integrated with the planning, design and construction of the road as a whole. The basic principles of traffic engineering should therefore be respected, i.e. those already stated in the report on the technical possibilities of improving safety on pedestrian crossings [CEMT/CM(85)6]: quality and maintenance must have precedence over the number of crossings, the choice of their location will be determined by the path that pedestrians prefer to take, and their design must depend on the type of road and the volume of vehicles and pedestrians.

Moreover, the utmost importance should be attached to visibility, since drivers have to be able to see at the same time the zebra crossing itself and any pedestrians waiting to cross or already on the crossing, so that they can give them priority and stop if necessary. As for pedestrians, they must be able to see oncoming vehicles at a sufficient distance if they are to cross safely. For this reason, the position of the crossing should be carefully planned and, in the area leading to the crossing, there should be nothing to interfere with visibility, such as cars parked in non-parking areas, containers, flower tubs, shrubs on the pavement near the roadway, hoardings, etc. Lastly, at night, the lighting system should show up the crossing, or where necessary be improved for this purpose. "See and be seen" is the motto.

As noted in the preceding section:

Pedestrian subways and footbridges are costly solutions which involve considerable construction work, and are sometimes ignored by the public because of the unattractive access, inadequate lighting,

the risk of being attacked or the lack of cleanliness. But they must not be rejected out of hand, for a subway or footbridge is justified where a large number of pedestrians have to cross a road with dense, fast-moving traffic. In such cases, people with reduced mobility should be taken into account by providing ramps for wheelchairs and pushchairs.

Although the number of accidents involving pedestrians **outside built-up areas** is lower than in an urban environment, they are of a more serious kind, so that it is extremely important to ensure that appropriate infrastructure is also provided in this case too. Basically the aim is to provide near the roads used by pedestrian paths that are separated from the roadway, build verges, remove obstacles to visibility, and eliminate accident black spots, which usually occur when the infrastructure design is not adapted to a specific danger point.

2. Speed moderation in built-up areas

Although at one time planning principles were based mainly on the separation of user groups and traffic flows, a different approach is taken today; where it is possible and appropriate, the objective in most countries is to review road sharing techniques and integrate the different traffic flows. This can be done in particular by moderating vehicle speeds, which simultaneously reduces the number and seriousness of accidents, improves the living environment and may attenuate disturbance.

To implement the integration principle, urban areas must be replanned, and speeds must be adapted to the areas in which some road users protected by their vehicle structure and other more vulnerable users co-exist, so that a safer mix of traffic is achieved [see Recommendations on speed moderation adopted by the Council of Ministers in Budapest on 29 and 30 May 1996; CEMT/CM(96)]. The aim is also to define a policy for the organisation of traffic depending on whether roads are to be used, for example, as transit roads, roads on which a balance has to be achieved between the traffic flow and local life, and roads on which the latter aspect has precedence.

Very often the sections located between the road into a town and the dense built-up area have to be redesigned in order to accentuate the visual break between the open countryside and the town (gate effect) and obtain the desired effect on driver behaviour. This can be done by means of various specific modifications, by narrowing the roadway or using surface markings, as well as by introducing a system which has been increasingly successful in many European countries for some years now:

- **Roundabouts:** The use of these roundabout intersections and their design rules differ, however, from one country to another and are modified as experience is acquired. Greater importance must be attached to their planning, design and construction in order to improve road safety and make the most of the accident prevention potential provided by this type of facility. Although this kind of infrastructure is not specifically designed to improve pedestrian safety, it still contributes to speed moderation by encouraging drivers to slow down within built-up areas, which is quite obviously to the benefit of pedestrians.

In many countries the authorities are banking on:

- **The "30 zones",** a system in which the main objective is to improve road safety and improve the residential environment by moderating speed. For this purpose, it is usually not sufficient to place traffic signs at the start of a zone, as experience has shown that "30 zones" set up without any support in terms of infrastructure or traffic management (roadway narrowing, heightened sections, priority to the right) are not satisfactory, since there was no consistency between infrastructure and the speed restriction which was then difficult for drivers to take seriously.

- In addition, the roads within a future "30 zone" should be homogeneous with regard to their function, their use and their importance within the network and the image they present. The perimeter of the "30 zone" should be clearly defined from the standpoint of the residential structure so that the road user can identify the layout of the zone and perceive it as an area forming a unit. Provided that the "30 zones" are well designed, they undoubtedly contribute to increased pedestrian safety.

- The **residential streets or zones**, where the breakdown of space is different. It is a specially designed mixed traffic area which is mainly intended for pedestrians and in which special traffic rules apply, such as priority for pedestrians and a speed limit of 20 km/h. It should be designed in such a way that it suggests restraint and distinctiveness, so that drivers are bound to be careful and keep to the authorised speed limit.

- The **pedestrian areas** which, as their name suggests, are restricted to pedestrians, although a limited amount of vehicle traffic is sometimes tolerated, due to specific provisions. In these areas vehicles must be driven at walking speed and give pedestrians priority. The creation of pedestrian areas is an innovation which is tending to spread, particularly in the historical centres of our cities, whose image is thereby enhanced. But a reduction in traffic in one area may result in a transfer of traffic to adjacent districts; the necessary organisational, management and safety measures should therefore be taken in these districts.

- In some countries, a 40 km per hour speed limit is applied where pedestrian traffic is high, therefore risky, and where the surroundings favour such a measure, for instance in shopping centres within the city.

3. Safety action and improvements

… In school zones

Contrary to popular belief, the great majority of accidents involving school children do not occur as children come out of school, but on the trip between home and school. The aim is therefore to make the school zone (a radius of 300m around the school) safer, and to pay special attention to the routes taken by school children when new schools are planned and existing schools are to be modified . The object of planning school children's routes is to increase road safety by identifying the movement pattern and making special technical improvements to infrastructure and traffic signs, and should be carried out with the participation of the children themselves and/or their parents.

The roadway modifications recommended for school zones are based on three principles: reducing vehicle speeds, guaranteeing good pedestrian/driver visibility and reducing the width of the lanes to be crossed in one go.

Moreover, special attention should be given to the layout of school bus stops. The principles defined in an ECMT Resolution on school transport are still relevant today. In short, the aim is to provide boarding and alighting areas that are protected and indicated, safe and clearly marked pedestrian paths, and parking space for the private cars of people accompanying children to and from school, and to ensure that the area around the school is designed in such way that the children need not cross a road.

… For the benefit of the elderly and people with reduced mobility

As the proportion of the elderly is constantly increasing in our industrialised societies, the aim is more than ever to take into account this category of the population; in the road and urban environment planning phase, it is in particular necessary to consider the trips they have to make, the kind of difficulties they encounter in traffic and the decline in their physical fitness, so that their problems with road traffic can be reduced and their mobility enhanced.

The principles adopted in most countries are thus to reduce speeds in residential and shopping areas that attract many elderly pedestrians and people with reduced mobility, to plan sufficiently long crossing times for pedestrian crossings with traffic lights, to provide for safe and easy access to bus stops, etc. [Cf. ECMT Resolution on improving road safety for the elderly in CEMT/CM(91)15].

C) A vehicle problem

Discussing the relationship between the pedestrian and the vehicle leads to the following two issues:

- Firstly, active or passive perception of the other party or the ability to see and be seen on the part of both pedestrians and vehicles is becoming the main factor in the prevention of accidents involving pedestrians.

- Secondly, as a complementary measure, the use of design features to produce vehicles that will inflict less bodily damage on pedestrians in the event of an accident.

1. Accident prevention: perceiving the other party

The pedestrian must be seen by the driver and the vehicle by the pedestrian.

Pedestrians must use luminous or retroreflective devices between dusk and dawn when visibility is reduced. Similarly, wearing coloured clothing or carrying objects contrasting with the surrounding colours must be encouraged since their effectiveness in accident prevention has been proved.

Action has been taken and campaigns have been conducted in many Member countries to make vulnerable users realise that it is in their interest to use luminous or retroreflecting devices. Some countries made them even mandatory. An example of the action taken to bring home to vulnerable users the risks to which they are exposed is also given by the Commission of the European Union, which has proposed a code of conduct for the wearing of light-coloured or retroreflective clothing, as part of its Programme for the Promotion of Road Safety in the European Union 1997-2001 [COM(97)131 Final]. The message is particularly intended for the elderly for whom the probability of being involved in a road accident as a pedestrian is very high.

It would also be desirable if these devices were integrated from the outset in the design and manufacture of such clothing and equipment, especially if it is to be worn or used by children.

Such devices should also be standardised.

However, the pedestrian must also be able to see the vehicle. On this subject, certain measures should be pointed out, such as the use of dipped headlights by day. The countries which have adopted this measure are satisfied with it. Poland, Hungary and some Scandinavian countries have assessed its positive effects.

In other countries, there is some opposition to the measure. It has, however, been taken for certain categories of vehicles. In France, since 1975, motorcycles must use dipped headlights by day. In Spain, for example, the measure was introduced for motorbikes and two-wheelers in 1981. Since 1992 it has been in force for all vehicles travelling on two-way roads or lanes.

Studying the possibility of making the use of dipped headlights compulsory for all vehicles seems, at the very least, desirable.

Moreover, when certain types of vehicles are manoeuvring, particularly in reverse, and the driver has only a limited field of vision to the rear of his vehicle, the use of a specific and standardised type of horn can make it easier for the pedestrian to understand what the vehicle is doing.

Rear mirrors that are designed and positioned so that the sides of the vehicle can be seen as well as the traffic coming from behind are also an additional safety factor.

In addition, car windows should be designed with a view to ensure that the pedestrian can, on any occasion, see the driver.

Although such systems exist and are coming into general use on heavy, long vehicles, it should be considered how useful they might also be for lighter vehicles.

2. Vehicle shapes that are less damaging to pedestrians and thus reduce the seriousness of accidents

The authorities and vehicle manufacturers are making a determined effort in the research field to reduce the seriousness of injuries to pedestrians by modifying vehicle shapes.

Since 75% of pedestrian accidents involve head-on collisions, the front parts of the vehicle are targeted by most of the measures aimed at reducing the seriousness of injuries. These measures apply simultaneously to the vehicle's shape and size as well as to its structure and the materials used.

The research method involves the reconstitution of accidents in a laboratory, often with the use of sophisticated anthropomorphic dummies making it possible to record accurately various parameters such as accelerations, deformations, forces, etc.

This research work has shown that, statistically speaking, the most frequent injuries are to the vital parts of the pedestrian's body (in particular the head) which are struck by certain very specific parts of the vehicle. By modifying them, if only very slightly, the consequences of an accident can be greatly reduced. The aim is therefore to eliminate sharp edges and frontal profiles that are too prominent. Moreover, this same research has highlighted the necessity of having a certain distance between the bonnet on the one hand and mechanical components and parts of the chassis on the other, which permits free deformation of the bonnet in the event of impact.

For instance, the presence of bull-bars on vehicles involved in general traffic and not in forest or agricultural work can be very dangerous for pedestrians and cause very serious lesions.

The elasticity and deformation of the materials used in the manufacture of vehicles is also of great importance. A more deformable material absorbs more energy than another more rigid material, but a material that is too deformable absorbs little energy.

Such work requires the use of advanced technology, and the economic costs are very high for both the research phase and the production launch of new models. The active participation of all the parties concerned, including the authorities and manufacturers, is therefore required.

In its Programme for the Promotion of Road Safety in the European Union 1997-2001, the Commission of the European Union bases itself on the very high cost of accidents, which is estimated at Ecu 1 million per accident with a fatality (Conclusions of COST 313, 1993), and proposes a wider appraisal than the mere cost/benefit ratio, which undoubtedly justifies a substantial increase in investment in this field. The Programme includes the submission in 1998 of a draft Directive on the approval of the vehicle frontal profiles which are the least dangerous for pedestrians.

D) A problem of user behaviour

As we pointed out at the start of this paper, the aspects briefly enumerated below take into account not only pedestrians in all their diversity but also the behaviour of drivers vis-à-vis pedestrians.

1. Education and training

The teaching of road safety in schools is undeniably given considerable attention by Member countries. The importance of this teaching has also been stressed in international conferences[3].

The latest recommendations on the subject stress:

- The integration of road safety education into the general ethical concepts underlying a responsible and positive attitude in everyday life.

- The importance of the actors in this training, in particular teachers and parents, but also the public sector, enterprises and the media.

- The active involvement of young people in the running of the educational programme.

The orientations stressed in these latest recommendations go in the direction of this report, especially the aspects connected with harmony (positive attitude) and responsibility.

The integrated approach to road safety education, involving not only the immediate actors but other public and private partners in this task is likely to increase the resources employed and to lead to raised awareness of the role of all concerned.

In addition, it is essential that the young people concerned should participate actively in this action, which will enable them to better understand the difficulties encountered and also, on the basis of their own experience and their own understanding, to optimise road safety education. This aspect of the matter is also essential in the field of infrastructure improvement (in the vicinity of the school and on the way to school), as previously considered.

Lastly, the young person as a road user is sometimes a pedestrian, sometimes a driver.

3. Cf. in particular the joint Council of Europe – ECMT conferences on awareness raising and education of children and adolescents on road safety problems.

Instilling a positive convivial and responsible attitude is essential, and fits into the general philosophy of this report.

In the case of adults, road safety training and education — in the strict sense — is generally abandoned in favour of awareness raising.

However, at the place of work there are opportunities for continuing the training and education aspects. This possibility is still very little exploited and needs to be examined in a more dynamic and systematic way.

This same applies for old people, who could be reached through group activity, for example.

We would also stress here, in the context of the family, the very positive role older people could play vis-à-vis the children.

2. Awareness raising

While all Member countries endeavour to make the public more aware of road safety, the resources committed and the intensity of the effort vary greatly from one country to another. It is in fact sometimes very difficult to obtain appropriate and sufficient resources for this awareness raising effort.

While the citizen admits the importance of the subject of road safety — at least this is what the surveys seem to show -- it does not yet mobilise him sufficiently as compared with other societal issues. In the case of pedestrians, pedestrian/driver duality should not be overlooked and the message should therefore be correctly targeted.

This awareness raising takes many forms: traditional, via the media, in particular via the schools, but it is still too embryonic in the enterprise or retirement homes, for example.

As in the case of the approach encouraged in training, it is necessary to have a very broad view of awareness raising. Certain experiments developed along these lines -- in the form of a safety “contract” -- indicate that there can be a real interest, and they have the advantage of making the intermediary participate in the awareness raising action. One not very positive aspect of general awareness raising is its passive nature, as the target is simply the recipient of the message. However, with regard to awareness raising for pedestrians or the problems encountered by pedestrians, actions at local level or targeted actions make it easier for the people concerned to take an active part in this awareness raising.

It is not only important to raise the awareness among car users of road safety problems and the needs of vulnerable road users, especially pedestrians. It is also of the greatest importance to raise the awareness of those responsible for road transports, business and work travels, such as public authorities, agencies, companies, trade and industry. It ought to be of interest and to be the responsibility of the leadership in each authority and company to ensure the safety of their transports by integrating safety demands into the planning of transports that are carried out by the company itself and into the contracts when purchasing commercial road transports. Such safety demands can be that the speed limits should not be exceeded and that the safety for pedestrians is given the first priority when passing a pedestrian crossing.

The methods used in this awareness raising are nowadays many and varied. The message may even be diffused in the form of a device that can be used by the pedestrian in traffic (see above: See and be seen). Experience also shows that identification with a character having a positive and attractive attitude

also works very well. This was highlighted particularly at the ECMT seminar on communication in road safety held in Warsaw in October 1979.

Lastly, this awareness raising should not simply project an image of the pedestrian as a vulnerable road user, but first and foremost an image of the pedestrian as an actor in his own right.

3. Traffic rules and road signs and signals

The work already carried out by the Group on Road Traffic and Signals[4] contains many elements in the recommendations indicated in this report and more particularly on the status of the pedestrian in road traffic and the harmony which must prevail between road users.

The reflections of this Group have in fact led it to propose an important modification of the rules governing the behaviour of drivers vis-à-vis pedestrians, obliging drivers not only to permit pedestrians to cross once they are engaged upon a pedestrian crossing which is not protected (by traffic lights or a police officer) but also to act similarly once the pedestrian clearly intends to cross at such a crossing.

Moreover, thought should be given to the arsenal of signs available to suit new practices in the field of traffic management.

We would mention by way of example only the reservation of streets for pedestrian traffic by means of ad hoc positive signals and the recognition of a status for the said streets as has been done for residential zones. One of the roles of these instruments is to provide the managers of the road network with appropriate regulatory tools to define the status of the different infrastructures.

4. On-board medical equipment

Although the survey for the preparation of this report did not include this issue, it would appear that in several countries the number of accident survivors who die within 30 days of the accident has tended to fall significantly. This observation also applies to pedestrians.

One of the factors which may explain this trend would seem to be the increasingly sophisticated medical equipment on board emergency service vehicles and the continually increasing practical experience of the personnel.

5. Objective liability or liability without fault

Compensation for injury to pedestrians and cyclists is in various countries the subject of specific provisions regarding compulsory civil liability insurance.

The principle is that the damages resulting from the injury or death of pedestrians or cyclists should be paid “automatically” except in certain circumstances, such as wilful negligence by adults.

The justification for this concept is due to the obvious inequality in a practical situation between pedestrians and cyclists on the one hand and car drivers on the other. In the event of an accident, the pedestrian or cyclist will be systematically compensated, subject to certain conditions, without the driver necessarily being at fault.

4. Cf. CEMT/CS/CCSR(96)4/Final in Annex 2.

6. Monitoring observance of the traffic rules

It is very difficult to obtain a relatively precise and above all objective view of the extent to which traffic rules are respected by pedestrians. Behaviour varies from one country and even from one situation to another. For example, a pedestrian will be more attentive to traffic lights when traffic is dense. Generally speaking, it must be admitted that, in many Member countries, the pedestrian is still too negligent about traffic rules.

It should be pointed out that the monitoring of the observance by pedestrians of traffic rules varies greatly in its strictness and is often of marginal concern to the police. But such monitoring should have a direct impact on behaviour and road safety and not be seen simply in its coercive light. In any case, how is it possible to assess the effect of new rules without a monitoring process?

Although the pedestrian is perfectly entitled to his place in traffic, he must take into account the place of the car driver.

Surveillance of the respect of traffic rules by pedestrians and of the behaviour of drivers vis-à-vis pedestrians constitutes one of the components of a road safety policy and, in the present case, a not unimportant aspect of a new policy in favour of pedestrians.

We must therefore not forget the efforts that need to be made in this field.

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Promoting an integrated policy for the benefit of pedestrians also requires wider action, particularly with regard to the means of locomotion. Without going into detail on the measures which could be considered since the focus of this report is on pedestrian safety, the need for a change in attitudes must, however, be stressed.

Supporting measures must be taken in this context by the authorities, enterprises and citizen groups.

ANNEX 1

Tableau A : **Répartition des victimes par catégories d'usagers en 1995**
Table A: **Breakdown of casualties by road-user category in 1995**

1995	Piétons/ Pedestrians	Cycles/ On bicycles	Cyclomoteurs/ On mopeds	Motos/ On motorcycles	Voitures/In cars		Autres + Inconnus/ Others + Unrecord	Total	Victimes/ Casualties
					Conducteurs /Drivers	Passagers/ passengers			
A	9.0	10.1	7.6	5.5	41.6	21.3	4.9	100%	51 974
B	5.9	10.5	9.5	5.0	42.3	22.1	4.8	100%	71 754
BG	30.4	3.0	1.7	4.9	20.6	23.3	16.1	100%	9 981
CH	10.4	11.6	6.0	13.2	36.1	19.0	3.7	100%	29 451
CZ	17.6	12.1	3.1	5.1	29.2	28.5	4.4	100%	38 555
D	8.4	14.0	3.0	7.3	41.0	22.0	4.4	100%	522 095
DK	10.9	22.7	8.4	4.8	28.8	17.9	6.5	100%	10 573
E	10.9	2.3	13.5	10.0	28.8	25.9	8.4	100%	127 183
EST	27.5	4.5	1.4	3.5	26.4	28.8	7.8	100%	2 229
F	11.7	4.2	11.6	9.5	36.2	22.6	4.1	100%	189 815
FIN	10.4	15.0	4.5	4.3	33.9	24.4	7.5	100%	10 632
H	17.5	12.2	6.0	4.5	26.2	27.8	6.0	100%	27 476
L	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%	1 480
LT	35.8	7.7	2.3	4.9	18.2	26.9	4.2	100%	5 180
LV	29.7	3.7	2.2	5.4	26.3	32.7	0.0	100%	5 450
MD	37.1	0.0	0.0	0.0	11.2	0.0	51.8	100%	3 613
NL	8.2	21.2	17.3	7.5	28.2	13.5	4.1	100%	13 022
P	10.2	1.6	17.9	4.7	13.0	14.6	5.9	100%	67 912
S	6.8	14.1	3.8	4.0	43.6	21.6	6.1	100%	21 745
UK	15.1	8.0	0.8	6.8	38.8	23.6	6.8	100%	310 506
CEMT	11.1	9.8	5.4	7.5	37.9	22.7	5.6	100%	1 520 626
MA	29.5	5.3	18.1	=>	14.2	21.1	11.8	100%	64 245
Observateurs	29.5	5.3	18.1		14.2	21.1	11.8	100%	64 245

Tableau B : **Répartition des piétons tués par classe d'âges**
Table B: **Number of pedestrians killed by category of age**

	Année / Year 1995							
Pays / Country	**0-4**	**5-9**	**10-14**	**15-19**	**20-39**	**40-59**	**≥60**	**Total**
A	7	7	5	6	31	48	96	200
B (!)	7	2	6	11	24	31	65	149
BG (!)	6		14	11	26	343	14	414
CH	5	7	1	5	14	13	81	126
CZ	11	10	7	15	41	170	171	425
D	39	66	33	58	239	270	627	1 332
DK (!)	4	7	8	13	11	22	53	118
E	11	33	33	46	178	191	446	938
F	15	41	35	37	205	215	474	1 022
FIN	1	4	3	3	12	20	29	72
H	11	8	8	28	93	158	181	487
LT	4	15	5	11	59	108	69	271
LV	3	7	6	7	3	96	26	148
MA (!)	89		226	128	242	164	264	1 113
NL	10	4	10	3	18	29	68	142
P	26	27	14	19	68	139	295	598
PL (!)		68	112	268	492	866	830	2 636
S	1	3	2	3	9	18	35	71
TR	434	210	116	45	198	203	281	1 487
UK	29	40	51	56	193	149	511	1 029
Total (*)	607	482	329	342	1 361	1 827	3 390	8 348
						Pays / Countries (*)		**15**

(!) Classes d'âges différentes / Different break-down.
(*) Pour les pays qui ont fourni les données pour ces classes d'âges / For countries which furnished data in this break-down.

Tableau C : **Répartition des piétons gravement blessés par classe d'âges**
Table C: **Number of pedestrians seriously injured by category of age**

Année / Year 1995								
Pays / Country	**0--4**	**5--9**	**10--14**	**15--19**	**20--39**	**40--59**	**≥60**	**Total**
A	34	114	82	56	216	220	421	1 143
B (!)	93	103	91	82	163	160	282	1 025
CH	71	162	83	51	137	198	451	1 153
CZ	371	784	663	721	836	1 792	1 184	6 351
D	1 096	2 839	1 658	933	2 467	2 410	3 855	15 258
DK (!)	37	73	53	140	126	135	152	716
E	104	290	270	308	804	804	1 826	4 406
F	152	605	505	389	1 000	1 047	1 806	5 504
LT	80	237	135	104	356	367	307	1 586
LV	38	122	88	90	43	488	182	1 051
MA (!)	195		675	454	731	323	411	2 789
NL	77	196	84	48	170	113	225	913
P	86	208	156	125	473	504	808	8 360
PL (!)		1 569	4 014	3 719	3 714	5 553	4 690	23 259
S	20	33	36	30	90	75	150	434
TR	3 554	2 899	2 426	1 150	4 789	3 113	2 671	20 602
UK	626	1 460	1 893	1 053	2 335	1 414	2 302	11 083
Total (*)	6 309	9 949	8 079	5 058	13 716	12 545	16 188	77 844
					Pays / Countries (*)			**13**

(!) Classes d'âges différentes / Different age break-down.
(*) Pour les pays qui ont fourni les données pour ces classes d'âges / For countries which furnished data in this break-down.

Table D: **Breakdown of pedestrians (killed or victims) in and outside built-up areas**
Tableau D : **Répartition des piétons (tués ou victimes) en et hors agglomération**

Année / Year 1995				
	Tués / Killed		**Victimes / Victims**	
Pays/Country	**En agglomeration / In built-up areas**	**Hors agglomeration / Outside built-up areas**	**En agglomération / In built-up areas**	**Hors agglomération / Outside built-up areas**
A	121	79	4 180	511
B	88	61	3 637	564
BG	320	88	2 726	273
CH	89	37	2 853	214
CZ	324	101	6 147	629
D	890	446	40 804	2 985
DK	77	41	972	179
E	480	520	11 697	2 228
F	662	365	20 709	1 515
FIN	42	30	950	153
H	298	189	4 192	608
L	7	2		
LT	135	136	1 388	394
LV	120	65	1 377	242
MA	547	594	16 205	2 726
NL	81	61	873	189
P	390	208	9 023	1 191
PL	1 164	1 426	15 833	7 247
S	46	25	1 236	167
TR	1 208	279	20 759	1 330
UK	832	253	45 256	1 017
Total	7 921	5 006	210 817	24 362

Table E: **Breakdown of pedestrians (killed or victims) by day and by night**
Tableau E : **Répartition des piétons (tués ou victimes) le jour et la nuit**

Année / Year 1995				
	Piétons / Pedestrians			
Pays/Country	**Tués la nuit/ Killed by night**	**Tués - total/ Total killed**	**Victimes la nuit/ Victims by night**	**Victimes – total/ Total victims**
A	11	200	1 350	4 691
B	71	149	902	4 204
BG	145	414	601	3 035
CH	61	126	750	3 067
CZ	208	425	1 671	6 351
D	735	1 336	11 763	43 789
DK	53	118	429	1 151
E	511	1 000	4 645	13 925
F	535	1 027	5 944	22 224
FIN	36	72	411	1 103
H	320	487	1 808	4 800
LT	182	271	800	1 857
LV	103	185	508	1 619
NL	60	142	272	1 062
P	139	598	801	10 214
PL	1 397	2 590	7 370	23 080
S	37	71	549	1 403
UK	499	1 085	13 274	47 173
Total	5 103	10 296	53 748	194 748

Table F: **Population Sub-groups (in per cent of total population)**

	Population aged 65 and over (Elderly share)						Population aged 0-14 and 65 and over						Population aged 75 and over				
	1960	1990	2000	2010	2020	2030	1960	1990	2000	2010	2020	2030	1990	2000	2010	2020	2030
United States	9.2	12.6	12.5	13.6	17.5	21.9	40.3	34.1	34.2	33.5	36.5	40.5	5.3	5.8	6.2	7.1	10.0
Japan	6.1	11.9	16.5	21.1	25.6	26.1	36.1	30.3	32.1	36.2	40.4	41.4	4.7	6.3	9.4	12.1	14.7
Germany	10.8	14.9	16.2	20.2	22.5	28.1	32.2	31.2	31.8	33.3	36.4	42.9	7.2	6.9	8.4	10.9	12.4
France	11.6	13.8	15.5	16.3	20.2	23.3	38.8	33.8	34.6	33.9	37.3	40.4	6.5	6.7	8.1	8.5	11.4
Italy	9.0	14.8	17.9	20.6	23.6	27.9	32.4	31.3	32.3	34.0	37.0	42.1	6.5	7.7	9.9	11.4	13.4
United Kingdom	11.7	15.7	15.9	17.0	19.7	23.0	34.9	34.6	35.1	34.3	36.8	40.5	6.8	7.3	7.9	8.8	10.6
Canada	7.6	11.3	12.3	13.8	18.2	23.1	41.3	32.2	32.6	32.2	36.0	40.8	4.5	5.3	6.2	7.3	10.3
Australia	8.5	10.7	11.3	12.6	16.3	20.3	38.7	32.9	32.4	32.3	34.9	38.5	4.1	4.8	5.3	6.4	8.9
Austria	12.2	15.1	15.6	18.3	20.8	25.7	34.3	32.5	33.0	33.9	36.2	41.6	7.1	7.2	8.3	10.1	11.6
Belgium	12.0	15.0	16.6	17.1	20.3	24.3	35.5	32.9	33.7	33.0	36.3	40.8	6.7	7.1	8.2	8.5	10.9
Denmark	10.6	15.4	14.5	16.4	20.1	22.6	35.8	32.4	32.9	33.9	36.7	40.1	6.7	6.6	6.6	8.3	10.4
Spain	8.2	13.2	16.2	17.6	20.1	24.9	35.5	33.0	31.2	31.9	34.5	39.3	5.4	6.6	8.6	9.4	11.2
Finland	7.3	13.3	14.4	16.2	21.3	24.1	37.7	32.6	33.0	33.5	38.5	41.5	5.6	6.2	7.3	8.4	12.1
Greece	8.1	14.2	17.1	19.0	21.2	24.6	34.2	33.2	32.8	34.1	36.4	39.9	6.4	6.7	9.3	10.1	11.8
Ireland	10.9	11.4	11.2	11.9	14.2	16.4	41.4	38.1	33.3	33.9	34.5	35.3	4.6	4.9	5.1	5.9	7.4
Iceland	8.1	10.6	11.3	12.0	15.5	19.6	42.9	35.3	34.3	32.8	35.2	38.6	4.3	4.9	5.5	6.4	8.6
Luxembourg	10.8	13.6	14.8	17.3	20.9	25.6	32.1	30.6	32.6	33.4	36.7	42.1	6.0	6.0	7.6	9.0	11.5
Mexico	...	3.7	4.3	5.3	7.2	10.0	...	41.7	38.1	33.4	31.3	32.5	1.3	1.3	1.8	2.4	3.5
Norway	10.9	16.3	15.5	15.8	19.7	23.0	36.8	35.2	35.1	34.1	36.9	40.6	7.0	7.9	7.7	8.3	11.2
New-Zealand	...	11.1	11.3	12.6	15.9	18.9	...	33.7	34.2	33.4	35.4	38.1	4.4	4.8	5.2	6.3	8.3
Netherlands	9.0	13.2	14.1	16.4	21.5	26.0	39.0	30.8	32.3	32.2	36.7	42.3	5.6	6.3	7.2	8.8	12.1
Portugal	8.0	13.0	14.3	15.0	16.9	20.9	37.1	33.7	31.7	31.8	33.3	37.4	5.2	5.8	6.7	7.2	8.6
Sweden	11.8	17.8	17.0	18.4	21.6	23.1	34.1	35.6	36.7	36.9	39.4	41.3	7.9	8.7	8.6	9.9	12.1
Switzerland	10.3	15.0	15.8	19.1	23.3	27.5	34.0	31.6	33.2	34.9	38.4	43.5	7.1	7.2	8.7	11.0	13.6
Turkey	3.7	4.3	5.7	6.4	8.0	10.9	44.9	39.9	36.7	31.9	31.6	32.7	1.5	1.5	2.3	2.7	3.7
Total OECD	9.4	12.9	13.9	15.6	18.9	22.5	36.9	33.7	33.6	33.6	36.1	39.8	5.5	6.0	7.0	8.2	10.4
OECD Europe	9.7	13.7	14.7	16.4	19.5	23.2	36.5	33.6	33.5	33.6	36.3	40.2	6.0	6.4	7.5	8.6	10.8

Source: Ageing in OECD countries: A Critical Policy Challenge, Social Policy Studies No. 20, OECD, 1996.

ANNEX 2: BEHAVIOUR AT PEDESTRIAN CROSSINGS

1. Explanation of the issue

1.1 Current provisions

The aim of this note is to re-examine two complementary provisions of the Convention of 1968 on Road Traffic as amended by the European Agreement of 1971[5], namely: Article 20, 6, (iii) and Article 21, 1, b) governing the rights and duties of drivers and pedestrians at pedestrian crossings where traffic is not regulated by traffic light signals or by an authorised official.

Under the provisions in force:

- At (other) pedestrian crossings, (in this case those which are not regulated by traffic light signals or by an authorised official), **pedestrians** shall not step on to the carriageway without taking the distance and speed of approaching vehicles into account. (Article 20, 6, iii of the Convention).

- If vehicular traffic is not regulated at that crossing by traffic light signals or by an authorised official, drivers shall approach the crossing only at a speed low enough not to endanger pedestrians **using, or about to use**, it; if necessary, they shall stop to allow such pedestrians to cross.

1.2 Implementation of the provisions

The form in which these provisions have been translated into national legislation in Member countries sometimes differs significantly from that of the international instruments; in addition, some States have amended their version of these provisions over the past few years.

Some Member countries have simply applied the provisions of the Convention as they stand. Others have gone one step further by **giving right of way to pedestrians who indicate their intention[6] to use pedestrian crossings where traffic is not regulated by traffic light signals or by an authorised official.**

There are several reasons for such an approach:

- Pedestrians are particularly vulnerable in traffic, as road accident statistics illustrate all too painfully. The legal position of pedestrians obliged to cross the carriageway at designated

5. These texts were not changed by amendments to the Geneva Agreement and Vienna Convention (see Doc. ECE/TRAN/89 of 02.09.91 and ECE/TRANS/91 of 17.09.91).

6. The Group on Road Safety, after the submission of this report to Geneva in 1996, amended this text as follows: “clearly intend”.

locations where no protection (such as traffic lights or officials) is provided must be clear and must primarily provide protection for the road user at greatest risk;

- Under certain legislation, the most vulnerable road users (pedestrians and cyclists) automatically receive compensation in the event of an accident (principle of liability without fault).

- Traffic conditions have reached such a point — particularly in urban areas — that the right to mobility of the pedestrian, who is the life force of the city, needs to be restored and confirmed.

1.3 The problem of interpretation

In addition, the text of the Convention sets out rules with regard to the behaviour of drivers towards pedestrians using or about to use a pedestrian crossing. This wording is open to numerous interpretations. In its strictest sense, it should be taken to mean that the pedestrian has at least indicated his intention to cross, but has not necessarily actually started to cross[7].

The legal implications of this highly debatable point require, at the very least, some clarification.

1.4 Proposals

The proposal put forward here is to give right of way to pedestrians already using the crossing **or who indicate their intention[2] to cross**, and to make it compulsory for drivers to reduce speed and stop where necessary.

Article 20, 6, iii) does not, however, need to be amended.

We preferred not to propose that pedestrians use a signal to confirm their intention to cross, as this could lead to legal disputes.

It is proposed that Article 21, b) of the Convention on Road Traffic be amended as follows:

> "b) If vehicular traffic is not regulated at that crossing by traffic light signals or by an authorised official, drivers shall approach the crossing only at a speed low enough not to endanger pedestrians using it or who have clearly indicated their intention to do so; if necessary, they shall stop to allow such pedestrians to cross."
>
> Similarly, it is proposed that in the last part of Article 21, a) of the Convention on Road Traffic the words "pedestrians already using, or about to use" be replaced by **"pedestrians already using the crossing or who indicate their intention[2] to do so."**

2. Related issues: Overtaking in the vicinity of a pedestrian crossing

Article 11, 9 of the Convention on Road Traffic provides that drivers of vehicles must take particular care when overtaking in the approach to a pedestrian crossing and leaves Member countries the option of introducing stricter rules with regard to overtaking a vehicle which has stopped at a crossing and to overtaking "within a prescribed distance" of a pedestrian crossing.

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7. The English text of the Convention seems explicit on this point (“about to use”). The wording of the German text, on the other hand, would seem to suggest that the action of crossing has already been initiated.

Our comments with regard to the above are as follows:

1. The first sentence of Article 11, 9 of the Convention refers to cases where the pedestrian "is on the crossing"; this does not correspond with Article 21 which refers to pedestrians who are using or about to use the crossing.

2. Although the Convention leaves Member States the option of taking more coercive measures, which most have done, it limits their action where protective measures are concerned and stipulates that if they wish to prohibit overtaking in the vicinity of a pedestrian crossing they must specify the distance within which this applies; this is a particularly difficult area in which to legislate.

3. We have seen that the protective measures determined by numerous Member countries in fact go beyond what is prescribed by the Convention. These measures should not adhere too strictly to what are merely working hypotheses, particularly since they relate to behaviour which could cause accidents.

4. There is a contradiction between the act of overtaking, even with care, which in most cases entails reaching a certain speed, and being able to "stop immediately". In view of this, it is proposed that:

   – The overtaking of a vehicle which has stopped to allow a pedestrian to cross under the conditions prescribed by the new Article 21 be prohibited.

   – Provision be made for Member countries to take more stringent measures as regards vehicles overtaking in the approach to a pedestrian crossing;

Article 11, 9 be replaced by the following:

"A vehicle shall not overtake another vehicle which is approaching a pedestrian crossing marked on the carriageway or sign-posted as such, or which is stopped immediately before the crossing, otherwise than at a speed low enough to enable it to stop immediately if a pedestrian is on the crossing **or indicate his intention[2] to cross**. Nothing in this paragraph shall be construed as preventing Contracting Parties, or sub-divisions thereof, from imposing requirements on a driver of a vehicle proposing to overtake another vehicle approaching a pedestrian crossing, or from imposing stricter requirements on a driver of a vehicle proposing to overtake another vehicle stopped immediately before such a crossing."