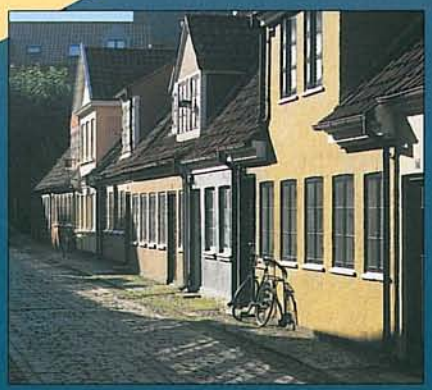
Cities make room for cyclists

Examples from towns in the Netherlands, Denmark, Germany and Switzerland



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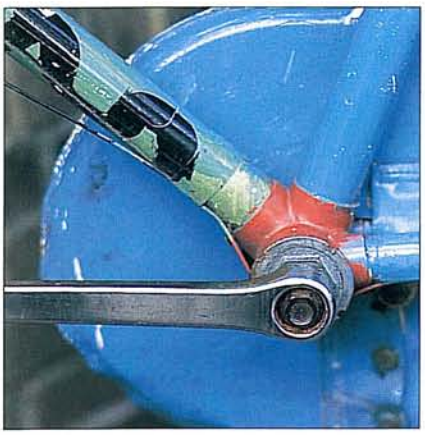
Delft: a one-off investment with an ongoing pay-off

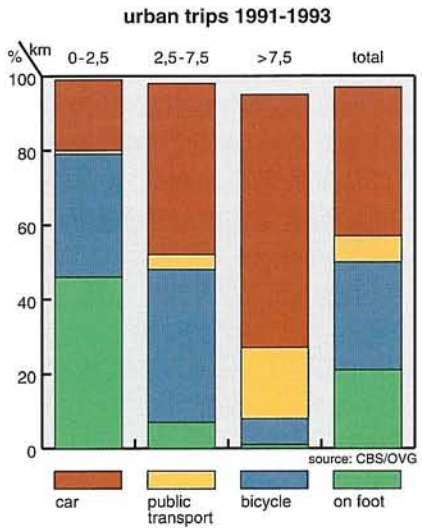


"Cycling city - starting today": this was the message of Burgomaster H.V. van Walsum's foreword to the 1987 booklet Cycling in Delft, issued when the, for the time being, final links in the Delft cycleway network were put in place after five years' construction work costing 29 million guilders. The city now had a fine-mesh network of cycleways, and an initial evaluation (1987) found that in the district where the most comprehensive scheme had been carried out the cycle-use had increased by seven per cent. Despite this increase accidents and injuries among cyclists had been cut.

While the project has continued to attract international attention, in Delft itself things went rather quiet after the Burgomaster's statement. Official publicity for the network was cut, and while the new infrastructure was maintained there was little political interest in developing it as part of a complete door-to-door transport plan. Boudewijn Boelens, currently municipal alderman with responsibility for transport, says local councils' priorities change: "We've done a lot for cyclists and cycling. Now there are other items on the agenda."

A second evaluation of the project (1993) found that cycle-use had risen - but to a plateau; total recorded injuries and deaths among cyclists too had fallen to a lower level only to stabilise. Numbers of fatalities and hospital admissions were sharply down, however, indicating that accidents involving cyclists were now generally less serious.

Delft: 14,000 students, and over a million tourists a year.



Cycling's share

Delft's population of a little over 91,000 is swelled by the 14,000 or so students of the University of Technology and by the million visitors its historic centre attracts every year. This small city has mainly expanded southwards, to the west of the Rotterdam-The Hague rail link, with the result that the distance from Market Square in the old centre to the last house in the new Tanthof West development is now just short of six kilometres. Cycling was already common practice in Delft before the new cycleways, accounting for around forty per cent of urban trips.

From single route to network

"Delft wanted a cycleway network and the transport ministry hoped to profit from the experience." For Dirk ten Grotenhuis of the city's Department of Planning and Urban Development this was the circumstance that led to the compilation - by him and others - of the 1979 cycleway network plan. The prime aim was to maximise cycling's share in urban travel and to make cycle-use as safe and pleasant as possible.
The associated aim of reduced car-use, though clearly in mind, was "deliberately left unstressed", as Ten Grotenhuis makes clear. "This was to keep the spotlight off potential conflicts of interest."

The transport ministry's involvement reflected the need to test out new ideas.
The cycle routes developed in The Hague and Tilburg in the mid 1970s were well used but had not brought a significant shift in the car/bicycle modal split. This, it was argued, required a full fine-mesh network - not single routes. Delft wanted such a network and was the first municipality to install one across a significant urban area as a single infrastructural development.

City, district, neighbourhood

The 1979 report Cycling in Delft included a wide range of measures designed to create a comprehensive cycleway network. Its structure was to be hierarchical, comprising city, district and neighbourhood sub-networks with distinctive functional and design features (widths, materials etc.). A grid of through routes or corridors no more than 500 metres apart was to form the city-wide network, which would tie in with regional cycleways and give access to the main centres of urban activity (the central shopping district, the station, places of work and the main educational institutions).

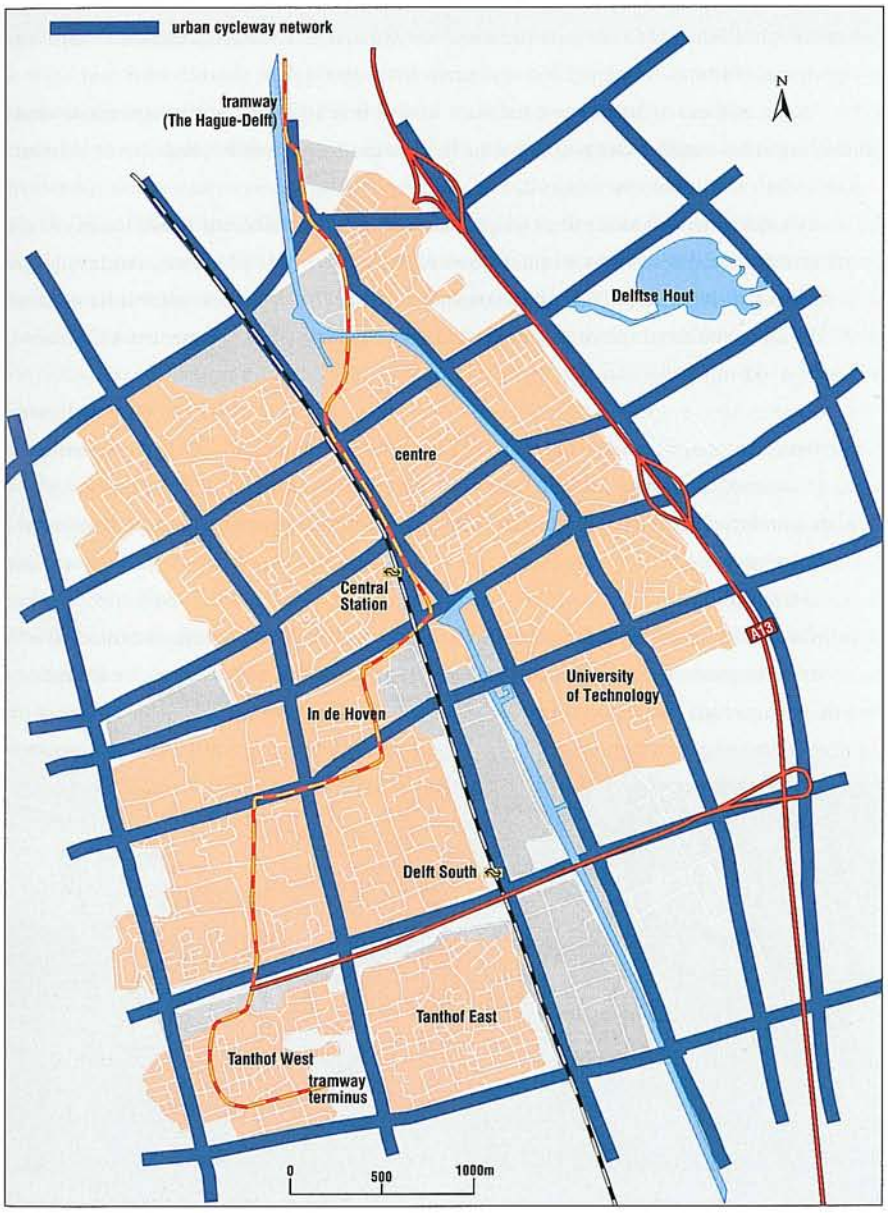
The Delft cycleway network links all the city's centres of activity (left). Fine-mesh network at neighbourhood level (right).

District-level routes would give access to local facilities such as shops and schools, linking them with the city-wide network. Here the mesh size would be 200-300 metres. At this level the correct location of the cycleways and the fine-mesh nature of the network were more important than carrying capacity.

The neighbourhood feeder routes, finally, would generally run over ordinary roadways and footways and would link people's homes and centres of local activity.

Planning and execution

By the time the plans were drawn up, around three quarters of the proposed network was already in place. The gaps in the city-wide network were mainly where canals, railways and main roads cut across cycleways, so crossing points were needed. At district level a wide range of relatively simple measures were proposed: new



cycleways, cycle lanes, small bridges and changes to the layout of road junctions. Completion of the neighbourhood network involved the provision of simple cycleways (including short cuts across built-up sites) and pedestrian-priority zones.

In all 129 individual schemes were carried out as part of the Delft project, mainly between 1982 and 1986. Most of them involved changes to traffic flows, such as the introduction of cycle lanes (including contraflow lanes for cyclists in one-way streets). This was around half of the number of schemes originally proposed for the city as a whole.

Some plans for tunnels and bridges were dropped on cost grounds. Other proposals were abandoned as having insufficient effect, while in some cases changes to local land-use and development plans meant that planned cycleways etc. were no longer (or not yet) needed.

Around 60 per cent of the schemes initially proposed for the city-wide network were completed, as were just over half of the measures planned at district level. In Delft North-West, which was designated as study area, the district network was completed

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Of the ten cycleparks originally planned only two were provided.

in full. Neighbourhood-level schemes were implemented only in the study area. Their scope was limited: contraflow cycle lanes in a few streets and two new short cuts. The nature and scale of the neighbourhood-level schemes meant they did not always qualify for central-government grants, so that the municipal authority was disinclined to provide political and financial support. Of the ten cycleparks planned only two were provided, in part because of reservations on the part of the body responsible for building standards and design in urban development plans.
One of the main reasons why the municipality stopped development work in 1987 was the transport ministry's decision that enough of the project had been completed to allow its effects to be investigated.

Costs

The schemes that were implemented cost a total of 29 million guilders, of which ten million came from the municipal authority, 14 million from central government, four million from Delft Land Holdings and one million from the provincial authority (South Holland). More than half of the total went into major projects such as bridges and tunnels, a quarter into new road markings affecting traffic flows, and a little over ten per cent into realignment work at junctions.

Between 1982 and 1988 a further 3.5 million guilders was provided by central government for research and evaluation purposes.

First evaluation: increased cycle-use, fewer accidents

The first evaluation report, issued in 1987 by the traffic studies division of the transport ministry department of public works, indicated that the project's aims were being achieved. The network was well used, with the new facilities generating an estimated seven per cent rise in cycle-use in the study area. This was mainly because existing users were making greater use of their bikes, however; there had only been a limited shift from car- to cycle-use.

More than half of the total costs went into major projects.

There had however been a shift of opinion: of the cycle-users questioned while the work was under way (1982-1986) 20 per cent felt it had produced a considerable improvement while 80 per cent saw some improvement or no change. There was particular satisfaction at the greater choice of routes. The new network was seen as safer and pleasanter to use, with fewer bottlenecks. Road safety too had improved: there were fewer accidents and injuries among cyclists.

Respondents were also asked which of the journeys they had actually made within the Delft urban area could have been made by some other means of transport. Before the cycleway network was in place respondents saw the car as an alternative to the bicycle for a far higher proportion of trips than vice versa: ten per cent of bike journeys might also have been made by car while only four per cent of car trips had been potential bike journeys. Once the cycleway network was completed the proportion of potential switches was roughly the same both ways: the car was mentioned as an alternative means of transport in relation to eleven per cent of bicycle journeys, while the bicycle was now seen as an alternative to the car for ten per cent of car journeys.

Much less progress had been made on the goal of increasing cycling's actual share in urban traffic. Cycling now accounted for 43 per cent of all trips in the study area, a rise of just three per cent, but in the evaluators' view a further rise of ten per cent or more was possible. The effects so far achieved were seen as heralding more in the longer term, however, e.g. as schemes not completed at the time of the evaluation (such as a tunnel near Delft Central Station) were put in place. The number of people wishing to use bikes had also doubled between 1982 and 1985, and the assumption was that these potential cyclists still needed time to familiarise themselves with the new facilities.

Longer-term impact

A second evaluation followed in 1993. The municipal authority wanted to know whether the forecast increase in cycle-use had materialised after 1985, while the transport ministry was interested in the project's longer-term impact as part of Bicycle Masterplan. The ministry also wanted to see how far one-off grants had prompted further developments in municipal policy on cycle-use.

The evaluation exercise was partly funded by the European Community, which was interested in the effects of the Delft project from the viewpoint of environment policy.

Cycling on a plateau

The 1993 evaluation found that the growth in cycle-use prompted by the new network had reached a plateau, contrary to the original expectation that usage would go on rising: the increase in cycling's share in all urban journeys had proved a one-off effect. However, it also confirmed the first evaluation's finding that longer cycle trips were now being made.

While the number of injuries recorded among cyclists had not fallen since the first evaluation, they were now generally less serious. In fact the number of fatalities and hospital admissions had fallen by almost 40 per cent.

Reassessment

The evaluators also reassessed the quality of the network and facilities, applying a wider range of criteria than in 1985. The new model they used was one of a transport chain or web, with the choice of mode influenced not only by how straightforward, pleasant and safe a route is but also by what is available at either end. Since above all cyclists need bikes, secure storage facilities are needed both close to home and at the main destinations.

When deciding how to travel people need information on routes and on the facilities available at their destinations: effective publicity is essential. And since modal choice is also influenced by the quality of the alternatives, restrictions on car-use can help further the desired shift towards cycling.

The technical standards applying to the infrastructure had also been tightened and extended in the light of experience. They are set out in Sign up for the bike, a guide to cycle-friendly infrastructure compiled by an expert working group and available in Dutch, English and German versions.

Effective infrastructure

The 1993 evaluation found that the mid-1980s infrastructure continued to meet relevant standards, including those laid down in Sign up for the bike, in most respects.

The infrastructure continued to meet relevant standards.

The network was virtually complete and integrated with interurban routes. Sufficient alternative routes were available, detour factors were within acceptable limits, and within the three cycling corridors examined there were always two or more possible routes of comparable distance. The cycleways were generally pleasant to use, and both evaluators and residents were broadly satisfied with standards of maintenance.

Encounters between cycle and motor traffic were generally well regulated. Within the corridors examined there were only two roadways where cycle lanes were needed but had not yet been provided and there were enough safe crossing points for cycleways on roads where the speed limit was over 30 km/h. Crossing points on roads carrying heavy traffic were with few exceptions light-controlled, but as the average waiting times for cyclists were too long, journey times were unnecessarily extended (failing to meet current standards). Junction design had evidently put more stress on smoothing the flow of motor traffic than on keeping travelling time for cyclists to a minimum.

Signposting and visibility

It was not always easy for people not familiar with the network to find their way round it. In the three corridors examined the hierarchy was not entirely clear, with cycleways not adequately distinguished in terms of quality and design, so that people's picture of the routes was determined not by their place in the cycleway network but by the function of associated main roads. Only the main cycle routes into central Delft were signposted, with no indication of more specific destinations. Moreover the routes were not always clear, with the direction of flow not obvious from the general streetscape. Local maps of value to cyclists were often positioned for the convenience of motorists.

The transport chain

The evaluators looked not just at the quality of the cycling infrastructure but also at the overall transport chain available to cyclists in Delft.

People's familiarity with the route system and with facilities at destinations is a major factor in their decisions whether or not to cycle, but there had been no follow-up publicity for the system after the initial campaign. Nor had anything been done to improve storage and parking facilities: while such facilities were provided in the newer housing developments they were generally too small for the larger families, and in the older residential areas there were too few.

Little had been done to alter the relative competitiveness of different travel modes. Central Delft had been divided into four zones, by means of signs and barriers, but the system was not fully enforced. In 1992 a number of measures were taken to discourage car-use: parking charges were raised, some parking spaces were taken out of the centre, and parts of the centre were made traffic-calmed areas.

Cycleracks underused

Censuses carried out as part of the 1993 evaluation showed that on any day an average of 2,750 cycles were parked in the city centre, with a maximum of over 4,000. Since half of the 2,440 parking places provided were left unused even so, it was evident that

the location or nature of the facilities did not always meet potential users' wishes. Supervised parking was provided at Delft Central Station and at the In de Hoven shopping centre (outside the central district). Delft South Station has bike lockers, for which there is a waiting list. While the capacity of the attended parking facility at Central Station was adequate, there were not enough places in nearby racks: of the large numbers of bikes found in the neighbourhood of the station almost 40 per cent were not padlocked to racks. There were no real parking facilities at bus and tram stops.

Municipal policy

The evaluators noted that municipal support (political and, especially, financial) for measures favouring cycling had waned once the central-government grant had been spent. In addition to routine maintenance the current municipal budget allows only 100,000 guilders a year for minor adjustments and improvements to traffic flows, no more in absolute terms than before the scheme was launched.

Lessons

While cycleway networks of the kind developed in Delft appear to provide a sound basis for promoting a switch from car-use to cycling, they must meet the current technical standards if cycling is to become a more competitive travel option. For the bicycle's share in urban transport to increase, decent cycling facilities must be supplemented with measures such as the introduction of traffic-calmed areas and more restrictive policies on car-parking - an area in which little progress has been made in Delft.

Another lesson is that both politicians and public need to be supplied with information. In Delft there was a one-off publicity campaign, so that newcomers to the city - including the many new students arriving every year - were not automatically told about the system.

The transport ministry's announcement that enough of the system was now in place for evaluation to be meaningful dampened local enthusiasm. Had there been more effective consultation with municipal representatives, stressing the importance of the new network and the need for further development, the announcement might not have been taken as marking the project's end.

On the point of information flows to other local authorities the evaluators felt the project had been successful, serving as a model for similar schemes in other Dutch towns and cities and in other countries. This had been thanks in large measure to the reports and a video that were produced; these are available in four languages.

The final conclusion was that a pro-bike policy would bear fruit only if it was consistent and comprehensive. This was not the case in Delft: traffic-control arrangements at crossroads and crossing points, for example, sometimes cause cyclists considerable delays. Nor were the routes always as clear and uniform as they needed to be, with the result that the town's favourable attitude to the bicycle was not as clear as it should have been, either to the cyclist as the motorist.

Low priority

In the words of Dirk ten Grotenhuis, of the Delft Department of Planning and Urban Development, "We put in cycling facilities, but at no cost to car-drivers. That option really isn't available any more, at least not in a technical sense. The politicians evidently think they still don't need to choose, and the policies of the present municipal authority don't provide a framework for measures that benefit the bike at the expense of public transport and the private car."

Boudewijn Boelens, the municipal alderman with responsibility for transport, says that the lower priority now given to cycling is the logical consequence of the fact that provision in this area is for the moment sufficient. Boelens favours a three-pronged approach - bikes, cars and public transport -and feels that cycling has had its fair share of resources: "Now it's routine maintenance and some work on facilities serving people's homes and destinations. There's been heavy investment in public transport, and we plan on extending traffic-calmed areas across central Delft."

Storage and parking: immediate benefits

With the network itself now in place any measures to improve provision at points of departure and arrival bring direct benefits; as Ten Grotenhuis says, "Better parking and storage facilities show an immediate return in terms of increased cycle-use." While the municipal authority has plans in this area for central Delft, as yet there is little concrete to report. "Taking cars out to put bikes in their place doesn't really appeal to me," Boelens says. "Bikes are pieces of metal too. Under-cover cycleparks would be the answer, but I don't see us buying premises in the centre for this purpose. Maybe something could be done using the electronic security systems we keep hearing about."

Getting rid of cars.

Gaps in the system

According to Atze Dijkstra, who was secretary of the local branch of the Dutch cyclists' association ENFB when the Delft network was being developed, there are obvious gaps in the system: "When the Tanthof district got a new bus lane and tramway, sections of cycleway just disappeared. Quick journeys by bike from outlying districts to the centre aren't by any means always possible. It would be easy to do something about this, but there isn't the support there was. Key people have gone, policies have shifted, the local press is no longer interested in the issue and lots of students who could cycle, get free bus tickets and use public transport instead."

"One-off investments, even big ones, bring one-off returns," says Ten Grotenhuis. "Cycle-use won't go on increasing unless facilities are kept up to scratch and the public are kept informed. That's now clear. But it's also clear that the one-off impact was an enduring one - it hasn't faded. And the facilities are good, and further improvements will give an immediate return. This is a fertile area for new policy initiatives."