

COPENHAGEN CITY OF CYCLISTS

- Bicycle Account 2008



FOREWORD

Copenhagen is often held up internationally as a model bicycle-friendly city. This is because cycling is as natural for Copenhageners as brushing their teeth. And that again is because cycling is one of the key parameters for urban planning. In other words, in Copenhagen we have managed to prove together that the bicycle is the modern metropolis' preferred mode of transport. Unfortunately, however, it is a rarity in a world where many big cities are struggling with traffic congestion and air pollution.

If we want Copenhagen to continue to be a sustainable and accessible city we will have to continue to place a high priority on the lay-out of the city's main traffic arteries - even though this means favouring certain transport modes at the expense of others.

Cycling offers huge benefits for the individual as well as for the city as a whole. For the individual cycling is healthy, flexible and fast. For the city of Copenhagen the large number of cyclists primarily means more efficient traffic movement. Furthermore, cycling reduces CO₂ emissions and provides more space to enjoy urban life. This is why in recent years we have invested extensively in improving conditions for present and future cyclists.

The Bicycle Account is a key publication in this context, showing us where we need to increase our efforts if we wish to continue putting our money where our mouth is to create the most bicycle-friendly city in the world.



I hope you enjoy it!

A handwritten signature in black ink that reads "Klaus Bondam". The signature is written in a cursive, slightly slanted style.

Klaus Bondam
Mayor, Technical and Environmental Administration
City of Copenhagen

WHAT IS THE BICYCLE ACCOUNT ?

The Bicycle Account is an assessment of cycling development in the City of Copenhagen. The Account consequently deals with city cycling conditions, new initiatives as well as the way in which the Copenhageners themselves perceive cycling facilities.

The Bicycle Account is published bi-annually. This year's Bicycle Account is based on 2008 statistics and includes telephone interviews with 1,025 randomly selected Copenhagen residents as well as data from the DTU Transport Survey of Transport Behaviour. The Bicycle Account 2008 is the eighth of its kind. The Bicycle Account is aimed at Copenhagen residents, among others, who, hopefully, will be able to make use of it as a source of inspiration. For the City of Copenhagen the Bicycle Account is a vital planning tool in the work of making Copenhagen an even better city for cyclists.

You can find further analyses and figures relating to Copenhagen cycling at www.kk.dk/cityofcyclists.



WHAT DO COPENHAGEN CYCLISTS THINK?

	1996	1998	2000	2002	2004	2006	2008
CPH as a city for cyclists 	7	8	8	8	8	8	9
Cyclist sense of safety 	6	6	6	6	6	5	5
Amount of cycle tracks 	6	6	7	6	6	6	6
Cycle track width 	7	7	6	5	5	5	4
Condition of cycle tracks 	5	5	4	5	5	5	5
Condition of roads 	2	3	2	3	3	3	3
Bicycle parking generally 	4	3	4	3	3	3	3
Combining cycling and public transport 	5	4	5	5	5	6	5

Copenhagen cyclists are asked how they rate various cycling conditions in Copenhagen. Their ratings are then converted into a point system depicted graphically as red bicycles – the more bicycles, the better the rating. A rating of 10% satisfied cyclists is depicted as one red bicycle. The top rating is 10 red bicycles.

A Copenhagen cyclist is defined in the survey as either a person for whom the bicycle is the preferred mode of transport or a person who uses a bicycle a minimum of once a week. 723 out of the 1025 interviewees are thus designated as cyclists in the survey.

Copenhagen

Copenhagen cyclists' assessment of cycling facilities in Copenhagen is fairly similar to their attitude the last time we asked in 2006. However, there are three points where the ratings diverge, in both a positive and a negative direction.

On the positive side the general rating for Copenhagen as a bicycle-friendly city has risen from eight to nine bicycles. This may be taken as an indication that Copenhageners appreciate the cycling investments of recent years.

Cycle tracks

On the negative side there has been a drop in cyclist satisfaction with cycle track width from five to four bicycles. The survey gives no concrete indication as to the cause of the drop. An obvious guess, however, is that the general growth in bicycle traffic and particularly the rise in the number of cargo bikes has resulted in increased congestion on the Copenhagen cycle tracks. Hence the decline in satisfaction needs not be viewed as solely negative, although the issue of cycle track congestion presents an interesting challenge for Copenhagen city planners!

Taking your bike on the train

Satisfaction with combining cycling and public transport has dropped from six to five bicycles and is thus down to the 2004 level. The bicycle-train combination has a high potential as an alternative to private cars and the City of Copenhagen consequently wishes to continue the dialogue with DSB (Danish Railways) and the Metro on improving ways of combining cycling with train transport.



TARGET GOALS AND TARGET FIGURES



The table on page 6 provides an overview of developments within key cycling parameters in Copenhagen. The first three categories relate to the political objectives for 2015 set forth in the City of Copenhagen's environmental policy, Eco-Metropolis – Our Vision for Copenhagen 2015.

Work and education

In 2008 37% of everyone working or studying in Copenhagen chose to bike to their place of work or education. This is a slight improvement in relation to 2006 when the figure was 36% but there is still a long way to go before reaching the target figure set by the City of Copenhagen of 50% by 2015.

the past 10 years. That trend has been reversed, however, in the past two years. The number of seriously injured cyclists in 2008 was 121. The target objective for 2015 is to have reduced that number to maximum 59, which amounts to half the number of cyclists who were seriously injured in 2005. The City has drawn up a plan for bicycle safety in traffic and is constantly improving dangerous intersections and road sections. However, the figures indicate that more attention to traffic safety is required if the objective is to be achieved.

Feeling safe in traffic

The 2006 tendency continues towards a slight drop in Copenhagen cyclists' sense of safety. In 2008 51% of Copenhagen cyclists felt safe in traffic. If 80% of cyclists are to feel safe by 2015 we will have to step up our efforts significantly.

In a larger perspective, however, this is an impressive advance. According to Statistics Denmark the number of cycled kilometres in Denmark as a whole has dropped by approx. 23% over the course of the past 15 years. In comparison the number of cycled kilometres in Copenhagen in the period 1996-2008 alone rose by 26% so that today 1,170,000 kilometres are cycled daily.

Cyclist casualties

The number of serious accidents involving cyclists has been significantly reduced over

THE THREE OBJECTIVES FOR 2015

- At least 50% will go to their place of work or education by bike.
- The number of killed and seriously injured Copenhagen cyclists will be reduced by more than 50% compared to 2005.
- At least 80% of Copenhagen cyclists will feel safe in traffic.

ECO-METROPOLIS	1996	1998	2000	2002	2004	2006	2008
Percentage that cycle to work or education (%)	30	30	34	32	36	36	37
Seriously injured cyclists (number per year)	252	173	146	152	124	92	121
Percentage of cyclists that feel safe (%)	60	58	57	56	58	53	51
OTHER KEY FIGURES							
Cycled kilometres (mio./km per weekday)	0.93	0.92	1.05	1.11	1.13	1.15	1.17
Cycled km between serious casualties (mio./km)	1.2	1.8	2.4	2.4	3.0	4.2	3.2
Cycling speed (km/h)				15.3	16.0		16.2
Cycle tracks (km)	294	302	307	323	329	332	338
Cycle lanes (km)		6	10	12	14	17	18
Green cycle routes (km)	29	30	31	32	37	39	41
Bicycle parking spaces on roads and pavements (1000)					29.5		34.8



CYCLING TO WORK OR EDUCATION

- STATISTICS AND PERSPECTIVES

55,000 more...

37% of everyone working or studying in Copenhagen cycles to their place of work or education in the city. That figure includes Copenhagen residents as well as people from other municipalities who work or study in Copenhagen. In other words around 150,000 people cycle to work or school in Copenhagen every morning. If we are to achieve the political objective that by 2015 50% will cycle to their place of work or education in Copenhagen, this means in absolute numbers that 55,000 more people than today will have to take their bikes to work or education in the morning.

If we limit ourselves to Copenhagen residents working or studying in the city, the cycling share of transport is 55%. Copenhagen residents are generally more inclined to cycle than residents of the neighbouring suburbs regardless of the distance to their workplaces.



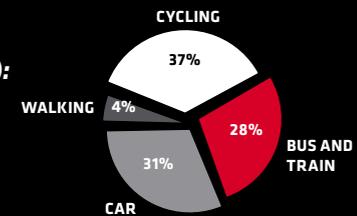
Workplaces

The workplaces registering the highest number of cycle journeys into the City of Copenhagen are the two hospitals, Rigshospitalet and Bispebjerg Hospital. This is naturally bound up with the size of the workplace. In addition, people working within the public administration, education and health care sector are the group that cycles most - 45%. For purposes of comparison, 27% of employees in the trade, hotel and restaurant sector cycles to and from work.

New initiatives

If we are to achieve our objective that 50% will cycle to their place of work or education in Copenhagen by 2015 then we must continue to improve the bicycle infrastructure and develop campaigns and promote urban development in ways that consistently incorporate and give high priority to cycling. Both Copenhagen cyclists and non-cyclists emphasize that the prime motivation for more cycling would be more and wider cycle tracks and fewer cars. Another prerequisite for achieving the objective is the reduction of motor traffic by road pricing. The legal procedures for introducing road pricing, however, are not as yet in place.

Transport mode going to work or education in Copenhagen (journeys):



Those who cycle solely to and from a station are registered under "Bus and train".



SAFETY

- STATISTICS AND PERSPECTIVES

More cyclists, more safety!

It is safer to cycle in Copenhagen than in most other big cities. There are two reasons for this: In the first place the infrastructure is adapted to accommodate cyclists, including such facilities as an extensive cycle track network and bicycle-friendly intersections. Secondly, the large number of cyclists in Copenhagen means that the city's other road users are used to cyclists on the street scene and show them consideration.

The work continues

The City of Copenhagen is constantly working to improve traffic safety by means of physical redesign of intersections and road sections. One of the projects in 2008 was continuing the redesign of the large accident-causing junction where H.C. Andersens Boulevard intersects with Farimagsgade and Jarmers Plads. At the same time the speed limit on H.C. Andersens Boulevard was reduced from 60 to 50 km an hour.

The City of Copenhagen initiated a major project in 2008 focusing on preventing

right-turn accidents involving collisions between lorries and cyclists. Heavy goods vehicle traffic has been forbidden on Vester Voldgade and further measures will be implemented in the coming year.

Vulnerable road users

Taken as a whole, vulnerable road users – cyclists, pedestrians and moped users – constitute 74% of those killed or seriously injured in Copenhagen traffic. In 2008 there were 121 serious accidents involving cyclists while the figures for pedestrians and moped users were 66 and 34, respectively. Of the 121 serious cyclist casualties in 2008 five were fatal. In four of these cases death occurred in connection with right-turning lorries.

As mentioned above, the general trend taken over an extended period of time is going in the right direction. It should be noted that in 1996 there were 252 seriously injured cyclists in Copenhagen traffic. However, within the past two years there has been a rise in the number of serious cyclist casualties.

FACTS ABOUT ACCIDENTS IN COPENHAGEN

Today there is one serious accident for every 3.2 million cycled kilometres in Copenhagen. For purposes of comparison the equivalent figure for 1996 was one accident per 1.2 million cycled kilometres. In other words the risk a cyclist runs of being involved in a serious accident has been reduced by 65% in the period 1996-2008.

SENSE OF SAFETY

- STATISTICS AND PERSPECTIVES

Safety vs. sense of safety

51% of Copenhagen residents feel safe when cycling in Copenhagen, 36% feel partially safe and 13% respond negatively when asked whether they feel safe cycling in town.

The complex issue of Copenhagen cyclists' sense of safety in traffic is difficult to measure as well as to change. Many factors may have an impact on the result of the survey measurements. For instance, it is conceivable that massive media coverage of a serious right-turn accident might have as great an impact on the individual cyclist's perception of safety as the cyclist's own experiences on his or her daily cycle journey. In any case the fact remains that cycling in Copenhagen has become statistically safer while at the same time the sense of safety has declined.

Increased cycle track congestion

Another interesting point is that when asked what single factor would make them feel safer as cyclists almost as many Copenhageners want the cycle tracks to be wider as want more cycle tracks. This may be regarded as a natural consequence of the growth in bicycle traffic and the resultant increase in cycle track congestion.

Although the interviewed cyclists do relate to the concept of feeling safe, the survey measurements are by no means exhaustive in relation to how the individual cyclist perceives the term "sense of safety". The City of Copenhagen is consequently focusing on obtaining more information about Copenhageners' sense of safety.



WHY PEOPLE FEEL UNSAFE

When questioned directly the group of Copenhageners who do not feel safe in traffic gave the following reasons for their sense of feeling unsafe:

- 58% feel unsafe because of cars.
- 43% feel unsafe because of other cyclists.
- 17% feel unsafe because of buses.

WHY PEOPLE FEEL SAFE

When questioned directly the group of Copenhageners who do not feel safe in traffic stated that the following factors might make them feel safer:

- 37% would feel safer if there were more cycle tracks.
- 36% would feel safer if cycle tracks were wider.
- 14% would feel safer if intersections were more bicycle-friendly.

WHERE THERE'S WILL THERE'S A WAY

Åbuen

Since the last Bicycle Account the City of Copenhagen has invested in improving conditions for the city's cyclists. The idea behind all such investments is to help create a safer, less stressful and more efficient city for cyclists.

One of the most obvious examples of an investment that enhances safety and passability and also makes city cyclists feel safer is the Åbuen bridge for pedestrians and cyclists. The bridge was inaugurated in June 2008 and forms a link between the neighbouring municipalities of Copenhagen and Frederiksberg over the highly congested thoroughfare, Ågade. By the end of the first week more than 1,700 cyclists had already used the bridge in the daytime and three months later the figure had risen to over 3,000 cyclists.

Green waves

Copenhagen traffic lights were formerly largely synchronized for the benefit of cars and buses. Now the traffic lights along several of the city's major traffic arteries are set so that Copenhagen cyclists maintaining an average traveling

speed of 20 km an hour can ride through traffic without putting a foot down. The Green Waves for cyclists are an excellent example of cheap and effective measures made possible because the municipal authorities have given special priority to cycle traffic. The Green Waves are in force today on Nørrebrogade and sections of Amagerbrogade, Østerbrogade and Farimagsgade.

Cyclists enter the intersection first

Another initiative of recent years has been to rethink a number of the Copenhagen traffic signal intersections in order to better accommodate cyclists. One example is the introduction of advanced stop lines for cyclists with the general stop line for cars five metres back from the main traffic signal at 117 Copenhagen intersections. Cyclists are thereby clearly in view and are well into the intersection before the cars start their right-turn.

Among other initiatives new cycle tracks have been established on Nørre Voldgade, Folke Bernadottes Allé and Hillerødgade.



PILOT PROJECT ON NØRREBROGADE

If we want the city to continue to be sustainable and dynamic and traffic movement to remain efficient in the future then we will occasionally have to enter new territory. One example of this is the pilot project on Nørrebrogade which was introduced in the autumn of 2008. The purpose of the pilot project is to redesign Nørrebrogade to accommodate the environment and the people using the street. The project provides more space for pedestrians, cyclists and bus passengers. This is why there is no through car traffic on Nørrebrogade.

Before the pilot project was initiated a typical 24 hour day of traffic on Nørrebrogade looked something like this:

- 33,000 cyclists.
- 40,000 bus passengers.
- 22,000 persons in cars.
- Many thousands of pedestrians.

The figures for November 2008 show that bicycle traffic had increased by 15% compared to traffic on Nørrebrogade in November 2007. This indicates that already in its early phases the pilot project was instrumental in causing significantly more people to cycle along Nørrebrogade.





THE CARGO BIKE

- A NEW PLAYER

IN THE FIELD

More cargo bikes on the street scene

A cycle journey in the Copenhagen morning traffic proves it. A brief stop in front of a day nursery proves it. And City statistics prove it. The cargo bike has become a well established transport mode in Copenhagen. The concept of cargo bike here covers both freight bicycles and cargo trailers. The City of Copenhagen has not previously carried out systematic measurements of the extent to which cargo bikes are used. The present Bicycle Account will serve as a springboard for keeping abreast of future cargo bike developments in Copenhagen traffic.

An alternative to cars

In 2008 6% of all Copenhagen households had a cargo bike. Of these 22% use their cargo bike as a car replacement

while 24% state that they use a cargo bike in addition to a car. These figures indicate that many of the journeys carried out by cargo bike replace car journeys.

Of those who have a cargo bike 40% state that they use the cargo bike to transport goods. 50% say that they use the cargo bike to carry children. Not surprisingly the cargo bike is more widespread among families with children than among other social groups. As many as 25% of Copenhagen families with two children have a cargo bike.

New challenges

For all these reasons it makes a lot of sense to give serious consideration to cargo bike issues in the future when working to create a climate-friendly,

dynamic metropolis with efficient traffic movement. One of the major challenges in this context is dealing with the increased level of congestion on the Copenhagen cycle tracks. Another increasing challenge is how to incorporate good parking facilities for cargo bikes into urban planning.

The Bicycle Account figures indicate that the cargo bike is generally accepted in the streets of Copenhagen. Although dissatisfaction with cycle track width has increased somewhat since 2006, only 2% of Copenhagen cyclists feel seriously annoyed by the cargo bikes.



"25% OF ALL FAMILIES WITH TWO CHILDREN IN COPENHAGEN HAVE A CARGO BIKE".

WHERE CAN I HITCH UP MY HORSE?

- BICYCLE PARKING IN COPENHAGEN

More bicycles than inhabitants

Copenhagen residents own 560,000 bicycles while the city has a population of 519,000. Add to this all the abandoned bicycles that have taken up residence in public spaces as well as the bicycles of non-resident commuters who, returning home, leave their bicycles to enjoy the hospitality of the city stations at night.

It's an excellent sign that there are so many bicycles in Copenhagen. However, this places great demands on the city's parking facilities. If bicycle parking facilities are not up to standard this has at least two consequences: First of all, it makes life more difficult for people cycling in town. Second, bicycles are plunked down all over at random - to the annoyance of pedestrians and other users of public spaces.

New bicycle parking spaces

Over the course of the past couple of years the City of Copenhagen has focused intensely on establishing more and better parking facilities for Copenhagen cyclists. In 2006 there were 29,500 public bicycle parking spaces in Copenhagen. In 2008 alone the city established about 5,000 new bicycle parking spaces so the figure today is now 34,800 including 1,000 mobile rack spaces. This is an increase of 18% in the total number of public bicycle parking spaces.

The Cycle Vulture is coming!

A number of abandoned bicycles have taken up permanent residence in the Copenhagen bicycle racks. One way of creating more space is to remove the unused bicycles so as to make room for the ones in use. This method is also known as the "vulture method" since the city swoops down on the carcasses of the city's bicycles. In 2008 alone 8,000 abandoned bicycles were removed in Copenhagen.

BICYCLE PARKING

- 4,000 new rack spaces distributed over 100 different locations in Copenhagen.
- 1,000 mobile rack spaces for use at concerts and other major events.
- 8,000 abandoned bicycles removed.



NEW CONSTRUCTION = NEW BICYCLE PARKING

The Proposal for the City of Copenhagen's Municipal Plan for 2009 emphasizes the need for incorporating bicycle parking facilities into all new city construction.

- Home: 2.5 bicycle parking spaces per 100 m² living area (or alternatively per residence).
- Workplace: 1.5 bicycle parking spaces per 100 m² office space.
- Shop: 3 bicycle parking spaces per 100 m² shop + 0.5 bicycle parking space per employee.
- Home and shop: 1 bicycle parking space for oversize bicycle per 1,000 m².



CYCLING

AND ITS SOCIOECONOMIC BENEFITS

Advantages and disadvantages

A cost-benefit analysis often forms the basis for political decision making prior to traffic investments. Cost-benefit analyses involve assigning a monetary value to the advantages and disadvantages of a construction project. This makes it possible to weigh the benefits (e.g. reduced travel times and reduced pollution) against the disadvantages (e.g. construction costs and noise).

Cycle projects

The Danish Ministry of Transport has a manual for calculating cost-benefit. However, the manual does not include a method for assessing cycle projects. This is hardly viable when over one third of the population of the nation's capital arrive at their place of work or education by bicycle. The City of Copenhagen has therefore had a cycling assessment procedure devised based on the principles set forth in the manual. The City of

Copenhagen will use the procedure when assessing coming major cycle projects. In addition key cycling figures have been made available to the Ministry of Transport. This is the first step towards developing a method for cycle project analysis to be used in the Ministry's existent cost-benefit manual.

Sound investments

The new method has so far been tested at two concrete cycle projects in the City of Copenhagen: Bryggebroen, a cyclist/pedestrian bridge across the harbour, and the reconstruction of the Gyldenløvesgade/Søgade intersection. In both cases the conclusion is clear: From a cost-benefit point of view the investments are particularly sound, giving an equivalent or better rate of return than current road construction projects such as the widening of the motorway around Roskilde or a new motorway near Silkeborg.

CYCLING FIGURES IN HARD CASH

- When a person chooses to cycle this is a clear gain for society of DKK 1.22 per cycled kilometre. Conversely, society suffers a net loss of DKK 0.69 per kilometre driven by car.
- In cost-benefit terms the health and life expectancy benefits of cycling are seven times greater than the accident costs.
- The cost of a bicycle is 33 øre per cycled kilometre covering purchase price and maintenance. The equivalent cost for a car is DKK 2.20 per driven kilometre.

CYCLING AND HEALTH

- *Children that cycle to school are almost 10% more physically fit than their classmates who walk or are driven by their parents.*
- *Adults that cycle to work or use a bicycle on an everyday basis have a 30% lower mortality rate than others who resemble them in all other areas.*





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www.kk.dk/cityofcyclists

**COPENHAGEN
TOGETHER**

CITY OF COPENHAGEN
The Technical and
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