

## Strategies and elements for the promotion of Pedestrians. Lessons form the case of Germany

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1. Transport planning in the 50s and 60s: pedestrians being beaten by the beginning car mania

### **First Post war years: maximum walking shares, but little priority for pedestrians**

Transport and urban planning and road design have changed massively after world war II. In the first years after war walking was still very important in Germany, even more important than in most neighbouring European countries. The damages of the war in most towns had destroyed most street surfaces. Ruins filled much of the open space. Tram and rail systems were badly damaged. Very few private cars were still working at that time. Even most bicycles were out of function. So rather all people were forced to walk, which was at that time not a great pleasure but a bare necessity. But at the same time urban and transportation planners and local politicians dreamt of plans of modern car ages (which had been developed in the 30s). These plans very much had been influenced by American ideas about a modern motorway age. After war the Americans and the other winners of the war thought that a efficient road infrastructure is most important for the economical development and organisation of the post war society. Much empty space was available by the bomb damages. Planners understood this as a chance to rebuild German towns in a new, modern, low density style, with very broad motorways and main arterial road systems, with broad lanes and much parking space. They felt very modern by doing so, because the historical street network was understood do be inefficient, too narrow, too old fashioned. Narrow streets had proved to be very dangerous during the fire storms of the bombardments. The historical street network of old town centres had many bottle necks. The foreseen mass motorisation which was hoped to come soon as a first step to wealth and economic power would have to be accommodated well. Rich countries had already started to implement a new dimension of car oriented engineering and legislation. So Germany was to follow. A new scale of architecture with a minimum width of streets between houses of about 20-30 m was established. Politicians thought that the great number of pedestrians walking in a chaotic way needed new regulations, saying, that pedestrians have to keep strictly on the outermost part of a street, they must only use side walks and walking in the carriageway is forbidden (which often was necessary in that time, because the side walks were full of rubble. Carriageways should only be crossed by pedestrians on the shortest way, rectangular. And pedestrians were obliged to give the right of way to cars when crossing.

### **Reducing side walk width**

On those streets which had survived war without damages the original broad side walks were cut to smaller width because planners wanted to have more space for the car, either as a broader car lane or to make 4 car lanes out of two or to have parking facilities along the streets. As one result of this strategy car parking was introduced more and more frequently on side walks. Before war car parking along streets was

meant to be an exception. Cars should be parked in garages. But now - as the number of cars increased- the capacity of garages did not fit for the new demand. So the carriageway and the sidewalk were seen as a sort of overflow capacity for parking. New signals for side walk car parking were integrated in the legal code. What was meant as an rare exception turned to be a very frequent rule all over the country soon.

### **Traffic lights in favour of cars instead of pedestrians**

Before war traffic lights were rare exceptions. Their technical lay out left pedestrians without specific signals. They still were allowed to cross whenever they wanted. Traffic lights were installed mainly for capacity reasons on busy roads with heavy car traffic flows. But as car numbers increased more traffic lights were needed to keep traffic flows going. Crossing pedestrians seemed to disturb the capacity of busy intersections. So in the 50s pedestrians got their own signals, and from that time their freedom of self responsibility when crossing was cancelled. The result were long waiting times, because traffic lights tried to maximise capacity for cars.

### **Free ways for cars: the destruction of zebra crossings**

The same strategy to maximise car flow capacity led to a radical change in thinking about zebra crossings. In the first years after war zebra crossings were established very frequently, because they seemed to be a good element to prevent too bad consequences for pedestrians after raising mass motorisation. But then some safety analysts argued that zebra crossings are very unsafe, because they had found out a concentration of pedestrian accidents on zebra crossings. Obviously this was quite plausible because as well a concentration of pedestrian flows could be expected on zebra crossings. But taking risk exposure into account was not regularly done at that time. So the car lobby demanded zebra crossings to be used much more restrictive as an exception. Legislation and planning standards reacted promptly and within few years most of the existing zebra crossings were taken away - without any compensation for the pedestrians. Because traffic lights were much more expensive. This was one of the worst mistakes because 30 years later research found out that the level of pedestrian safety is related closely to the number of zebra crossings. Towns with few zebra crossings have much higher pedestrian accident rates than Dutch, Swiss and Austrian towns with a much greater number of zebra crossings.

### **Symbolic action: Forcing pedestrians on bridges and into underpasses:**

As politicians and planners wanted to square their conscience about pedestrians and as they had much money for building new busy roads and housing areas they built many bridges and underpasses for pedestrians instead of on surface crossing facilities. That was a kind of symbolic action to demonstrate that much money and attention was given to pedestrians. But of course it was the contrary of promotion for pedestrians. Because long detours for pedestrians were the consequence. And most underpasses had a very poor design quality and people didn't want to use them because they felt unsafe there, without public control, in dark light, disturbed by bad smells and afraid from theft and sexual infringement. So they kept crossing on the surface even if it was illegal and fences or police control were meant to prevent it. Research has proved often and clearly, that most bridges and underpasses, which had been built in the 60ties, are not accepted by pedestrians. But the alternative of

offering both crossing opportunities, one on the surface and one by bridge or underpass has been used only in very few cases.

## **2. Pedestrian zones for the city centres - change in strategies or continuing car orientation**

### **Commercial pedestrian zones for historical town centres**

The disadvantages of the car mania became most obvious in the historical town centres where still some narrow streets existed and expanding car traffic and parking needs obviously could not fit with the historical surrounding. So for that areas discussion about pedestrian zones started in the 60s. First massive protest of the retailers and car lobby followed. But then the first successful examples of well designed pedestrian zones convinced more and more politicians. And so pedestrian zones became one of the most important „export innovations“ of German transport and urban planning. In the 60s in Germany about 400 pedestrian zones were established. They were concentrated on the commercial centres. After some years of discussion retailers understood pedestrian zones to be very important for economic attraction in the competition against large suburban shopping centres. So pedestrian zones were seen as a regular part of attractive urban centres. In 1990 the total number of commercial pedestrian zones is estimated to more than 1000. Many bigger towns have a larger number of pedestrian zones. Many towns have enlarged their zones several times. Most zones have been great successes for the retail function and the attraction of visitors. The visitor volume sometimes grew two to four times over the earlier values. The relation depends much on the specific situation like size of town, attractiveness of the commercial and cultural functions, architecture, competition of suburban centres, size of pedestrian zone, quality of public transport, organisation of parking. Now pedestrian zones are popular everywhere, in big and small towns. They are becoming larger and larger, sometimes including already the whole CBD area. Outstanding examples are Bonn, Freiburg, Göttingen, Nürnberg, Hannover. In some cases pedestrian zones are connected to the surrounding areas by special axis like traffic calmed streets, boulevards or green alleyways.

### **Ring roads as a friction to pedestrian access**

But in most cases pedestrian zones are surrounded by busy radial and ring roads. They very often have been built at the same time when the pedestrian zones were planned. Planners argued that easy car access was necessary for pedestrian zones. So the radial roads to the centre and the ring roads around the centre were expanded to a maximum capacity. Often that was the reason for braking down several old housing blocks. The ring roads were meant to be some kind of compensation for closing down inner urban street networks in the pedestrian zone. And of course much parking space was expanded as well as some kind of compensation for having made free the old historical market places and other squares and pedestrianised streets from parking. So much additional driving and parking capacity was given to the adjoining areas, to have the pedestrian zone as car friendly as possible. So at that time the planning of pedestrian zones didn't really indicate a change in priorities. It was not meant for promotion of walking and as a part of a systematical pedestrian network planning. Still the car was very dominant in conceptual thinking. The ring roads and radial roads often suffered from very bad crossing conditions for pedestrians. So pedestrian access to the pedestrian zones was not well organised.

Pedestrian zones were meant to be something similar to the American suburban shopping mall which was surrounded by busy streets and expanded parking lots.

### **No integration of buses, trams and cycles**

When excluding the car traffic planners and politicians in most cases as well excluded buses, trams and cycles from the pedestrian zones. Again this was result of a lack of conceptual thinking, because the problems which gave reason for pedestrian zones didn't have to do with cycles, buses or trams. They only arose from too many cars. Bus, Tram and cycling do not disturb pedestrians in the same way like cars. As a result of this development the percentage of people, using bus and tram and bike for shopping purposes, decreased. Especially public transport suffered much from the great distance, the nearest bus or tram stops had to the main shopping area. Very often the car parking facilities were located much closer to the shops. So of course the car became the mode of transport which retailers and politicians meant to be most important for the centre.

Later some research projects had found out clearly that in those cases, where bus, tram or cycles still were integrated into the pedestrian zone it worked quite well. There were very little safety conflicts and the apprehended effect of disturbing pedestrians was much smaller as expected and could be solved by good design of the surface and proper speed regulations.

In the 70s and 80s in some cases attempts were made to reintegrate bus, tram and cycle as short distances to the public transport was reorganised as a basic reason for success of bus- and tram systems and free access to cycles is a basic element for bicycle promotion. To minimise possible conflicts the rolling stock of public transport should be designed for high tolerance, for example by favouring low floor, small midi buses, modern engines, attractive stops close to important shops. And for the integration of cycles special regulations can be defined, allowing bicycles only for some broader parts of the pedestrian zone or for some day times without maximum pedestrian densities.

### **Perpetuating conflicts by too much parking space around pedestrian zones**

In most pedestrian zones car access is promoted by a great amount of parking facilities. The reduction of parking space in the pedestrianised streets and squares in many cases was much more than over-compensated by new parking space in new underground garages or parking houses. In the 60s and 70s parking facilities often were located very close to the main shopping streets which led to massive conflicts with the surrounding streets and their historical architecture. The massive car flows which were attracted by the new garages produced much congestion in the neighbouring streets. Air and noise pollution were the consequence. The massive and mostly ugly buildings could not be integrated into the town scape. Pedestrians were very much disturbed by the car traffic. The new garages which were built over or under the surface cost an enormous amount of money (45.000 - 60.000.DM per 1 car parking field). The public subsidies for parking always were paid without arguments while subsidies for public transport were massively criticised and cut down to a minimum.

### **Beginning revision of old concepts. Restrictive parking policy and funding**

From the late 80ties the parking strategy started to change. Some old garages were given up and closed because they were in conflict with the traffic calming and urban renewal strategy. Parking was concentrated closer to the ring roads to have more space for a broad network of pedestrian friendly streets. Longer distances from decentralised parking locations to the central shopping areas were better accepted by planners and customers. Frankfurt and Nürnberg are good examples for this strategy.

In some Laender public parking facilities no more were funded by urban development and renewal schemes as it was done often in the 70s and 80s. Northrhine-Westfalia completely stopped public funding of parking facilities and changed the urban planning laws according to parking. Before that time architects and investors were obliged to provide much car parking capacities for customers or tenants or employees. That was a main reason for the constant increase of car usage and congestion problems. Now car traffic generation effects were seen more critically. Building without parking facilities was set on a legal basis. To promote new housing developments (for example by redesigning formerly unused roofs or derelict land in central areas) provision for parking could be prohibited or massively restricted (in relation to the specific access quality of the location for public transport). Investors were invited to compensate the lack of parking by offering job tickets or customer tickets or student tickets to their visitors. The surrounding housing areas were protected against massive inflows of commercial parking use by privileged parking for tenants. Local authorities first did not use the parking privilege strategy very often, but later it became more common and now the 16 different organisational possibilities of tenants privilege (for example combining time restrictions and money-charging with exceptions for tenants to get a compromise between tenants and other functions in mixed land use areas around city centres) are use often and successful. Recently new arguments have been provoked by a courts verdict that tenants privileges and restrictions to employees car parking must not include too large areas. But immediately after that verdict the minister in charge announced a new law to make easier use of restricted car parking policy.

### **Pedestrian zones in housing areas - car free housing - demotorisation strategies**

In Germany about 20 % of pedestrian zones or streets are not located in commercial areas but in areas for housing. And often special areas for cultural use (like museums, theatres, historical monument areas, universities, hospitals) are as well fitted with a pedestrian zone. But these pedestrian zones in most cases are smaller. Those in housing areas often only include few streets. A new development now comes forth from the discussion of car free housing projects, which are open only for tenants without cars. Some smaller projects (with only few houses) have already started successfully, for example in Hamburg, Münster and Freiburg, after the first project in Bremen Hollerland was withdrawn for commercial reasons. But now more than 30 cases are under preparation, where larger new housing areas will have mainly pedestrian streets and provide only a minimum of parking for car sharing, visitors and goods delivery. Sometimes these concepts have been developed under participation of car manufacturers like Audi or VW or Opel. In Northrhine-Westfalia an experimental program coordinates 13 cases of this type. Most cases are new housing areas. The greatest project will be Freiburg- Vauban. But in some cases experiments

are made as well to reduce parking desires in old housing areas. The strategy includes funding demotorisation of tenants. The discussion about this strategy leads to the idea to award people who don't own a car or who give back their car or who share their car by a sort of subsidy comparable to public transport firms who award (mainly elderly) people who give back their driving licence. One brilliant idea was discussed in Bonn to award those people with planting a tree in front of their house on the space which has been made free by giving back the car. This would be an attractive, twofold effect for „greening transport strategies“.

### **3. The first systematic „U-turn“: Traffic calming**

Traffic calming in Germany started about 25 years ago. Sometimes the origins are dated earlier by including commercial pedestrian zones into the definition of traffic calming. But generally traffic calming is understood as a compromise strategy which doesn't exclude cars but domesticate them. Northrhine-Westfalia had a role as pioneer in German traffic calming. It was very much influenced by the Dutch experience, which started few years earlier. A broad variety of elements was tested and implemented by federal and Laender activities. In the first time few towns became active, but after new government funding programs traffic calming spread soon over the whole country. The highest subsidy sums were given in Northrhine-Westfalia, Baden-Württemberg, Berlin and Bayern. Traffic calming was set on the agenda of most local parliaments and administrations for about 10 Years. It became common to many towns.

#### **Traffic calming as an island strategy**

But instead of all the political and planning efforts and funding assistance traffic calming has not really been succesful in a way that it was present everywhere like electricity supply or vaste disposal or water supply used to be after they had been technically possible. In Northrhine-Westfalia, the Land with the most intensive promotion for traffic calming, only about 20 % of all relevant areas have got traffic calming measures. In the rest of Germany the comparing figure is 10% . So much still is to be done about traffic calming. The 80s were the time of experiements, model programs and innovation for traffic calming. Many elements after that time were introduced into the street design manuals. And legislation and the legal code have been changed to integrate traffic calming. But nevertheless, the quantity and quality of traffic calming was not as high as it should be. Only new built housing areas now in most cases are designed with traffic calming elements from the beginning.

Traffic calming had two different origins in Germany. Some pilot projects were concentrated on high density housing areas and historical city centres. Other pilot projects were concentrated on new low density housing areas and rural villages. Later traffic calming was implemented as well on densely inhabited main arterial roads, especially inner urban highways passing through local centres.

#### **Integration of main arterial roads into traffic calming**

In Northrhine-Westfalia area wide traffic calming was discussed from the very beginning to include the busy roads as well because they have the highest speed and the highest accident frequency. Two model programs were established, to include main arterial roads. The results were very well in terms of safety effects,

new design, acceptance by inhabitants and car drivers. Parallel the federal minister for housing and urban planning organised another model program. Both programs led to a basic revision of the design rules. The typical measures for main arterial roads are: narrow car lanes; new cycle lanes in the carriageway, crossing aids in the middle of the road, planting rows of trees, broader side walks, new zebra crossings or traffic lights, new bus lanes, if necessary. In Northrhin-Westfalia within 10 years 1600 examples were redesigned. But this is only 10 % of all relevant cases, which would need similar treatment. So much still has to be done. In some cases traffic calming schemes have made it possible to redesign ring roads, to reduce the number and width of car lanes and to provide modern crossing elements. Examples for this strategy are Freiburg, Göttingen, Hamm. Some German towns have more than one or two zones (Munich, Bonn, Freiburg, Göttingen).

### **Area wide traffic calming**

Planners tried to reduce costs of traffic calming. So new low budget strategies were developed, for example 30 km/h schemes. And many towns developed area wide, systematical concepts for traffic calming, indicating, which areas would be relevant for which measures and how regional priorities should be defined.

#### Special research programs

In Germany traffic calming was accompanied by intensive research about its effects on safety, comfort, modal split, social behaviour in public spaces and housing qualities. Research was funded by federal and Laender departments. A great number of reports has been published, including documentations and planning hand books.

### **The elements: many different solutions**

Humps and bumps are used from time to time, but much less compared to the other elements. ADAC argues against humps and bumps, often the police and fire brigade does the same, though their arguments are not very significant. IN some cases, where humps and bumps have been implemented systematically (in all streets and in short distances), they proved as very efficient in terms of safety and speed reduction and had a very good cost-benefit-relation.

Cul de sac and one way systems were use in the first years in a relevant number, later they were opposed often because of the detour for car drivers and its ecological effects, little acceptance among the inhabitants of the area, problems of orientation and special problems for cyclists. On the other hand one way systems often provide a good chance to establish broader side walks. And the negative effects can be reduced by exceptional regulations for cyclists.

Zigzag systems were used extensively in the starting phase of traffic calming. Later they were opposed massively by architects and urban designers because of their looking ugly often. They can only be accepted in combination with planting new trees.

Coexistence/mixed use streets ( woonerven in Holland) had a specific development in Germany. In the first time they were used only as an exception. Later they were used more often, but planners tended to define maximum car volumes for mixed street use. After some experiments and model programs the earlier limits of 50 cars/h

were raised step to step to a maximum of 250 cars/h, which could be accepted. And on the other side the design principles for mixed use streets have changed. First a complete redesign was said to be necessary. Later model programs showed that even after very little redesign (and little cost) mixed use is possible and safe.

Design for side walks has got new elements after the experiences of traffic calming. New elements, recommended now, are

- side walk „noses“ which improve crossing facilities by a shorter crossing distance and indicate crossing points
- elevated side walk crossing and elevated zebra crossings in housing areas, to slow down cars and to assist pedestrians when crossing
- additional islands in the car lanes (pelican crossing) (for specific points or following the total length of a street) in housing and main arterial streets
  - mixed use design or regulations (woonerven) for housing and shopping areas, when the side walks are too small or car traffic volume is little (max. 250/h); in these cases the former side walks may be kept in function additional to the mixed use carriageway, to define an area, where cars are not admitted
  - For rural areas and historical areas in combination with traffic calming mixed use regulations/design is preferred. It fits better to old historical streets. The gutter or a change in the materials or inclination give some orientation where to drive.
  - Broader side walks are established in cases when main arterial roads are redesigned for the purpose of urban integration or speed reduction. In the years from 1985-1992 measures like this were relatively frequent in Germany and especially in Northrhine-Westfalia (the government funded special programs) but now few further examples are added though the knowledge about the efficiency is much better now and design guide lines have been published. The reason is a lack of money for these purposes.

The 30 kmh limit discussion became a popular from 1985, when the money for funding of street scaping was reduced and many citizen groups asked for traffic calming which could not be financed with high standards. So some towns (Buxtehude, Hamburg) made their own experiments. In that time the general thinking was that 30 km zones should include a certain amount of physical speed reduction measures like narrowing trees, elevated pedestrian crossings etc. Later Hamburg, Heidelberg and Buxtehude started a systematical approach without physical measures. This approach proved very efficient, because its effect all over a town was much higher compared to some single island zones. More towns followed with a great number of zones. The size of zones became much bigger. After 1990 in more and more cases some main arterial roads were included because of the area wide traffic calming approach. But even after 15 years of promotion and partial funding for the investment systematical 30 km zoning is not yet regular. Over all only 1/3 of all relevant streets have a 30 km regulation.

Therefore the German association of towns had proposed since 1987 to change the legal code and to introduce a general 30 km/h restriction for local traffic. But the federal minister did not agree and the majority of the Laender ministers followed him. But still many pressure groups want to establish that general speed limit which would make inner urban traffic much more safe and help pedestrians in a very efficient way in all parts of the country (without respect to the financial abilities and planners preferences of the local authorities).

## **Campaigning for and against traffic calming**

Traffic calming was promoted by traffic safety organisations, environmental organisations, cyclists and pedestrians organisations, the association of towns and the departments of housing and urban planning on federal and Laender level. In the first decade it was promoted as well by the ADAC, which organised publications and exhibitions about traffic calming. Traffic calming was opposed after 1990 by the car lobby and ADAC, sometimes by the police and fire brigade, by the local commerce chambers and the public transportation companies, esp. those with mainly bus services. They opposed traffic calming with strange arguments:

- fire brigades and emergency might have a delay, but in most cases the reorganisation of the parking chaos through traffic calming kept the carriageway free better than before. And many more lives were saved by preventing accidents compared to the theoretical chance that an emergency case might suffer a fatal delay. To reduce the need for emergency services is a better strategy than to have many accidents but to organise perfect emergency services;
- buses might waste much time and become less attractive; but of course the access to bus stops was faster after traffic calming and buses could drive more constant, but low speeds because the speed level was reduced generally and conflicts among different groups could be solved easier;

After defining rules how to integrate public transportation into traffic calming and how to define special routes for fire brigade and emergency services the conflict was de-escalated.

## **4. Redesign of side walks to give them back appropriate width**

The association of planners (FGSV) has developed rules for street design. They define minimum sidewalk measures, with variations for different types of streets (hierarchy) and area (central, shopping etc.). For the server-roads in housing areas details are published in the EAE (first version 1980, last revision 1990), which includes as well guide lines for traffic calming. For the main arterial roads details are published in the EAHV (first version 1985). In addition a special handbook for pedestrian friendly road design is under preparation (another one, dealing with bicycle- friendly design (ERA) was published 1989). The absolute minimum width for sidewalks in unimportant server-roads is fixed to 1,50 and the regular minimum-width is fixed to 2,50 m. For streets with smaller sidewalks a mixed carriageway use by traffic calming is recommended. In some cases side walks have been broadened in combination with traffic calming measures. For example in Northrhine-Westfalia 1600 main arterial roads have been redesigned, many of them including specific measures for broader side walks. But over all the majority of side walks still is much narrower than recommended in the planning manuals (no systematical and official figures do indicate this, but from some local studies an estimation says, 80 % are under the relevant measure). Broad side walks and boulevards are an exception. In most cities the side walk width is reduced by regular or irregular side walk parking. In the years from 1975 to 1985 many side walks have been divided into a bicycle path and a half side walk. A change has happened over the last 10 years. Only in few exceptions now bicycle lanes are located on side walks. More often they are taken from the car lanes by reducing their number or width. Side walk parking in some (still exceptional) cases is reduced and taken back to the car lane. Some local authorities organise campaigns against side walk parking. But still Germany seems to be the European country with the most frequent side walk parking.

One financial factor influences badly the sidewalk width: the land lords and tenants have to pay for construction and renovation of side walks. This hinders them to ask for more walking space. On the other side on main arterial roads they do not pay for the car lanes, so there is little motivation to protest against oversized car lanes.

### **Integrated parking strategies - banning the side walk parking**

Most German towns have reacted to the increasing number of cars and the deficit of parking space by sharing side walks into two parts: a parking lane and a walking lane. This has reduced the walking comfort massively and has seduced many car drivers to park on side walks regularly and often illegally. The legal code has (as a reaction to pressure of the ADAC) introduced three different types of legal side walk parking. But since legal side walk parking has been established in most towns and areas, even illegal side walk parking has become most regular and is controlled very little. In theory a sufficient side walk width should be defined, unless side walk parking can be legalised. But in reality local authorities do not care much about this. Illegal parking on side walks is not charged very often, since police does not control illegal side walk parking. Northrhine-Westfalia tried to change this practice 10 years ago and started a campaign and a model program with 6 towns. On one side the program, which was accompanied by research, was relatively successful for some time, but on the other side no systematical work of the police followed.

The most efficient way of prevention are obstacles against parking (they are discussed controversially because of the cost and the change in the streetscape, but cars on the sidewalks don't look much lovelier) or a redesign of the car lanes, integrating a new parking lane with clear boundaries. The traffic calming in housing areas and business areas has brought a remarkable number of cases for this strategy. But since only 10-20% of all urban areas have traffic calming measures, side walk parking still is most common. The pedestrian association claims ever since to change the legal code and to quit the three side walk parking signals and to forbid side walk parking strictly.

### **Restrictive parking policy**

Over the last 40 years expanding parking facilities were seen as a most important topic on the local agendas and the building and planning laws defined maximum parking space provision as obligatory. Thus parking was a regular use of all streets, side walk parking was legalised rather everywhere and provision for expanding parking facilities were easily financed while public transport finance was becoming less attractive for local authorities. But after having learned that this strategy does not solve problems now new ideas are being discussed and strategies are realised. Many of them include a more frequent use of parking restrictions. The new strategies are not only important for the capacity questions. The spatial order of parking has as well great influence on the safety and comfort of walking and on the general development of modal split. High capacity of parking in centres, working places and housing areas leads to high car patronage. Parking on and along side walks restricts the space for pedestrians, prevents good visibility between pedestrians and drivers and disturbs the urban quality/liveability of streets. So much should be done about a new parking policy, which is more sensible about the problems of walking.

## **5. Competition of the weakest: cycle lanes on side walks**

The legal code forbids cycling on sidewalks except for children under 10 years age. But nevertheless German towns very often have tried from 1975-1985 to provide new cycle lanes on side walks by sharing their former width by a coloured lane. In that time promotion of cycling became a relevant topic of the political agenda and many towns competed by expanding the statistical length of their cycle track network. This practice has led to massive conflicts among cyclists and pedestrians and to specific accidents risks with crossing cars. Therefore the practice is changing now. The new legal code sets minimum standards for cycle lanes and recommends to withdraw unsafe cycle lanes. The new planning guide lines (RAR, EAHV) recommend cycle lanes in the carriage way, which can be established after narrowing the car lanes. These new elements have proved safe in many cases and now became a regular part of the planning practice. Cycle lanes can be established on side walks only when the relevant width can be provided for both pedestrians and cyclists. Illegal cycling on side walks has become very popular, after legal side walk cycling became the most frequent measure of bicycle promotion. In many cases people use the side walks for a short distance to avoid waiting at traffic lights or when they go from shop to shop in a shopping street. And it was very popular in one way streets to cycle against the forbidden direction. A change towards less side walk cycling might come after establishing more cycle lanes on car lanes and after the recent change in the legal code, which allows local authorities to give free way to most of the one way streets for cyclists.

## **6. Solving the crossing problem: renaissance for zebra crossings and new strategies for traffic lights**

### **Zebra crossings everywhere**

Germany had passed very restrictive regulations for zebra crossings after 1970, saying that zebra crossing should be an exception and not a regular element of each street crossing. In most German towns the number of zebra crossings was reduced massively. A change took place after the time of traffic calming in the end of the eighties. Some towns like Esslingen have introduced new zebras systematically as a basic element of traffic calming and promoting walking. And the results were positive in terms of safety and acceptance by pedestrians and car drivers. So now a more liberal practice starts in some towns with planners who really want to promote walking. In Northrhine-Westfalia a special rule was defined by the minister for transportation, to be more flexible with zebra crossings. But the majority of German towns still keeps the old practice going on, though some research results indicate that systematically established zebras are most efficient. Experiments have been made in Esslingen, Osnabrück, but much more frequent in Holland. The old RFGÜ claims a maximum number of cars and pedestrians per hour as necessary condition which makes zebras to an exception. The motive is, that planners expect car drivers not to accept more zebras and are afraid, the traffic flow could suffer. But research results indicate the contrary: a great number of zebras is better accepted, and the influence on traffic flows is very small. Systematical use of zebras indicates a higher priority for pedestrians, makes walking faster and safer.

### **Give more right and time to pedestrians at traffic lights**

In Germany for many years traffic lights were used only to guarantee a good traffic flow at busy crossings. So many of the former zebra crossings, which had been taken away (see above) have not been replaced by traffic lights. Only after forbidding zebra crossings for streets with four lanes and with higher speeds traffic lights were used more often to provide safe pedestrian crossing at busy main arterial roads. Though traffic lights are very expensive. Later experiments were made in connection with traffic calming and speed reduction: traffic lights were combined with a speed control and constant red signal, if no group of cars comes nearer. And sometimes special traffic lights are only activated after pedestrians pushed a button. All this has led to a greater number of new traffic lights mainly established for pedestrians, for example to provide shorter distances between signal crossing points, which would mean long detours for pedestrians.

Another type of traffic light with a push button function is seen very critical by pedestrian organisations: it leads to long waiting times and severe misunderstandings, because it reacts not promptly and in some cases does not offer green for pedestrians, though the car flow is interrupted. Pedestrians need some time to know what happens and then often start their crossing illegally and much too late, which leads to dangerous conflicts with the starting cars. This type of traffic light regulation has proved as very unsafe, but since it is said to increase car traffic capacities it is often used.

An innovative traffic light element, the scramble light, is used in some very rare exceptions (among others some examples in Cologne). It doubles the crossing chances for pedestrians and minimises their distances. But no town has started systematically to establish scramble lights like Japan has done.

In Germany crossing while the light is red is seen as a severe mistake. Therefore in Germany strict acceptance of red lights is seen as a very important too, campaigns are organized and many traffic lights have special texts, asking for good obedience in respect to the children. Police reacts massively against red-walkers. But at the same time planners in Germany very often accept very long waiting times (over 45 or even over 60 sec.), which produce a high rate of red-walkers.

A special problem is the German design of crossings with traffic lights. A combination of zebra and traffic light which is popular in other European countries is forbidden in Germany. The result is, that in the case of not working traffic lights (yellow blinking or blind traffic lights

In Germany most traffic lights have conflicts of pedestrians with right- or left-turning cars. In Aachen experiments have been made (influenced from Holland) to develop traffic lights without conflicts (no left- or right-turn when pedestrians have the right of way). They were successful, but this had not much influence on the local practice.

In Germany the pedestrians association wants a speed limit for all crossings with traffic lights (may be at 30 kmh). But official politics has not yet discussed this question. One reason is, that the federal minister opposes the proposals to introduce a general 30 kmh speed limit for local traffic.

**No more underpasses and bridges, which force people to unattractive behaviour**

In the 60s and 70s for the most busy main arterial roads often underpasses and sometimes bridges were established. Research has shown soon, that they are not well accepted by the pedestrians because of the detour distances and the poor design and environment quality (dark, stinky, unsafe). Now some towns (for example Aachen) have started to re-establish crossing facilities on the surface and in some cases to fill up the pedestrian tunnels.

### **Learning from England, Holland and France: many new roundabouts**

In Germany after first experiments in the 80ties traffic lights have been replaced by roundabouts at special locations, following the example of France, the UK and Holland. There are three main fields of relevance:

- roundabouts in the entrance areas of a town, where classified highways enter settled areas with neighbouring housing; in these cases they shall reduce speeds
- roundabouts in inner-urban crossings, which allow a special design (with trees, green, art, water etc.) and which increase the capacity and decrease waiting times
- small roundabouts as an element of traffic calming in housing areas.

All three types of roundabouts have been used in the last years, the total sum will be some 1000, but looking at the total number of crossings, they still are an exception.

Northrhine-Westphalia has organized a model program for more roundabouts in the late 80ties, which concentrated on the first two types and was concentrated on smaller towns. Local politicians and planners propose new roundabouts more frequently now.

Roundabouts need special facilities for pedestrians and cyclists. In most cases small roundabouts have only one car lane in the circle. Cycles are integrated in this lane. In some exceptions of large roundabouts special cycle lanes are led parallel to the car lane. But they must not lay in a longer distance, otherwise massive conflicts are concentrated on the crossing points. Pedestrian crossing should be made safe by zebras, eventually in combination with crossing islands, the crossing line should be located close to the circle.

### **7. Car free (housing) areas- some hope is being left**

While all traffic calming strategies try to somehow find a sort of compromise between car traffic and pedestrians, another strategy is more radical and more efficient: to ban the car from larger areas or even whole towns or regions. The discussion started with some special cases in hospital areas and health resort places. Planners tried to exclude car traffic there or at least to reduce it. In Bavaria a special program started funding and coordinating a group of 36 so called car free health resort places. The measures include pedestrian zones, traffic calming, parking restrictions and promotion of walking, cycling and public transport. Only few German towns have a systematic planning concept for pedestrianisation. Among these the outstanding examples are Freiburg, Hannover, Göttingen and to some extent Bonn, where a good concept still waits to be realised.

### **8. Public transportation policy- a desperate deficit of intense promotion by policy and planners**

The car has defined a new level of comfort for accessibility. People expect easy access to centres, housing areas and places of work without long walking distances. Public transportation systems on the contrary are faced with economical forces to reduce the network density and number of stops to save costs. Public transportation planners tend to overestimate the importance of high speed and to neglect the importance of short walking distances to and from stops. They do not think in an integrated public transport & walking system, though there are many plausible reasons for integrated thinking. Some small towns have successfully increased the number of bus stops massively (factor 6-10) and this has led to massive increases of passengers (400-800%) (examples are known from Switzerland, Austria and Germany).

### **9. Marketing, advertising, information:**

The automobile industry invests a tremendous amount of money into advertisement and marketing and into public awareness campaigns, which make politicians and planners decide car friendly. The car has important pressure groups in its background. In the last years public transport companies have started to do more about advertising. And national and local governments have supported campaigns for more cycle friendly planning in different countries. New pressure groups have campaigned successfully for the cycle. But walking still stands in the shadow of public interest and marketing and advertising activities.

Walking is often said to be a weak means of transportation, with very bad conditions and very high unsafety? Someone who walks for his ways is supposed to be a poor man. A free choice for walking with pleasure or walking as a very economical activity is supposed not to exist. Walking could be more attractive if its social and cultural context would change. This can be learned by cycling, which has become much more popular after its decline in the 60s and 70s. Or by the sport of jogging, which became popular as well, but didn't have much effect on the perception of walking. In Germany campaigns for promotion of pedestrians have no tradition. The only regular campaign concentrates on the school beginning times, when young children have to find their safe way to school. In this time regular advertisement is organised by ADAC, Verkehrswacht and police. Comparing with the massive efforts for bicycle promotion pedestrian promotion is not relevant. In the driving schools the behaviour of pedestrians is not studied extensively. In the media questions of pedestrian promotion do not find much interest.

German automobile industry does not reflect pedestrians safety in the car design. Though research and innovative design show a clear way: a soft car body can save thousands of lives, but designers do not accept soft car elements, they say its ugly and increases the wind exposure. And it will not be accepted by the market. One does not wonder that German car industry does not advertise with aspects of pedestrian safety at all.

In Germany pedestrian safety is not a national transportation policy issue, compared to other issues like seat belts or regulations for dangerous goods for lorries. That was different in the 70s, when the discussion about traffic calming was based much on traffic safety questions and concentrated on children and pedestrians safety.

But now pedestrians safety it is not a relevant local policy issue. The parking policy or the discussion about now street connections gets much higher interest. German cities do not compete with aspects of better pedestrian safety. The question of social safety (criminal statistics and crime prevention) gets much higher interest. There are no national or local public awareness campaigns, which make politicians and planners more sensible about pedestrians safety questions. Germany has no powerful national and local pressure groups concentrating on pedestrians safety questions. Fuss e.V. is a small organisation without much money. The ADFC and VCD are pressure groups with larger member numbers, but they discuss questions of all modes of transportation. Nevertheless they organise actions for pedestrian promotion from time to time, but not continuously. The insurance companies are not very active on the field of pedestrian promotion. Only in the 70s the HUK and its research agency were active to develop traffic calming strategies.