



Federal Ministry
of Transport, Building
and Housing

National Cycling Plan 2002-2012

Ride your bike!

Measures to Promote Cycling in Germany



A Federal Government Report

Imprint

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The importance of the bicycle as a healthy, environmentally-sound and socially acceptable form of transport is often underestimated. The National Cycling Plan 2002 to 2012, therefore, aims to highlight cycling opportunities within the framework of an integrated transport policy and, in a concerted way, to exploit this potential for development in a transport system that is oriented towards sustainability.

In presenting the National Cycling Plan, the Federal Government is emphasising its political and creative commitment to promoting cycling as part of sustainable transport development. The broad support issuing from the German parliament, the federal states, local authorities' representative groups and expert groups gives reason to anticipate that, within the ten year time-frame, the measures, proposals and schemes described in this document will significantly improve the basic conditions in favour of cycling. The task now is to have the details of this package checked, gradually implemented and further developed, through close collaboration and cooperation with local authorities, organisations, business and the general public. One thing, however, is clear - that within the framework of our federal system, the main responsibility for promoting cycling lies with the federal states and the local authorities.

The promotion of cycling is tied up in the complicated interaction of business, finance, taxation, transport, land management, health, environment and tourism policies. Against this backdrop, there can be no simple formula to promote cycling. Rather, the Federal Government is starting with a bundle of measures, broadly applied, that will involve different policy areas and which can be debated in intensive dialogue with the federal states and local authorities. This new direction is being supported by improved environmental awareness in our society, and a choice of transport system which is increasingly influenced by this awareness. The Federal Government assumes that the mature citizen will adopt a responsible approach when making choices concerning their mobility.

In its May 2000 report on measures to promote cycling (parliamentary report 14/3445) the Federal Government presented a comprehensive review of the status of cycling in the Federal Republic of Germany. This report formed the basis for the parliamentary Transport, Building and Housing committee's public hearing on 24th January 2001. Here the experts acknowledged the progress that had been made in promoting cycling, but at the same time indicated that the

bicycle's potential was only being partly exploited in terms of transport, environment, health and economic policy. Against this background, on 18th April 2002 the German parliament passed a resolution calling on the Federal Government to back a "cycle-friendly Germany" and to document it by presenting a National Cycling Plan.

The Federal Government believes that the promotion of cycling and the increased use of cycles cannot be regulated or forced by the state. Cycling policy requires persistence and continuity. This involves sensitising the general public in a suitable manner and, whether appropriate, helping to make cycling more popular by changing the general public's behaviour when selecting transport systems. So, alongside the commitment being made by the Federal Government, there needs to be active cooperation from all in order to enhance and improve the basic conditions for cycling. Only when the political, economic and social actors truly adopt the slogan "Ride your bike!" will we achieve success. The National Cycling Plan is particularly aimed at all members of the general public. The Federal Government also wishes to encourage the many private organisations and citizen's action groups to work more closely with national bodies and to find common solutions.

With this National Cycling Plan the Federal Government wishes to initiate a broad social debate over new directions and implementation strategies for the promotion of cycling, to recommend procedures and to contribute generally to a cycle-friendly climate on Germany's roads and in our urban and rural areas.

Federal Minister of Transport, Building and Housing



Summary of key points

Defining objectives and setting guidelines (Chapter 1)

1. The objective of the National Cycling Plan is to initiate new methods and implementation strategies for the promotion of cycling in Germany for the period 2002 to 2012, supply recommendations for action and, in general, to make a contribution towards creating a bicycle-friendly environment. The National Cycling Plan is aimed at all actors in politics, the economy and society but also to individual citizens as active road users. By presenting this plan, the Federal Government acknowledges its active role as a catalyst and moderator in the promotion of cycling.

2. The basic conditions for increased cycle usage will only be significantly enhanced and optimised if the measures to promote cycling are planned and implemented as an integrated system. In this context, transport policy-makers should give equal consideration to cycling. This is a task to be fulfilled jointly by the Federal Government, the federal states and the local authorities with the participation of all social groups. The Federal Government is prepared to make its contribution to the promotion of cycling within the framework of its constitutional powers. However it is indisputable that it is the federal states and local authorities that bear the main responsibility for promoting cycling. This reflects our federal system and the principle of subsidiarity.

3. The National Cycling Plan should help ensure that cycling's potential is better exploited than previously in Germany. Examples from neighbouring European countries show that this is possible. In the Netherlands, for example, cycling's share of all transport is around 27% throughout the country as a whole. So in the light of this example we should be striving for a significant increase in cycling in Germany over the next ten years. By the end of 2012, the cycle must, as a matter of course, be a component of a sustainable, integrated transport policy and be adequately included in all plans for transport, and for urban and regional development. In this connection, the Federal Government expects those responsible at the local and regional levels to tie the promotion of cycling to specific and - wherever reasonable and possible - to measurable objectives.

The benefits of cycling (Chapter 2)

4. Cycling offers a whole range of benefits: it provides mobility irrespective of age and income, it is conducive to health, cost-effective, environmentally friendly, quiet and does not require much space. An attractive range of cycling options contributes to improving Germany's status as a tourist location, particularly in structurally weak rural areas. Moreover, promoting cycling secures jobs in the cycle industry, in the retail trade and in the numerous cycle-related service areas, and thus helps to promote small and medium-sized businesses.

Summary 1: What the Federal Government is trying to achieve

General objectives:

- Increase the cycle traffic share in Germany by 2012.
- Promote cycling as part of a sustainable, integrated transport policy.
- Promote modern, socially acceptable and environmentally friendly local mobility in line with the mission statement "city of short distances".
- Improve road safety.

Specific measures:

- Doubling of the budget for building and maintaining cycle paths on federal highways in the 2002 federal budget.
- Optimise the legal framework.
- Campaign for improved road safety and a better transport climate, aimed at all road users (2001 road safety programme).

- Coordinate strategies for implementing the National Cycling Plan via the Federal Government/states "Cycling" joint working group.
- Monitor the implementation of the National Cycling Plan, and report on the progress of cycle promotion policy.
- Conduct research schemes (over € 1m.) and model projects.
- Review current domestic and international research into cycling in cities.
- Support the national "Best for bike" competition.
- Institutional promotion by the German Cyclists' Federation and road safety organisations.
- Establish an Internet platform open to the general public, to be known as the "National Cycling Plan Dialogue".

Using a cycle in everyday traffic: more pleasant, safer and more comfortable (Chapter 3)

5. Mobility is a key factor in urban areas. So the most important challenge facing an integrated transport policy is to secure local mobility in a way that is sensitive to resources and "town-friendly". Equal opportunities, acceptance and the networking of all transport systems enable mobile, sustainable and living cities. In terms of local mobility, the bicycle offers the widest radius of action and the greatest potential for convincing people to replace the private car with other means of transport. Moreover, for short distances, it can be used almost universally for all kinds of transport purposes.

6. The Federal Government is campaigning for the federal states and local authorities to recognise cycling as a means of transport on a par with motorised private transport and public transport, and thus to integrate it into their regional and local transport development plans. In this way, increasing cycling's share of the modal split can be tied in as a means of achieving more general social and political objectives such as climate protection and health care, and to this extent also makes a significant contribution within the framework of the National Sustainability Strategy.

7. In urban areas in particular, the pattern of housing development has proven disadvantageous to cycling. In this context, local planning law offers, in principle, the option of helping to create other types of urban development and regional planning. Compact, mixed-use, urban structures have been proven to offer favourable conditions for cycle use. Therefore the Federal Government calls upon towns to translate the "city of short distances" vision into specific political action. The Federal Government has created the legal basis for this with the 1998 amendment to the Regional Planning Act.

8. At the local level, objectives should be derived from a thorough analysis of the status quo. On the basis of these objectives, sets of measures to promote cycling should be formulated and prioritised as a basis for action. This must include deliberations on funding. Pilot projects show that a broad social consensus is absolutely vital if cycling is to be promoted. So the local authorities should involve all relevant social groups in the planning process from the very beginning.

9. The BYPAD ("Bicycle Policy Audit") quality management system is available to assist in efficient, cycling-related planning and decision-making at local level. BYPAD is the result of an EU research project. The Federal Ministry of Transport, Building and Housing recommends that local and regional authorities introduce BYPAD.

Cycle tourism: strengthening Germany's position (Chapter 4)

10. Cycle tourism has become an important factor for the attractiveness of Germany as a holiday destination. The annual turnover from cycle tourism is estimated at approx. € 5 bn.

11. The Federal Government welcomes the fact that the federal states and tourism bodies have agreed upon a cycle route network. This so-called D-network consists of twelve national cycle routes with an overall length of 10,200 kms. It covers the entire area of the Federal Republic, from the Alps to the coasts, and from the Rhine route to the Oder-Neisse cycle route. Approximately 95 % of the routes follow existing, regional cycle routes that are already signposted and linked to each other.

12. Despite the progress made, many of these long-distance cycle routes still lack attractive infrastructure along the way, services that are in line with the users' wishes, proper signs and appropriate marketing strategies. The Federal Government therefore urges the federal states to define the D-network as part of their state network of cycle routes and further improve its quality. The pub, restaurant and hotel trade and the other partners in the tourism industry are expected to launch a quality initiative in favour of cycle tourism.

13. In order to improve the marketing of cycle tourism, a national coordination body is required. Government expects the federal states, tourism associations and the German Cyclists' Federation to take the decisions required to implement this project.

Linking transport systems: extending cycle use opportunities (Chapter 5)

14. Whether we talk about cycle paths, mandatory or advisory cycle lanes, roads reserved for cycling, 30 km/h speed limit zones or any other route suitable for cycling - the important thing is that all cycle paths should together form a linked-up network.

15. As important as cycle paths are cycle parking facilities, signs and, above all, cycle-related services - standards that have long been commonly accepted for the car. These services include, for instance, cycle storage facilities at interchanges and stations, the option for passengers to take cycles with them on public transport (both local and long-distance), a fast, competent repair service including the opportunity to rent a cycle to replace the one being repaired, company cycles, cycle couriers and cycle taxis, cycle wash facilities and straightforward cycle rentals. All this can be supplemented by financial incentives for the retail trade to reimburse parking fees that have to be paid for secure cycle facilities with security staff and, last but not least, by public relations work promoting "cycling as a system". Full use can only be made of the mobility potential offered by the cycle if, on the one hand, infrastructure, the regulatory framework, services and user motivation, and, on the other hand, information for the decision-makers (planners, builders, etc.) are considered to be equal parts of a comprehensive system. The motto is "cycling as a system".

16. Specific requirements need to be fulfilled with regard to the various target groups (people on their way to/from schools and universities, to/from their jobs, to/from the shops and those cycling for recreational purposes): the range of promotional measures extends from mobility education in schools via cycle stand regulations to a competition called "Cycle-friendly employer".

17. With the introduction of commuter tax breaks that are not linked to the means of transport used, the Federal Government has improved the basic conditions for environmentally-friendly cycling. In terms of tax relief, the new system creates the same conditions of competition for all means of transport.

Efficient coordination of cycle planning and promotion (Chapter 6)

18. Effective cooperation among the various levels and different actors is the basic precondition of an efficient system of cycling promotion within the context of the National Cycling Plan. Integrating the various levels and accommodating them in a future-oriented overall strategy is one of the most important, but also one of the most difficult, tasks. Here, the federal states and local authorities have to accept particular responsibility. The challenges involved in coordinating cycling plans efficiently within and among the individual levels include, for instance, effective information transfer and more transparency and efficiency in the financial promotion of cycling.

19. The Federal Government believes that the experience gained in state-level campaigns like the "Cycle-Friendly Cities" working group in North Rhine-Westphalia or the "Bavarian Network for Cyclists", and in the formation of the "Cycle-Friendly City" interest group in Dessau (Saxony-Anhalt) and the "Cycling" working group in Erfurt (Thuringia) should be publicised more vigorously, and that the possibility of using them in other federal states should be studied. In order to simplify the decision-making process, responsibilities should, as in Rhineland-Palatinate, be pooled within state authorities or subordinate authorities. Thus, local authorities will have a single, central contact point when they want to discuss issues relating to the promotion of cycling. The appointment of cycling officers in local administrations will also help to pool resources. Such organisational structures help to reduce red tape considerably and improve the efficiency of planning talks.

20. The Federal Government, too, is prepared to use the opportunities it has for more efficient control and coordination. For this reason, the Federal Ministry of Transport, Building and Housing has convened the "Cycling" joint working group of the Federal Government and the federal states which, with the involvement of relevant organisations and experts, aims to promote information exchange and seeks to function as a permanent engine for the promotion of cycling. The tasks to be carried out by the joint working group are described in Summary 2.

Summary 2: Main tasks of the Federal Government/states "Cycling" joint working group 2002 to 2012

- Implementation strategies, monitor and assess the National Cycling Plan.
- Coordinate measures to promote cycling (e.g. quality management).
- Optimise and harmonise the legal framework to bring more equality.
- Funding issues.
- Produce a funding guide which describes the available funding options.
- Exchange good examples, including effective PR strategies (e.g. reports, papers, image-boosting campaigns).
- Improve the exchange of research results, identify research needs.
- Conduct expert hearings and workshops.

Funding cycling infrastructure: doubling of the federal budget (Chapter 7)

21. In the 2002 Federal Budget, € 100 million are earmarked for the construction and maintenance of cycleways along federal roads. This represents a doubling of investment funds as compared to previous years. Thus, within the framework of its competence, the Federal Government is making a considerable contribution to improving cycle networks and cycle route links. Based on the system of delegation of powers for the federal trunk roads to the federal states, it is the states that determine priorities and how to fund individual cycle paths for whose construction the Federal Government is responsible. In principle, the federal states are able to use the funds in a flexible manner so that alternative, more attractive routings can also be taken into consideration.

22. The fact that federal investment has been doubled should be an incentive for other bodies responsible for the construction of infrastructure to similarly promote cycling in their own sphere of competence. This applies in particular to urban areas where cycling is particularly important.

23. Within the framework of the Local Authority Transport Infrastructure Financing Act (GVFG), the Federal Government uses funds from the mineral oil tax revenue to promote investment in the improvement of transport infrastructure in municipalities. The overall sum is around € 1.68 billion per year. Although cycle tracks are not explicitly referred to in the Act as infrastructure eligible for funding, the construction or

maintenance of cycling infrastructure is nevertheless permissible. Cycling infrastructure includes cycle paths, signs, traffic signals and bicycle parking facilities at interchanges with public transport. Funds from the Act can even be used for separate cycle tracks if the regional authorities are responsible for the construction of transport infrastructure eligible for funding. The federal states have the sole competence to decide on the distribution of funds under the above-mentioned Act.

24. Up to 50% of the cost of measures to promote cycling can also be financed from the European Regional Development Fund within the framework of the EU's Interreg III Community Initiative, provided they are projects for transnational or cross-border cooperation of municipalities and regions from various countries.

Optimising the legal framework: simplifying and setting new priorities (Chapter 8)

25. The cycle-related amendments to the German road traffic regulations effected in 1997 and 2001 were important steps towards facilitating cycling and improving road safety. The public hearing of the Transport, Building and Housing Committee of the German parliament on 24 January 2001 showed that further improvements are both possible and necessary. Before the end of this year, the Federal Ministry of Transport, Building and Housing will present the new amendments to the German road traffic regulations (StVO).

26. While motor vehicles have to comply with comprehensive provisions in terms of road safety when they are registered, bicycles and bicycle trailers only have to fulfil very general requirements as to their design and condition. By an amendment to the German Road Traffic Registration Regulations (StVZO) to be brought about before the end of this year, the provisions on the design/condition of bicycles and bicycle trailers will, in the interests of road safety, be supplemented and put into more concrete terms.

27. Apart from the amendments to the StVO and the StVZO, the Federal Ministry of Transport, Building and Housing, with the participation of the federal states and experts, also intends to review other relevant provisions which have a direct or indirect impact on the parameters for the use of bicycles or on the promotion of cycling.



Measures to increase safety (Chapter 9)

28. "A Programme for Improving Road Safety" published by the Federal Ministry of Transport, Building and Housing in February 2001 aims at raising public awareness, primarily in respect of road safety for cyclists and pedestrians. The programme includes appeals to all road users concerning their behaviour and sense of responsibility. Moreover, the Federal Ministry of Transport, Building and Housing is campaigning for cyclists to wear helmets.

29. The proper functioning of bicycles is indispensable for safe and accident-free cycling. The technical safety of cycles and cycle trailers should always be in keeping with the state of the art. Moreover, safety requirements to be met by other means of transport, in particular by cars and lorries, must be improved and the corresponding provisions must be adapted.

30. Apart from the regulatory framework, a high quality infrastructure is another decisive factor for the safety of cyclists. To this end, a number of recommendations and leaflets have been drawn up on behalf of the Federal Ministry of Transport, Building and Housing to be used by the local authorities.

Combining research and project activities (Chapter 10)

31. Numerous research projects have been funded with Federal Government money over the past years. In order to provide policymakers, planners and scientists with a clear and concise overview of the general context, the approaches and effects of measures to promote cycling, the Federal Ministry of Transport, Building and Housing will in 2003 present an updated evaluation of national and international research results on cycling in the city.

32. Within the framework of the "Mobility and Transport" Programme adopted by the Federal Cabinet in May 2000, funds amounting to € 1 million will be provided up to 2004 in order to support various research initiatives on cycling.

Invitation to participate in a public dialogue (Chapter 11)

33. The National Cycling Plan is the result of many discussions with the federal states, the representatives of local authorities' associations, the German Cyclists' Federation (ADFC), the German Sustainable Transport Association (VCD), the German Road Safety Council (DVR), the German Road Safety Watchdog (DVW), the Association of Two-Wheeler Manufacturers (ZIV) and scientific organisations. Moreover, a project group assisted the Federal Ministry of Transport, Building and Housing with the drawing up of the National Cycling Plan. However, the various government levels and organised interest groups are not the only ones responsible for the promotion of cycling. We will be unable to progress in the next ten years unless all the actors in politics, industry and society adopt and promote the slogan "Ride your bike!".

34. Therefore, the Federal Government invites the general public to participate in the discussion about this first National Cycling Plan of the Federal Republic of Germany. For this purpose, the Federal Ministry of Transport, Building and Housing is to set up an Internet platform called the "National Cycling Plan Dialogue".

35. The "Second report on the status of cycling in Germany", to be presented to the German parliament in 2005 by the Federal Government, will also serve to review the progress made in implementing the National Cycling Plan.



1. Defining objectives and setting guidelines

In recent years, the bicycle has enjoyed a noticeable resurgence. This applies both to its use as an everyday form of transport and as a recreational or holiday activity. Urban and rural authorities are promoting cycling because it enables mobility and improves the quality of the air and of life in general. Organisations and businesses are supporting these activities within the framework of work-based mobility management. Cycle tourism is one of our economy's growth sectors. An attractive range of cycling options helps improve Germany's status as a tourist destination. Moreover, the predominantly small and medium-sized companies in the cycle industry and the retail trade contribute to growth and employment.

Despite all the effort and progress that has been made, the status of the bicycle needs to be further upgraded so that it becomes a recognised, widely-used form of transport with equal rights. The Federal Government, the federal states and the local authorities' associations are agreed on this. The aim is to promote cycling for everyday, recreational and holiday use as a sensible alternative to other forms of transport to such a degree that the bike is used more frequently than before. This will relieve the pressure on our inner cities and make an effective contribution to climate protection. It is also good fun, healthy and cheap. One core component of cycle promotion activities has to be a constant improvement in the level of cyclists' safety. It is particularly important that children, teenagers and the elderly are able to cycle safely around our streets. To accomplish this we need a cycle-friendly climate in Germany.

The basic conditions for increased cycle usage will only be significantly enhanced and optimised if the measures to promote cycling as an integrated system (coordinated infrastructure, links to other transport systems, specific service provisions, information and communication) are planned and implemented. The Federal government, states and municipalities can only resolve this challenge with the involvement of all the social agencies. So the bicycle should

- as a matter of course be considered a part of an integrated transport policy that is committed to the vision of sustainable mobility, and
- be awarded due consideration within all transport, urban development and regional planning.

Currently around 12% of all trips are made by bike in Germany. This equates to an average of about 300 kms. per year per person. The share of cycle traffic in cycle-friendly German towns such as Bremen, Münster and Borken is now up to

around 40%, while in major cities like Berlin and Stuttgart it is between 5 and 10%. Despite the fact that the base conditions vary in our urban and rural areas, it is clear that the potential for cycling, a form of transport that particularly offers advantages over short distances of up to 5 kms., is far from fulfilled. This is also illustrated by examples from neighbouring European countries who are setting the standards. The national cycle traffic in the Netherlands, for example, is around 27%, and it is as high as 40% in some towns. So in the light of this example we should be striving for a significant increase in cycling in Germany over the next ten years.

In this connection, the Federal Government expects from the actors responsible at local and regional level that the promotion of cycling is associated with specific and - where it makes sense and is possible - quantifiable objectives. These objectives should embrace the desired qualities of cycle use as a part of the overall transport system. When defining short- and medium-term goals, the probability of achieving them should be realistically estimated from the very beginning, and the positive overall economic repercussions need to be taken into account. Clearly formulated objectives will help give cycle promotion its own political significance. They will encourage the national and social actors "on the spot" to agree upon the direction to be adopted and the measures to be taken, they will help improve transparency, and they will enable progress to be properly monitored.



2. Cycling in Germany: analysis, benefits and prospects

2.1 Promoting cycling: a vital component of a sustainable, integrated transport policy

Transport development in Germany is characterised, at every geographical level, by a continued rise in motorised traffic. The Federal Government's 2000 transport report shows that by the year 2015, private transport will have increased by around 20% and freight traffic by approx. 64% (base year 1997). In the regional context, the reciprocal effects of transport development and housing patterns - characterised by suburbanisation and reliance on the private car due to the fact that the different parts of people's lives are increasingly separated geographically - particularly contribute to the growth in traffic. Changed behaviour and consumption patterns, along with recreational habits that require substantial travel, also play a large part in helping to increase traffic volumes.

Regionally and locally, the growth in traffic and the consequent need for expansion leads, in many cases, to the destruction of valued natural and scenic sites. From a national and global perspective, along with the consumption of energy and other resources, the main issue is global climate change caused by CO₂ emissions which are largely attributable to motor traffic.

In this context, the positive significance of the bicycle has long been undervalued. Today we know that: the bicycle, as a part of a modern, integrated transport system, contributes to sustainable and town-friendly mobility. Cycling contributes noticeably to the performance of the entire transport system and to a reduced traffic burden, particularly in densely occupied areas where motor traffic has a major impact through its demand for space, its noise and its pollution. Moreover, since cycling can have a significant impact with little funding in comparison to motorised traffic, local authorities can make cost savings in the field of transport if they plan properly. Even today, towns like Bremen, Cottbus, Erlangen, Freiburg, Münster and Troisdorf have a cycle traffic share of 17 to 40 %. In terms of environmentally friendly, short distance transport there is, in towns in particular, no sensible alternative to the bicycle.

Cycling has significantly more potential than its share of overall personal transport currently indicates, and this relates to both the number of trips and to the total distance travelled. The national traffic share for this mode of transport can be significantly raised from the current approx. 12 % if there is a major shift in ways of thinking. The Netherlands, where cycling is

regarded as a self-contained mode of transport, stands out as a model, with a current share of 27 %.

About 60 % of all cycle trips are commuter-type journeys, of which the greatest proportion, with 27%, are journeys to and from educational establishments. So cycling has, in future, to be given far more status in town and regional traffic planning.

Major changes in favour of the bicycle can result from displacing short trips made by private car, for around half of all car journeys are shorter than 6 kms., while more than 40 % are less than 5 kms. and over a quarter are under 3 kms. It has been estimated that up to 30 % of car trips in urban areas could be displaced to cycling (see Summary 3). Creating a pleasant network of routes could also help cycling to significantly reduce the impact of the private car created by leisure and short-break traffic in rural areas.

The bicycle is a means of transport for all parts of society. It enables all to be mobile in a socially acceptable and balanced way.

Transport policy is increasingly responsible for steering a course to counter negative impacts and influencing transport development to move more towards sustainability. In the transport context, sustainability means that ideas and plans are aligned more forcefully towards economic, ecological and social requirements.

Complex strategies are required of transport planning - strategies based not only on traffic avoidance but on getting people to alter their choice of transport system by vigorously promoting bus, rail, cycle and pedestrian mobility. Cycling can make a major contribution in this respect, to local traffic in towns and municipalities, and also at regional level.

Within the framework of the National Sustainability Strategy, the Federal Government is adopting this approach. This involves achieving a high degree of mobility with traffic operating as efficiently as possible, and reducing the impact currently caused by traffic. Implementing the four basic strategies below will be at the heart of any yet-to-be-designed, future-proof transport system of this type:

- Exploit the potential for impact reduction by managing housing development and increasing the efficiency of the transport system (traffic avoidance).
- Increase the share of more environmentally-friendly transport systems (traffic displacement),
- Use synergistic effects and improved, networked planning (integration),
- Greater use of innovative technologies for reducing traffic-related impacts on the environment at source (technology).

In this sort of system, cycling is regarded as an equally valued form of transport. However, there will only be a switch from the car to the bike in the degree hoped for if the cycling infrastructure is made so attractive that cyclists can reach their destinations quickly, safely and comfortably, and if a positive attitude is created towards cycling.

Table 1: Inhabitant-weighted average of the volume-related modal split by purpose of journey and town size category 1998 ¹

Inhabitant category	Modal Split (%)			
	Pub. Trans.	Car	On foot	Bike
Total trips in the town				
50,000 to 100,000	10	52	23	15
100,000 to 200,000	14	48	26	12
200,000 to 500,000	16	45	25	14
over 500,000	21	44	26	9
To/from work				
50,000 to 100,000	10	64	13	13
100,000 to 200,000	15	60	13	12
200,000 to 500,000	22	57	9	12
over 500,000	26	56	12	6
To/from place of education				
50,000 to 100,000	20	25	32	23
100,000 to 200,000	26	22	30	22
200,000 to 500,000	31	22	27	20
over 500,000	40	20	28	12
To/from shops				
50,000 to 100,000	10	51	26	13
100,000 to 200,000	14	39	33	14
200,000 to 500,000	17	34	34	15
over 500,000	18	35	40	7
To/from leisure activity				
50,000 to 100,000	8	59	18	15
100,000 to 200,000	10	48	26	16
200,000 to 500,000	16	43	24	17
over 500,000	19	44	29	8

Source: Prognos AG, The significance of public personal transport in Germany, March 2001.

2.2 Improving the quality of life in towns and municipalities

In many towns and municipalities, the residents are suffering from the impact of the growth in motor traffic. Despite improved automobile technology, noise and exhaust fumes continue to pose a problem due to the increase in traffic. Motor traffic also consumes a great deal of space, whether in motion or stationary. Many urban roads are completely dominated by motor traffic so that there is hardly any space left for other types of use (e.g. places for residents and passers-by to relax, children's play areas). This seriously affects the general residential situation and quality of life in many roads that suffer badly from traffic, and also in residential streets. These traffic-related problems and deficiencies in the quality of residential areas are one of the main reasons that many people, particularly young families with children, move away from urban areas to surrounding areas and thus sustain the process of suburbanisation.

Urban revitalisation

Promoting cycling with determination and vigour can effectively counteract these developments at federal state and local authority level. Cycle-friendly inner-cities help improve the quality of life by reducing pollution and noise, and through changes to street design. This has positive knock-on effects for revitalising towns. When towns are pleasant to both own property in and actively inhabit, the trend to fleeing the city can be halted. In this way, a cycle-friendly transport policy supports the vision of bringing life to a "city of short distances" with a good quality of life in central areas.



Extensive land use by parked vehicles affects the residential environment.

Less demand on space

If towns reduce traffic, they can free up a corresponding amount of traffic space that is needed for other purposes, such as children's play areas or street design elements. For the places concerned, this means a major urban design upgrade which tends to bring with it additional private investment for modernising and renewing the housing stock.

Cycling's advantage, from both the environmental and urban design viewpoints, is the relatively little space it requires - around 5 to 10 times less than the private car. In order to be able to fully exploit this advantage, there is a need for the long-term, systematic inclusion of cycling in transport policy, in regional planning processes and in town planning. This is vital if expanded or redeveloped traffic spaces are to be avoided and if the benefits of the little space needed for cycling are to be reaped. Also, if streets are redesigned in a cycle-friendly manner (e.g. by introducing green areas), the urban landscape will be made more attractive and more space will be available for other uses (e.g. for pedestrians and terrace cafes), which will improve the quality of life in our towns.

Land and housing policy: the motto is "city of short distances"

These days it is often clear that the pattern of housing development has evolved contrary to cycling's interests, particularly in densely occupied areas. In Germany the process of suburbanisation has led to loosely developed residential areas with no suitable supply infrastructure, to shopping malls built on "green field" sites that are geared to be only accessible by private car, and to catering establishments built at a distance from where people live.

In principle, local authority planning law offers municipalities the option of developing mixed settlement patterns, although the supporting regulations could be stronger. However, in practice there exist numerous "negative" incentives which favour further suburbanisation. Competition between the local authorities for monies from income tax and business tax prevent, or at least hamper, housing development being coordinated at a regional level. Many incentives influence the decisions that private households and industry make over where to locate, which run counter to compact housing patterns (e.g. falls in the price of land, with the lowest prices being in the small municipalities in the key empty spaces surrounding towns).

One should contrast this with the regional development policy objective "city of short distances" that was drawn up in the 1990s at the core of urban design policy with the cooperation of the federal states. Against this background, urban design guidelines need to be developed in such a way that the cycle is also able to display its great strengths as a town-friendly means of transport in the context of local mobility. Compact, mixed-use, urban structures have been proven to offer favourable conditions for cycling and walking.

The Federal Government can only establish the framework here, as it did with the amendment to the Regional Planning Act (ROG) in 1998². However, the actual implementation and integration of these regional development guidelines occurs at the level of state development and regional planning, and at local authority level via urban development plans.



Cyclists and pedestrians: measures promoting a city of short distances.

Within the "Experimental housing and urban construction" research programme, the "Urban construction and transport" and "Mixed-use" research areas have indicated what the local authorities' practical options are and which management tools can contribute to a "sparse motor traffic" pattern of settlement (incl. by changing the way inner cities are used, and by coordinated urban expansion schemes). However, using the cycle to measure urban development, as is already successfully done in some towns in the Netherlands, (e.g. Groningen, where half of all trips are made by bike), is not yet sufficiently rooted in local authorities' development strategies. This is also linked to the fact that most larger apartment blocks and transport systems provide no cycle stands, or those that do exist are not easy to access, or are insecure.

2.3 Contribution to environmental protection

Alongside walking, cycling is the most environmentally friendly form of movement. Replacing car trips by cycle trips reduces air pollutants such as the ozone precursors nitrogen oxides and hydrocarbons, and carbon dioxide (CO₂) and the use of finite energy resources. Cycling is also quiet and takes up little space.

Noise reduction

The impact of traffic noise has an increasingly detrimental affect on the quality of many people's lives. On many urban main roads, noise pollution is already at a level where it is damaging to health.

The degree to which noise is reduced by promoting cycling is not solely determined by the number of car trips that have been avoided. A vigorous cycling policy also requires a shift in thinking in all areas of transport policy. The road traffic regulations provide those responsible in any given location with options which have often already been used, such as widespread traffic calming, rationing the parking space in central areas and the introduction of 30 kph speed limits within the parameters of an integrated urban transport scheme.

Climate protection

The Federal Government has set itself the goal of reducing CO₂ emissions by 25 % between 1990 and 2005. While overall emissions have indeed fallen, traffic-related CO₂ emissions rose by 12.8 % between 1990 and 2000. The traffic sector is the only causal area in Germany whose CO₂ emissions did not fall during the 1990s, but in fact rose due to an increase in the total distance covered by traffic. Turning this trend around is vital if the national objective for CO₂ reduction is to be achieved. Therefore, in the transport section of its October 2000 climate protection programme, the Federal Government set the objective of reducing traffic-related CO₂ emissions by 15 to 20 million tons by 2005 from the 1998 base. On a positive note: according to figures from the oil industry association, transport-driven fuel consumption had in 2000 already fallen by 2.2 % compared to the previous year, while in 2001 it fell by another 1.8 %.

Increasing cycle traffic share would make a major contribution to this objective. Cycling's potential for reducing emissions is frequently underestimated because the bike is primarily a means of moving over short distances. However, around half of all private car journeys are also

made over distances of less than 6 kms, which is a distance that generally offers no time advantage to the car user. Yet it is over these short distances that vehicle emissions are particularly high, and fuel consumption is also relatively high when an engine is cold. For these reasons, the abatement effect of displacing car journeys to the cycle is also particularly high with regard to CO₂ emissions. A multitude of different scenarios exist, based on studies in pilot towns and on estimations, to measure the potential for reducing CO₂ and air pollutants (for details, see Summary 3: Cycling and the potential for reducing CO₂ and air pollutants).

2.4 Promoting good health

Coronary thrombosis, high blood pressure, cholesterol, diabetes, obesity - the list of diseases of civilisation is long. Illness statistics are headed by illnesses that might be at least partly attributed to lack of exercise.

Regular exercise, i.e. at least half an hour on most days, considerably reduces the risk of cardiovascular illnesses. The most suitable forms of movement are endurance sports such as cycling, jogging, swimming, etc., although lengthy walks also bring health benefits. A study by the Robert Koch Institute³ shows that increased walking or cycling is associated, particularly in older people, with improvements in blood pressure, heart rate and body weight, and thus have a positive effect on cardiovascular health. One of the advantages of cycling is that, after the bike is paid for, there are no other running costs such as club subscriptions or memberships to a fitness centre.

With regard to the younger generation, the lack of exercise and tendency to suffer from weight problems are issues that are increasingly apparent and important. Even if these themes have not been satisfactorily documented by representative, national cross-section studies, clear indications emerge from, for example, research at school gates. Scientific publications show that time spent indoors (increasingly frequent and lasting longer), physically passive recreational activities and unhealthy nutritional habits are mutually strengthening factors. Children need plenty of space in which to exercise and experience things if they are to develop in a way which is healthy in both body and mind. This cannot be achieved without the social contacts and outdoor activities that are required for this. In this context, safe cycling would be an important component in children's and teenagers' individual mobility and in their daily exercise quota.

Summary 3: Cycling and the potential for reducing CO₂ and air pollutants

Different scenarios exist to measure the potential for reducing CO₂ and air pollutants, based on studies in pilot towns and theoretical estimates made by the Federal Environmental Agency (UBA) on the basis of kilometres travelled by motor vehicles and cycles. Two approaches are described below.

Approach 1: An analysis based on a real case in the town of Troisdorf

In Germany it has already been demonstrated in several towns, such as Troisdorf (near Cologne), Münster, Freiburg and Erlangen, that cycling can be promoted and its share of journeys significantly increased if well-directed actions are taken. However, progress cannot often be quantified because the necessary research is very involved. In Troisdorf, for example, before and after studies were carried out that show that it was possible, inside eight years, to increase cycle usage by a third (+ 33%) and to reduce the number of car trips by 10 %.⁴ An extrapolation of the CO₂ reductions achieved per inhabitant in Troisdorf to the entire population of Germany (82 million inhabitants) gives a potential reduction of around 3 million tons of CO₂ per year. This equates to 15 to 20 % of the traffic-related CO₂ reduction required by the national climate protection programme. Follow-up studies show that, even in Troisdorf, cycling's potential has still not been fully exploited. Of particular interest for climate protection is the fact that - cycling's share of trips made in the 5 to 10 kms distance range more than tripled, rising from 5 to 16 %.

Approach 2: Theoretical estimates based on length of trip statistics

Theoretical estimates based on traffic behaviour studies indicate the range of the possible potential for reductions. In order to be able to quantitatively estimate reduced emissions of CO₂ and air pollutants, one first needs to know the displacement potential from motorised private transport (MIV) to the bicycle in relation to the distance travelled and the number of journeys. Then the TREMOD model's emission factors can be used to calculate the CO₂ and pollutant reductions based on the car kilometres and car trips that have been saved. One problem is estimating the displacement potential, since no safe procedure has yet been developed to do this, and there is very little suitable data. On the basis of the data that is available, the UBA built four hypothetical displacement potential levels. Only the potential for displacement from car to cycle was taken into account, meaning that the additional effects of better links between cycling and public transport (ÖPNV) or rail could not be included in the calculations.

The four levels of displacement potential were based on the following assumptions:

Potential car-W6⁵:

- Displacement of 30 % of former car trips⁶;
- Initial basis is all previous car journeys of up to 6 kms in distance.

Potential car-W6 encompasses the distance range within which car use often proves to have no time advantage and within which approx. 95 % of all cycle trips currently lie.

Potential car-W10:

- Displacement of 30 % of former car trips;
- Initial basis is all previous car journeys of up to 10 kms in distance.

Potential car-W10 constitutes an extension of the distance range up to 10 kms. Displacements of over 6 kms require a higher standard of cycling infrastructure. Towns that make a particular effort to promote cycling show that a cycle-friendly transport policy leads to increased cycle use over longer distances too.

Potential cycle+32⁷:

- Increase in trips by bike by 32% in comparison to previous cycle use through substituting car journeys;
- Initial basis is the previous number of trips by bike, irrespective of distance.

The potential cycle+32 is based on a Danish study that was carried out in two medium-sized towns with a current cycle share already standing at 22 %. It records the displacement potential that can be detected with the methods used (surveys, time budgets). It thus provides a sort of base potential that could, in all probability, be realised if there were a well-directed promotion of cycling.

Summary 3: Cycling and the potential for reducing CO₂ and air pollutants

Potential cycle+102⁸:

- Increase in trips by bike by 102 % in comparison to previous cycle use through substituting car journeys;
- Initial basis is all the previous number of trips by bike, irrespective of distance.

The potential cycle+102 is described as an extended potential in the base Danish studies, and exists when there is an assumption that the switch from car to cycle occurs under what are actually less than ideal conditions. The estimate of possible emission reductions was initially based on MIV and cycle journey length distributions in Braunschweig (1993 census), Heidelberg (1988 census)⁹ and Wolfsburg (1988 census)¹⁰, which had been done at a relatively high resolution, having a class size of 1 km. For each distance class (0 to 1 km; 1 to 2 kms, etc.), the kilometres travelled and car starts that had been substituted based on the assumed displacements were calculated, and the emission factors (car fleet as at 2000) and population figures were used to ascertain the specific pollution reductions per inhabitant. The median values from the three towns' results were used to extrapolate to the entire German Federal Republic.

Due to the extremely small amount of base data, the calculations only represent rough estimates and do not permit, for example, any differentiation between types of town or land.

In order to test the results' plausibility, the median cycle distances travelled (per year and inhabitant) and the modal split changes (with Braunschweig as the example) that issued from the assumed displacements were compared with the ratios in the Netherlands or Denmark and with the displacements achieved in Troisdorf.

The assumed displacements lead to a reduction in the distances travelled by MIV of between 6 and 11 %. The CO₂ emission reductions range from just under 4 million tons/year to as much as 13 million tons/year. This equates to between 20 and 86 % of the traffic-related CO₂ reductions required by the national climate protection programme and savings of between 4 and 12 % of annual MIV CO₂ emissions (based on 2001).

The model calculations support the supposition that cycle promotion can make a major contribution towards achieving the Federal Government's objective for climate protection in the transport sector.

Table 2 summarises the model assumptions and the absolute CO₂ savings that result, along with the cycle distances travelled per year and inhabitant once cycle usage is increased. The average distance that each German person travels by cycle is currently around 300 kms per year. If there were to be a switch from car to cycle in line with the assumptions, this figure would increase by a factor of three or four, and thus reach the level of the Netherlands, where everybody cycles an average of 1000 kms per year. Actual changes in distance travelled are heavily dependent on housing patterns. Thus in Troisdorf the one-third increase in the number of cycle trips made (as in potential cycle+32) was associated with an increase in the distance cycled from 370 kms to 540 kms.

Diagram 1 shows the effects of displacement on the modal split in Braunschweig. The assumed displacements lead to a maximum of a doubling of the modal split share in comparison with the original 14 % modal split share in the number of trips. Towns like Münster or Delft (Netherlands), which have cycle shares of over 30 %, show that further increases can be achieved.

A comparison of potentials car-W10 and cycle+102 clearly shows how important it is to take distances travelled into account when estimating CO₂ savings. The high modal split of potential cycle+102 is the result of the doubling of the number of trips made by bike in the individual distance classes, so that the number of short journeys, in particular, rose very sharply. Potential car-W10, in contrast, is based on the number of car trips that can be saved, and these are, on average, longer than trips by bike.

Table 2: Possible displacement potential and the resulting CO₂ savings and annual distances travelled by cycle

Potential	Assumed displacement	CO ₂ savings [m. t/year]	Resulting distance cycled [kms/year & inhabitant]
Car-W6	Car trips up to 6 kms drop by 30%	7.48	998
Car-W10	Car trips up to 10 kms drop by 30%	13.45	1320
Cycle+32	Cycle trips rise by 32%	3.98	824
Cycle+102	Cycle trips rise by 102%	9.75	1071

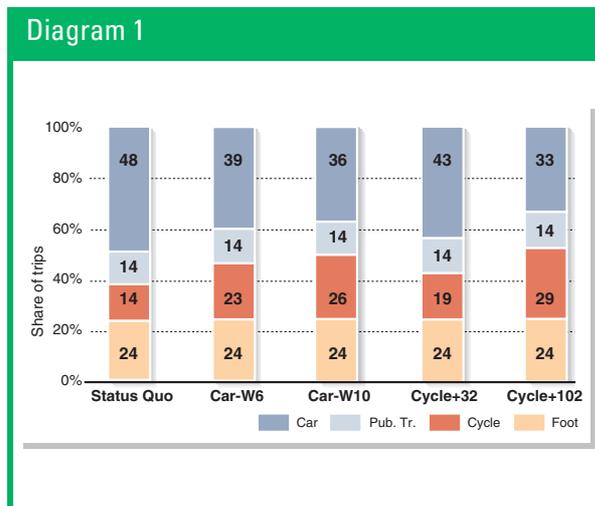
It is clear that the assumed displacements lead to results for which there are already practical examples both in our country and in others. Significant CO₂ savings can be achieved by promoting cycle use effectively. Potential cycle+32 can be made the minimum goal of a national cycling plan, since this level of savings has already been achieved, e.g. in pilot towns.

With potentials car-W6, cycle+32 and cycle+102, the distances cycled that result from the assumed displacements achieve Danish (958 kms/year) and Dutch (1019 kms/year) levels. Although distances cycled in those countries are already 3 to 3.5 times greater than in Germany, there is believed to be further potential for cycling there, too. Thus Denmark has set itself the objective of displacing around 4% of car distance travelled (compared to 1993) to the bicycle by 2005. That equates to a rise in what is already a vigorous cycling sector of about 33 %. This shows that even the car-W10 displacement potential, while being an ambitious goal, is indeed achievable.

Table 3: Range of decrease in kms travelled and the resulting reductions in pollution through significant displacements from car to cycling (in %) (based on emission factors for the 2000 car fleet)

Parameter	Minimum (Potential Cycle+32)	Maximum (Potential Car-W10)
MIV distance travelled	5.7	10.6
Benzene	10.3	15.7
Hydrocarbons (HC)	12.0	17.7
Carbon monoxide (CO)	10.8	16.3
Nitrogen oxides (NO _x)	7.2	12.4
Sulphur dioxide (SO ₂)	6.4	11.4
Diesel soot	7.2	12.3
Particulates < 10 µm from dispersion and tyre wear	5.7	10.6

Source: UBA 2001



Reduction of air pollutants

Significant displacements from car trips to cycling cause emissions of many air pollutants to fall. Due to the influence of cold starts, the reduction is partly disproportionate (compared with the reduction in distance driven), e.g. for the cancer-causing benzene and the ozone precursor hydrocarbons. This is clarified by Table 3, which shows the percentage reduction potential for two different scenarios: the emissions of individual air pollutants, depending on the influence of cold starts, can be reduced by between 6 and 18 % by displacing car trips to the bicycle in significant numbers.

On top of the direct relief that a decrease in car journeys provides to the environment, further relief could also come from reducing the number of traffic jams and the smoother flow of traffic that results. When assessing these emission reductions, it should be borne in mind that they directly improve the air quality in urban areas, where there are heightened concentrations of pollutants such as particulates, benzene and NO_x, particularly on very busy roads.

Cycling is a dynamic form of exercise which uses between approx. a sixth and a third of all the muscles in the body, and therefore, when practised at a specific level of intensity and workload, is a preventive form of protecting the individual from cardiovascular illnesses. Compared to the work involved in running, where this effect is particularly demonstrable, a rather greater amount of work is required with cycling, because calorie consumption is somewhat lower.

A Danish prospective mortality study¹¹ even reports that men and women who cycle an average of three hours per week have a 40 % lower mortality rate than those who do not cycle to work. On top of this cycling, like all other dynamic forms of exercise, has a positive affect on risk factors already present or that can be anticipated, such as blood pressure control, lipometabolic disorders (cholesterol), adiposity (excess weight) and carbohydrate metabolism disorder (diabetes). All these effects are undisputed in serious medical literature, but are valid for all dynamic forms of exercise, to the extent that they can be compared in terms of total calorific consumption and muscles used.

Another important aspect of cycling which is not altogether valid for other dynamic forms of exercise - particularly not for running - is that it is a form of exercise that is gentle on the joints, particularly the knee and hip joints. When body weight is supported by the bike, joints are capable of being almost fully worked in an unlimited way, when the continuous workload involved in running is no longer possible. This is particularly the case with joints that are already diseased, especially through forms of arthritis, such as the knees, the hips, and sometimes the ankles, at least in the early stages and also when they are in a chronic, non-activated state. To this extent, cycling also often represents a very good and important alternative to other dynamic forms of movement, especially as there is not only relief for the joints but at the same time the joints are also subjected to the desired therapeutic exercise. This also applies to young people who have suffered injuries, especially to the knee-joint area.

Moreover, cycling is particularly well suited as a preventive measure for older people who are just beginning to do some sport and who, particularly when they are overweight, find other dynamic forms of exercise, above all running, difficult.

The great range of modern cycles available today means that nearly all the technical options exist for the various needs, so that the positive, healthy aspects of the dynamic form of physical workload that is cycling can be enjoyed in a way that is tailored to the individual.

Primary prevention in line with Section 20 of the social security code

With the revised version of section 20 of SGB V (the social security code) within the framework of the 2000 health reforms, legislators have granted the health insurance companies more flexibility in the realm of illness prevention. The legal changes were intended to make primary prevention as a recommendation into a legal requirement of strongly binding character for the health insurance companies. More detailed definitions were left to the health sector's lead associations. In the course of implementing Section 20 Paras. 1 and 2 of the code, general and individual areas of action and criteria were worked out. This has led to exercise, as a means of promoting the cardiovascular function being made a high-priority area.

On this basis, the activities of the compulsory health insurance companies are again passing through a process of redevelopment. The health insurance companies are getting actively involved



Particularly with older people, cycling is an important alternative to other forms of movement.

in cycling as a broad-based sport. Thus some of the institutions within the compulsory health insurance system are issuing leaflets about cycling, or supporting cycle tours organised by cycling organisations. Enquiring directly to the health insurance company can pay off.

Environment-related health protection

Cycling is not merely a healthy form of transport, but is also environmentally-friendly. For where cycling replaces motorised transport, no unhealthy air pollutants or noise pollution are produced. The results - along with the healthy effects of the exercise itself - work directly in favour of health. It was to this background that the 51 nations that attended the Health and Environment Ministers Conference of the World Health Organisation (WHO) in London signed the "Transport, Environment and Health" charter in 1999. In it, the nations underline their intention to fight not only against typical, traffic-related problem areas (accidents, pollution, noise, etc.), but also to put more emphasis on promoting cycle mobility for health and ecological reasons. This National Cycling Plan acts upon the charter and is to be further developed in order to meet these objectives.

2.5 The bicycle as an economic factor: Value creation, jobs and innovation

Cycle tourism has taken on considerable economic significance in Germany over recent years. A study of "Tourism as an Economic Factor", published in 1999 by the DIW (German Economic Research Institute) on behalf of the Federal Ministry of Economics and Technology, assumes a total domestic tourism demand of just under € 140 billion. This equates to around an 8 % share of GDP. What proportion of this is attributable to cycle holidays and cycle usage could not be demonstrated. It is estimated that cycle tourism contributes around € 5 bn. per year to Germany's turnover from tourism.

Apart from its contribution in this important branch of the economy, the bicycle is also fairly significant to Germany's economic and industrial policy.

The cycle industry

The structure of German cycle and component manufacturing is dominated by the presence of small and medium-sized companies. Industrial manufacturing of bicycles in Germany - separated into industrial output and assembly - amounted

to 3.4 million units in 2000 (7 % more than 1999). Germany and Italy head France and Great Britain as the leading Western European cycle manufacturers. Around a third - 65 million - of all the cycles in the European Union are on Germany's roads and cycle paths. It is estimated that approx. 10,000 people were employed in the cycle and cycle component industry in 2000, a statistic that does not include those in companies employing fewer than 20 workers. In 2000, total turnover in the cycle sector was around € 1.8 bn. The turnover of cycle and cycle component manufacturing in 2000 - almost € 0.7 billion - was around a third of that in commercial shipbuilding, for example. Export figures of 250,000 cycles in 2000 show a gentle upwards trend.

As well as the cycles made in Germany, 2.1 million cycles arrived in the domestic market from abroad last year. Imports, therefore, had a share of around 40 % of the domestic market. Suppliers tend to be Asian, Eastern European and from other Western European countries in equal parts. The German cycle industry has given proof of its competitiveness in the face of foreign rivals by producing innovative, high-tech products and an extremely wide range of models.

The Association of Two-Wheeler Manufacturers (ZIV) estimates that a 5 % rise in cycling's share of all transport could mean an increase of up to 500,000 cycles sold per year, with an corresponding effect on the parts and accessories industry. Up to 1,000 more jobs could be created in the cycle industry.

Innovative developments in cycle technology

Over the last 10 to 15 years the bicycle has made a great developmental step forward. At the end of the 80s and the beginning of the 90s, cycle technology move on tremendously, particularly due to the mountain bike which was just appearing on the market. One of the consequences is that there is now a whole range of different cycle types that have been adapted to suit consumers' different needs and different conditions of use.

Alongside the mountain bike and the so-called all-terrain bike (a mountain bike with StVZO fittings), urban bikes and hybrids play a major role in the German market. Bikes for children and teenagers, racing bikes, Dutch bikes and touring bikes are also available. So the German consumer is able to purchase a cycle that is as ideal as possible for its anticipated use. This trend towards product range diversification has boosted

innovation in the field of the cycle parts, components and accessories that are used.

Maintenance and services

A significant increase in cycling will have a positive effect on all parts of the value creation chain in both the short- and medium-term. The economic significance of the bicycle as a means of

transport goes beyond marketing, the retail trade, service and maintenance and provides an impulse for many other service areas. It is true that, compared to other modes of transport, the need for servicing and maintenance is fairly low, but increased use would lead to new areas of demand that have been estimated as being worth around € 2.5 bn. per year.

Summary 4: Technical innovations

- In the field of brake technology, as well as the cantilever brake which is being increasingly replaced by the V-brake, one sees increasing use of disc brakes that were first used on the mountain bike but now also appear on urban bikes and hybrids. Hydraulic brakes and gear hubs suitable for everyday use represent another advance.
- When it comes to lights, customers have the option of purchasing extremely high-performance systems with a parking function and hub dynamo.
- In recent years there has also been a trend towards more comfortable and technically very sophisticated cycles. In this context, suspension systems are particularly noteworthy. These were first employed in the form of suspension forks, but there are a growing number of full-suspension mountain bikes, hybrids, urban and children's bikes.
- This tendency has helped to attract new target groups and to extend the circle of cycle users. New developments in gear systems, adjustable stems and suspension seat-posts have also helped improve riding comfort.
- Over the last six years or so, cycles fitted with a supplementary electric motor have also been available. With an output of 250 watts and a top speed of 25 kph with assistance, these vehicles count as bicycles in the sense of the StVZO and can be ridden without a driving licence, insurance, an operating licence or obligatory helmet. In the coming years, the industry anticipates a growing market potential in this product area, not least due to the major demographic change that is going to take place.

Service providers would, for example, have greater marketing opportunities through lending bicycles, particularly at key locations such as stations and tourist support points (see particularly chapter 4, "Cycle tourism" and chapter 5 "Linking transport systems").

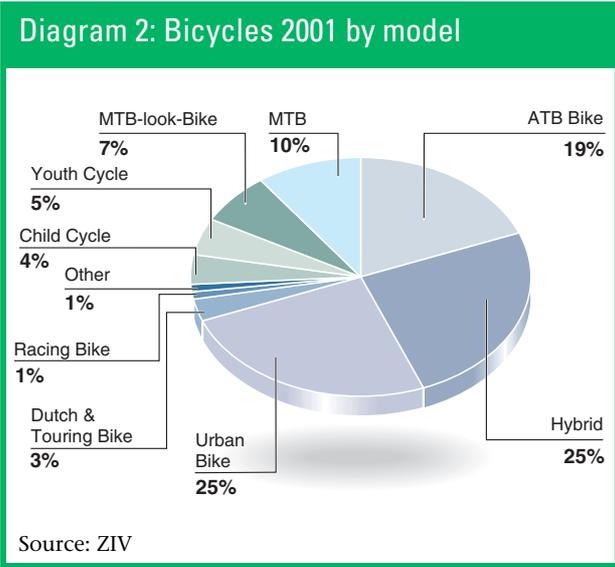
Cycle courier services have opened up another market segment. The range of services on offer includes messengers, the emptying of P.O. boxes, despatch between different regions, and transport for hospitals. Cargo transport for up to 300 kgs. is available in Cologne, while elsewhere purchasing services are on offer. When employing cycle couriers, the client's decision is influenced by their speed, reliability and flexibility in responding to the their wishes. A comparison of delivery times recorded by cycle couriers, private car couriers and the Swiss postal courier service PPT resulted in 20 to 300 % shorter delivery times for the cycle couriers.



Cycle courier services are fast and flexible.

There are some 110 companies operating cycle courier services in Germany, in almost the same number of towns. Cycle couriers' market share of total courier despatches is 1.5 %, and their share of turnover is around 1.4 %. Although there are a few cycle courier services that have a turnover in the millions, most companies have to be placed in the small and smallest business category.

Cycle taxis have, since 1997 formed part of Berlin's regular transport system between April and October. The approx. 40 cycle taxis carry around 1,700 passengers per day. The Velotaxi GmbH Berlin company employs 250 "drivers". The cycle taxis are going to be fitted with auxiliary electric motors in the future. The cycle taxi idea was also succesfully adopted at Expo 2000 in Hanover and the National Garden Show in 2001 in Potsdam.





3. Using a cycle in everyday traffic: more pleasant, safe and comfortable

3

3.1 Initial position

Cycle usage in everyday traffic for travelling to and from work, to and from educational establishments and for recreational purposes is - as Table 1 shows - subject to severe fluctuations in our towns and rural districts. However it is precisely here, for the purpose of everyday, local mobility, that the bicycle can fully demonstrate its many benefits and strengths. It is this area of usage in particular which offers the best base conditions and most potential to increase cycle traffic in a sustainable way. Nonetheless, cycling in pleasant, safe and comfortable conditions in everyday traffic continues to be characterised by a multitude of restraints. While the reasons for the barriers to more widespread cycle usage differ from case to case, in general one can identify a number of problem areas and failings in local authority cycling policy, as is shown by the following examples:

● *Cycling's status in the overall system of town and transport planning*

Local authorities' transport development plans to some extent only contain non-binding statements about cycling. In many places, cycle planning is done as sectoral planning and is not treated as an equal and integral component of a sustainable transport policy. At local authority level, there is also often a lack of information about the available sources of funding. The tendency in urban development continues to be one of urban sprawl with its associated greater distances - this makes cycling more difficult.

● *Cycle network planning*

The variety of different competencies and the frequent lack of equable coordination between those involved present a barrier to producing and implementing effective cycle plans. Systematic, widespread cycle network plans that analyse issues and set priorities within the framework of specific action programmes and funding are by no means the norm.

● *Cycling and local public transport*

The value of mutually reinforcing the status of cycling and local public transport within a sustainable, integrated transport plan is underestimated. To some extent, the bike is regarded as a rival form of transport that takes passengers away from the bus and railways.

● *Options for parking cycles*

The absence of options for parking cycles where they are easily accessible and safe from theft is a further barrier to cycle usage. There are particular problems in built-up, older residential areas. The relatively low clearance and recovery rates achieved by the police in the wake of vandalism and theft are an additional factor.

● *PR work*

In many places there is a lack of information about the available cycling opportunities and no systematic publicity. Awareness for an aggressive communication strategy and an enhancement of cycling's image (cycling as a "branded product") is far from widespread.

3.2 Objectives

In order to increase cycle share in everyday traffic over the long-term it is, above all, necessary that the barriers to cycle usage are gradually removed. To circumvent the problems described, local authorities should develop comprehensive action strategies that treat cycling as a system. This also means, e.g., that each local authority should set agreed strategic goals (e.g. increase cycle traffic share, improve road safety, administrations to pay more attention to the concerns of cyclists) for the conditions in their area of authority, and also set indicators that enable them to monitor the achievement of those goals. Summary 5 provides a catalogue of objectives for improving cycle usage in everyday traffic.

3.3 Remedial strategies

3.3.1 *Cycling as a system*

In order to better activate cycling's potential in everyday traffic, cycling has to be rapid, safe and comfortable, and be done in an environment where the cycle is accepted and used as a "normal" mode of transport. For this to happen, a cycle-friendly infrastructure is a major prerequisite. Experience shows, however, that this on its own is not enough to effectively exploit cycling's potential. Other important components of the overall "cycle" system are the service sector and other forms of assistance such as communication and publicity (Summary 6).

Summary 5: Catalogue of objectives for enjoyable, safe cycle usage in everyday traffic

- **Cycling's status in the overall system of town and transport planning**

Include cycling within the framework of a vision for sustainable urban development and environmentally friendly transport, and create the basic conditions needed to adopt a promotional strategy that fits transport policy objectives.

- **Cycle storage space at home**

Cycle storage options at home: should be large enough, easily accessible, secure from thieves and protected from the weather.

- **Cycle network planning**

Integrated, safe cycle networks that are easily ridden and part of a widespread cycle network.

- **Cycle-friendly infrastructure within the road and path network**

Complete and improve cycle facilities in the cycle network in line with state-of-the-art planning, design, construction and operation technology.

- **Cycling and local public transport (ÖPNV)**

Link cycling to local public transport to boost local mobility.

- **Cycle-related service provision**

Build and extend a structure that provides information and a range of options that makes it easier to cycle.

- **Include distinct target groups**

- **Transport to/from school/college, etc.**

Promote an environmentally aware choice of transport system and safe behavioural habits on the road within the framework of mobility training and by creating an infrastructure suited to needs.

- **Transport to/from work**

Reinforce work-related mobility management with a view to making it easier to cycle on the way to work and for local business trips.

- **Transport to/from the shops**

Make it easier to cycle to the shops and carry home purchases.

- **Recreational transport**

Provide pleasant and easily used connections and routes, and parking facilities at destinations.

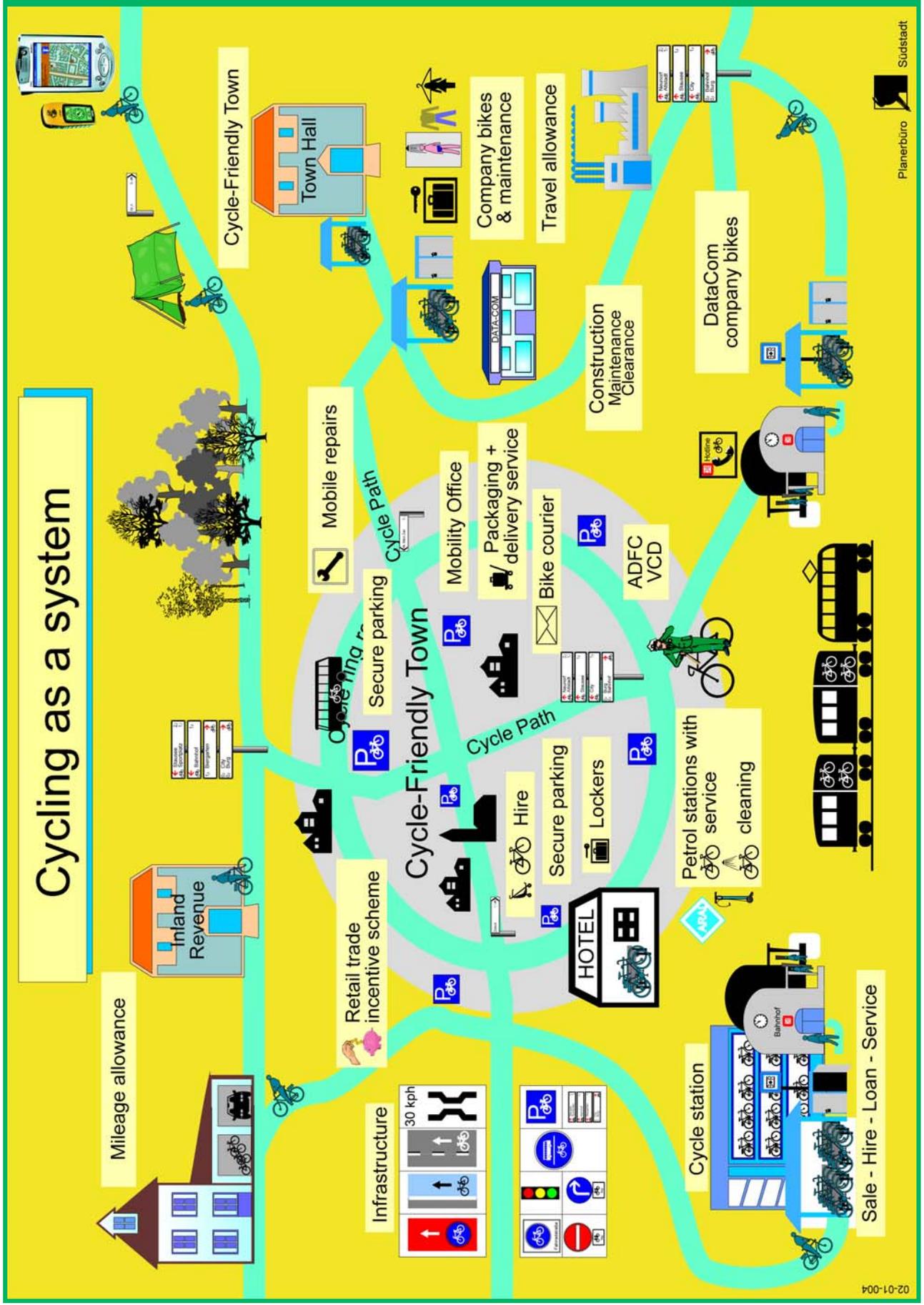
Summary 6: Building blocks for "cycling as a system"

- The basis for effectively promoting cycling is an infrastructure (or so-called core hardware in an image borrowed from the world of computing,) that, building on a planned network, enables direct and comfortable cycle journeys, in a traffic environment that is both safe and perceived to be safe. As well as components of cycle management such as those indicated in the Road and Traffic Research Association's rules and taken into account in the StVO, one also needs to include, for example, cycle parking facilities at the source (home) and at the destination that are comfortable to use and that provide effective protection against theft and vandalism, features that connect cycle users with public transport, and signposting that guides cyclists towards the routes that have least traffic on them.

- The service area ("peripheral hardware") embraces a wide range of services that can make cycling attractive, e.g. cycle stations, fast repair services, cycle cleaning facilities and the opportunity to store baggage in the town centre. These types of service can often be stimulated and initiated by public bodies, but they are then to be operated primarily as private businesses.

- Public information ("software") campaigns for cycle usage and engages with behavioural change with respect to the choice of transport mode. It should ensure that there is a cycle-friendly climate and also provide information to accompany the rollout of the different elements of a cycle scheme. Public information can help to upgrade cycling's image and social status. This is extremely important if there is to be behavioural change such as that sought (switching from private car to bicycle) because the manner in which one's mobility needs are satisfied is also influenced by the prestige attached to the transport system - it is not entirely based on rationality. So professionally planned and implemented public information has great strategic importance.

Diagram 3



3.3.2 Quality management system

In recent years quality management procedures have acquired increasing importance. More and more service providers are defining quality characteristics for their products and services, and specifying quality objectives and indicators. This also needs to be done for measures promoting cycling at local authority level.

The BYPAD ("Bicycle Policy Audit")¹² was developed, within the framework of an EU research project, specially for towns and rural districts so that they can appraise and improve the quality of local cycling promotion. It is a procedure that is easy to use and assesses the effectiveness and acceptance of measures taken.

BYPAD treats cycle promotion as a dynamic process made up of seven areas of action:

- user needs,
- policy management,
- strategy and planning,
- financial management,
- personnel management,
- projects and actions,
- evaluation and monitoring.

Each area of action is assessed separately, using a checklist, by an audit group composed of political, administrative and cycle association representatives. The three different actors in the group first assess, independently of one another, the local authority's cycling policy. They then find out the other groups' conclusions and, wherever there are controversial opinions, work out a consensus. This procedure enables relatively easy identification, at a local level, of the areas where the authority is working successfully and those areas where it needs to be more active.

Summary 7 shows an example of a step-by-step process in a cycling quality plan at local authority level.

3.3.3 Strategies directed at target groups

Important elements of promoting cycling in everyday traffic are aimed at target groups and require a specific approach which shows the actors the particular benefits or positive effects of cycling or promoting cycling.

Summary 7: Quality plan for cycling

Building on the results of the discussions in the audit group, objectives and actions should be worked out to improve the quality of the local authority's work in promoting cycling. This cycling quality plan contains these elements:

- **Objective setting**

- **List of priorities**

Which measures have to be taken first, and which can be left till later?

- **Name those responsible for putting the plan into practice**

Effective implementation requires that competencies should be clearly defined.

- **Name the administrative units involved**

Create the work structures required in and alongside the administration: department/office/cycling officer and cross-departmental working groups involving third-parties.

- **Action timetable including setting dates for interim assessments**

Timetables do not only make it easier for administrators to carry out the measures, they also send a clear message that the politicians and administrators are taking the promotion of cycling seriously. Interim assessments, i.e. evaluating

measures before they are completed, allow things to be tweaked, where necessary, if it is unclear that the effectiveness required is being achieved.

- **Plan how to communicate with user groups**

Reaching agreement with affected parties is an important element of action planning. Organisations such as cycling advisory bodies and the like, where public action groups and organisations are represented by speakers, are recommended. It is vital to establish exactly what voice these bodies have, for if they have no power to make binding proposals, experience suggests that there will be little will to participate.

- **Secure budget for action**

Safe and continuous funding must be made available to put plans into practice. Funding has to be requested in good time. Operating and maintenance costs should be taken into account when the measures affect infrastructure.

- *Transport to/from school/college, etc.*

Promoting the bicycle specifically as a means of getting to school requires schools to have improved cycle accessibility and traffic calming measures to assist road safety around the schools. Everybody involved gains from this:

- Coping with the journey to school on one's own requires independence and the ability to find one's way around the locality, and therefore supports important educational goals. So, as well as needing safe routes to school, daily cycling requires practical training in handling traffic, as part of broader mobility training. If children cycle to school, parents can be released from school-run duties.
- At a time when many children are showing motor deficiencies and other health problems due to a lack of exercise, cycling is an ideal way of increasing the amount of exercise in order to promote health care, and also helps the pupils' ability to concentrate during lessons. Physical exercise before and after school can, moreover, serve to release pent-up aggression deriving from the school routine.

- *Transport to/from work*

Companies and organisations that support their staff in using the cycle as a means of transport to and from work reap many advantages. Generally speaking, these employees are more rarely absent through illness and perform better. Money is also saved through needing to provide fewer employee

parking spots. Staff who cycle to work often spend less time en route than car drivers (they avoid jams and traffic looking for a parking spot). Trade unions and/or staff representatives can claim subventions or other benefits for cycling to/from work as part of wage negotiations (analogous to the "job ticket" subsidy for using public transport).

- *Transport to/from the shops*

The retail trade often undervalues cyclists as customers because they usually spend less money than customers that come in a car. If one considers, however, that cyclists shop more regularly and favour shops within their local neighbourhood, they then become a profitable client group for local trade, and one that retailers can secure through a wide range of offerings. It would be helpful to produce a leaflet entitled "Why cyclists make good customers - arguments from A to Z".

- *Building parking facilities at apartment buildings*

Accessible, purpose-built parking facilities increase the value of the building, making it a more attractive to rent and increasing tenant loyalty.

Summary 8: Improving the taxation framework

For environmental and traffic policy reasons, there is a need to change the tax status of expenditure on journeys between home and workplace from the system specifying a rate per kilometre for private cars only to a general, distance-based rate, irrespective of the means of transport. The law introducing a distance-based rate, brought in by the Federal Government and passed on 21st December 2000, provides this. On 1st January 2001, the previous mileage allowance for cars (0.70 DM/km) was changed to a distance-based, means-of-transport-independent rate of 0.80 DM [from January 2002: 0,40 €] or, for distances of up to 10 km, 0.70 DM [from 1st January 2002: 0,36 €] per kilometre distance to be covered. This increases the incentive for switching to environmentally friendly means such as local public transport and the bicycle to get to work.

In terms of the tax relief effect, the change to the means-of-transport-independent, distance-based rate creates competitive equality between the different modes of transport and improves the base situation for environmentally friendly cycling and local public transport. On top of this, when employees use a private cycle for work reasons they can claim a tax allowance of € 0.05 per kilometre ridden, as long as they do not receive any compensation from their employer. The employer can provide tax-free compensation up to this amount for professional expenses. This tax provision also constitutes an incentive for increased cycle usage.

- *Communication and transmitting knowledge*

The federal states and local authorities should, at all levels, develop and implement information strategies aimed at different target groups with a view to removing the differences in knowledge that exist between the actors responsible, which often make it more difficult to implement suitable measures. Measures that improve communication amongst the actors, and thus make it easier and speedier to reach agreement, are equally important.



In Breite Strasse, in Cologne, there is room for all types of road user.

3.4 Measures

Putting these remedial strategies into practice requires numerous individual measures at the level of the different elements of the cycle system, and needs different actors to take responsibility. Quite often, the federal states and local authorities have already done much in this respect, as many good examples illustrate (see Annex 1).

The main measures are listed in Summary 9 below. Its structure is aimed at the needs of cycle users en route from home to their destination. These particularly include

- the basic town and transport policy planning framework,
- cycle parking facilities at home and at the destination,
- the infrastructure of routes, including connections with local public transport, and
- service offerings that, in general or being specifically tailored to the purpose of journeys or to target groups, serve to assist and promote cycle usage.

The various actions are separated into four areas:

- planning needs and building the infrastructure,
- public information and motivation for users,
- communication and information for the actors,
- the institutional framework (particularly the legal framework and funding).

The term "actor" describes the body/person that is to assume leadership of the initiative.¹³ At the same time, it is always worth aiming to get several actors to agree and coordinate procedure.

The status of cycle promotion varies widely amongst German local authorities and rural districts. So no generally applicable prioritisation or weighting of actions can be applied, above all at the competence level of the autonomous local authorities. Which measures are awarded highest priority, in a given place and within an overall scheme, depends on many peripheral factors and not least upon the individuals dealing with them.

Summary 9: Catalogue of measures to improve cycle use in everyday traffic

9.1 Cycling's status in the overall system of town and transport planning

Area of activity	Measure	Actors
Planning needs and infrastructure building	<ul style="list-style-type: none"> ● Introduce a quality management system ● Assess current situation and draw up a general strategy for promoting cycling ● Integrate cycling into the overall urban transport development plan ● Strengthen town centres and local urban centres to improve local mobility 	Local authority
Public information and motivation for users	<ul style="list-style-type: none"> ● Professional information aimed at target groups to improve the cycling climate 	State, local authority, organisations
Communication and information for the parties involved	<ul style="list-style-type: none"> ● Internal and external cycling contacts (e.g. cycling officer or office with enough staff and the authority to make decisions) ● Constructive cooperation from all actors involved in cycle planning: cycling forums, etc. ● Draw up a code of practice for quality management in cycling ● Run a rotating "Cycle-friendly local authority" competition ● Funding guide for administrators, since still often uncertainty on funding provisions 	Local authority, organisations Local authority, organisations Federal Government (FOPS), organisations State
Institutional framework	<ul style="list-style-type: none"> ● Alter planning laws with view to improving administrative options for a city of short distances 	State, local authority
	<ul style="list-style-type: none"> ● Anchor cycle network plan (main routes) into land use planning at local authority level 	Local authority

9.2 Cycle storage at home

Area of activity	Measure	Actors
Planning needs and infrastructure building	<ul style="list-style-type: none"> ● Create cycle storage space suited to needs (example LBauO Hamburg: should be large enough, easily accessible, secure from thieves and protected from the weather) ● Action on housing stock, especially in dense, older areas; e.g. facilities in public spaces, cycle sheds (where necessary with financial support from the local authority) 	Body responsible for construction, etc. Property owner, building society, local authority (Public-Private Partnerships)

Area of activity	Measure	Actors
Communication and information for those involved	<ul style="list-style-type: none"> ● Inspect/ Further educate the authorities concerned with building regulations ● Procedural guidelines for local authorities/architects/ developers; collect Best Practice ● Research/pilot projects for initiatives in densely built, older areas ● "Cycle-friendly building" competition 	<p>State/local authority</p> <p>State, organisations (FGSV)</p> <p>Federal Government (FOPS)</p> <p>Local authority</p>
Institutional framework	<ul style="list-style-type: none"> ● Exchange practical experiences of LBauO, maybe model building regulations and amend the LBauO ● Where needed, local authority constitution (if required acc. to LBauO) ● Simple approval procedures when making building alterations to improve cycle storage ● Funding/ grants from local authority when adding facilities to infrastructure in areas with major deficit (e.g. for cycle sheds) ● Information on funding options for developers, responsible parties, etc. 	<p>State</p> <p>Local authority</p> <p>State, local authority</p> <p>Local authority</p> <p>State, local authority</p>

9.3 Cycle network planning

Area of activity	Measure	Actors
Planning needs and infrastructure building	<ul style="list-style-type: none"> ● Review the road and route network and record the sources and destinations of cycle traffic. ● Hierarchically graded cycle network with signposting of cycle/main routes ● Involve all parties responsible for construction in regional network planning and agree priorities ● Link commuter and tourist networks and routes 	<p>Local authority</p> <p>Local authority (larger towns)</p> <p>Rural districts in particular</p> <p>State, rural districts, local authorities</p>
Institutional framework	<ul style="list-style-type: none"> ● Make network planning and/or the setting of priorities (requirements plan) a prerequisite for promoting cycling ● Include main cycle routes (not only main traffic routes) in GVFG promotion. ● Establish clear responsibility for planning networks in country areas (e.g. rural districts) and ensure cooperation at area boundaries 	<p>State</p> <p>State</p> <p>State</p>

Summary 9: Catalogue of measures to improve cycle use in everyday traffic

9.4 Cycle-friendly infrastructure within the road and path network		
Area of activity	Measure	Actors
Planning needs and infrastructure building	<ul style="list-style-type: none"> ● Systematically identify needs and set priorities for cycle facilities in the building remit of state and district and include the needs of tourist route connections. 	State, local authority
	<ul style="list-style-type: none"> ● Analyse weak points and set priorities for actions based on overall network planning at local authority level and road safety requirements (accident analysis) 	Local authority
	<ul style="list-style-type: none"> ● Deploy entire range of design measures to guide cyclists, as each situation warrants, in compliance with regulatory frameworks and StVO (incl. cycle routes, mandatory cycle lanes, advisory cycle lanes, open up one-way streets, streets reserved for bikes) 	Local authority
	<ul style="list-style-type: none"> ● Do not exclude the spots that are crucial to the network (e.g. intersections, bottlenecks, crossings) 	Local authority
	<ul style="list-style-type: none"> ● Guide traffic safely around roadworks and, where necessary, provide signs indicating alternative routes for cyclists 	Road traffic authorities, construction companies
	<ul style="list-style-type: none"> ● Include main cycling routes in street cleaning, winter maintenance planning and tree lopping measures 	Local authority, local authority-led or private management companies
	<ul style="list-style-type: none"> ● Keep cycle infrastructure free of parked cars and (improper) special uses ● Have sufficient street lighting 	Local authority, police, legal bodies Local authority
Public information and motivation for users	<ul style="list-style-type: none"> ● Town cycling plan/leaflets, etc. on routes and any new paths 	Local authority, organisations, sponsors
	<ul style="list-style-type: none"> ● Regular information about cycle news (e.g. publications, regular column in press, cycle days) 	Local authority, organisations, press
Communication and information for the parties involved	<ul style="list-style-type: none"> ● Cyclists' concerns sufficiently taken into account when drawing up regulations (e.g. for new state road and urban road guidelines) 	Federal Government (FGSV), state, local authority
	<ul style="list-style-type: none"> ● Information campaign for planning administrators, traffic authorities and police to explain new regulations and solutions for routing cyclists and to avoid quite different interpretations of the StVO (statutory notices, seminars) 	State, organisations, institutes
	<ul style="list-style-type: none"> ● Procedural guidelines e.g. as in "Cycling from A-Z" (Netherlands) 	Federal Government (FGSV)

Area of activity	Measure	Actors
	<ul style="list-style-type: none"> ● Make road traffic authorities and construction companies aware of cycle-related regulations at construction sites; more regular inspections ● Workshops, round tables (administration only or with third parties) on controversial issues ● Educate construction supervisors and keep construction companies informed of normal urban design standards to ensure that technical construction conditions are state of the art. ● Internal, action-oriented working group in administration with authority to make decisions 	<p>Local authority, district</p> <p>Local authority, organisations where appropriate</p> <p>Local authority, construction companies</p> <p>Local authority, district</p>
Institutional framework	<ul style="list-style-type: none"> ● Increase the ability to use routes in parallel to classified roads (e.g. via rural routes) with model agreements (contracts) for construction, accommodation, road safety ● Amend guidelines over local cross-town links and the corresponding provisions at state level in order to favour through-road solutions that are appropriate to each case ● Improve eligibility of the entire range of initiatives to control cycle traffic (i.e. not only construction initiatives); combine or introduce other regulations to avoid negative effects of minimum claims limits ● Funding only when regulations and StVO standards are respected ● Make eligible for funding any measures that improve the safety of older cycling facilities (StVO minimum standards, remove failings in road safety) 	<p>State, local authority</p> <p>Federal Government (FGSV), state</p> <p>State, local authority</p> <p>State</p> <p>State, local authority</p>
Planning needs and infrastructure building	<ul style="list-style-type: none"> ● Define needs and a differentiated range of cycle parking options at bus stops and rail stations. (cycle parks, stations, boxes, secure cycle rooms, free cycle stands) ● Include important stops and stations in the cycling network, directions and signing of Bike & Ride systems ● ÖPNV transport operators to consider cycle carriage options and suitable vehicles when inviting to tender ● Improve bus stop and rail station accessibility to the bike 	<p>Local authority, transport operator</p> <p>Local authority</p> <p>Local authority, state transport operator</p> <p>State, local authority transport operator</p>

Summary 9: Catalogue of measures to improve cycle use in everyday traffic

9.5 Cycling and local public transport		
Area of activity	Measure	Actors
Public information and motivation for users	<ul style="list-style-type: none"> ● Aggressive marketing to link ÖPNV and cycling ● Good options for loan bikes, particularly after using public transport 	<p>Local authority, transport operator</p> <p>State, transport operator</p>
Institutional framework	<ul style="list-style-type: none"> ● Subsidise operating costs for cycle stations whose volume does not permit them to be economically viable 	State, local authority
9.8 Service provision for cycling		
Area of activity	Measure	Actors
Public information and motivation for users	<ul style="list-style-type: none"> ● Information and customer advice ● Quick repairs, mobile maintenance service, cycle cleaning facilities, cycle stations to offer other services ● Mandatory and standardised coding as anti-theft measure ● Public loan/deposit bikes to increase availability ● Cycle schools for those (re-)learning ● Initiatives relating to lights (testing/inspection and immediate repair) ● Mobility offices to provide advice service, route recommendations on the Internet 	<p>Retail trade, organisations</p> <p>Private bodies</p> <p>Retail trade, police, insurers, organisations</p> <p>Local authorities, private enterprise</p> <p>Private enterprise, course organisers (e.g. adult education centres, sports clubs)</p> <p>Local authority, organisations, police, retail trade</p> <p>Local authority, private enterprise, transport operators</p>
Institutional framework	<ul style="list-style-type: none"> ● Start-up assistance for new service providers, and/or subsidised running costs (e.g. for cycle stations) 	State, local authority, business development
9.7 Special needs for cycling to place of education		
Area of activity	Measure	Actors
Planning needs and infrastructure building	<ul style="list-style-type: none"> ● List deficiencies in the course of project weeks or transport tuition, pass deficiencies on to the responsible bodies ● Improve the safety of local routes to school 	<p>Body responsible for school, state (curricula), local authority</p> <p>Local authority</p>

9.7 Special needs for cycling to place of education

Area of activity	Measure	Actors
	<ul style="list-style-type: none"> ● Cycle parking facilities at place of education secure from theft, vandalism and bad weather; plan priorities for upgrading existing facilities, since cycle stands are often old at schools in particular ● Make it possible to cycle throughout high school premises (or university cycle route network) 	<p>Local authority, school, high school or other educational establishment</p> <p>The state as responsible for high schools, high schools</p>
Public information and motivation for users	<ul style="list-style-type: none"> ● Cycle exchange facility ● Information/advice from parents about child cycle needs ● Recommendations on how to cycle to educational establishment safely (e.g. route descriptions, route maps) ● Cycle self-help workshop, repair tuition, cycle supervision 	<p>School, parents committee, private enterprise</p> <p>Retail trade, police</p> <p>School authority, high school students committee, etc., local authority</p> <p>School authority, state, agencies promoting employment</p>
Communication and information for those involved	<ul style="list-style-type: none"> ● Link individual elements of road safety work with environmental and social education (incl. teacher training, materials gathering programme for "early cycling" tuition/project weeks) 	<p>State, school authority</p>
Institutional framework	<ul style="list-style-type: none"> ● Exploit LBauO provisions regarding parking areas, and use funds that are not spent on building car parking facilities ● Pay-per-term for cycle service and infrastructure 	<p>State, local authority</p> <p>The state as responsible for high schools, high schools</p>

9.8 Special needs for cycling to place of work

Area of activity	Measure	Actors
Planning needs and infrastructure building	<ul style="list-style-type: none"> ● Cycle-compatible access roads on company premises; action to improve cycle usage on company premises ● High-grade and sufficient parking facilities close to the place of work; decentralised facilities in larger companies ● Self-help repair workshop for employees; option of doing repairs in company's own workshop; maintenance contract with retailers/cycle station, etc. ● Changing facilities, lockers, showers ● Use cycle couriers for errands around town 	<p>Large companies</p> <p>Companies and organisations</p> <p>Companies and organisations</p> <p>Companies and organisations</p> <p>Companies and organisations</p>

Summary 9: Catalogue of measures to improve cycle use in everyday traffic

9.8 Special needs for cycling to place of work

Area of activity	Measure	Actors
Public information and motivation for users	<ul style="list-style-type: none"> ● Individual descriptions of routes between main residential areas and place of work ● Company mobility management (company transport or cycle maps) with advice, info, organisational and financial management and coordination, etc., inclusion in company environmental management (eco-audit) ● Favourable terms when employees take out a period pass for cycle station (for parking and/or loan bikes) ● Purchase or lease of company cycles for company business or financial compensation for using private bikes (as with car use) ● Lease bikes to be loaned for private use to employees; swap for car park space ● Subsidised travel costs for cyclists similar to the company "job ticket" for public transport when company parking spot is not used, vouchers for repairs/maintenance/discounts when buying or insuring (theft) cycles through the company 	<p>Companies and organisations, local authority, mobility office</p> <p>Companies</p> <p>Companies</p> <p>Companies</p> <p>Companies</p> <p>Companies</p>
Communication and information for the parties involved	<ul style="list-style-type: none"> ● Guidelines including practical experience and requirements for those responsible for managing mobility that supports the use of environmentally friendly transport (with collection of examples); explain the benefits of employee cycle usage from the company's point of view. ● Run a "cycle-friendly company" competition 	<p>State, local authority</p> <p>State, local authority</p>
Institutional framework	<ul style="list-style-type: none"> ● Apply state building regulations when planning new or altered construction 	<p>Local authorities, companies</p>

9.9 Special needs for cyclists shopping and running errands

Area of activity	Measure	Actors
Planning needs and infrastructure building	<ul style="list-style-type: none"> ● Range of choice in cycles for carrying goods (e.g. stable racks, trailers) ● Create parking facilities that are large enough and favourably located at destinations. Leave sufficient space between cycle stands so that it is not difficult to remove bikes even when there are bags/basket. Convert car parking spaces to cycle parking facilities; make parking available for cycle trailers 	<p>Cycle industry/ retail trade</p> <p>Local authority, when appropriate working with retailers, retail trade interest groups</p>

Area of activity	Measure	Actors
Public information and motivation for users	<ul style="list-style-type: none"> • Delivery service for purchases • Option to leave bags in lockers while shopping (e.g. in supervised cycle areas) • Cycle trailer loan to make it easier to take small children along when cycling • Reimburse charges for secure parking when goods purchased • Smaller service jobs done (e.g. in a supervised cycle area or by mobile units) while shopping • Deposit- or fee-based bike loan in many places in the town centre 	<p>Retail trade, private enterprise</p> <p>Local authority, retail trade, city marketing</p> <p>Local authority, retail trade, city marketing</p> <p>Retail trade</p> <p>Retail trade, private providers</p> <p>Local authority, retail trade, private providers, sponsors</p>
Communication and information for those involved	<ul style="list-style-type: none"> • Information for retail trade on the importance of the bicycle when shopping (collect best practice) 	State, retail trade
Institutional framework	<ul style="list-style-type: none"> • Use the provisions of the LBauO and/or local authority law on new buildings and conversions, possibility of commuted sums in lieu of parking provision and of the local authority using these funds to create public cycle parking areas that are suited to the location • Possibility / use of commuted sums in lieu of parking provision to finance cycle parking facilities in the town centre • Enable subsidies for public parking facilities beside public transport stops. 	<p>Local authority</p> <p>State, local authority</p> <p>State, local authority</p>

9.10 Special needs of leisure cyclists

Area of activity	Measure	Actors
Planning needs and infrastructure building	<ul style="list-style-type: none"> • Develop green and quiet routes through the town and include on signposts. • Upgrade / improve parking facilities at existing destinations • Temporary supervised cycle facilities at large events 	<p>Local authority</p> <p>Local authority, body responsible for the facility</p> <p>Local authority, organiser, private bodies</p>
Public information and motivation for users	<ul style="list-style-type: none"> • Leisure cycling map of town • Loan bikes at destination when arriving on local transport 	<p>Local authority, private bodies, sponsor, organisations</p> <p>Private bodies</p>
Institutional framework	<ul style="list-style-type: none"> • Apply provisions of LBauO when building new leisure facilities 	State, local authority, body responsible for the facility



4. Cycle tourism: strengthening Germany's position

4.1 Initial position

In recent years, cycle touring has become more attractive. No other holiday activity shows such a high growth rate (+ 15 % between 1995 and 1998). For the year 2001, the ADFC cycle touring study revealed the following key data, which impressively underline the importance of cycling to Germany as a tourist location:

- Over 2 million Germans went on a cycle trip during 2000.
- No other leisure activity is practised as often as cycling (65 %). In comparison: swimming (63 %), football (57 %) and skiing (50 %).
- Cycle tourists usually spend the night in multi-star hotels and spend around 20 % more than the average holidaymaker.

In spite of this impressive balance, what is on offer to cycle tourists leaves room for improvement. The main problems include:

● *Route quality*

Many of the existing approx. 125 long-distance cycle routes, totalling around 38,000 kms in length, lack a consistently pleasant infrastructure. Up until now, the federal states have developed too few of their own schemes to provide medium-term quality development and quality assurance for what is on offer. Links between the different regional routes and networks only exist in some cases, and usually by sheer coincidence.

● *Signposting*

The signposting of cycle routes is currently rather varied due to the fact that it has grown historically, has been implemented to very different standards and/or cannot be replaced in the short-term for financial reasons.

● *Services*

Long distance cycle routes become more attractive when tourists have backup from comprehensive, high-quality services, including from the hotel and catering sector.

4.2 Objectives

Promoting cycle tourism helps to increase cycling's share of the whole traffic volume and to strengthen "gentle" tourism. As a form of recreation that is active and healthy, cycle touring accommodates the increased health and environmental awareness of other population groups.

As well as the environmental issues that have already been described, the federal states and the German tourist industry must have a particular desire to activate the great potential that exists in cycle touring. This is even more true since reinforcing Germany as an attractive holiday destination for cycle touring also has an important dimension in terms of economic policy.

So to be able to compete with European rivals, the quality of the services on offer to cycle tourists in Germany must be further improved in the coming years.

4.3 Remedial strategies

Products and services in the cycle touring sector are only successful when the federal states, local authorities, tourism organisations, hotel and catering trade, transport companies and cycle associations work hand-in-hand.

Summary 10: Cycle touring in Münsterland

Around a third of all hotel stays (about 1 million) in Münsterland are related to cycle tourism. 12 million day excursions are also made by bike. The ratio of cyclists on excursions from outside to local cyclists is 60:40. When the daily expenditure of the different groups is taken into account, these figures allow cycle tourism's primary turnover for Münsterland to be estimated at:

- with overnight stop approx. € 69 million,
- without overnight stop by guests from outside Münsterland approx. € 184 million,
- by local people approx. € 36 million.

So the primary turnover from cycle tourism comes to around € 289 million in all, which is around 30 % of the entire primary turnover from tourism in Münsterland. If one takes as a base the value added quota from tourism at hotel and catering businesses (43 %), as calculated by the German Economic Institute for Tourism, the direct value added quota from cycle touring comes to roughly € 107 million. This safeguards approx. 5,000 to 6,000 jobs in the tourism sector in Münsterland and provides a tax revenue of around € 3 million per annum.

There have already been examples of successful cooperation on some routes and in some regions (Münsterland, Donau, Oder-Neisse, Elbe, Weser). In those places, local authority agencies and regional tourist offices have formed working groups that look after and market a long-distance cycle route and provide a point of contact for cycle tourists in the form of single agency (e.g. AG Donauradweg, Weserbund).

4.4 Measures

● Long-distance cycle routes

In keeping with their purpose, long-distance cycle routes ought to feature a greater degree of safety, comfort and charm for cyclists. A major criterion for a long-distance cycle route is road safety, which precludes their being routed along roads with heavy traffic without special cycling facilities.

Routes should

- be made family-friendly so that children can also ride them easily and safely;
- be wide enough to allow cyclists to ride alongside and overtake one another, and to ride in both directions with no danger;
- be transitable along their whole length;
- be based, as far as possible, in attractive parts of the country and lead cyclists to sights that are of interest to tourists;
- ensure the best possible connections to public transport systems that allow cycles to be carried. This means, in particular, that there should be improved options for cycle carriage on buses in rural areas.

The D-network:

Representatives from the federal states and tourist organisations have agreed that there should be a national network of cycle routes - the D-network. This D-network comprises 12 inter-regional, long-distance cycle routes (Summary 4) that are mainly used by cycle tourists and which can also be used by everyday traffic if they are integrated into urban traffic. Long-distance cycle routes must have certain characteristics. They must be guaranteed to be safe to ride and must be located in natural surroundings. The D-network is currently approx. 10,200 kms long and covers the entire area of the Federal Republic, from the Alps to the coasts, and from the Rhine route to the Oder-Neisse cycle route. Approximately 95 % of the routes follow existing, regional cycle routes that are already signposted and linked to each other. Each of the long-distance routes is named after the region where it is.



Long-distance cycle routes in attractive countryside are particularly appealing.

However, many of these long-distance cycle routes still lack attractive infrastructure along the way, services that are in line with the users' wishes, proper signs and adequate marketing strategies.

Up until now, the federal states have developed too few of their own schemes to provide medium-term quality development and quality assurance for what is on offer. "Standards for long-distance cycle routes" were published within the framework of the Federal Ministry of Transport, Building and Housing's "Coordination and integration of cycle routes into urban transport" research project. These quality characteristics should be gradually introduced into the D-network. Connection with regional and urban transport networks should be ensured. It would make sense if the D-network were to become a component part of each state's cycle route network and thus were integrated into all planned actions.

In order to implement the German long-distance cycle network, a pilot project for the Oder-Neisse cycle route is currently being carried out with financial support from the Federal Ministry of the Economy and Technology. This is a single, long-distance cycle path that passes through the new federal states of Saxony, Brandenburg and Mecklenburg-Western Pomerania, and is 420 kms long in all.

The Oder-Neisse cycle route pilot project is a means of practically implementing one example of the D-network with an insistence on quality standards. In the process, model practices for

inter-state cooperation on developing, operating and managing this sort of project are to be developed that can then be transferred to other D-routes. In the wake of the project, responsibility for structural works, such as signposting, falls to the federal states and local authorities. To this extent, their readiness to work together is a prerequisite for success.

Moreover, the choice of a pilot route located in a part of the new federal states that is very weak structurally and borders two EU accession countries is intended to stimulate a structural economic effect. Encouraging cycle tourism in this region should provide incentives for startup companies and for development of the range of tourist services offered by small businesses. Long-distance cycle routes that attract tourists clearly make a considerable difference to regional revenue and employment. The project ought to make an effective contribution towards publicising Ecotourism 2002.

EuroVelo routes

The "EuroVelo" project run by the European Cyclists' Federation (ECF) has six routes which run through Germany (see Diagram 5). The first EuroVelo route to pass through Germany was the North Sea Cycle Route, opened in April 2001. It is vital that the D-network is fully integrated into the European cycle route network. The ADFC is volunteering to be the central point of contact for the EuroVelo project. The EuroVelo project should be further developed, in close cooperation with neighbouring countries. Interreg funds are available for this purpose.

● *Signposting*

In future, signposting that is easy to spot, non-ambiguous and self-explanatory ought to be the very minimum facility provided by any cycle touring route. Setting up this sort of "quality signposting" should at the same time serve to standardise the German signposting system in line with the standardised systems in the neighbouring lands of Denmark, the Netherlands, Switzerland and the Czech Republic.

In future, whenever new cycle paths are signposted or when signs are completely renewed, the signs should be designed in line with the guidelines issued by the Road and Transport Research Association (FGSV). This would mean that, in the medium-term, Germany would have local cycle paths, long-distance cycle routes and mountain bike routes signposted in an integrated and standardised way. This requires commitment

from the federal states and local authorities. They must be convinced that standardised signposting is to their own advantage. To achieve this more rapidly, in North Rhine-Westphalia, for example, the introduction of such a system was fully paid for by the federal state, but the local authorities then became responsible for their upkeep. In this connection, the possibility of granting funding subsidies of the FGSV guidelines are being followed should be investigated.

Diagram 4: The D-network



Diagram 5: EuroVelo routes



Twelve international cycle routes to change the face of Europe

EuroVelo® is a registered trade mark of the European Cyclists' Federation



North - South Routes:

- ① Atlantic Coast Route: North Cape - Sagres
- ② Pilgrims Route: Trondheim - Santiago de Compostela
- ③ Via Romea Francigena: London - Rome and Brindisi
- ⑦ Middle Europe Route: North Cape - Malta
- ⑨ Baltic Sea to Adriatic Sea (Amber Route): Gdansk - Pula
- ⑪ East Europe Route: North Cape - Athens

West - East Routes:

- ② Capitals Route: Galway - Moscow
- ④ Roscoff - Kiev
- ⑥ Atlantic Ocean to Black Sea (Rivers Route): Nantes - Constanta
- ⑧ Mediterranean Route: Cádiz - Athens

Circuits:

- ⑩ Baltic Sea Cycle Route (Hansa circuit)
- ⑫ North Sea Cycle Route

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Mountain biking

There is a need to create attractive mountain bike routes that are environmentally and socially sound, and that where possible avoid conflict with nature conservancy, woodlands and other forest users (ramblers, horse-riders, etc.). Planning funds to create attractive mountain biking options should, therefore, be increased and made more widely available. A nationwide, standardised style of MTB signposting, in line with the recommendations of the FGSV and embedded within an overall style of signposting cycle paths, needs to be promoted. Working together with the ADFC, some federal states (incl. Baden-Wuerttemberg and Bavaria) have already developed model regions within the state system (the Southern Black Forest, the Frankenwald, the Fichtelgebirge, and the Rhön). The existing options were assessed for the first time in the "ADFC mountain biking guidelines", in cooperation with tourist offices, nature conservancy and rambling organisations, and national standards for environmentally and socially sound mountain bike routes were formulated.

- *Service, hotel and catering businesses*

A long-distance cycle route becomes more attractive when it can offer cycle-friendly cafes, restaurants and accommodation. Within the hotel and catering sector, extending the range of options to include businesses that are labelled "cycle-friendly" will help improve a region's or route's cycle tourism climate.

Today's cycle tourists are becoming an increasingly significant target group for the hotel and catering trade, because they usually have a relatively high income and are demonstrably prepared to spend their money on good quality services. So those businesses that already operate along cycle paths should be the first to seize the initiative. The ADFC's "Bed & Bike" project has established nationwide quality standards for cycle-friendly guesthouses. Cycle tourists currently have access to 2,900 such lodgings. These guesthouses are indicated by a plaque, and are listed in a variety of directories. With the publication of this type of "Bed & Bike" guide, cycle tourists can find cycle-friendly accommodation for their holiday while at the planning stage. The directory is to be listed on the Internet.

As has already happened in some federal states (Baden-Wuerttemberg, Bavaria, Hesse, Mecklenburg-Western Pomerania, North Rhine-Westphalia), the states in other parts of Germany also ought to provide seed funding to promote the "Bed & Bike" project as being particularly suitable to cycle tourists.

Amongst the services on offer, there should also be resting areas with a table and seats, children's play areas, places to repair bikes, etc. A centralised cyclist hotline with information and a reservation service could also be provided (e.g. Münsterland).

The range of services offered to cycle tourists can be extremely broad. Apart from signposts indicating the route, there could be information boards along the way which provide details of

- the region's cycle touring routes,
- tourist infrastructure,
- public transport connections (e.g. rail, buses which accept cycles, boat jetties).



Cycle touring routes require tourist infrastructure.

- *Cycle parking facilities*

Long-distance cycle routes should also be equipped with good quality facilities to park cycles. They should enable cycle tourists to leave their bikes without worrying, and where they will be safe from theft and bad weather. To safeguard bikes with panniers, secure facilities (e.g. cycle stations) or cycle lockers could be considered. Suitable locations for cycle parks are stations, information offices, popular tourist attractions and other recreational sites. Operators of these types of facility need to be persuaded to provide suitable parking areas for cycle tourists.

- *Marketing cycle touring*

Since 1999, the ADFC has been producing the successful "Discovering Germany by bike" brochure on behalf of the German National Tourist Board (DZT). This describes over 50 German routes and regions and their cycle touring facilities, and offers package deals. To satisfy this growing interest, the German National Tourist Office (DTV) and the ADFC have already run several projects at national level. The 3rd edition of the "Discovering Germany by bike" brochure offers, for the first time, a range of cycling holidays throughout the country that can be booked in advance, and it has now become an established part of the DZT's marketing operation both domestically and abroad. Cooperation between the tourist organisations and the tourist industry needs to be further intensified.

The marketing of cycle touring options in Germany should include advertising products (long-distance cycle routes, regional cycle routes, mountain bike trails and urban tourism), publishing and marketing cycle touring guides and maps, adverts in magazines, and appearances at tourist fairs and other events where the cycle touring target group can be reached. The Internet's role in planning cycle holidays will become increasingly important. At regional level, the options for cycle touring can be presented nationally, and offer large-scale and more detailed maps showing the course each route takes, what sort of route it is, the condition of the surface, gradients, sights, links to public transport, etc.

Other links can be provided, e.g. to cycle-friendly accommodation and dining facilities, timetable information and temporary detours from the normal route (due to high water, roadworks, etc.). These have already been done on some long-distance routes (e.g. the Elbe Cycle Route and the Bavarian network). This type of service can help cycle tourists to properly plan their itinerary. High monthly access figures prove how important the Internet is for marketing cycle touring services.

- *National coordination point*

To implement and market the D-network efficiently, a national coordination point is required. Core tasks are to plan the detail of the routes, advise the actors involved at local level and drive the marketing effort. The federal states currently have no budget for funding such a coordination point. Within the framework of a Federal Ministry of the Economy and Technology pilot project, the DTV and the ADFC set up a coordination point, for a period of 20 months, to market the Oder-Neisse Cycle Route as a model route within the D-network. The response of the organisations, local authorities and agencies involved, as well as the users themselves, has been positive. So the federal states should consider the ADFC's calls to set up a permanent coordination point, and see whether the associated costs can be found. At the moment, only a few of the federal states have a point of contact specifically for cycle touring - the responsibility tends to lie in different places and at different levels (tourism associations, state ministries, etc.). A single, nationwide point, headed by the federal states, to coordinate the range of cycle touring services on offer and to market them at national and international levels, would be a great help.

● *Local recreational cycling*

Guidelines drawn up by the FGSV on behalf of the Federal Ministry of Transport, Building and Housing illustrate the current state of the art with respect to the development of infrastructure.

These cover:

- recommendations for cycling facilities (ERA 95),
- guidelines on the signposting of cycle paths (issued 1998),
- guidelines on signposting cycle facilities in line with the Road Traffic General Administrative Regulations (1998 version),
- guidelines on cycling outside urban areas (HRaS 2002),
- guidelines on cycle parking (1995 version).

Funding should be dependent on these guidelines being adhered to.

Building attractive cycling networks can help achieve major increases in cycling's share of leisure travel and day-trips. When local authorities are developing cycle plans, they need to properly take into account issues surrounding the use of cycles for local recreational purposes.

There are often overlaps with everyday traffic (e.g. rail station accessibility, parking facilities at recreational spots, business establishments, signposting). Since the bike is often only used as a means of getting to nearby recreational areas such as swimming pools, sports fields, etc., and the cyclist takes part in other activities once there, suitable parking facilities are needed here too. If recreational areas and leisure centres are to be directly accessible, access routes need to be of the same quality as commuter routes. As recreational cycling often goes beyond the immediate urban area, the FGSV guidelines on cycling outside urban areas ought to be taken into account in future when planning, designing, building and maintaining networks.

Summary 11: Catalogue of measures to promote cycle touring

Area of activity	Measure	Actors	Quantity
Route quality			
Construction	Safe, comfortable and attractive routes that comply with ERA 95 and long-distance cycle route standards	Agency responsible for construction / Local authority	National cycle routes: 12 routes approx. 10,200 kms; regional and state long-distance routes approx 30,000 kms
Facilities	Picnic areas with groups of seats and shelters	Local authority, tourist organisations	Based on a minimum of one every 10 kms over 40,000 kms total length, 4,000 picnic areas and 2,000 shelters
Signposting			
Standardised signposting for national cycle routes	Destination-oriented signposting in line with FGSV guidelines (1998)	Federal states or agency responsible for construction, local authority	D-network (10,200 kms)
Marked as the D-network route	Design a logo (standard throughout country)	DTV, DZT, ADFC	Oder-Neisse Cycle Route as pilot project
Management and maintenance			
Regular checks on route quality and signposting	Quality assurance	Tourist organisations/ agency responsible for construction/ local authority	40,000 kms long-distance cycle routes
Hotel and catering businesses			
Cycle-friendly accomodation and catering outlets	New businesses to open along long-distance routes	ADFC/ tourist organisations/ hotel & catering trade/ businesses	Approx. 2,900 Bed & Bike establishments nationally, goal: 5,000 establishments



5. Linking transport systems: extending cycle use opportunities

5.1 Initial position

To improve the links connecting cycle paths to other modes of transport is a major part of any systematic promotion of cycling within the framework of an integrated transport policy. Despite the fact that progress has been made, there are currently still many barriers preventing cycling being linked with the other transport systems to form integrated transport chains (e.g. cycle carriage on public transport, cycle parking at railway stations and bus-stops, and renting, borrowing or despatching cycles). This is illustrated by the following examples:

- *Bus stops/ railway stations*

Often there are no accessible approaches to public transport stops, cycle signs do not indicate rail stations, and there are insufficient secure and sheltered facilities for parking cycles around rail interchanges.

- *Service provision at stations*

For the most part, the larger stations with the greatest potential for switching modes of transport have no supervision of parked bicycles, nor cycle rental or borrowing facilities, nor information points for visitors from out of town.



Cycle parking areas - such as this one in Deidesheim - make it easier to link transport systems

- *Cycle carriage/cycle despatch*

Local and regional passenger transport by rail (SPNV) usually imposes time-related restrictions on the carriage of bicycles. The pricing system is unstandardised and changes at the boundaries of integrated transport associations. Getting onto trains is made far more difficult through having narrow doorways and low platforms. Taking cycles on Inter-City Express (ICE) services is not permitted, while the capacity on other long-distance trains is often insufficient. Taking cycles on buses is not normally permitted. Despatching cycles is complicated and expensive.

The reasons for this lie partly in the fact that the actors in the transport chain who are responsible for services frequently have insufficient understanding of the problems of the different target groups: commuters and occasional bus and rail users, day-trippers and holidaymakers. All too often they are not aware of the excellent options and special service offerings that are possible when the use of cycle and public transport is combined, or these are not employed due to the fact that the price structure might be unattractive.

Many of the deficiencies are also due to a lack of interlinking and to the responsible parties being disinterested in any type of cooperation. This is true of vehicle orders for lines that run between different regions or federal states, the price structure, conditions of carriage and bookings. International rules for cycle carriage on the railways, and cycle despatch, present a particular problem.

At times the bicycle is viewed as a competitor to public transport and not as a reasonable extension. The most frequent arguments are that convenient cycle parking facilities and cycle carriage are not economically profitable and that joint use of infrastructure (cycling in bus lanes and around stations) is a nuisance.

Another reason is the lack of self-interest. Self-financing solutions for cycle parking and service provision are usually ruled out because bikes can normally be parked free, users are not prepared to pay and there are no other secured funds available.

5.2 Objectives

To promote the use of the environmentally sound modes of transport, the federal states and local authorities should attempt to implement these improvements:

- take interlinking into consideration in future when making plans for public transport.
- reinforce and extend the existing range of connection options to ensure there is a high standard.

For specific, individual actions, the federal states and local authorities need to check whether funds are available from the Federal Government as laid down in the Local Public Transport Regionalization Act and the local transport funding law. The practical advantages of having better connections are obvious. The bicycle will probably be used more as a reasonable alternative to motorised private transport over longer distances, too, including for commuting, leisure and holiday purposes. Cycle traffic share drops for distances of over 5 kms because the travel time advantage gained over the car is lost due to the greater speed of the latter, and because the bike becomes far more taxing.

Cycling extends the public transport system so that it becomes a transport chain, thus expanding the radius within which a cycle can be used. At the same time, the bike brings new customer groups to public transport. Being able to take bikes in cars, on buses and coaches, on boats and on planes, enables cyclists to use their own cycle in other places, as does the option to despatch a bike. The option to rent or loan a cycle enables those who have none available at their destination to use a bike within transport chains.

5.3 Solutions and actions

- *Integrating stations and interchanges into the cycle network*

Interchanges (stations, bus stops, large car parks, airports, etc.) are the places where road users can switch from cycles to other types of transport. Interchanges must be quick and easy to access, and simple for visitors and first-time users to find. Cyclists arriving at the station must be able to easily find the important routes and destinations. An interchange's catchment area and the relevant routes will depend on the geographic, topographic and urban characteristics of each place.

- *Service provision at stations and other interchanges*

Stations and major transport stops need facilities for parking cycles where they are secure and sheltered, and - depending on the importance and traffic volume of the station or stop - provide options to

- rent or borrow cycles,
- get repairs, replacement parts and accessories,
- get information,
- despatch and take delivery of cycles and, where appropriate,
- get other services

Cycle stations (with supervised parking, rental bikes, and repair and information services) should be built at stations with large passenger volumes. This could mean that unmanned stations and stops can be re-manned. This would promote revitalisation, enable other sorts of customer to receive a personal service, and, possibly, mean that tickets could be sold, luggage stored and despatched, car-sharing schemes facilitated and caretaker duties carried out.

- *Design of stations and other interchanges*

Having transport infrastructure facilities with no barriers is an important mobility criterion for all transport users, but particularly for cyclists. In this context, the Disability Discrimination Act, passed by the German parliament on 28th February 2002, is relevant for cyclists. The gradual introduction of barrier-free public spaces which this law promotes is going to work to the advantage of cyclists:



Customer-friendly carriage regulations must be promoted

- Station concourses: areas of transition from street to platform to be free of barriers. Where no level transit areas are possible, ramps should be fitted to stairways so that cycles do not need to be lifted. Alternatively, spacious lifts should be installed.
- Platform edges: To make it easier to get from the platform into the vehicle, platforms should be made the same height as the vehicles used.
- Access routes: stations should be properly integrated into the cycling network. Location-specific solutions should be found that do not make the station a barrier in the cycling network:
- Information: at interchanges, guidance systems should include directions indicating the way to exits, any relevant services that may be available (e.g. cycle stations) and parking areas. Doors designated for the passage of cycles should be properly indicated.

● *Cycle carriage*

The service offered by public transport should always make cycle carriage easy and cheap, and be based on standardised structures and conditions of transport. This can be achieved by designing vehicles in a suitable way, with places where cycles can be properly stabilised and simple entry points, by having price structures that offer good value, and customer-friendly carriage regulations. The different modes of public transport should provide services tailored to the given situation. In connection with this, it should be noted that, under the constitution, local public transport (ÖPNV) and local and regional passenger transport by rail (SPNV) come under the remit of the federal states.

Local public transport (ÖPNV)

Apart from lines that are widely used by tourists, buses, trams and underground systems do not need much space for cycles. A basic minimum of space should be offered for crisis-type situations (bad weather, breakdowns, faults, etc.) and for recreational cycles that are not allowed on the road. Multi-purpose spaces also work to the advantage of people with prams and travellers with luggage.

Local and regional passenger transport by rail (SPNV)

On SPNV services, multi-purpose areas are well-suited to the carriage of bicycles, particularly in the case of double-decker carriages with seats upstairs. This also makes it easier for other customers with particular needs (prams, luggage, wheelchairs), and provides useful standing room when the vehicle is very crowded. Time-based restrictions should, where they still exist, be removed and good value multi-journey passes made available (e.g. the cycle carriage regulation with an annual pass). One excellent example of this is the federal state of Thuringia, which has an agreement, involving financial assistance, with the Deutsche Bahn AG which makes cycle carriage on the SPNV free and not subject to time restrictions.

Intercity railways

Currently intercity rail, with around 550 trains per day including overnight services, provides many options for cycle carriage. In response to customers' requests, many of these trains have been fitted out with new cycle sections or cycle compartments that provide space for seven cycles plus one children's bike. Surveys carried out by the ADFC and letters written by the general public clearly indicated that customers want comparable services on the high-speed services, too.

The carriage of cycles on intercity trains is the responsibility of, and is subject to the economic assessment of, the rail companies. The Federal Ministry of Transport, Building and Housing expects the rail companies to voluntarily provide an attractive range of services to this customer segment, too.

● *Cycle despatch*

A number of qualitative improvements should be introduced to make the cycle despatch system more attractive within the framework of the domestic and international luggage service for cyclists. Logistics companies could have a role to play here.

Improvements could include the following:

- a price structure that offers good value for families,
- standardisation and a deposit system for transporting packages,
- easily accessible deposit and receipt points in the vicinity of stations to make it easier to leave and pick up cycles, and guaranteed transport times.

● *Information services*

If potential customers are to be able to get timetable, carriage, rental and service information before they set off and while they are travelling, the existing information system needs to be extended. Such services should be integrated into the companies' electronic passenger information systems.

Summary 12: Catalogue of measures to link transport systems

12.1 Integrating stations and interchanges into the cycle network

Area of activity	Measure	Actors	Quantity
Signposting to stops/stations and interchanges	Develop a standardised, interchange-specific signposting system (state of the art/FGSV guidelines)	Planning, investment, operation: road traffic authorities/local authority	Action plans for two-thirds of all stations (approx. 4,000 interchanges)
Good cycle connections to stations and interchanges	Renew/develop quicker, safer and better-quality approaches and exits and junctions near stations	Planning: local authority Implementation/operation: those responsible for road building (normally local authority or federal state) and road traffic authorities	Action plans for around 4,000 interchanges

Summary 12: Catalogue of measures to link transport systems

12.2 Service provision at stations and other interchanges

Area of activity	Measure	Actors	Quantity
Parking facilities for all relevant target groups	Areas near entrance for short- and long-term parking, secure from theft and vandalism, sheltered from weather, adequate spaces in terms of type and number, quality standards for parking areas, replace unsuitable old facilities	Planning: local transport plan Implementation/operation: contract between job manager and involved parties	Required parking spaces: 500,000 (based on: 2 % of 25 million trips on public transport per day)
Service provision	At stations with over 300 bike & ride customers per day (Cycle touring) information, cycle supervision, loan bikes, rental bikes Models: "cycle station" (NRW), Call a bike (DB AG) linked to information and service provision for arriving and departing traffic for tourists from outside and residents (mobility information point) Location-dependent: rental bikes at stations with option to return at other stations, child trailers, trailer bikes, children's bikes, child seats, etc.	Planning: local transport plan; needs analysis using accessibility quality in ÖPNV Implementation/operation: contract between the job manager and involved parties to review interchanges	Around 500 interchanges nationwide
Price system integration	Integrate cycle stations for getting to public transport, public transport itself, cycle stations for leaving public transport into one combined price; transparency through nationwide, standardised pricing; Integrate cycle stations into all "combined" tickets	Implementation/operation: contract between job manager and transport companies	Affects approx. 125,000 cycle carriages/day (0.5 % of ÖPNV passengers)

12.3 Interchange and station design

Area of activity	Measure	Actors	Quantity
Transit areas for cyclists to/from street and platform	Platform access suitable for disabled persons, level access to vehicles; ramps not lifts where possible (more reliable, quicker, cheaper)	Orders: job manager Implementation: transport companies and/or infrastructure companies Integrated into programme for disabled and/or via agreement on objectives	Around 3,000 stations

12.4 Cycle carriage

Area of activity	Measure	Actors	Quantity
Local public transport (ÖPNV)	Two cycle spaces per standard vehicle as a crisis fallback, at normal passenger price	Orders: job manager Implementation: transport company, specify lines with extra needs in local transport plan	
Coaches	On routes of interest to tourists: spaces in/on the bus, or in a trailer	Implementation: transport company	
Regional rail transport (SPNV)	Cycle storage spaces (multi-purpose areas, double-decker carriages) for at least 10 % of passengers, but at least multi-purpose space for 6 cycles in railcars, 10 cycles in trains (group) Attractive pricing system	Orders: job manager Implementation: transport company, specify lines with extra needs in local transport plan	Convert 2,000 waggons and traction vehicles
SPFV	Attractive offers for cycle carriage	Rail companies	

12.5 Cycle despatch

Area of activity	Measure	Actors	Quantity
Sending bikes as luggage	Despatch points at intercity stations Attractive pricing system	Implementation: rail companies, private companies	

12.6 Information services

Area of activity	Measure	Actors	Quantity
Integrate bike as means of getting to/from other transport, plus rental and booking options in passenger information systems	Broaden passenger information systems and MIV guidance systems Expand the DELFI electronic information system Set up cycle hotline (multi-language, Europe-wide) Set up a digital cycle network as the basis for information systems	Implementation: Federal states, transport companies, transport sector	



6. Efficient coordination of cycle planning and promotion

6.1 Initial position

Within the framework of our federal system, cycle planning and promotion is primarily the remit of the federal states and local authorities. There also needs to be a major input from relevant associations, action groups and other organisations who, in particular at local level, can provide a decisive contribution to the success of any policy agreement that is to work in favour of cycling. Effective cooperation between the various levels and different actors is, therefore, a prerequisite for an efficient system of cycling promotion within the meaning of the National Cycling Plan.

After taking into account the differing base conditions, the following problem areas may be identified:

- dispersal of responsibilities and competencies,
- lack of coordination in top-level networks,
- low value put on cycling in planning and decision-making processes.

6.2 Objectives

Cycle planning coordination, both vertically and horizontally, urgently needs to be improved, as the "Everyday traffic" chapter also indicates. Therefore the objective has to be that the promotion of cycling comes to be regarded as a cross-departmental, joint responsibility.

In the federal states and at local level, in particular, cycling needs to be properly integrated into ground rules planning (traffic development, urban development), into land use planning and into specific construction projects (e.g. road-building, parking facilities).

Administrative competencies need to be efficiently regulated. Funding and assistance needs to be transparent. There is a need to heighten the awareness of the importance of promoting cycling both amongst the general public and politicians.

6.3 Solutions and actions

Optimising cooperation between the different levels is one of the most important, yet difficult, tasks facing the National Cycling Plan. Such a strategy can only be gradually introduced and thus should be regarded as long-term. General remedial strategies need to be filtered down to the various planning levels, and tools need to be developed which will forge fuller cooperation and collaboration within and between the individual levels, and improve the exchange of information.

National level

With a view to coordinating the different cycling-related activities and competencies, in late 1999 the Federal Government established the "Cycling" working group, comprising representatives from the Government and the federal states. The Federal Ministry of Transport, Building and Housing chairs and leads the group. Alongside the delegates from the federal states, the working group also involves representatives from local authority umbrella associations, the ADFD and other organisations (see Annex 2).

The Government/states working group's main task is to intensify the exchange of information between all the decision makers and interest groups involved in shaping cycling.

Federal state level

The federal states have a key role to play in promoting cycling. By distributing funds, they exert a major influence on the local authorities' options. Against this background, cooperation between the various ministries that are involved in cycling issues (Transport, Economy, Environment, etc.) can be improved and promotion of cycling can be anchored as a cross-departmental responsibility in the different policy areas. Table 5 shows a number of good examples of cooperation and coordination at the level of selected federal states.

Table 4: Linking remedial strategies, measures/tools and first implementation steps at Federal Government level

Remedial strategies	Measures	First steps (in 2002)
Establish the National Cycling Plan as a base plan, to be regularly updated, at federal level	Federal Government to report on "Measures to promote cycling" every five years	Preparatory work for the report in 2005
Consultation with a broad section of the public and involved parties	Put the National Cycling Plan on the Internet	Set up an Internet portal

Local level

One major objective, particularly at local authority level, is to significantly increase cycling's share of the modal split and to promote cycling as an independent part of the overall transport system. Attempts to develop and optimise the basic conditions for increased cycle usage will only succeed if measures are planned and carried out in an integrated way, i.e. with collaboration on infrastructure, links to other modes of transport and specific service offerings, and ongoing, effective communication and information between all the actors.

Alongside the requirement to work out integrated cycling plans and better communication structures within administrative bodies, there continues to be a particular need for action to be taken on the dissemination of knowledge, on drawing in other parties (communication) and removing the numerous barriers that hinder action.¹⁴

The local authority umbrella associations take on particular significance. Therefore the Federal Government welcomes the fact that the Association of German Cities and Towns is ascribing more importance to the subject of cycling promotion in its "Transport Planning" technical committee.

The involvement of citizens' action groups, relevant associations and clubs is also required if cycle planning and promotion is to be properly coordinated. There is also a need to seek increased cooperation with industry, the retail trade, schools/ colleges and the health system. Contacts need to be nominated at all levels, and structures set up to ensure better collaboration.

Possible remedial strategies are listed in Summary 13.



Cycle promotion: an important element of an integrated transport system.

Table 5: Good examples in the field of coordinating cycle promotion

Example	Description
Combining responsibilities in the Rhineland-Palatinate state authority	The rise in cycling's importance has led to a corresponding growth in the challenges facing all the levels concerned. In order to improve decision-making processes in the face of staffing and, even more so, financial limitations, the Rhineland-Palatinate Transport Ministry combined the coordination of planning, building and funding cycle paths into a single department. Such organisational structures help to reduce red tape considerably and vastly improve the efficiency of planning talks. The result was that a separate cycling bureau was set up in the state's road and transport department as the subordinate authority. Lines of communication between the Ministry and the State Office have thus been made far shorter and the coordination effort has been considerably reduced. It has also had a positive effect on dealings with the local authorities, because there is only one central point of contact within the state authority.
Cycle route information system in Rhineland-Palatinate	In order to have reliable details about the condition of the cycle route network, cycling-related information in the Rhineland-Palatinate will, in the future, be issued state-wide via the "RADIS" cycle route information system. This will make a full inventory of local cycle paths available for the first time, too.
The "Cycle-friendly towns and municipalities" working group in North Rhine-Westphalia	The towns and municipalities involved in the "Cycle-friendly towns and municipalities in North Rhine-Westphalia" promotional programme, sponsored by the state of North Rhine-Westphalia, set up the "Cycle-friendly towns and municipalities in North Rhine-Westphalia" working group in Krefeld on 18th October 1993. The 32 towns and municipalities in the NRW working group see themselves as towns that are providing a model for modern, ecological and town-friendly mobility. They want to establish the prerequisites for this by having: <ul style="list-style-type: none"> ● an attractive, safe cycle network, ● a cycle-friendly climate that will help encourage the public to switch to the bicycle ● cycle service points, just as there are, as a matter of course, for cars. On this basis, the working group has the following tasks: <ul style="list-style-type: none"> ● member towns and municipalities to exchange information and experience ● advice and help on common issues, ● represent the concerns of the cycle-friendly towns and municipalities to the public. Further information is available at: www.fahrradfreundlich.nrw.de
Regional cycle network for the Starkenburg region in Hesse with involvement of four rural districts	The project aims to establish a linked cycle network, based on unified standards, in the rural districts of Bergstrasse, Odenwald, Gross-Gerau and Darmstadt-Dieburg. This involves, e.g., adopting the federal signposting standards, developing theme-based cycle routes and publishing a route map with proposed routes. The scheme is being scientifically monitored by Darmstadt Technical University.
Working group to improve the quality of Hesse's long-distance cycle routes	To improve its long-distance cycle routes, the federal state of Hesse has employed two people to monitor all of these routes, which total 2,200 kms in length. The goals of this initiative are to <ul style="list-style-type: none"> ● check the condition of the routes and route guidance (a register of routes), ● correct deficiencies in the signposting (adoption of federal standards), ● provide information boards with information about the countryside, culture, refreshments and accommodation, and links to public transport.
Network of local authority cycling officers	On 30th September 1999 the Institute for Local Authority Commerce and Environmental Planning (IKU) organised the first congress of local authority cycling officers. The participants (mobility officers and transport planners from all over the country) called for information and thoughts to be exchanged via modern forms of media. The IKU then made its Internet homepage available for a forum of cycling matters.

Summary 13: Coordination between the Federal Government, states and local authorities

Federal Government:

- Air current issues in the government/states "Cycling" working group.
- Incentives and scientific support through research and pilot schemes.
- Coordinate research (collaboration between the Federal Highways Agency, Federal Environment Agency, Federal Office of Construction and Regional Planning).
- Present and communicate latest results from pilot schemes and research projects, "best practice".

Federal states:

- Integrate cycling into state transport plans and programmes.
- Clear responsibilities in the various departments. Assign a cycling officer at state level (however this requires the person responsible to be higher up the hierarchy).
- Coordinate cycle promotion within the state administration.
- Draw up integrated, multi-year, state promotional programmes.
- Mechanisms for coordinating large-scale plans (e.g. signpost national cycle routes) at inter-state level.
- Monitor/champion cycling concerns in the states' traffic and construction laws (e.g. Saxony's building regulations).
- Adopt national, unified standards (e.g. signposting).
- Develop a "cycling network" involving as many actors (allies) and action levels (political and administrative integration) as possible, i.e. for example also better collaboration with the specialist trade and the cycle industry, collaboration with health insurance companies, more collaboration with private organisations and citizens' action groups with national offices, more collaboration with schools and colleges (syllabi).
- Exchange experiences regularly, make advice available to local authorities, e.g. on funding options, coordinating planning, dealing with third parties.
- Hold congresses and seminars.
- Offer promotional prizes and competitions.

Local authorities:

- Integrate cycling into local transport development plans (with greater binding character), regional development plans, local transport plans, etc.
- Get agreement between different local bodies on plans that cut across borders.
- Integrate cycling (commuter and recreational) into administrative issues (cross-departmental), integrate Agenda 21 work.
- Position the responsible officers higher up the hierarchy, clearer responsibilities in departments.
- Treat relevant regulations in a unified way (e.g. national, standardised signposting in line with FGSV guidelines).
- Develop a local communication strategy involving all actors (e.g. set up "cycling forums", "cycling commissions", etc.).
- Involve the general public when planning actions that affect cycling.

At all levels:

- Transparency and efficiency in funding (simplify funding guidelines, draw up guides).
- Anchor cycling in transport support and urban design programmes (e.g. the government/states "Socially Integrative City" programme, URBAN 21, town and village modernisation programmes).
- Greater participation from citizens' action groups, associations and clubs.
- More collaboration with companies and businesses (work-related mobility management), the retail trade, the insurance industry, the health system and schools/colleges.
- Combine and communicate information at government, state and municipality levels.



7. Funding cycling facilities: doubling of the federal budget

7.1 Initial position

Within their respective areas of competence, the Federal Government, states and municipalities also have financial responsibility for the promotion of cycling.

The federal budget of 2002 managed to double the amount of money directed towards cycling. In so doing, the Federal Government made an important structural contribution towards improving cycle route networks and connections, and satisfied its national responsibility in spite of the consolidation that was required. This increased investment should, then, be taken as a signal to those responsible for construction in the other regional bodies that they ought to promote cycling in their own area in a similar manner.

The level of awareness regarding existing funding options, and the financial commitment of the federal states and local authorities towards cycling, still varies widely in terms of scope and structure. Moreover, the vision that cycling should be regarded "as a system", and promoted as such, has only been adopted in piecemeal fashion. The October 2001 survey, carried out on behalf of the Federal Ministry of Transport, Building and Housing, regarding the states' and local authorities' practices in promoting cycling financially confirms this.¹⁵ However, it was impossible to find transparency with regard to the regional bodies' investment and revenue expenditure. A total of 90 regional bodies took part in the survey.

The government/states' "Cycling" working group is to assess the survey's results in detail and present conclusions to the Transport Minister's conference in Spring 2003.

7.2 Objectives

The Federal Ministry of Transport, Building and Housing wishes to use the government/states' "Cycling" working group as a basis to work towards

- getting the remaining regional bodies to achieve more transparency in relation to their own funding system in favour of cycle promotion,
- having the existing sources of funds used in a more purposeful way,
- getting the federal states to fully use the structural leeway they have with relation to the Local Authority Transport Infrastructure Financing Act (GVFG) to improve transport conditions in local areas,
- getting the various bodies responsible for construction to work together under the leadership of the states' leading road traffic authorities with the aim of drawing up a programme to bridge gaps in regional and national cycle networks.

The Federal Government is to report on how these proposals have been carried out and put into practice in the 2nd Cycling Report in 2005.

7.3 Funding instruments

7.3.1. Cycle facilities in the federal construction remit

The options open to the Federal Government, as the entity responsible for road construction, with regard to action and funding, are limited to dealing with national trunk roads. Where cycle paths are to be built along trunk roads with a view to improving road safety and overall mobility by physically separating cycle traffic from motorised transport, road construction funds are available in the federal trunk road budget. There are currently 15,000 kms of cycle paths along national trunk roads.



Tourist regions should be linked in to cycle touring.

The 2002 federal budget included, for the first time, an item of € 100 million (Section 1210 Item 746 22) specifically for building and maintaining cycle paths within the federal remit. This represents a doubling of expenditure as compared to previous years. Thus, within the framework of its competence, the Federal Government is making a contribution to improving cycle networks and cycle route links. This should be an incentive for other agencies responsible for construction to promote cycling in a similar manner in their own area of competence. This applies in particular to urban areas where cycling is particularly important. Network plans and the construction of cycle facilities are the responsibility of the competent administrative bodies in the federal states and local authorities. However, the planning and building of cycle

paths alongside roadways is often not done in a way that systematically promotes cycling. Sections of cycle path frequently appear in a selective, fragmented way, and do not add up to a network. Therefore the Federal Ministry of Transport, Building and Housing proposes that the supreme road traffic authorities in the federal states assume a coordinating role for this interface between the various agencies responsible (Federal Government, states, municipalities). In this context, country paths and forest trails should also be included in plans to improve the network, if there is a link to the trunk road. Where other road construction agencies are affected, the parties involved must sign written agreements regarding costs, ownership, obligatory traffic insurance, operation, signposting, etc.

Table 6: Building cycle paths on federal highways within the Federal Government remit

Period	Distance built (kms)		Building cost (€ million)	
	old states	new states	old states	new states
Before 1981	8,000			
1981-1990	2,920		481	
1991	250		61	
1992	300	500 ¹⁾	61	
1993	300	170	51	15
1994	310	200 ⁶	1	26
1995	280	120	51	15
1996	240	110	46	15
1997	190	150	36	15
1998	170	140	36	15
1999	220	140	36	15
2000	210	140	31	15
Total 1991-2000	2,470	1,170 ²⁾	470	133
Total	13,390	1,670	951	133
Combined total	15,060			1,084

1) New states' initial stock = 500 kms.

2) 1993-2000

Source: BMVBW

Summary 14: Planning and building cycle paths on federal highways

The planning objectives and criteria below are some of those that apply to the planning and building of cycle paths along national trunk roads:

- Stop the gaps in existing cycle facilities (linking paths, residential areas in fringe locations, out-of-town leisure centres).
- Link tourist regions to cycle touring.
- Traffic space where the carriageway is narrow.
- Exceeding of certain motor vehicle or cycle traffic volumes.

Summary 15: Assistance in line with the Local Authority Transport Infrastructure Financing Act (GVFG)

Section 2 Para. 1 of the GVFG makes it possible to fund cycle paths when there is a link to a road that, according to the GVFG, is eligible be funded, such as:

- important inner-city streets, except for access and service roads,
- special lanes for buses,
- important arterial roads that feed the wider transport network,
- important link roads in backward areas (Section 2 Para. 1 item 3 ROG) and
- roads related to stretches of railway that are being closed down.

In this context, other cycle facilities such as

- Bike & Ride schemes and
 - cycle stations
- can be assisted.

Retrospectively building separate cycle paths, and redesigning the road layout to create areas for cycling, when carried out on roads that are eligible for funding, are development measures that are eligible for assistance.

7.3.2 Cycle facilities whose construction and maintenance is the responsibility of the states, towns and local authorities

Local Authority Transport Infrastructure Financing Act (GVFG)

Within the framework of the GVFG, the Federal Government uses funds from the mineral oil tax revenue to promote investment in the improvement of transport infrastructure in

municipalities. The overall sum is around € 1.68 billion per year. Of the investment funds available, the old federal states account for 75.8 % and the new states and Berlin for 24.2 %. The Federal Government can award these grants to finance cycle paths on roads for which it is not responsible for constructing and maintaining. The prerequisite is that the planned measures, which the states themselves decided upon, fulfil the funding criteria (Summary 15).

While, under the GVFG, cycle paths are not in themselves eligible for funding, the types of scheme described above include building or upgrading cycle infrastructure such as cycle paths, signposting, traffic signals and cycle parking facilities to connect with public transport. Funds from the Act can even be used for separate cycle tracks if the regional authorities are the agency responsible for the construction and maintenance of the transport infrastructure that is eligible for funding. This shows that the federal states are already using the GVFG as a flexible funding instrument in a purposeful way. The state of North Rhine-Westphalia is a fine example (see Summary 16). Therefore the Federal Government also recommends that other states establish priorities to support cycling, and that they fully exploit what leeway exists in the GVFG in a flexible manner.

Under the Railway Crossings Act and the Federal Waterways Act, actions can also be funded on crossings where the municipalities, rural district or local authority groups are responsible for the costs of the road that is being crossed. Parking areas for those switching modes of transport can also be funded when they are intended to reduce the volume of motorised private traffic.

In relation to this, the Federal Government wishes to point out that the responsibility for action on and funding for schemes in the GVFG states programme lies with the states. Each state draws up plans for schemes under Section 2 Para. 1 of the GVFG, wherein the goal of improving traffic conditions away from built-up areas should be particularly taken into account. The financial framework ensues from the percentage share due to each state from the funds available. The granting of financial assistance for GVFG schemes is based on the agency responsible for the construction applying to the appropriate state office for approval. This body then decides whether the planned action is eligible for a grant.

Summary 16: Assistance for traffic infrastructure in North Rhine-Westphalia

Eligible scheme	Legal basis	Applicant	Amount granted *)	Type of funding
Cycle paths on major local streets	GVFG FöRi-Sta Item 2.1 VVG	Municipalities, districts	75 %	Part-finance
	GVFG FöRi-Sta Item 2.8.1 VVG			Priority: fixed amount
Cycle paths on major arterial roads	GVFG FöRi-Sta Item 2.2 VVG	Municipalities, districts	75 %	Part-finance
Cycle paths on major link roads in structurally weak areas	GVFG FöRi-Sta Item 2.3 VVG, ROG Section 2	Municipalities, districts	75 %	Part-finance
Traffic management systems, lights for cyclists	GVFG FöRi-Sta Item 2.4 VVG	Municipalities, districts	75 %	Part-finance
Share in tunnel/bridge costs under EKrG and WaStrG	GVFG FöRi-Sta Item 2.5 VVG, EKrG, WaStrG	Municipalities, districts	75 %	Part-finance
Other cycle paths, cycle lanes, cycle roads	FöRi-Sta Item 2.8.2 HH Item 883 17 VVG	Municipalities, districts	70 %	Priority: fixed amount
Cycle route signposting	FöRi-Sta Item 2.8.2 HH Item 883 17 VVG	Municipalities, districts	70 %	Priority: fixed amount
Bus lanes used by bikes	GVFG FöRi-Sta Item 2.9 VVG	Municipalities, districts	75 %	Part-finance
Cycle stations	GVFG FöRi-Sta Item 2.11.2 VVG, VV to section 44 LHO	Municipalities, districts	85 % max. € 1500 zwf. spend per location	Priority: fixed amount

*) 10 % reduction for financially strong municipalities,
10 % extra for schemes in structurally weak areas,
10 % extra when funding combined with the job's management,
but maximum funding of 90 %

Source: North Rhine-Westphalia State Ministry of the Economy and Small Business, Energy and Transport

Interreg Funding

Using monies from the European Regional Development Fund within the framework of the EU community initiative Interreg III, measures to promote cycling can also be funded (Funding period 2000 to 2006) up to 50 %, and even up to 75 % in areas of backward development (Objective 1 Areas ¹⁶). A prerequisite is that it is a project of trans-national or cross-border cooperation by municipalities or regions from two or more countries.

Thus in the past, for example, the North Sea Coast Cycle Route received financial support from funds from the previous EU funding programme Interreg II C, as it was a joined-up, signposted cycle route around the North Sea. Within the framework of Interreg III B, a follow-up project is planned to stabilise and upgrade the networks on a national and international level. Plans include improving the routes, building and developing Internet support, and improving monitoring.

Summary 17: The North Sea Coast Cycle Route

The North Sea Coast Cycle Route, which links existing cycle paths and markets them as one, is the first long-distance, European cycle route and, at 6,000 kms, the longest fully signposted cycle route in the world. It runs through six countries and an area inhabited by 8 million people. It opens up the entire North Sea coast to touring cyclists, while linking the neighbouring towns and settlements. In all, 70 regions from all the countries that border the North Sea took part in the project.

Interreg III B deals primarily with actions designed to attract investment and with smaller investments. Project applications are not decided upon in Brussels, but by international administrative committees of the national and regional development authorities.

Summary 18: 1997 Cycling Amendment

- Open some one-way streets to oncoming cyclists (one-way streets with low traffic volume, with an upper speed limit of 30 kph maximum).
- Add detail to the obligation to use cycle paths: use of cycle paths and lanes is only mandatory when signs make it explicit, otherwise cyclists can choose between "other cycle routes" and the roadway. Here for the first time, too, quality standards were defined for cycle infrastructure that is of mandatory use.
- Dispense with the previous obligation on cyclists to use hard shoulders; the right to use them continues to exist.
- The option to arrange cycle roads so as to combine cycle traffic within the framework of an area-wide plan for cycling.
- Open bus lanes to cyclists under certain conditions (e.g. lane width, low volume of bus traffic).
- Mark so-called "protected lanes" for cyclists under certain traffic and profile conditions. The obligation to stay on the right means that cyclists must use these. In a situation where oncoming vehicles pass, the protected lane can be used by motorised traffic for avoidance manoeuvring.
- Children must use the footpath until they are eight years old; they have the right to use it until they are ten.



Traffic regulations: making them cycle-friendly



8. Optimising the legal framework: simplifying and setting new priorities

8.1 Initial position

By introducing provision 24 of the changes to the road traffic regulations (the so-called 1997 Cycling Amendment), the Federal Government approved a number of traffic regulations to assist and improve the safety of cyclists on the roads (see Summary 18, p. 62).

Provision 33 of the changes to the road traffic regulations, which mostly came into effect on 1st February 2001, is also intended primarily to protect more vulnerable road users, including cyclists. For example, it made it easier for local authorities to set 30 kph speed limits where cycling is safer and more attractive, and enabled what had originally been the experimental opening of one-way streets to oncoming cyclists to be put on a permanent basis, as of 1st January 2001. This has helped to improve and usually shorten the network connections in residential areas.

8.2 Objectives

In spite of the positive effects that the new regulations have had, the experience of the local authorities has shown that the Road Traffic Regulations (StVO) and the Road Traffic Licensing Regulations (StVZO) need to be revised to favour safe and attractive conditions for cycling. Moreover, local transport planners and highways authorities are rightly asking to be allowed more leeway and flexibility. There is, especially, a need to rewrite the administrative provisions of the StVO. The Federal Government shares this concern.

Apart from the amendments to the StVO and the StVZO, the Federal Ministry of Transport, Building and Housing, with the participation of the federal states and experts, also intends to review other relevant provisions which have a direct or indirect impact on the parameters for the use of bicycles or on the promotion of cycling. Calls for the regulations to be reviewed with a view to "cycle-friendliness" were aired many times at the public hearing of the German Parliamentary Committee on Transport, Building and Housing on 24th January 2001.

Summary 19:

Changes required to road traffic regulations

General objectives:

- Optimise StVO and StVZO to favour safe, attractive cycling conditions.
- Simplify the legal framework.
- More leeway and flexibility for local authorities to act.

Priority changes required:

- Dispense with the priority given to the construction of cycle paths over separating cycle lanes from the highway.
- Dispense with fixed guidelines regarding motor vehicle volumes and highway widths in cycle infrastructure issues.
- Ease the turning restrictions imposed on cyclists by the provisions in Section 9 StVO, and ease the prerequisites for opening certain one-way streets to oncoming traffic.

8.3 Changes to road traffic laws

8.3.1 Road traffic regulations (StVO)

The Road and Transport Research Association (FGSV) has put forward a number of recommendations with a view to revising the StVO and its administrative provisions (VwV). Two trains of thought underlie these considerations:

- to separate the road traffic regulations from the technical conditions of use related to transport and construction (e.g. largely dispense with measurement-related specifications and fixed usage boundaries) in the StVO and the administrative provisions.
- More leeway and flexibility for local planning and road traffic agencies.

Summary 20 shows the detailed proposals.

Summary 20: FGSV proposals for changing the StVO

- Purpose-built cycle paths and cycle lanes to be largely treated equally while taking into account the specific recommendations for usage in the planning guidelines.
- No more binding, predetermined width restrictions on cycling infrastructure (Section 2 StVO/VwV Paragraph 4 Clause 2 Notes 18-21), to be replaced by qualitative requirements and reference to planning guidelines.
- More flexibility in using cycle roads (Section 41 StVO - Line 244). e.g. no more pre-conditions that there should be accompanying action to reduce motor traffic speed, when other types of traffic control (e.g. staggered parking) are sufficient. 30 kph speed limit set for all vehicles. Up until just a "moderate" speed has been permitted, including for cyclists.
- Broaden the possibility of using cycle lanes where there are higher motor traffic volumes, too, if the cycle lane can be made wide enough (VwV note 237).
- A cycle path can only be introduced when there is still also enough room for pedestrians to move about (VwV note 237).
- Change the conditions imposed on cyclists' use of bus lanes (VwV note 245) when cyclists can neither be routed to a special cycle path nor permitted into the "special lane".
- More flexible use of protected lanes (Section 42 StVO/VwV line 340) with no rigid upper motor traffic volume limits in individual cases. Protected lanes ought in the future also to be marked at crossing areas.
- Flexible use of different options for directly turning left at junctions. For example Section 9 Paragraph 2 StVO no longer stipulates that cyclists are not permitted to turn directly to the left from a lane that is marked (cycle guide) as straight ahead. The cyclist's right to choose should be supported by deploying proven features that support direct left-turning (cycle filters, broadened waiting lanes).
- Stopping/parking on protected lanes should not be permitted (Section 12 Paragraph 1 Number 10 StVO).
- More leeway in opening up one-way streets to oncoming cyclists, where they are not used by local buses or by a lot of heavy goods vehicles (incl. abandonment of fixed width specifications in the VwV).
- Clarification that cyclists only need to observe pedestrian signals instead of road traffic signals when the pedestrian/cyclist route is clearly separated and both pass together over the road leading to the T-junction (Section 37 StVO).

The Federal Ministry of Transport, Building and Housing will review the FGSV's proposals together with federal states, and a cycling amendment should be put to the Federal Assembly for approval later this year.

Using cycle trailers to carry people

On 23rd February 2002, the German Parliamentary Committee on Transport, Building and Housing asked the Federal Government to resolve the issue of transporting people with cycle trailers, which is not currently regulated explicitly in the StVO.

Section 21 Paragraph 3 of the StVO applies to the carriage of people on cycles. This only permits children below the age of 7 to be carried, on special seats, by people aged at least 16. After consultation with the federal states' supreme road traffic authorities, this regulation is also currently being applied to the carriage of persons in cycle trailers. In the interests of legal clarity and safety, and in order to achieve agreement with the technical provisions that the StVZO stipulates regarding the design of bicycles and trailers, the Federal Ministry of Transport, Building and

Housing is, within the framework of the next ruling to amend the StVO, to propose an addition to Section 21 Paragraph 3 of the StVO regarding the carriage of children in cycle trailers.¹⁷ It is to state that a maximum of two children up to the age of 7 may be carried by a person aged at least 16 in cycle trailers.

On this issue, the question also had to be clarified regarding the regulations under which a "cycle taxi service" using three-wheeler cycles can be operated nationally and in compliance with the StVO - through the issuance of a certificate of exemption in line with Section 46 Paragraph 2 Clause 1 StVO, or a change to Section 21 Paragraph 3 and Section 33 Paragraph 1 Item 2 StVO. So at the moment, for example, the carriage of persons above the age of 7 is only permitted when an individual certificate of exemption has been issued by the road traffic authority responsible, as set down in Section 46 Paragraph 1 Item 5a of the StVO. The Federal Ministry of Transport, Building and Housing has expressly called upon the federal states to make the procedure for issuing such exemption certificates for operating cycle taxis as "unbureaucratic" as possible. The states have agreed to proceed accordingly.

The states are opposed to more comprehensive regulation - e.g. the passing of an exemption regulation applicable throughout the country. Their argument is based on road safety concerns taking into account local conditions. These concerns can only be adequately met through an exemption certificate in line with Section 46 Para. 1 Item 5a StVO, which is usually issued for several years. The responsible body can use this exemption certificate to set the local requirements and conditions needed for safety reasons, as they relate to routes, (daily) operating times and waiting points.

8.3.2 Road traffic licensing regulations (StVZO)

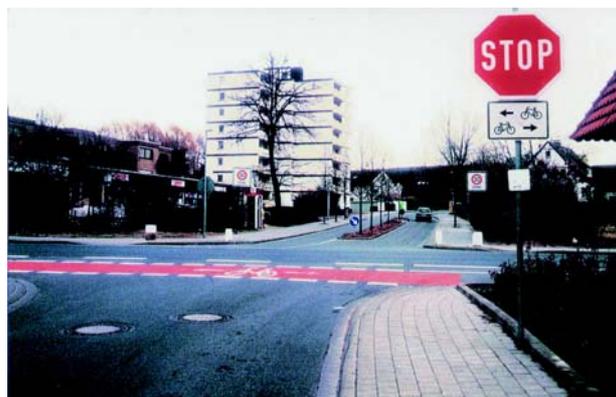
The StVZO regulates the design and operation of road using vehicles. While motor vehicles have to satisfy a wide range of technical requirements in order to be allowed on the road, the StVZO only sets out very general provisions concerning the condition of bicycles and cycle trailers. To a certain extent, the general regulation contained in Section 30 of the StVZO is the only legal basis. While it is true that some DIN standards lay down specific requirements, e.g. on braking behaviour, they are not legally binding.

The Federal Ministry of Transport, Building and Housing is to amend the StVZO to ensure that the insufficient or non-existent regulations governing the condition of cycles and cycle trailers are corrected and enhanced (see Summary 21 for details).

The Federal Ministry of Transport, Building and Housing is to prepare the draft of the amendment to the StVZO in time so that it can come into force later this year.

Summary 21: Anticipated changes to the StVZO

- Optional use of 12 volt light systems (only 6 volts up to now).
- Double wiring from the dynamo to the head light and to the tail light in order to avoid any defective power supply arising from rusty contact points between the cycle frame and the individual light components.
- Batteries/ rechargeable lights to light cycle trailers
- Introduce minimum deceleration values for brakes which also ensure that braking distances are short when the brakes are wet.
- Introduce a duty on manufacturers to label cycles that are intended for use on the road, stating: "Conforms to StVZO".
- Recognise as bicycles vehicles similar to bicycles that have an electric motor to assist physical effort (maximum output 250 watts and 25 kph top speed).



Important to cyclists: safe, attractive paths.



9. Measures to increase safety

9.1 Initial position

Safety issues play a major role when choosing the "bicycle" as one's mode of transport. So a central plank of the National Cycling Plan is to increase the safety of cycling while increasing cycling's share of all traffic.

North Rhine-Westphalia's "Cycle-friendly towns and municipalities" scheme has shown that the two objectives

- increased amounts of cycling and
- improved road safety for cyclists should be closely linked when there is an effort to promote cycling.

Thus certain towns were able to increase cycle traffic share from 3 to 5 % during an 8-year period. During the same period the number of persons injured in accidents fell to 4 per 10,000 residents. Figures from the Netherlands show that this trend does not only apply to the selected towns.

Summary 22: Cycle accidents

- Cycling casualties in 2000:

73,397 cyclists were injured in Germany, i.e. 8,087, or 10 %, fewer than in the previous year.

- Breakdown:

Cycle users killed	659	(- 0.5 % compared with 1999)
Badly injured cycle users	15,586	(- 6.9 % compared with 1999)
Slightly injured cycle users	57,152	(-2.0 % compared with 1999)

Cycle users killed by age group:

265 (1999: 257) (40.0 %) of the cyclists that were killed were over 65 years old,

115 (1999: 137) (17.5 %) of the cyclists that were killed were between 55 and 64,

55 (1999: 80) (8.4 %) of the cyclists that were killed were children aged under 15 years,

Cycling casualties by age group between 1991 and 2000:)

	Cycling casualties								
	Total			Of which					
	1991	2000	% change	Killed			Seriously injured		
1991				2000	% change	1991	2000	% change	
Total	70,930	73,397	3 %	925	659	- 29%	17,696	15,586	- 12%
under 6	1,300	800	- 38 %	12	4	- 67 %	315	144	- 54 %
6 - 10	4,983	3,565	- 28 %	37	10	- 73 %	1,393	717	- 94 %
10 - 15	11,012	11,207	2 %	59	41	- 31 %	2,510	2,014	- 20 %
15 - 18	6,083	5,763	- 5 %	32	30	- 6 %	1,358	1,069	- 21 %
18 - 25	9,570	7,219	- 25 %	66	20	- 70 %	1,891	1,175	- 38 %
25 - 35	10,815	9,935	- 8 %	62	33	- 47 %	2,180	1,689	- 23 %
35 - 65	20,321	26,126	29 %	339	255	- 25 %	5,475	5,993	9 %
65 and over	6,585	8,476	29 %	316	265	- 16 %	2,550	2,775	9 %
unknown	261	304	16 %	2	1	- 50 %	26	10	- 62 %

Source: StBA

Most common causes of accidents to injured cyclists:

● Incorrect road use:	13,483	(- 5.4 % compared with 1999)
● Turning:	6,759	(- 6.4 % compared with 1999)
● Disregarding a right of way:	5,907	(- 6.0 % compared with 1999)
● Alcohol:	4,194	(- 6.4 % compared with 1999)
● Inappropriate speed:	3,344	(- 4.0 % compared with 1999)

If one takes "traffic as a system", these positive examples show that accidents can also be interpreted as system failures. As "system administrators", it is the federal states and municipalities that are best placed to provide cyclists with security by adjusting the system to suit their presence.

Cyclists that do not use the correct road areas are exposed to a particularly high risk of accident. The reasons behind this improper behaviour are often the cyclist's unwillingness to take the long way around, the difficulty of crossing roads and the desire to have a direct, simple connection. It is frequently the case that infringements of the rules reflect the fact that the cycle facilities are not properly designed for the users.

Summary 22 shows the accident figures for 2000, broken down by consequence and age group, in comparison to the previous year and to 1991.

Analyses of accidents which lead to personal injury show that most accidents involving cyclists occur in urban areas. Almost 90 % of all accidents involving injury to a cyclist are recorded in urban areas. However, it is the cyclist-related accidents that occur on roads outside urban areas that have particularly dire consequences. Almost 44 % of all road accidents involving death to a cyclist occur on roads outside urban areas. It is clear from looking at the pattern of accident figures in recent years that cyclist safety has not improved in line with the generally positive road safety trends.

Children, teenagers (especially male) below the age of 18, and older people are particularly vulnerable to accident. Smaller children are often involved in accidents because, for example,

- the streets where they live are often laid out without regard for children's needs,
- car drivers pay too little attention to children and
- children do not yet have the mental and physical attributes required to ride safely on today's roads.

The consequences of accidents to the elderly, who constitute an increasingly large proportion of cyclists, are often far more serious than those to younger cyclists because they have less physical power of resistance. Over a third of the cyclists killed came from the over-65 age group.

The Federal Government, the states, the municipalities and road safety organisations have been running - in some cases since 1949 - road safety initiatives or programmes particularly aimed at children and teenagers. They seek to improve cyclists' road safety, and to provide cycle training and education.

Summary 23: BMVBW road safety activities in the cycle sector

- Cycle weeks throughout the country organised by the German Road Safety Watchdog (DVW). Road safety agencies at state and local level pursue initiatives.
- The DVW's "FIT" cycle education project. This project employs mobile cycle workshops to make children and teenagers aware of their cycles' technical condition, and fixes any small imperfections on the spot.
- Supports road safety campaigns and ADFC initiatives. Since 1996, all road users have been publicly called upon to behave in a way that is considerate and mutually beneficial.
- Provide information about cycles, cycling and cycling helmets.
- TV adverts during a traffic game show "Cool oder Crash", the "Vampy-Show" and Sesame Street aimed at improving children's cycle safety.
- Support for the German Road Safety Council's and DVW's target group programme "Child and Traffic", including coverage of the "children as cyclists" issue, for example.

Summary 24: Traffic education and training measures

● The responsibility of the strong

Engendering a positive attitude amongst motorists with regard to slower road users is a major part of the cycle-friendly climate which plays such an important role in making cycling attractive. To encourage behaviour based on more equal relationships, the social advantages of cycling also need to be made clear to motorists. Of all road users, motorists are the best protected. However, they also provide the greatest risk to pedestrians and cyclists, and the danger grows exponentially along with the size and speed of the vehicle. Although car drivers are the most intensively trained of all road users, they are the main responsible party in two out of every three accidents involving cyclists and cars. The main examples of incorrect motorist behaviour that endanger cyclists' safety are:

- disregarding the right of way at junctions,
- overtaking too closely,
- parking on cycling infrastructure,
- opening car doors without regard for approaching cyclists.

However even motorists who abide by the rules ought also to be aware that, even when it's the cyclist at fault, any accident they are involved in may result in serious injury or death, simply because of the sheer mass and speed of their vehicle. This elevated potential for danger means, therefore, that the motorist bears a weighty responsibility. All motorists should, therefore, understand the typical (and not always legal) customs of the cyclist, and compensate for their errors by driving in a manner that is considerate, defensive and anticipatory. They need always to beware of possible dangerous manoeuvres, particularly when there are children (on cycles) about. This should mean that all motorists reduce their speed and increase their readiness to brake.

● Instruction at driving schools: covering the subject of cyclists

The subject of cycling is covered in different contexts within the framework of the theoretical and practical driving instruction. Instruction particularly focuses on describing correct behaviour vis-a-vis cyclists, with respect to situations of priority, right of way and overtaking. However, drivers are often not told that children on bikes have to use the pavement until they are 8 and have the right to use it until they are 10. This causes dangerous situations, above all when vehicles are turning and approaching crossroads and T-junctions where the visibility is restricted.

In the theory module of the driving instruction course, an entire unit (90 minutes) is already dedicated to "Other road users" (Annex 1 to Section 4 FahrSchAusbO). This training focuses particularly on the "notes and behaviour relating particularly to cyclists". Given the potential for conflict between cyclists and motorists, it seems that it would be desirable if motorists were to be further sensitised on this issue. Such sensitisation would not only cover issues such as children on bikes, but also deal in more depth with the unconventional and, sometimes, illegal riding behaviour of both young and adult cyclists, and with the risks that this causes. The same applies to instruction for goods vehicle drivers, although some of the issues are a little different here (e.g. the blind spot).

● Cycle-friendly driving: integrate more fully into safety instruction

Numerous bodies, such as the German Road Safety Council and the German Automobile Association (ADAC), offer road safety instruction and programmes for motorists, both private persons and company employees. These programmes, which are listed in the BMVBW guide to road safety, open up the possibility of also practising cycle-friendly driving after instruction has been completed. Before long there needs to be a review, in collaboration with the providers, to see how the issue of "cyclist safety" can be granted more weight within these programmes. Participation in instruction such as this could be promoted by the third party insurers taking it into account when setting their price structures, if the insurers can be persuaded of the benefits that they themselves would accrue from such an initiative.

● Safe cycling behaviour

The risk of accident is closely linked to the cyclist's own behaviour and abilities. Only cyclists who are in full control of their bike, who know the rules of the road and who are able to properly assess the behaviour of other road users are in a position to go out on the roads safely and securely. Measures to improve cyclist safety must, then, focus on these areas:

- age-related road safety education for children and teenagers,
- further training for teachers and educators and
- increase all cyclists' awareness of their responsibilities.

● Road safety education for children and teenagers

Traffic dangers particularly affect children and young cyclists. The risks to children and teenagers can be reduced if they are given early, practical preparation for traffic (by parents) and through road safety education (nurseries and schools). During the last 15 years, a number of research projects have been run on behalf of the BAST which look at the subject of cyclist safety in different ways. Building on the data that has been gleaned from these research projects, the following road safety instruction and education measures can be taken to improve safety and the general road environment:

● Introduce children to traffic early on

Basic motor skills that are vital for safe road use should be practised at an early age in an appropriate way, e.g. using a scooter. A scooter's simple design enables the child to exercise skills required in cycling, such as maintaining one's balance, braking, controlling one's speed and judging distances. The scooter's design means that clumsiness and minor accidents are of less consequence than the equivalent on a bike. Research indicates that a child's overall motor abilities are better aided during pre-school years by using a scooter rather than a bicycle.

● Cycling at school:

Parent surveys have long shown that children are able to ride a bike when they first go to school - in some cases, they have been able to for years. This trend must be taken into account in the future by starting cycle instruction in Year 1 instead of Year 3 as is normally the case at the moment. By the time they take the cycling test in Year 4, their abilities must be well enough developed for them to be able to ride independently and safely on the roads. While controlling the bike and learning traffic rules are given greatest weight prior to the cycling test in Year 4, road safety instruction for older children needs to deal specifically with the fact that this age group are more willing to take risks, and aim to make them more aware of their responsibility to behave considerately, appropriately and safely, and to safeguard the environment.

Apart from this age-related instruction in basic theory, for which there is already plenty of material available, there must in the future be greater emphasis on practical training. Suitable here, as well as school instruction, are the young people's road safety schools and also the daily journey to school. The facilities of the young people's road safety schools should, in the future and in cooperation with local agencies (schools, police, DVW, VCD, etc.), offer more supervised use in the afternoons, too. There needs to be an analysis of every school's accessibility for cycles, so that from Year 3, at the latest, all pupils can get to their school on safe cycle routes. Regular projects on cycling and programmes with parent participation to improve the safety of school journeys can help to assist the children's daily routines, which are important for road safety. Embedding cycling into sports education (e.g. inclusion in the National Youth Games) would increase the cycle training options for schoolchildren.

● Mandatory use of helmets

Making it compulsory to wear a cycling helmet is difficult due to problems of acceptance and the limited options for enforcement and control. So the Federal Ministry of Transport, Building and Housing continues to rely on helmets to be worn voluntarily, and is campaigning for this even more strongly within the framework of road safety instruction and education. Wearing a cycle helmet will become the norm for a child if parents insist on them wearing a helmet when they ride a scooter and if they themselves always wear a helmet when cycling. Schools should continually focus on the wearing of helmets at suitable events and it should be made compulsory within the school grounds. Practice shows that this type of agreement is already often in place at school events where cycles are used. Cycle helmets are so important because they prevent head injuries or reduce their severity. When purchasing helmets, consumers should particularly look for products bearing the CE or EN 1078 quality marks. The helmet should not restrict the user's field of vision or hearing.

Summary 24: Traffic education and training measures

● Teacher training and further education

Given the age structure of the teaching community, road safety with particular emphasis on cycling needs to be included long-term in teacher training courses. Moreover, more emphasis should be put on adopting new approaches (such as so-called "early cycling") in the course of teachers' continuing education. In the short-term, use can be made of the many programmes published by the German Road Safety Watchdog and the German Road Safety Educators Working Group. Since these programmes have not been free up until now, ways must be found for the Federal Government, states and local authorities to fund them so that all schools are able to participate. Savings made on school operating costs ought not to be made at the expense of road safety instruction.

● Increasing cyclists' sense of responsibility/ punishing breaches of the rules

Up until now, efforts to bring it home to cyclists how vital it is to respect road traffic regulations have not been successful in all cases. Indeed, there is often heated public debate about cyclists' negative behaviour. However, up until now there has never been a coordinated, long-term effort to educate broad sections of the population. Suitable initiatives should be developed and implemented based on social marketing criteria. At the same time, cyclists' transgressions should be punished more heavily. This is why fines for cycling offences have been raised from € 5 to at least € 10. There could be a higher fine structure for repeat occurrences, as is the norm with motor traffic.

9.2 Objectives

The "Programme for Improving Road Safety" (2001 road safety programme) which the Federal Ministry of Transport, Building and Housing commenced in February 2001 seeks, above all, to improve the safety of cyclists. Special attention is given to those who are at particular risk on the roads - young people and the elderly. The following areas of action are particularly important here:

- improving the road safety climate and promoting the joint responsibility of all road users (the "keep cool - keep moving" campaign),
 - increasing vehicles' safety and
 - improving the quality and safety of roadways.
- "More" cyclist safety in this context has to be measurable in terms of a reduction in accident figures and in the number of road users that get injured or killed. Even where the volume of cycling increases, there must be an attempt to lower the absolute number of victims still further. That this is possible is indicated by the examples that have been cited. This is because the presence of more cyclists leads to motorists paying more attention. This should be even more the case if a cycle-friendly climate with road users on equal terms could be created.

9.3 Remedial strategies and initiatives

Measures to improve cyclist safety need to be embedded within a very broad road safety effort that, on the one hand, identifies and removes all the safety-related weak points in the cycling infrastructure and, on the other, calls for and develops the sense of responsibility of all road users within the framework of their abilities and the risks associated with their mode of transport.

Beyond that, it is also important to analyse the pattern of involvement in accidents, and to identify and implement well-directed, remedial measures with regard to related issues such as accident locations, causes and age groups. Furthermore, the accident prevention reports published by the Federal Ministry of Transport, Building and Housing should be used to identify future emphases for road safety efforts.

9.3.1 Traffic behaviour

The fact that the federal state is responsible for the transport system does not absolve individual road users, whether in cars, on foot, using rollerblades or riding a bike, from their own share of responsibility. Of course, cyclists, too, must help to reduce danger by observing traffic regulations and adjusting their behaviour accordingly.



Every road user should contribute to safety

All individuals must feel that they are obliged to contribute to road safety by behaving appropriately - both by respecting traffic regulations and by compensating for others' errors by good anticipation and defensive driving (Section 1 StVO: constant care and attention, and mutual consideration). Campaigns for safety-conscious conduct in traffic have to be directed at all road users with strategies aimed at specific target groups - at cyclists and pedestrians of all ages, and at motorists. Building on the data that has been gleaned from these research projects, the following road safety instruction and education measures can be taken to improve road safety and the general traffic climate (Summary 24).

9.3.2 Safe vehicles

Bicycles that work properly and are equipped to StVZO requirements are indispensable for safe and accident-free cycling. In contrast, cycles that are unroadworthy constitute a safety risk that can have fatal consequences. So all road users should regard fines issued for infringements of the StVZO not as some kind of bureaucratic harassment, but as a last resort in efforts to promote greater safety. Regular cycle maintenance, or inspection, is equally as important as wearing a helmet and visible clothing.

As well as improving "cycle safety", there is also a need to improve the safety requirements imposed on other types of transport, particularly on cars and goods vehicles.

Improving cycles' technical condition

The technical safety of cycles and cycle trailers needs to be improved by making it compulsory to have up-to-date technology, e.g. effective brakes, approval for a 12 V lighting system and design checks for parts used for connecting cycle trailers to be used for carrying children.

Chapter 8, "Optimising the legal framework", covers the special requirements and improvements needed to improve the safety of cycles and cycle trailers.

In recent years, the BASt has carried out and commissioned many studies to look at cycle and cycle trailer safety. Results from these projects have been channelled into the existing regulations (the StVZO amendment, DIN standards, etc.) and have been the basis for developing new guidelines (instructions for attaching trailers to cycles, BASt safety info).

The blind spot

The dangerous "blind spot" created by mirrors in and on the car needs to be eliminated. In order to resolve the persisting problem of limited fields of vision and blind spots, particularly on commercial vehicles, the European Commission is currently acting on a proposal by the Federal Government and working on a draft to amend the 7/127/EEC Directive concerning rear-view mirrors.

The draft aims to meet these objectives:

- improve and modernise conventional mirror systems,
- define the aspherical proportion of the mirror and specify the field of vision proportion deriving from this.
- review the curvature requirements for wide-angled mirrors to increase fields of vision,
- enable the use of new types of system (video cameras, acoustic information, infra-red technology, etc.).

The European Commission is also working on comprehensive guidelines for a pedestrian-friendly design of the front end of motor vehicles. The Federal Government is supporting this project, which also benefits cyclists, and will campaign for its early adoption. This ought to lead to a further reduction in the number of traffic victims from amongst the more vulnerable road users (pedestrians and cyclists) and to the severity of their injuries.

Furthermore, and stemming from a German initiative, the European Commission intends to upgrade the existing Directive for exterior projections on vehicles, in order to keep dangerous designs that constitute a particular danger to children away from the marketplace. The Federal Government is working on a parallel measure to outlaw dangerous metal bull bars at a national level.

9.3.3 Safe roadways

Like all other road users, cyclists have the right to move about as comfortably and safely as possible. It is not always necessary that the cycling infrastructure consists of separate cycle paths. Attention also needs to be given to introducing measures to ensure that cycles can be parked safely and carried in buses and on the railways. Summary 25 lists the requirements for safe roadways.

Summary 25: Safe roadways

The Federal Government has funded a large number of empirical studies into making cycling safer (see Volume A 7 "Urban traffic research", issued by the BMVBW; an updated version of which will be issued in 2003). As well as considering the road safety issue, these projects analysed cyclists' acceptance of facilities, with regard to individual streets and to entire through-routes.

As a result, there are a wide range of cycling facilities available that can enable a differentiated cycling infrastructure that is tailored to the needs of its users, is safe, and is designed around the constraints of the local urban environment to be formulated.

The recommendations for cycle facilities (ERA 95) describe how they can be deployed, the boundaries, and the sizing required for the individual control methods. Embodied in a single approach, they take into account the needs of cyclists, local public transport operators, private motor traffic and pedestrians. They provide the basic conditions for introducing more attractive cycling facilities that are designed to meet cyclists' practical needs.

In many towns, some of which have played a leading role in the "Cycle-friendly town" promotional project, it has been shown that building an attractive cycling infrastructure can provide a direct boost to cycling.

However, the picture is different in many towns. The reasons for this difference are varied, as are its symptoms. It is often the case that there are no comprehensive cycling connections (a cycling network). In many cases, too, all the possible routes are not fully signposted. Moreover, where individual streets are concerned, it has been found that the cycling facilities are not designed to meet cyclists' real needs. Therefore many cyclists do not accept or use these parts of the cycling infrastructure. Then, again, people choose not to follow the rules indicated by the various types of traffic guidance. This can cause unsafe traffic situations, and even accidents, or irritate and worry other road users.

These circumstances are a contributory factor in making the bicycle something that is not regarded as a proper and equal means of transport by all road users. They also have a negative impact on the general cycling environment, which is detrimental to a growth in cycle use.

● Extending the cycle network

A guiding idea, which was also behind the ERA 95, is to make cycling safe and attractive throughout the country in order to promote the use of the bicycle as an attractive, fully-fledged means of transport. To do this, there is a need to build cycle networks at a local, regional and inter-regional level that are made up of comprehensive main connections and additional connections at urban district level. In order to design cycling networks, a sort of needs analysis needs to be done to analyse cyclists' start- and end-points, decide priorities for cycle routes, and draw up an inventory of existing routes. Based on these analyses, targeted actions should then be taken to extend the cycle network. At this juncture there needs to be a differentiation between measures that can be implemented quickly (such as opening up one-way streets and creating through-ways in cul-de-sacs, signposting, road markings on certain sections, guidance/safety measures at intersections and creating suitable crossing points) and medium-term measures, which usually involve construction.

These are mostly needed on high-volume or high-speed roads to improve cycle safety through the introduction of cycle paths or protected lanes (optional lanes). In this context, particular attention is drawn to the subject of signposting as a major part of network-building. Even though many cycle destinations are situated on main roads, it is more attractive and safer to take cyclists away from the main roads. Since no special guidance is required for cyclists in most minor streets, erecting suitable signs on these routes can make a cheap but important contribution to a widespread, pleasant cycle network.

● Safety through traffic calming

In most cases, cyclists have to share the highway with motorists, whether it be due to amount of space available or to there being a lack of funds to redesign or redistribute the space. The traffic calming measures permitted by the road traffic regulations, decided upon by the responsible agency at local level, lead to a significant reduction in the risk of accidents and in their severity. Motorists can get to know their immediate vicinity better and react more quickly to unanticipated events.



10. Combining research and project activities

10.1 Initial position

At a time when the challenges facing the transport sector are increasingly complex, research into mobility and traffic needs to also cover the great need for data concerning the promotion of cycling. The content and scope of research work is determined by current issues and problems as well as by the challenges facing the individual department. What is needed is help in deciding how to prepare and implement transport policy plans and measures, studies that aim to update laws, regulations and recommendations, and look at technical issues and optimising specific areas. The new research and development efforts ought to help cycling play a more significant role in future, integrated transport policy.

Numerous cycling-related research projects have been carried out with Federal Government money over the past years. Those behind federal cycle research initiatives were:

- the BMVBW together with the Federal Highways Agency (BASt),
- the BMU together with the Federal Environmental Agency (UBA),
- the BMBF together with TÜV Rhineland.

Some of the Federal Government's cycling research projects and pilot projects since 1998 are listed below.¹⁸

BMVBW and BASt's main research efforts

The aim has been, firstly, to collect data about cycling. Secondly, it has tackled questions about specific user groups (children and older road users) and about vehicle technology (requirements for cycle equipment, cycle trailer safety).

One focus of these research projects lay in studying how cyclists can be guided around particular stretches of road and junctions. Distinctions were made in terms of location and road category. Cycle routing at particular points such as public transport stops and one-way streets was also analysed.

The report presented to the German parliament in May 2000 constituted an important review of the status of cycling in Germany.¹⁹ This resulted in further research areas and priorities being identified. The report is to be revised every five years.

Table 7: BMVBW research projects

Project	Comments/key words
Coordinate and integrate cycle paths, incl. long-distance paths, into the urban transport system	Studies based on demonstration schemes; deficiency analysis, remedial proposals
Cycling potential - construct bases and measure-sensitive models for integrated urban transport planning	Work out the bases for calculating potential and work out a cross-transport, IT-supported set of planning tools. Submitted 2002.
Cycle-friendly government district in Berlin	Inventory, deficiency analysis, scenarios and scope for development. Submitted end 2002.

Table 8: BAST research projects

Project	Comments/key words
Child and teenager involvement, behaviour and safety in/on the roads	
Ideas to promote the wearing of cycle helmets by children and teenagers	Submitted 2003.
Improve cycle routing at intersections by technical marking measures	Submitted 2002.
Measure cycle facilities in technical traffic terms.	Submitted 2002.
Road safety in one-way streets with oncoming cyclists	
Area of deployment of optional lanes with emphasis on safety and traffic flow.	
Cycle routing at public transport stops	
Pedestrian and cycle routing at roundabouts	
Assessment of cycle facilities' attractiveness	

Federal Environmental Agency (UBA)

The UBA conducted substantial research into cycling as long ago as between 1979 and 1983. It focussed on model-based ideas and their practical implementation. Later projects studied the implementation of the StVO amendment and carried out representative surveys of leisure mobility. Another research focus was in the area of environmentally sound shopping and leisure traffic in selected towns. Currently, pilot projects are looking at cycle- and pedestrian-friendly towns in connection with measures to promote cycling.

Cabinet in May 2000, € 1 million in funding will be provided up to 2004 in order to support various research initiatives on cycling.

In the course of the "Parameters of and motives for cycle use in everyday traffic" project, mobility surveys are being carried out in five German towns. The project's aim is to alter children's and teenagers' "mobility career" with respect to inter-modal options and the mobility choices they make later on in life. The practical results are to be made known in the school environment, and there will be advice from and discussion with decision-makers in town planning offices.

10.2 New research directions

In order to give politicians, planners and scientists a clear, concise summary of the most important relationships, remedial ideas and effects of measures to promote cycling, the BAST, on behalf of the Federal Ministry of Transport, Building and Housing, is preparing an assessment of the results of domestic and international research into cycling in cities. The study will replace, or update, a comparable publication from 1991.²⁰ The Federal Government/states' "Cycling" working group should be able to use these results to identify gaps in cycling research and determine their urgency. It is thought that the study will be submitted in 2003.

The "Mobility and Traffic" programme

Within the framework of the "Mobility and Transport" Programme approved by the Federal



Local recreation and leisure mobility: creating and expanding options.

Table 9: UBA research projects

Project	Comments/key words
The prospects of cyclists and pedestrians contributing to environmental relief	Surveys on the status of the promotion of cycling and pedestrian traffic, implementation of the StVO amendment, deficiencies, guidelines for local authorities.
Mobility styles in recreational activities	Representative study of leisure mobility, conclusions for specific target groups, estimates of potential
Pilot project: Environmentally sound shopping and leisure traffic in Halle and Leipzig	Environmental relief at different retail outlets, leisure mobility, car-free zone concept, short distance local recreation
Pilot project: Cycle- and pedestrian-friendly town	Implement measures to promote sustainable mobility. For submission 2003.

Within the "Mobinet" lead project, the Federal Ministry of Education and Research is funding Bike & Ride initiatives at three Munich railway stations. Measures will include the construction of an automatic cycle park with cycle service station, and attractive parking areas.

The Federal Ministry of Education and Research is seeking to strengthen the classic, environmentally-sound trinity of public transport, pedestrians and cyclists through a major promotional effort entitled "Local personal transport for the region". This focuses on the transport situation in rural areas and in small and medium-sized towns, and the transport links between rural and urban areas. In the ARMONT project network, a complex cycle work package is being promoted in the Moselle and Eifel/Ahr region, focusing on the Cochem-Zell and Ahrweiler areas. A database of tourist and cartographic data is being used to provide cyclists with information so that potential cyclists can be offered attractive options for a combined touring

holiday before they set out. The idea of using a bike is to be made more attractive by working in cooperation with public transport. Also, the "aufdemland.mobil" project network deals with two of the priorities involved in promoting cycling: Bike & Ride, plus taking cycles on buses and railways in a demonstration zone in the Bentheim area. There is to be a study of the systematic carriage of cycles particularly in buses in everyday traffic. The potential for cycle touring in this area, along the planned Weser-Ems rail-bike route (the Rahden-Herford rail route), are to be further exploited.

With regard to safety, the Federal Ministry of Education and Research is funding the INVENT project network, which is looking at traffic assistance systems. A sub-project, "Anticipatory active safety for pedestrian/cyclist protection", is looking into the avoidance of accidents and limiting the severity of accidents involving vulnerable road users by incorporating sensor and actuator systems. Reversible, active bumper systems and active elements in the bonnet and windscreen area are also to be developed.



The bike is perfect for routine trips to the shops, too.



11. Invitation to participate in a public dialogue

With the publication of the National Cycling Plan 2002 to 2012, the Federal Government seeks to initiate a wide-ranging debate about the prospects and avenues that can be opened up by systematically and thoroughly promoting cycling in Germany. The various proposals, measures and recommendations are intended to provide guidance, and point the way towards a mobile future with the bicycle.

The National Cycling Plan is the result of many discussions with the federal states, the representatives of local authorities' associations, the German Cyclists' Federation (ADFC), the German Sustainable Transport Association (VCD), the German Road Safety Council (DVR), the German Road Safety Watchdog (DVW), the Association of Two-Wheeler Manufacturers (ZIV) and scientific organisations. Moreover, a project group assisted the Federal Ministry of Transport, Building and Housing with the drawing up of the National Cycling Plan.

However, the various government levels and organised interest groups are not the only ones responsible for promoting cycling. We will be unable to progress in the next ten years unless all the actors in politics, industry and society adopt and promote the slogan "Ride your bike!". Therefore, the Federal Government invites the general public to participate in the discussion about this first National Cycling Plan of the Federal Republic of Germany. If the National Cycling Plan is to be implemented successfully, it is vital that German politicians and administrators are willing to campaign actively in support of cycling, and that all sections of the general public are involved.

The Federal Government sees the promotion of cycling as a dynamic process. This means that cycle promotion has to appeal in a way that is

- communicative, with full information available to the public,
- participative, by involving relevant social groups and the general public,
- cooperative, with all parties working together,
- innovative, with new ideas and strategies being developed, and
- integrative, with the whole effort being treated as part of a sustainable transport policy.

Based upon this vision, and within the bounds of the resources available, the Federal Ministry of Transport, Building and Housing is to initiate these activities:

- place the National Cycling Plan on the Internet (www.bmvbw.de).
- set up the "National Cycling Plan Dialogue" Internet platform.
- improve inter-ministerial cooperation through involving the Federal Highways Agency, the Federal Environmental Agency and other scientific bodies.
- devise implementation strategies and monitor the National Cycling Plan via the Federal Government/states "Cycling" working group.
- intensify discussions with industry, commerce, small business and the service sector over introducing job-related mobility management.
- provide support for domestic tourism in line with the Federal Government's vision.
- get involved in the "Best for bike" competition.
- conduct expert hearings, seminars and workshops.

The "Second report on the status of cycling in Germany", which the Federal Government is to present to the German parliament in 2005, will also serve to review the progress made in implementing the National Cycling Plan.

Problems, objectives and solutions primarily concern regional and local levels. Therefore the Federal Government expects the federal states and local authorities to continue and, where necessary, increase their commitment to cycling. It is the local authorities that hold the key to informing and motivating the general public. So we call on local authority administrators to increase their readiness to talk, and to enter into a consultation process with the public, private enterprise and local organisations. We request that they promote cooperation and stimulate motivation.

Communication, participation and cooperation in relation to the National Cycling Plan are also of prime importance here. Local Agenda 21 constitutes a very useful base and ought to be actively used to promote cycling.

Many German towns have already drawn up numerous and varied initiatives that aim to support cycling in the long-term. In all the federal states and many local authorities, these initiatives have already been developed to the extent that they provide models for other actions and projects. A selection of these projects are documented in Annex 1 of the National Cycling Plan. Such good examples should serve as an encouragement to continue along the same paths.

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Many towns have already drawn up initiatives to promote cycling long-term.



Annex 1: List of good examples (a selection)

1. Federal state level

State	Measures
Baden-Wuerttemberg	<ul style="list-style-type: none">● Baden-Wuerttemberg has drawn up a special, three-year programme to fund roofed Bike & Ride facilities and bike boxes with no minimum claims limit. The cost, as eligible for funding, was put at 610 euros per roofed parking space and 770 euros per cycle box. 22,000 parking spaces are planned throughout the state.
Bavaria	<ul style="list-style-type: none">● Draw up recommended procedures for long-distance cycle routes based on the Regental Cycle Route example.● Create the long-distance "Bavarian Cycle Network", market the network in special brochures and on the Internet, a photographic competition.
Berlin	<ul style="list-style-type: none">● In 1995 the Berlin Senate agreed that a cycle route network would be built. It envisages a length of 660 kms. The network design is to avoid detours where possible and incorporate 30 kph speed limits. In 2000 a separate item was included in the investment plan for cycling, to be dedicated to developing this route network.● Extend cycle usage of special bus lanes - this solution is proven in Berlin, and the streets affected have become more pleasant for cyclists.
Brandenburg	<ul style="list-style-type: none">● Draw up a list of requirements ordered by priority, to build cycle paths on national trunk and state roads.● Conceptual design for the building of routes for cycle touring in Brandenburg (cycle route requirements, funding information), recommended procedures for a unified, state-wide sign system.
Bremen	<ul style="list-style-type: none">● Bremen is currently drawing up a network plan covering the entire city and including a parking plan, signposting, public information, opening up all one-way streets to oncoming cyclists within 30 kph areas.● Drawing up of a "Green Ring" leisure cycling plan● New "city map for cyclists" published.
Hamburg	<ul style="list-style-type: none">● Set up a city-wide cycle path network (shaped like a 12-pointed star, routes leading to the city centre). Cycle shelters built.● Approx. 50% of one-way streets opened up to oncoming cyclists.● Free cycle carriage during on public transport outside the restricted times.
Hesse	<ul style="list-style-type: none">● Improve the quality of Hesse's long-distance cycle routes: a working party used to record poor surfaces and signposting, to check associated infrastructure in cooperation with tourist associations, to draw up a register for signposting and route conditions. The tourist infrastructure (shelters, signposts for tourists) to receive funding within the framework of promoting tourism.● Signposting for cyclists: adoption of FGSV guidelines on signposting. The guidelines were made compulsory in Hesse for national, state and local roads that fall under the remit of the state's administrators.● Cycle parking facilities in public areas: all existing facilities that do not satisfy the criteria are to be replaced within 5 years. The replacement of existing facilities and construction of new ones is being funded by the state of Hesse with grants based on the local financial equalisation law.● Publication of the "Cycling around Hesse" brochure.● Motivate people to cycle with car-free cycling Sundays (nine events, two of which are joint events with the Rhineland-Palatinate).

State	Measures
Mecklenburg-Western Pomerania	<ul style="list-style-type: none"> ● Recommendations to local authorities and rural districts for state-wide signposting and the development of long-distance cycle routes. ● A rural cycle path officer employed at the Mecklenburg-Western Pomerania tourist association, coordination of planning and marketing of the long-distance cycle route network (funding for the post from the Employment Agency). ● Ideas on developing and marketing the 13 long-distance cycle routes in the state, and prioritised development and marketing of inter-state cycle routes.
North Rhine-Westphalia	<ul style="list-style-type: none"> ● "Cycle-friendly towns and municipalities" (AGFS) working group in NRW since 1993. ● Development of the cycle network in NRW (RVN NRW - 13,500 kms). The state bears the cost of supplying the signposts, while the agencies for construction take on their maintenance. A free telephone hotline set up for this. ● "100 cycle stations in NRW" programme. A development agency has been set up for this, which is being funded through the state. In January 2002 there were 42 cycle stations and 13,000 parking spaces. The cycle stations' ability to bear the financial cost is important. The customers are very enthusiastic about services such as cycle cleaning and maintenance.
Lower Saxony	<ul style="list-style-type: none"> ● An annual competition from 2001 to find the most cycle-friendly local authority in Lower Saxony. ● Publication of a brochure for building comfortable parking facilities. ● Information about cycle promotion based on the example of Oldenburg.
Rhineland-Palatinate	<ul style="list-style-type: none"> ● Develop options for tourists. The objective is to have continuous cycle routes on both sides of the Moselle river. ● Create an overall design for a long-distance cycle route network with certain points linking to other states. ● Use decommissioned railway lines, e.g. the Maars-Moselle cycle route and the Schinderhannes cycle route. The options available to cycle tourists have been extended by building the Volcanic Cycle Route on decommissioned stretches of the DB AG.
Saarland	<ul style="list-style-type: none"> ● Expansion of a state-wide cycle network (a commuter cycle network) on a district level sub-routes. Plan and build the state-wide Saar Cycle Touring Network with the Saarland Cycle Route, intersecting routes (the Saar Cycle Route) and extensions to the network including cross-border links with the Rhineland-Palatinate, Luxembourg and France. ● Use decommissioned railway lines, e.g. the Bliestal Cycle Route. ● Cycle routes signposted according to FGSV guidelines.
Saxony	<ul style="list-style-type: none"> ● Cycling plan drawn up by the free state of Saxony. ● Record cycle facilities (RVA) on inter-urban roads in the road database. State-wide cartographic image of the RVA. ● Saxony's building regulations to give model specifications for cycle facilities.
Saxony-Anhalt	<ul style="list-style-type: none"> ● State interchange programme, including large and small stations. ● Establish a cycle-friendly town interest group. Within the framework of the ExWoSt's "Towns of the Future" research project, the town of Dessau is aiming to achieve town- and environmentally-friendly mobility. ● An unused rail line converted for use as a path for commuter and leisure cyclists.

State	Measures
Schleswig-Holstein	<ul style="list-style-type: none"> ● Draw up a project outline called "The Schleswig-Holstein State Cycling Network", due to be implemented between 2003-2008. The "Cycling Forum" agency and a special working group are responsible for coordination. ● Issue a programme called "Cycle-friendly Schleswig-Holstein".
Thuringia	<ul style="list-style-type: none"> ● Draw up a prioritised needs plan for all the cycle paths along the national and state roads in the free state of Thuringia. ● "Thuringian cycle-friendly local authority 2001" competition

2. Local level

Towns	Measures
Augsburg (Bavaria)	<ul style="list-style-type: none"> ● Augsburg is promoting cycling as a mode of transport with equal rights within the framework of the updated version of the town council's 1998 transport development plan. In March 2002 an official town cycling map was published which shows separate cycling facilities, recreational cycling routes, pedestrian zones and mixed transport roads. ● In 2002 there will be a cycle station at the main railway station, with 1,100 parking spaces and service facilities (bike repair, cleaning and loan). ● A comprehensive cycle route signposting plan has been drawn up for the entire urban area, wherein over 2000 signs are to provide directions to all the urban districts, leisure areas and important central locations (town hall, railway station).
Bonn (North Rhine-Westphalia)	<ul style="list-style-type: none"> ● Bonn initiated many innovative cycling plan measures during the 1990s. Actions such as introducing new features such as protected lanes, opening up one-way streets, reserving certain streets for cycling, using bus lanes for cycling and installing cycle parking facilities helped to increase cycling's modal split share from 13 % in 1991 to 17 % in 1999. ● The 320-space cycle station that was opened in the summer of 2000 at the railway station averages 96% utilisation, which makes it the best utilised facility of its type in the entire state (2002). ● Public information initiatives such as the Bonn Cycling Congress (which has been run four times now), the development of the "Erlebnisweg Rheinschiene" experiential tourist route along the Rhine, all types of publications and the opening of the "Bonn Mobil" mobility office.
Dresden (Saxony)	<ul style="list-style-type: none"> ● Based on the transport plan and the intricate cycle network plan for the large-scale link routes and other main routes in the state capital, Dresden, the following are some of the initiatives that have been undertaken: <ul style="list-style-type: none"> - development of the Elbe cycling and walking route, with directional signposting, - free cycle carriage on public transport, - conversion of a former stretch of railway line to a cycling and walking path for tourists
Erfurt (Thuringia)	<ul style="list-style-type: none"> ● The cycling plan as an integral component of the transport development policy (VEP). The cycling plan emphasises the stretches of cycle path that connect the compact town with the surrounding villages and the villages with one another. The cycle traffic share has risen from 3 to 6 % since 1990, and the plan aims for 9 %.

Towns	Measures
Erfurt (Thuringia)	<ul style="list-style-type: none"> ● Close collaboration with the ADFC from the beginning, a working party called "Cycling in Erfurt" meets regularly. This was born out of a "cycling conference". ● The total length of cycle routes has risen from 44 kms to 108 kms since 1990. Between 1990-2001, one roofed Bike & Ride parking area was built at each tramline terminal, funded from commuted sums in lieu of parking provision. Another programme aims to equip the town centre with cycle stands. ● Around 40 one-way streets have been opened up to oncoming cyclists since the 1997 StVO amendment. Options for cyclists (46 kms) are included whenever complex road building projects are carried out. ● A leaflet entitled "Use your head, not your elbows" is currently appealing for more considerate behaviour from all road users. In 2001 a new town cycling map was published with the cooperation of the ADFC.
Freiburg (Baden-Wuerttemberg)	<ul style="list-style-type: none"> ● Freiburg has a 28 % cycle traffic share, and this where the public transport share is already high at 18 % - a cycle network has been systematically developed over a 30 year period, over 500 kms long, and comprising paths alongside existing streets, cycle lanes, separately managed cycle routes, cycle-friendly 30 kph zones, one-way streets opened up to oncoming cyclists and streets reserved specifically for cyclists. Building on this comprehensive network, certain main axes that are easy to ride and, where possible, have no junctions, are being developed so that cycling will also become more attractive over longer distances. ● The cycling network is being expanded by offering a large number of cycle parking areas (town centre, station, urban districts, rail and transit stops / Bike & Ride), a supervised cycle station at the main railway station with 1,000 supervised parking spaces for bikes, and the current work on cycle signposting for the town and region in line with the FGSV's new recommendations.
Göttingen (Lower Saxony)	<ul style="list-style-type: none"> ● High cycle traffic share when choosing mode of transport (24% of all trips). ● A "University cycle network" project to link the different parts of the university, the main residential areas and facilities, funded by commuted sums in lieu of parking provision. Gradual introduction of a town-wide signpost system for cyclists (following FGSV guidelines) ● Cycle park at the station (opened in 1997) with room for 900 bikes and many services. More information about cycling at the "virtual mobility office" www.mobile-goettingen.de
Kiel (Schleswig-Holstein)	<ul style="list-style-type: none"> ● Integrated cycle planning. The 1988 GVP/VEP has a major cycling component consisting of a network of 5 cycle routes of approx. 16 kms in all. ● Network planning: In September 2000, the Kiel town council agreed to extend the cycle network as designed in the 1988 GVP/VEP by building 10 more cycle routes with a total length of 77 kms. Approx. 30 kms of these routes have been built up to now. ● Signposting: Since 1995, the cycle network has been gradually furnished with signboards. The Baltic Coast Cycle Route and the Holstein-Fyn are two inter-regional routes that pass through the Kiel urban area. Two cycle routes are also signposted. The entire cycle network will be signposted in 2002.

- Public information: leaflets and postcards on cycle-related topics since 1992 incl. cycle streets, protected lanes, compulsory usage, one-way streets, signposting. Cycling officer is point of contact for the public on cycling issues.
- Parking facilities - "Kiel cycle stands": Special cycle stands known as ""Kieler Bügel" are installed whenever new construction takes place. In the town centre alone there are stands for 2,300 parked cycles. When private construction takes place, the developers are offered the chance to have subsidised stands installed, e.g. in front of apartment blocks. At the railway station there are 54 cycle boxes with locks and roofed parking space for 400 more bikes. There are approx. 280 more roofed parking places at bus stops and boat stops.
- The StVO amendment: There has been a budget item since 1999 referred to as "Improvements to the cycling network based on the StVO amendment". This can be used to carry out even minor jobs. In Kiel, as early as 1993, 127 out of 130 one-way streets were opened up to oncoming cyclists. In the short-term this created 27.6 kms of cycling connections. Streets reserved for cyclists were introduced as early as 1992. There are now 4.6 kms in the urban area.
- Since 1987 there has been a cycle forum, a body advising the construction committee. Parties with seats on the council, associations, the police and the administration are all represented. The cycling officer chairs the group.

Leverkusen
(North Rhine-Westphalia)

- Wide-ranging signpost plan in Leverkusen.
- A comprehensive plan for signposting cycle paths had already been worked out for the town of Leverkusen at the end of the 1980s. The signpost network is route-based and consists of eight sub-networks that are to be implemented one by one. The goal is to develop a cycling network covering the entire area which will also introduce those unfamiliar with the area to its cycle-friendly areas.
- Four sub-networks have been put in place, while the fifth is being worked on and projected to finish in 2003. The various sub-networks extend the state-wide cycle network (RVN NRW). In addition to this signposting project, Leverkusen also has an associated project which involves some construction elements.

Ludwigshafen
(Rhineland-Palatinate)

- Ludwigshafen has a cycling officer who regularly takes part in sessions of an Adult Education "Cycling" working group.
- Extensive cooperation on all cycling issues including with the BASF company which is the largest employer in the area and which itself has approx 5,500 staff who use a bike to commute to work every day.
- An internal administrative guidance document specifies the number and type of cycle parking spaces that have to be taken into account when any application for planning permission is lodged.
- Outside peak periods in the area covered by the Rhine-Neckar Transport Union, cycles may be carried free of charge on all vehicles where there is room
- The town was closely involved in designing and implementing the regional Rhine Cycle Route and the "From Rhine to Wine" route.

Lübeck
(Schleswig-Holstein)

- Cycling promotion is regarded as an ongoing task.
- The entire urban cycle network was upgraded at an annual cost of around € 2 per inhabitant (1997-2000; approx. € 400,000 per year);
- The old town equipped throughout with cycle stands (approx. 1,500 stands in 8 years),
- Annual cycle report (by the cycling officer).

Towns	Measures
Magdeburg (Saxony-Anhalt)	<ul style="list-style-type: none"> ● A section of the Elbe cycle route built through Magdeburg on the river embankment. Hydrex concrete was used for environmental reasons and to provide resistance in case of high water. This material is porous to water, highly resistant to pressure and also to the effects of freezing and thawing.
Mainz (Rhineland-Palatinate)	<ul style="list-style-type: none"> ● The first fully automatic cycle station in Germany for approx. 300 bikes, with a service station and loan bikes, at the Mainz railway station, due to begin construction in Spring 2002. ● One-way streets opened up to oncoming cycles throughout the town (approx. 30 kms) with cycle routes alongside main roads and accompanied by public information in Mainz.
Mannheim (Baden-Wuerttemberg)	<ul style="list-style-type: none"> ● In central Mannheim, since 1995, there have been ongoing efforts to develop a connected cycle network as a part of the transport development plan, including building new parking areas and signposting. These measures are being accompanied by extensive public information. ● In September 1997 the first cycle park in Baden-Wuerttemberg was opened at the main railway station in Mannheim, with capacity for around 900 bikes, a service station and loan bikes. ● In 2000 all the one-way streets in the Schwetzingenstadt "model area" were opened up to cyclists. Based on the positive experience here, the town council requested the administration to extend this ruling to other parts of the town.
Munich (Bavaria)	<ul style="list-style-type: none"> ● Cycling development plan (VEP-R): A new development plan for cycling (VEP-R) is currently being drawn up as part of the new transport development plan. The VEP aims to increase cycling's share of all transport from today's approx. 13% to 15-20%. ● Cycling network: In the process of drawing up the new cycling development plan for Munich, there was a review of the location, functionality and capacity of the city's cycle links and they were re-specified. All parts of the city and important cycling destinations were linked up. Most of the main routes run alongside the main roads, in deference to cyclists' preferences. Another issue is to connect Munich with the surrounding towns and municipalities. ● Public information: free town cycle maps. The Munich cycle network's main routes have been on the Internet at www.muenchen.de/radroutennetz since 2001. ● The overall plan for P&R and B&R facilities in Munich currently caters for approx. 18,000 cycle parking spaces at tram and underground stations, while another 9,000 spaces are planned. ● A supervised cycle station at the main railway station (for approx. 900 bikes) with other services such as repairs, a cycle shop and cleaning facilities. The DB AG erected the cycle station on their own land, while the city of Munich paid for construction, partly out of commuted sums in lieu of parking provision. ● The city of Munich involved in the MOBINET research project.

Towns	Measures
Münster (North Rhine-Westphalia)	<ul style="list-style-type: none"> ● Cycle planning has been an integral component of transport development planning in Münster since 1980. The first cycle network appeared as long ago as the 1948 transport plan. Cycle planning is regarded as an integral part of the system: Rostock (Mecklenburg-Western Pomerania) Saarbrücken (Saarland) Weimar (Thuringia) Infrastructure improvements (network/junctions/parking space/signposting), cycle service plus information (e.g. mobility bureau, cycle days). The cycle traffic share is now 34% of all weekday journeys made by Münster's residents. ● The biggest cycle station in Germany was built in 1999 (since expanded to 3,600 spaces) and equipped with a repair workshop, a cycle shop, cleaning facilities and loan bikes. Its construction cost around 15 million Deutschmarks, of which 6 million were state grants, with the rest being funded from commuted sums in lieu of parking provision. Utilisation is currently running at over 80 % per day, and running costs pay for themselves. www.muenster.de/stadt/radstation. ● Within the scope of the "NRW cycle-friendly towns" programme, since the mid-1980s, cyclists have been largely guided to make direct left-hand turns (e.g. through cycle filters, etc.), 6 cycle roads, many (more than 200) pseudo one-way-streets opened up to oncoming cyclists and favourable, cyclist-specific controls successfully incorporated into all major traffic signals.
Rostock (Mecklenburg-Western Pomerania)	<ul style="list-style-type: none"> ● A town-wide cycle plan drawn up and integrated into the overall traffic plan. ● Town centre cycle network developed, ● 4 parts of the state-wide recreational cycle route signposted. ● Bike&Ride facilities at regional train and tram stops. ● Cycle carriage on ÖPNV/SPNV - free for holders of monthly travel passes) ● One-way streets opened up in the opposite direction where needed.
Saarbrücken (Saarland)	<ul style="list-style-type: none"> ● In 1990 Saarbrücken was the first town in Germany to open up all the one-way streets in 30 kph zones to oncoming cyclists. ● The Saarbahn transport system, which is at the heart of local urban transport, allows free cycle carriage. ● Before going to the authorities for approval, all initiatives are discussed in a cycling working group, with representation from local politicians, the ADFC, the ADAC (German Automobile Association), the police, the transport authorities and the town's various departments.
Weimar (Thuringia)	<ul style="list-style-type: none"> ● Monthly meeting of the Cycling working group (traffic authorities, town planners, public works, police, ADFC). ● Extensive upgrading of roads and squares in the town centre, including standard-design cycle stands. ● Several projects to promote the construction of cycle touring routes (the Ilm Cycle Route, the "Chain of Thuringian Towns") via "rural route building" and the state promotion of tourism. ● The one-way-streets of most importance to cyclists opened up (as per cycle plan) for oncoming cyclists.

Annex 2: Index of partners

1. Federal Government-states "Cycling" working group

The Federal Government/states "Cycling" working group, led by Department A 13 of the BMVBW, took part in many meetings to discuss the aims and content of the National Cycling Plan. The Federal Government/states "Cycling" working group is composed as follows (end of March 2002):

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Annex 4: Abbreviations

A	
ADFC	German Cyclists' Federation
AG	Working group
AGFS	Cycle-friendly towns working group
ASTA	Students' Committee
B	
B&R	Bike&Ride
BASF	Badische Anilin- und Sodafabrik
BAST	Federal Highways Agency
BBR	Federal Office of Construction and Regional Planning
Bf.	Station
GDP	Gross Domestic Product
BL	Federal states
BMF	Federal Ministry of Finance
BMG	Federal Ministry of Health
BMJ	Federal Ministry of Justice
BMU	Federal Ministry of the Environment, Nature Conservancy and Reactor Safety
BMVBW	Federal Ministry for Transport, Building and Housing
BMWi	Federal Ministry of the Economy and Technology
BT-Drs.	Federal parliament publication
BYPAD	Bicycle Policy Audit
C	
CO ₂	Carbon dioxide
D	
DB AG	The Deutsche Bahn rail company
DELFI	German national timetable information system
DIN	The German Institute for Standardization
DIW	The German Institute of Economic Research
D-Network	National long-distance cycling network
DTV	German National Tourist Office
DVR	German Road Safety Council
DVW	German Road Safety Watchdog
DZT	German National Tourist Board
E	
ECF	European Cyclists' Federation
IT	Information Technology
EC	European Community
ERA	Recommendations for cycle facilities
EU	European Union
EWG	EEC
Expo	Export exhibition
ExWoSt	Experimental Housing and Urban Development
F	
FahrschAusbO	Driving School Tuition Regulations
FGSV	Road and Transport Research Association
FöRi-Sta	Urban transport funding guidelines
FOPS	Urban transport research programme
Fussg.	Pedestrian
G	
GbR	Citizens' rights association
GVFG	Local Authority Transport Infrastructure Financing Act
GmbH	Limited Liability Company

H	
HL	The Hanseatic city of Lübeck
HoGa	Hotel and catering companies
HRaS	Guidelines on cycling outside urban areas
I	
IC	Intercity
ICE	Intercity-Express
IKU	Institute for local commerce
IR	Interregio
K	
Kfz	Motor vehicle
Kfz/24h	Motor vehicle/24 hours
KONTIV	Ongoing transport survey
Km	Kilometre
Kph	Kilometres per hour
L	
LBauO	State building regulations
LH	State capital
Lkw	Goods vehicle
M	
m.	million
MIV	Motorised private transport
Modal split	The transport system's share of the total traffic volume
bn.	Billion
MTB	Mountain bike
MV	Mecklenburg-Western Pomerania
N	
NO ₂	Nitrogen dioxide
NRW	North Rhine-Westphalia
O	
ÖPNV	Local public transport
ÖV	Public transport
P	
P+R	Park+Ride
Pkw	Car
R	
RADIS	Cycle route information system
Rn	Note
RVA	Cycling facilities
S	
S-Bahn	Suburban railway
SGB V	Social Security Code fifth book
SPFV	National railways
SPNV	local and regional passenger transport by rail
StBA	Federal Statistics Office
StVO	Road traffic regulations
StVZO	Road traffic licensing regulations

T	
t	Ton
TREMOD	Transport Emission Estimation Model
TU	Technical University
TÜV	A leading technical services provider
TV	Television
U	
UBA	Federal Environmental Agency
U-Bahn	Underground rail
Uni	University
V	
VCD	German Sustainable Transport Association
VEP	Transport development plan
VEP-R	Cycling development plan
VHS	Adult education centre
VVG	Administrative regulations for municipalities
VwV	Administrative regulations
W	
WHO	World Health Organization
Z	
ZIV	Association of Two-Wheeler Manufacturers

Annex 5: Footnotes

- 1) It is anticipated that KONTIV 2002, commissioned by the Federal Ministry of Transport, Building and Housing, will provide current data on transport choice at the start of 2004.
- 2) The framework for regional planning, particularly as it relates to satisfying mobility needs, was reformulated here. The legal planning requirements relating to the displacement of traffic to more environmentally friendly systems was improved, particularly in areas and corridors with a high traffic density.
- 3) International Journal of Epidemiology, volume 28, pp. 659-666, 1999.
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- 5) W6 and W10 stand for "trips of up to 6/10 kms".
- 6) Brög (1995) estimated that up to 30 % of car trips in urban areas can be displaced to the bicycle.
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- 12) There is a brief description of BYPAD in Bicycle Research Report No. 131, September 2001, issued by the ECF.
Detailed description: U. Lehner-Lierz, Quality assurance for cycling, in: Handbook for local transport planning, Heidelberg 2001.
- 13) The terms "local" and "local authorities" tends to refer also to rural districts.
- 14) Compare this with the Federal Environment Agency's ongoing research project "Pedestrian and cycle friendly town pilot scheme" in the three model towns Lingen/Ems, Lutherstadt Wittenberg und Plauen.
- 15) IVU Traffic Technologies AG, a survey on the states' and local authorities' cycle promotion activities, research on behalf of the Federal Ministry of Transport, Building and Housing, Berlin 2001.
- 16) According to VO (EC) No. 1260/1999, areas of backward development are those regions in which the gross domestic product per head is less than 75 % of the average in the European Community.
- 17) Adaptation of the provisions of Section 21 Para. 3 StVO to the corresponding regulations in section 67 of the StVZO together with the associated guidelines for attaching trailers to bicycles, VkBf. 1999, p. 703 and adaptation to the StVZO amendment that had been prepared at the time, which contained detailed regulations covering the technical requirements for cycles and trailers.
- 18) For the period 1983-1998 compare with Federal Ministry of Transport (Ed.), Summary analysis of urban cycling research results, In: Urban transport research, Analyses series, Presentation of urban transport research results, volume A7; Bonn 1991.
- 19) Federal government report on measures to promote cycling, BT-Drs. 13/3445.
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