

Collection of Cycle Concepts

Up and Ride Safe on Bike

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Summary:

The third and last part of the Danish Cycle Masterplan is a Collection of Cycle Concepts. This handbook consists of advice, ideas, examples and about 400 photos concerning planning, design and implementation of infrastructure, campaigns etc. to promote cycling and make it safer.

An overall insight of the content of the handbook is given in the paper. The planning process for more and safer cyclists in local communities is one part of the paper. How visions, targets and strategies can be reached is shown from a civil servant point of view. The other part of the paper is about more detailed matters with lots of ideas and examples.

Examples of guiding principles for setting speed limit, degree of separation and junction design are given. Studies show that the pavement standard affects cyclists' level of service. Also examples of how to start the process towards better maintenance quality are presented.

Campaigns and education are important measures for the promotion of cycling. An idea could be cycle contests among school children. 1,200 children participated in a cycle contest as part of a Danish project. The children were enthusiastic and got many parents to escort them to school in spite of small prizes.

A central target group is citizens who cycle occasionally. They can be reached through e.g. companies and institutions. Danish projects show that employees have a very positive attitude towards company and employee bikes. These bikes have transferred 4-9% car traffic to cycling among employees.

The following text is based on the book Collection of Cycle Concepts, which the Danish Road Directorate recently published (1).

1. Cycling in Denmark

About one out of five trips in Denmark are on bicycle. Danes cycle relatively more often to work, education and sport centres than to other destinations. On average, a Dane cycles most at the age of 15. After that age cycling declines as the Dane gets older.

One third of the Danish population is not physical active at such a degree, that it gives a better health. Fewer and fewer Danish children fully develop their motor skills due too little physical activity. Physical activity became part of the Danish traffic policy with the start of the Danish Cycle Masterplan in 1999. Ordinary Danes say that physical activity and fresh air are the primary reasons for cycling.

About 20,000 are treated at hospitals after a bicycle accident in Denmark each year, and 60-70 cyclists are killed. Cyclist risk has remained at the same level the past 25 years in Denmark.

Cycling has a split image in Denmark. Cyclists are perceived as the most annoying road user group. On the other hand, cycling is also perceived as the most enjoyable and pleasurable mode of transport.

2. Cycling is more than paths, tracks and lanes

Promotion of safe cycling involves many decisions and parties, and sometimes is rather complex. It is a holistic challenge and wide co-operation is needed. A good idea is to produce a public plan and to hire a cycle co-ordinator, so as many as possible work to reach the same vision and targets.

It is important to involve politicians and citizens from the start. This way the plan will have deep roots in the local community. An idea could be to establish a local transport council, where important parties, politicians and citizens are represented.

The national targets in Denmark are to increase the level of cycling by 30% before 2005 (baseline 1993) and reduce the number of killed and severely injured by 40% before 2013 (baseline 1998). Local administrations may or may not follow these targets - it is up to them.

A good strategy for the promotion of safe cycling consists of many measures. The Collection of Cycle Concepts operates with 4 different ways of promoting cycling and 4 different ways of preventing bicycle accidents, see figure 1.

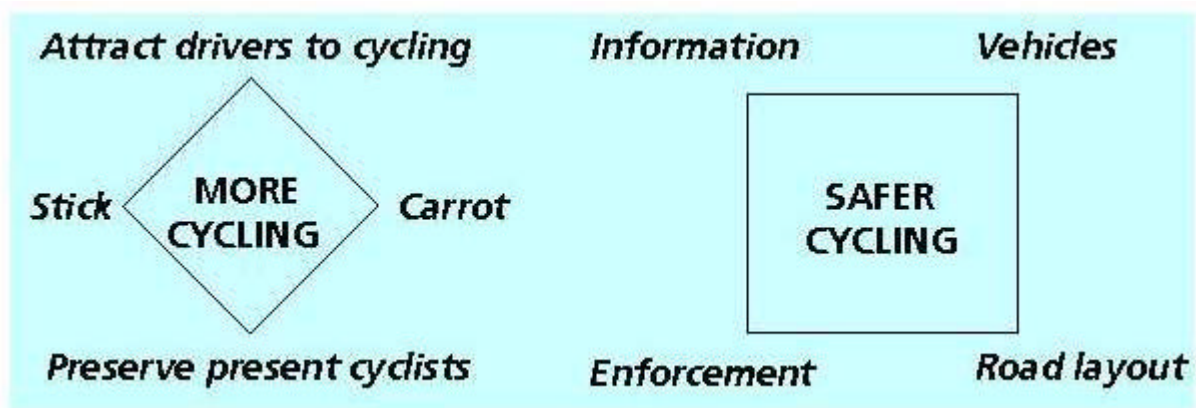


Figure 1. Eight different ways to promote safe cycling.

Choosing the right ways is of course important. A strategy based on carrots (physical and economic improvements for cyclists) alone is too expensive and will in the long run be set aside because of small effects.

Combining carrots and sticks is more cost-efficient. And in Denmark where many cycle, this should be combined with campaigns that preserve present cyclists, or in other words, get those who already cycle to cycle more or maintain their current level of cycling. It is much cheaper to preserve a specific behaviour than to attract. In countries and regions with relatively few cyclists, it is best to start with children as a primary target group, because child cyclists are the foundation of a cycle culture.

The nation-wide campaign "We cycle to work" has more than 50,000 participants in Denmark. One out ten did not cycle before the campaign, but maybe more important is that 75% cycled more than usually during the 3 week campaign period.

Sorry to say this, but today the studies show that campaigns and police control haven't so far been able to improve cyclist safety to any major degree. It would be nice, if someone invented the good cyclist safety campaign and police control. Until then, local authorities have to rely on changing road layout, and the law might be relevant to change so the bicycle is proper equipped.

In the Collection of Cycle Concepts is mentioned hundreds of measures relevant for the promotion of more and safer cycling. Today, some studies point in the direction that campaigns, bike schemes at companies and restrictions for car traffic are more cost-efficient in order to get more in the saddle than other measures. However, one should remember that some changes in land use, road maintenance etc. might not cost anything, but at the same time have impact on mode choice. Markings at junctions seem to be most cost-efficient to improve cyclist safety.



Figure 2. Choose the right measure - buy a lot - many measures. [Drawing by Bine Lehmann]

Financing can be a hard nut to crack. The planning division in a road administration often pays the entire expense in connection with the promotion of more and safer cycling. Other forms of financing do occur. Here are some financial points.

Cycle routes may be entirely or partially financed in connection with major road maintenance projects or mains and cable works. This way, it is the maintenance budget or owners of mains and cables that pay. By drawing attention to the tourism aspect it may be possible to get co-financing from various funds and foundations, large hotels and the like.

Advertising-financed city bikes have already been introduced in some cities. But also e.g. events and campaigns can be financed by advertising to some extent.

Traffic calming on residential streets is often exclusively an advantage for the residents. It is they who benefit from improved road safety, and their houses that increase in value. There are many examples of residential associations paying for traffic calming on public roads.

There are numerous examples of private paths and bicycle parking facilities. Sometimes chambers of commerce are willing to contribute to the financing of physical improvements to shopping streets.

And last but not least. Campaigns for more and safer cycling can to a large extent be co-financed by others, for example, organisations in the health sector. Co-operation about campaigning is important. Otherwise it may be too expensive to get the message across.

3. Campaigns

Public awareness campaigns do not change behaviour. However, public awareness campaigns (and debates) have an indirect effect, which is that individualised campaigns and campaigns to targeted groups and settings can be more effective if public awareness campaigns have been carried out before. The stages of change are important to understand before campaigning. Read the EU-Project INPHORMM or the Collection of Cycle Concepts, and you will get the picture.

Individualised campaigns have proved effective for road safety. One example is a Danish county's campaigns against drunk driving, where girls in the latest campaign were appointed 'Guardian angels'. The girls should then - individually - talk or force boys not to drive intoxicated. The campaigns have in that county reduced the number of accidents involving illegal alcohol levels by approximately 75%.

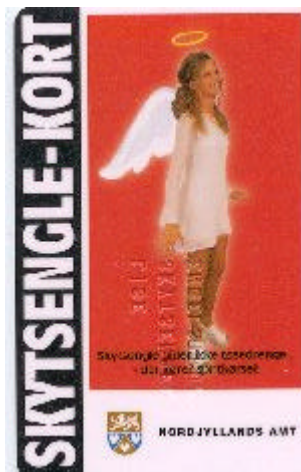


Figure 3. This guardian angel card is a free ticket for night buses in the North of Jutland, Denmark. Only 2 girls out of 260 have lost their card - one was stolen. 98,4% in the target group remember the campaign.

Individualised campaigns are also effective to promote cycling. The campaign "Com a puter on the bike" have been carried out at least in two Danish towns. In Holstebro, a town of 30,000 inhabitants, the campaign was a part of a health festival. Participants' reward for cycling 250 kilometres in August 1995 was a cycle computer. 864 participated and 825 got a computer.

Company and employee bikes are also a kind of campaign to targeted settings. In Aalborg has a questionnaire shown, that employees have a very positive attitude towards company bikes and the level of absence due to illness fell. Each company bike in Aalborg reduced taxi expenses by about 600 DKK. In Herning, employee bikes resulted in a drop by 4-9% in car traffic in 7 companies. In Svendborg, the time used on administration, publicity etc. was approximately 1 day per company and employee bike. All projects show that the demand for company and employee bikes increase rather much after the first local publicity.

An idea for campaigns to targeted settings could be cycle contests among school children. 1,200 children participated in a cycle contest as part of a Danish project. The children were enthusiastic and got many parents to escort them to school in spite of small prizes. Another contest could be about cycle helmets.

4. Land use

Land use planning has a major impact on the level of cycling. It is especially topography, population density and the size and location of urban functions, which affects the level of cycling. People choose the bicycle more often in a dense populated, circular, flat town with more than 10,000 inhabitants, where most housing are located in the town centre - than in other towns.

An idea might be to get rid of vacant sites for buildings in remote and in hilly areas. Another idea is to build car-free urban districts or neighbourhoods.

5. Planning and design of roads and paths

The Collection of Cycle Concepts distinguish between 9 different kinds of cycle traffic areas; Combined pedestrian and cycle streets, shared roads, mixed traffic, marked cycle lanes, paved shoulders, cycle tracks along the road, cycle tracks along the road with dividing verge to carriageway, shared paths and cycle paths. Each kind of cycle facility has different advantages and its own cross section. The Collection of Cycle Concepts describes best practice concerning width, speed limit, junction design, car parking, bus stops, gradients etc. for the different cycle facilities.

Choosing between the many facilities and solutions is a complex matter, which may end up differently for comparable situations. There is not one way but several ways of doing it. The first to discuss is criteria of success. An example of guiding principles for setting speed limit, degree of separation and junction design is given in the Collection of Cycle Concepts.

6. Cycle parking

Today is it not very quickly, easy, comfortable, safe and secure to park the bicycle in Denmark. Another problem is that products from other countries often are impossible to sell in Denmark - 'Danish' or 'Scandinavian' design is needed.

Improving cycle parking conditions can be done in several ways. One way is 'the small steps method', where there is no plan, just funds and enthusiasm. A second way is a complete plan. No matter which way is chosen the location, capacity, standard and design must be decided before implementation. But often it is necessary to do the implementation in steps at the same location because better conditions attract more bicycles, and then the capacity have to be increased.



Figure 4. Do not forget temporary cycle parking facilities at recreational areas.

In Naestved, the municipality has a cycle parking policy. The policy state what the purpose is for the different facilities and which standards must be established on different locations. There will also be developed a design policy for cycle parking facilities, where basic requirements for design and function is stated. A design policy is also important in order to have a uniform design philosophy for equipment on and close to traffic areas.

7. Road maintenance

Danes believe that better road maintenance of cyclists' traffic areas is the factor that can do most to promote cycling. And there is a lot to do - repaving, better winter maintenance, replacing gully gratings and manhole covers, sweeping on the right time, better layout of roadworks etc.

A good idea is to start the process by inspection by bicycle or establishment of reporting corps of cyclists. Experience from the municipality of Odense indicates that inspection by bicycle is a time-consuming task, one that will at first encounter resistance from staff. In the long term, however, the inspectors involved will obtain greater insight into, for instance, the effect of minor unevenness for cyclists, so that one can expect a greater number of repairs to be initiated than after inspection by car. A final and not negligible gain is that the inspectors will achieve a greater understanding of traffic conditions for cyclists.

References:

(1) Jensen, Søren Underlien et al. (2000): Collection of Cycle Concepts, Road Directorate, Denmark.