

COPENHAGEN CITY OF CYCLISTS

THE BICYCLE ACCOUNT 2016



www.kk.dk

2016

Once again Copenhagen was ranked as the world's top cycling city. News of the opening of the recreational route the Harbour Circle made its way around the world and the fact that bicycles now outnumber cars on the streets of central Copenhagen was acclaimed by both Danish and international media. And when the people of Copenhagen are asked how they would rate Copenhagen as a cycling city, 97% of them declare themselves generally satisfied.

This did not come about by itself. Since 2004 the City of Copenhagen, private foundations and the Danish government have jointly invested DKK 2 billion in improving cycling in Copenhagen. During the last two years alone we have established seven km of cycle tracks, five km of cycle lanes, three km of Green Cycle Routes and 18 km of Cycle Superhighway linking the city with the entire capital region. We have installed 3,000 bicycle parking stands, collected almost 18,000 ownerless bikes and upgraded traffic signals, road surfaces and winter road maintenance.

What is particularly striking in the cityscape are the many new bicycle and pedestrian bridges that now make it easy and attractive to cross the Copenhagen Harbour. The Circle Bridge, the Inner Harbour Bridge and the Belvedere Bridge have been built since

the last Bicycle Account, improving travel time for cyclists and pedestrians and enhancing the beautiful experience of the harbour.

This is not just a success story, however. The bicycle's modal share of trips to work and education has fallen from 45% in 2014 to 41% in 2016 so we are still nine percentage points short of achieving our political targets that one out of every two commuters should choose to cycle. The number of privately owned cars is rising, and so is the number of car trips across the municipal boundary while the number of bicycles crossing the same boundary is falling.

So there is still work to be done as we continue to make the city of cyclists as attractive as possible for all those who already cycle today and all the many more we hope will be inspired to cycle in the future, not least across the municipal boundary.

Happy reading - and enjoy your next trip

Morten Kabell,
Mayor, Technical and
Environmental Administration





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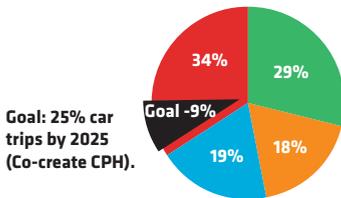
TARGETS AND KEY FIGURES

1.4 million km were cycled per weekday in 2016, which is an increase from 1.34 million km in 2014. During the same period the bicycle modal share of trips to work and education fell from 45% in 2014 to 36% in 2015, but is currently at 41% in 2016. The bicycle is thus the transport mode of choice to work and education in Copenhagen.

If the political target is to be achieved that 50% of all trips to work and education should be carried out by bicycle by 2025, this means that 9 percentage points of trips need to be moved to bicycle transport from other trans-

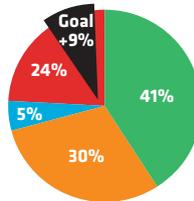
port modes. When it comes to Copenhageners' trips to work and education the share is as high as 62%. However, the car is still the most frequent transport mode when all trips are included.

DISTRIBUTION OF TRIPS 2016 IN RELATION TO POLITICAL TARGETS



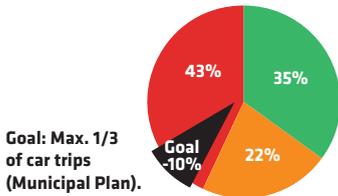
Goal: 25% car trips by 2025 (Co-create CPH).

All trips with start and/or stop in the City of Copenhagen.



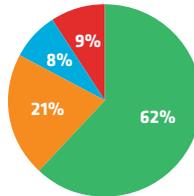
Goal: 50% bicycle trips by 2025 (Co-create CPH and Copenhagen Bicycle Strategy).

Trips to work and education in the City of Copenhagen.



Goal: Max. 1/3 of car trips (Municipal Plan).

All trips with start and/or stop in the City of Copenhagen, pedestrians excepted.



Copenhageners' trips to work and education in the City of Copenhagen.

■ Car
 ■ Public transport
 ■ Walk
 ■ Bicycle



1.34 → 1.4 m

Increase in number of km cycled per weekday 2014-1016.

74 → 76%

Increase in the share of Copenhageners who feel secure when cycling 2014-2016.

.....

POLITICAL TARGETS, COPENHAGEN BICYCLE STRATEGY 2011-2015 AND CO-CREATE CPH 2025

'06	'08	'10	'12	'14	'16	'25	
36	37	35	36	45	41	50	Share that bike to work/education in Copenhagen (%)*
53	51	67	76	74	76	90	Share of cycling Copenhageners who feel secure (%)
98	121	91	102	92	94	35	Number of serious cyclist casualties (per annum)
-	-	-	17	19	20	80	Share of PLUS network with 3 lanes (%)
-	-	-	0	7	6	15	Reduction in cycling travel time (%)
48	54	50	61	63	71	80	Satisfaction with state of cycle tracks (%)
-	-	67	73	70	71	80	Satisfaction with impact of bicycle culture on urban life (%)
26	26	27	29	33	37	70	General satisfaction with bicycle parking (%)

*Calculated separately for each individual year whereas previously a two-year average was used.

OTHER KEY FIGURES

'06	'08	'10	'12	'14	'16	
1.15	1.17	1.21	1.27	1.34	1.4	Kilometres cycled (million km per weekday)
4.0	3.2	4.4	4.2	4.9	4.9	Kilometres cycled between serious casualties (million km)
16.0	16.2	15.8	15.5	16.4	16.3	Average cycling speed (km/h)
332	338	346	359	368	375	Cycle tracks (km)
17	18	23	24	28	33	Cycle lanes (km)
39	41	42	43	58	61	Green Cycle Routes (km)
-	-	-	17.5	38.5	57	Cycle Superhighways in Capital Region (km)
42	47	48	49	51	54	Bicycle parking on roads and sidewalks (1,000 spaces)

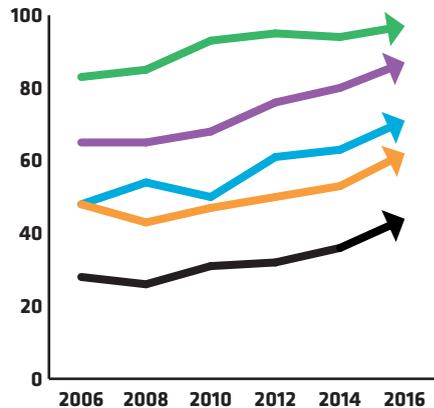
WHAT DO THE COPENHAGENERS THINK?



Copenhageners' satisfaction with the cycling city has been gradually growing during the last decade as the City strengthens investments in cycling.

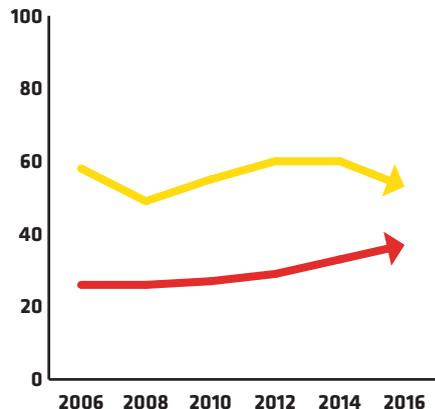
Growing satisfaction

Copenhageners' satisfaction with Copenhagen as a cycling city has risen from 94% in 2014 to 97% in 2016. Satisfaction with the amount of cycle tracks has risen from 80% to 87%, and satisfaction with cycle track width has risen from 53% to 62%. The same positive trend can be seen when it comes to cycle track and road maintenance. Between 2014 and 2016 satisfaction with cycle track maintenance rose from 63% to 71%, and 44% of Copenhagen cyclists are satisfied with maintenance on roads where people cycle. This is an increase of 8 percentage points since 2014.



Bicycle parking and combined trips

Satisfaction with bicycle parking in Copenhagen is fairly low compared to satisfaction with other cycling facilities. Nevertheless, satisfaction with bicycle parking has increased from 33% satisfied respondents to 37% in 2016. On the other hand satisfaction with options for combining cycling and public transport has fallen by 7 percentage points between 2014 and 2016.





COPENHAGENERS' SATISFACTION WITH THE CYCLING CITY*

'06	'08	'10	'12	'14	'16	
83	85	93	95	94	97	Copenhagen as a cycling city 
65	65	68	76	80	87	Amount of cycle tracks 
48	54	50	61	63	71	Cycle track maintenance 
48	43	47	50	53	62	Cycle track width 
28	26	31	32	36	44	Road maintenance 
58	49	55	60	60	53	Combination of bicycle and public transport 
26	26	27	29	33	37	Bicycle parking generally 

*Percentage of respondents that answered "satisfied" or "very satisfied". The responses are based on interviews with 675 respondents for whom the bicycle is either the transport mode of choice or who use their bicycle at least once a week.

Satisfaction with routes and signage

In 2016 respondents were asked about a number of new cycling initiatives for the first time. The residents of Copenhagen are generally satisfied with the regional Cycle Superhighways and the extent of the Green Cycle Routes. However, there is a great potential for raising public awareness about the Cycle Superhighways and the Green Cycle Routes since 25% had never heard of the Cycle Superhighways and 55% had never heard of the Green Cycle Routes.



BICYCLE PARKING



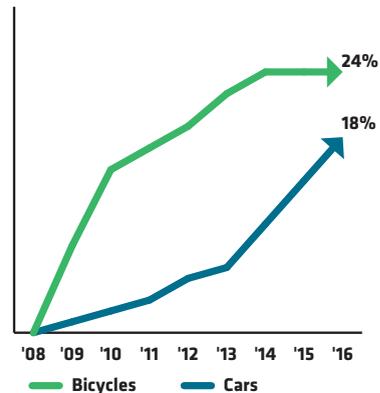
When it comes to bicycle parking, satisfaction is relatively low, especially at stations and shops. That means we're going to have to work harder to achieve the political target that 70% of Copenhageners should be satisfied with bicycle parking by 2025.

Lots and lots of bicycles

In 2016 the people of Copenhagen owned approx. 675,000 bicycles, which is roughly the same number as in 2014. The people of Copenhagen own 5.6 times as many bicycles as cars, but while bicycle ownership has remained stable in recent years, car ownership is on the rise.

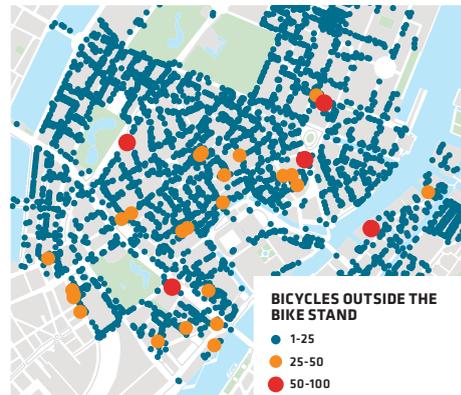
The fact that there are so many bicycles in use in the city has increased the demand for bicycle parking facilities. The City of Copenhagen has installed 3,000 new bicycle parking spaces since 2014 and there are now 54,000 bicycle parking spaces in the municipal area.

TRENDS IN PRIVATELY OWNED CARS AND BICYCLES 2008-2016 (2008 = INDEX 100)



Bicycles parked outside the bicycle stand

There are not enough bicycle stands to meet the demand, so Copenhageners often have to lean their bikes against buildings or block the sidewalk, inconveniencing other cyclists and pedestrians. 5,000 bicycles were counted outside bike stands in central Copenhagen in February 2017 alone, and the figure is expected to rise significantly in the summer half. The count will be continued elsewhere in the city and will be included in the coming Bicycle Parking Priority Plan expected to be completed in early 2018.

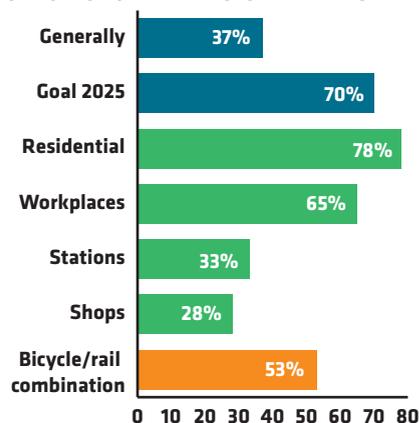




Considerable variation in satisfaction levels

Only 37% of Copenhagen residents are satisfied with the city's bicycle parking facilities. Satisfaction is highest in residential areas and at workplaces, but still low around shops and stations. In other words there is considerable room for improvement in public areas. 35% of Copenhagen residents combine cycling and rail transport at least once a week. Satisfaction with options for combining cycling and public transport has fallen by 7 percentage points, down to 53% in 2016. This may be related to the fact that satisfaction with bicycle parking facilities at stations is generally low.

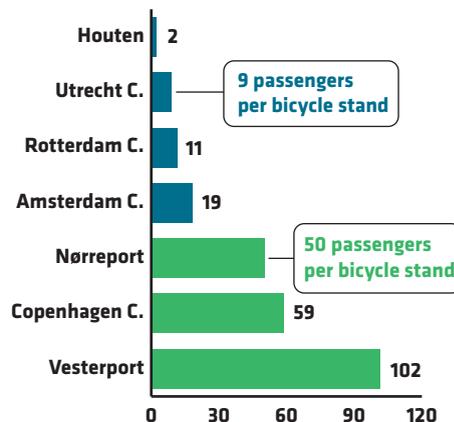
SATISFACTION WITH BICYCLE PARKING



The Dutch experience

In the Netherlands bicycle parking capacity at stations has been greatly expanded during the last decade. Today at Utrecht Centraal, which is the country's busiest station, there are almost 20,000 bicycle parking spaces compared to 2,400 spaces at Nørreport Station, the busiest station in Denmark. Both stations serve approximately the same number of daily passengers. This is also the case at other stations where there are many more passengers per bicycle parking space in Copenhagen than at the larger stations in the Netherlands.

NO. OF DAILY PASSENGERS PER BICYCLE STAND

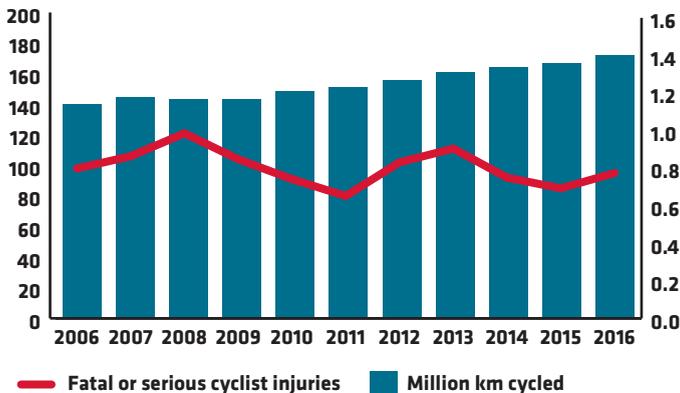


SAFE CYCLING CITY FOR YOUNG AND OLD



Cycling has generally become safer in Copenhagen as people increasingly choose to cycle. Infrastructure investments and public awareness campaigns as well as general traffic calming measures have contributed to the trend.

TREND IN RELATIVE CYCLING RISK IN COPENHAGEN



122

times around the world, or 4.9 million cycled km between each serious casualty.

23%

increase in km cycled between serious casualties in 2016 compared to 2006.

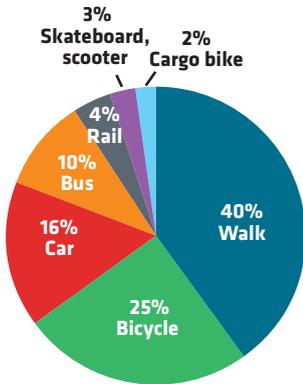
Traffic safety

The total number of fatally, seriously or slightly injured cyclists was 150 in 2016, including 5 fatalities. The risk of injury measured by cycled kilometres between each serious accident has dropped by more than 23% during the last decade. However, the number of cyclist casualties has not fallen to the same extent as it has for other road user groups, which is why the cyclist share of the total number of accidents involving personal injury has increased.

In Copenhagen Bicycle Strategy 2011-2025 one of the stated targets is to reduce the number of fatally or seriously injured cyclists by 70% between 2005 and 2025. As a follow-up to the ongoing work to improve traffic safety, in the fall of 2017 the City of Copenhagen will draft a proposal for a "Vision Zero" traffic plan containing recommendations for further measures to reduce personal injury in traffic.



COPENHAGEN SCHOOL CHILDREN'S TRANSPORT HABITS 2017



Safe Cycling City

In 2015-2016 the City of Copenhagen launched the behavioural campaign, Safe Cycling City. Between its first phase and its second phase public awareness of the campaign had increased from 42% to 80%. People's awareness of their own behaviour rose by 27% to 41% following the campaign. 95% of Copenhagen residents feel they generally cycle considerably, and 92% would like to see more awareness campaigns about considerate cycling behaviour.

School children's transport habits

A study of school children's transport habits was carried out in the spring of 2017. Approximately 12,000 children at 80 schools described how they get to school. 70% use active transport modes and 30% are driven by car or use public transport. 25% bike and 40% walk, which is probably due to the fact that in Copenhagen children usually don't have far to go to school. There is considerable variation among the individual schools; the car modal share for children attending private schools is generally higher than the average.

Relatively few accidents involve children and they take place mainly in the afternoon. In the course of a 10 year period only 23% of accidents occurred before 11 a.m. whereas 77% occurred between 11 a.m. and 10 p.m.

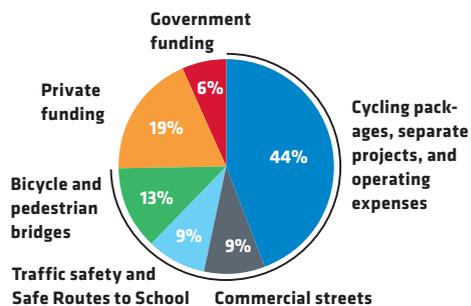


INVESTMENTS AND CONSTRUCTIONS

A total of DKK 2 billion has been invested in cycling-related initiatives in Copenhagen since 2004. The investments have significantly expanded the cycling infrastructure inspiring more people to choose the bicycle both for their own benefit and for the benefit of the community as a whole.

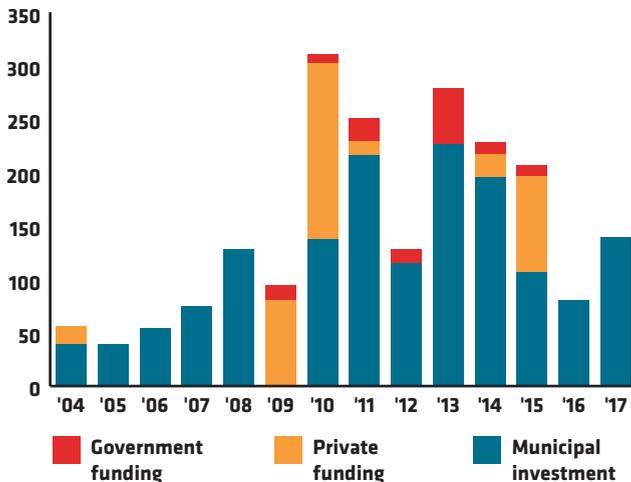
Investments

Since 2004 the City, the Government, and private foundations have invested in cycling. Altogether approx. DKK 2 billion have been invested in bicycle parking, separately funded projects, traffic safety, Safe Routes to School, bicycle and pedestrian bridges, and commercial streets. Approx. 25% comes from the Government (approx. DKK 130 million) or private funding (DKK 369 million) earmarked for bicycle and pedestrian bridges.



Distribution of total investments 2004-2017. The black line indicates municipal investments.

INVESTMENTS IN CYCLING-RELATED INITIATIVES 2004-2017

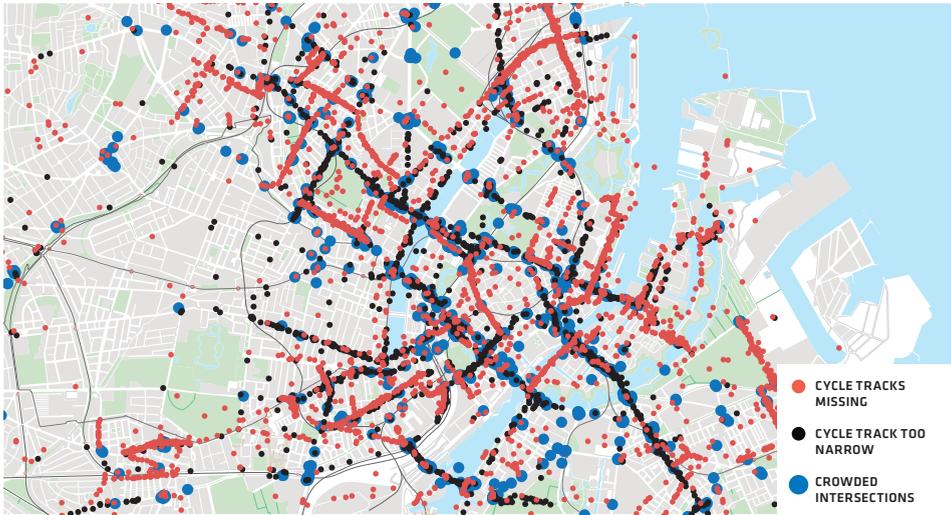


DKK 2.07 bn

total investment in bicycle infrastructure, traffic safety, bicycle and pedestrian bridges, etc. since 2004.

DKK 295

average annual investment per resident per annum in cycling-related initiatives since 2004.



The cycling city of the future

The Bicycle Track Priority Plan 2017-2025 qualifies future cycling investments. It shows where new cycle tracks and routes are needed, where existing cycle tracks need to be widened and where intersections need to be improved by 2025. The plan takes into account the calculated increase in bicycle traffic and will help to ensure that Copenhagen retains its position as the top cycling city in the world. The initiatives set forth in the plan constitute 70% of the total investment level estimated as necessary to achieve the political visions and goals for cycling. This amounts to DKK 1.6-2.6 billion between 2016 and 2025.

Copenhagener's Input

The residents of Copenhagen possess a unique understanding of the city's cycling conditions. The City of Copenhagen asked Copenhageners and other interested parties to point to areas in the city where cycling conditions were in need of improvement. 10,000 citizens responded via an interactive map which was a central part of the Bicycle Track Priority Plan 2017-2025. Local councils and the Danish Cyclists' Federation also contributed to the plan, in addition to private citizens.

CONSTRUCTED IN 2015 AND 2016

7 km

Cycle tracks constructed in Copenhagen 2015-2016.

3 km

Green Cycle Routes constructed in Copenhagen 2015-2016.

18 km

Cycle Superhighways constructed in the capital region 2015-2016.

3,000

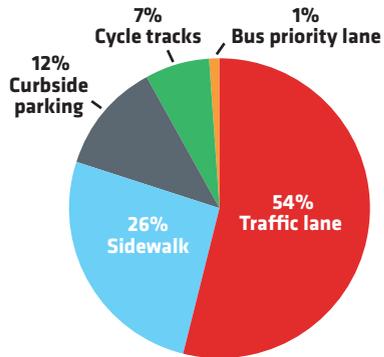
Public bicycle parking spaces installed in Copenhagen 2015-2016.

SPACE FOR MORE COPENHAGENERS

The growing population and its increased demand for transport is putting pressure on the available space between buildings in Copenhagen. Total road capacity can be optimized by boosting space efficient transport modes thereby enabling everyone to travel more easily regardless of their mode of transport.

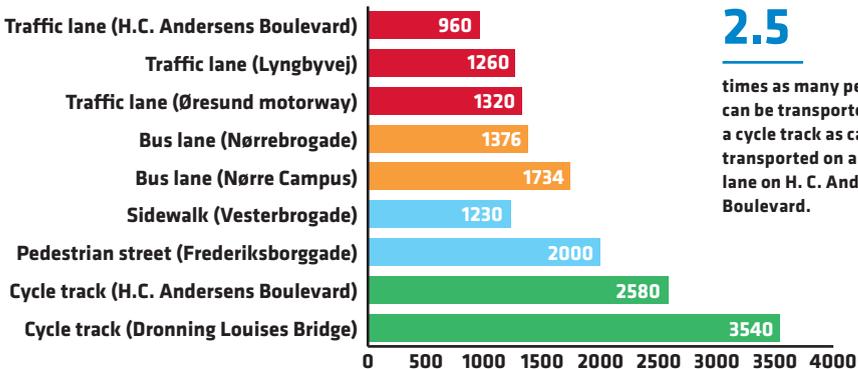
Growing pressure on traffic

Today space efficient transport modes, such as busses, bicycles and walking, account for only a limited share of the road space. Calculations of traffic trends resulting from population growth among other things indicate that bicycle traffic will increase by 25% by 2025, and by 36% at peak times. Other traffic will increase too, intensifying the needs for a more efficient use of existing space.



Distribution of road space between buildings in Copenhagen 2016.

PERSONS PER DIRECTION PER LANE AT PEAK TIMES



2.5

times as many people can be transported on a cycle track as can be transported on a traffic lane on H. C. Andersens Boulevard.



Increased capacity and liveability

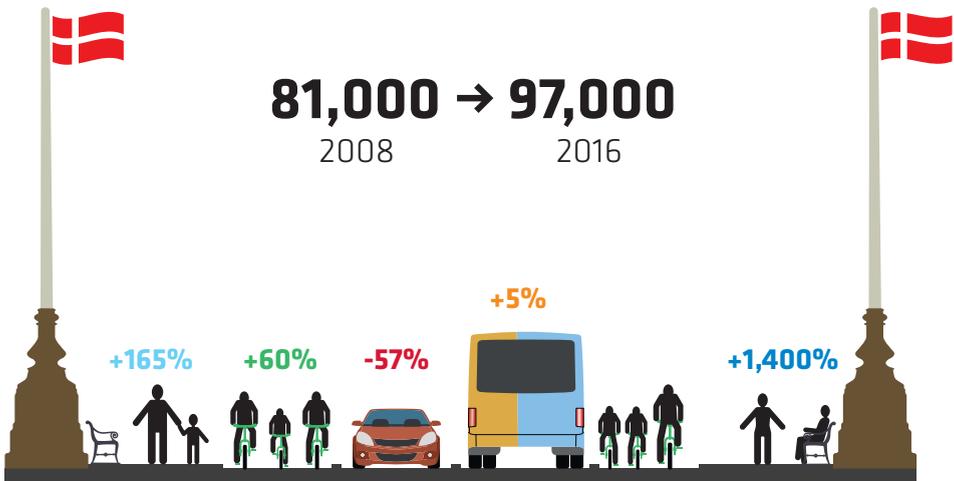
Between 2009 and 2013 Nørrebrogade was redesigned with a focus on wider cycle tracks and sidewalks, better bus conditions, and attractive public spaces. The total number of persons on Dronning Louises Bridge has risen from 81,000 in 2008 to 97,000 in 2016, an increase of 20%.

48,400

bicycles on Dronning Louises Bridge on a weekday in 2016.

1,400%

increase in persons spending time on Dronning Louises Bridge.



Growth in number of persons per transport mode on Dronning Louises Bridge from 2008- 2016.

BRIDGES LINK THE CITY TOGETHER

Shortcuts and sweeping views of the city are two of the advantages to be gained from Copenhagen's many bridges, making it attractive to cycle across water and road traffic.

Copenhagen's many bridges

Bicycle traffic is concentrated on the city's major bridges. For example Dronning Louises Bridge has the highest concentration of bicycle traffic in the world with almost 50,000 cyclists daily. A number of car free bridges have been built during the last decade including 10 since 2014. They have become visual icons because of their aesthetic qualities, for example the Cycle Serpent and the Circle Bridge, and are also used as excursion spots in their own right, for example the Inner Harbour Bridge, which was designed to include public spaces for panorama viewing.

There has been a marked increase in the number of cyclists and pedestrians on virtually all bridges with the exception of Knipelsbro, which now has to compete with the Inner Harbour Bridge. On Bryggebroen, for example, bicycle traffic on a weekday for a 24-hour period rose from 3,400 in 2006 to 23,800 in 2016.

The Harbour Circle was inaugurated in 2016, a 13 km recreational route around the inner harbour for cycling, walking or boating. The launch was covered by 135 international media outlets and the route has already become very popular.

The Cycle Serpent

The Cycle Serpent, the elevated bike lane which connects Dybbølsbro with Bryggebroen, was opened in 2014. Bicycle traffic on the Cycle Serpent has already risen significantly. 20,700 cyclists crossed the bridge on a daily basis in 2016, which is an increase of 80% since 2014. A recent cost-benefit analysis of the project shows a positive net present value of DKK 44 million over 20 years, partly due to an average daily time saving of 380 hours as well as 1,400 fewer km driven by car per 24-hour period.

9%

is the socio-economic return of the investment.

59%

experience a greater sense of security due to the Cycle Serpent.

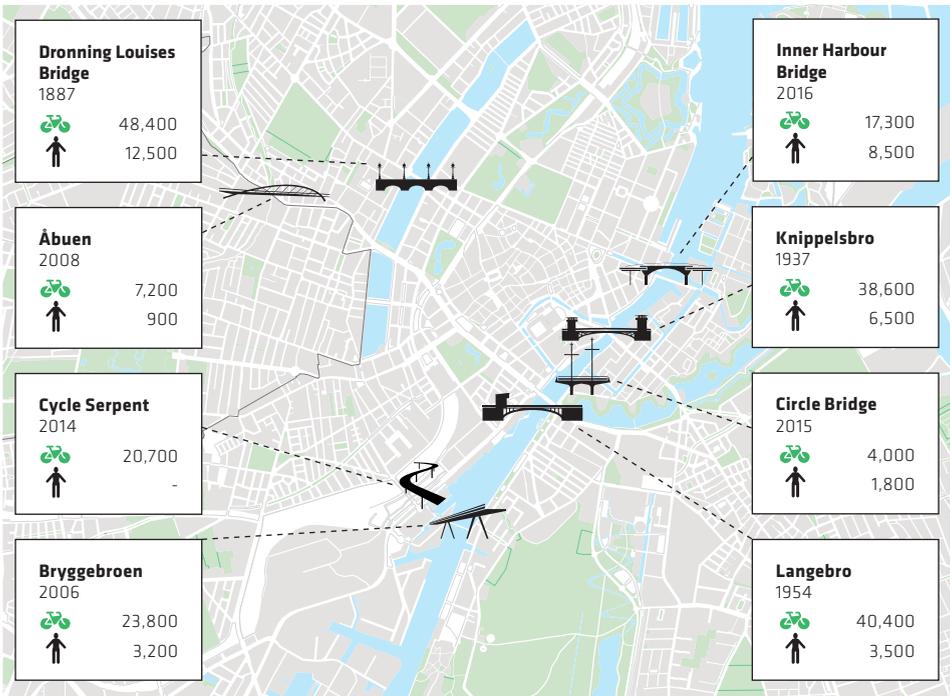
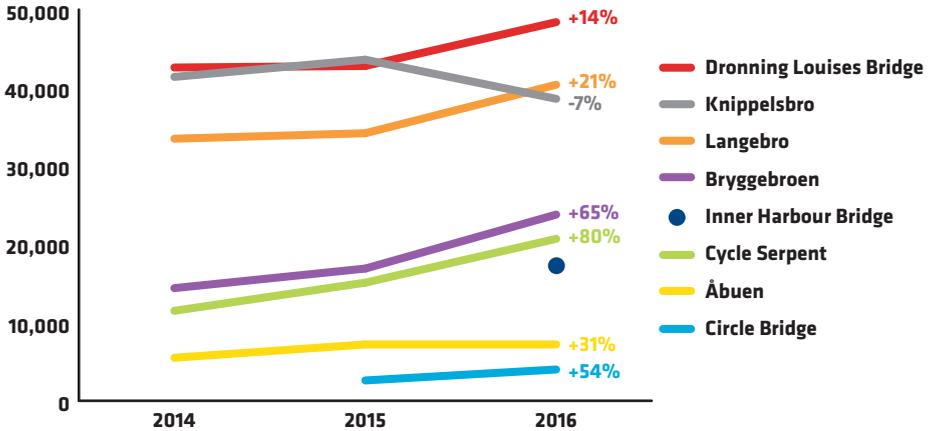
DKK 44 m

is the Cycle Serpent's socio-economic impact.

72%

experience greater comfort as due to the Cycle Serpent.

BICYCLE TRAFFIC TRENDS ON BRIDGES 2014-2016 (24-HOUR WEEKDAY TRAFFIC)

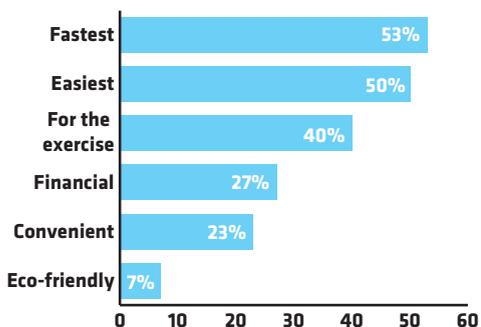


The number of cyclists is measured in 24-hour weekday traffic and the pedestrians between 7 am and 7 pm.

TRAVEL TIME

Travel time is a crucial parameter when it comes to choosing among transport modes. However, it is equally important to be able to cycle at your own speed regardless of whether you're a fast commuter or a slow beginner. Travel time can be reduced by improving bicycle traffic flow and by creating shortcuts that cut down the total cycling distance.

COPENHAGENERS' REASONS FOR CYCLING



Copenhagensers' main reason for choosing the bicycle is that this is the fastest and easiest way of getting around. In addition, 40% bike for the exercise whereas only 7% bike for environmental reasons.



Optimizing traffic signals on Østerbrogade

The City of Copenhagen is working on optimizing traffic signals at several locations. Most recently the traffic signals on Østerbrogade have been adapted to the flow of bicycle traffic, resulting among other things in 70% fewer stops for cyclists, and reducing cyclist travel time by 10%. There have been no reports of bus traffic delays as a result of the optimization

70%

fewer stops for cyclists.

10%

shorter travel time for cyclists.

A number of measures have been carried out since 2015 to improve travel time.



Variable message signs for cyclists can provide information about congestion in busy areas and suggest alternative routes. The signs will be tested at five locations in 2017.



Special “overtaking lanes” are being tested at four locations. The initial results show they help improve flow, allow for greater speed variation, and sharpen awareness of keeping to the right.



Cycle tracks continuing all the way to the stop line create a greater sense of security, and the extra space means more cyclists can cross the intersection when the light turns green.



Signs allowing cyclists to turn right on red were tested at three locations in 2016. The tests have shown that this does not cause increased conflict between vulnerable road users.



Separate platforms at bus stops make it easier and safer to get on and off the bus. Furthermore travel time is improved for both busses and cyclists.

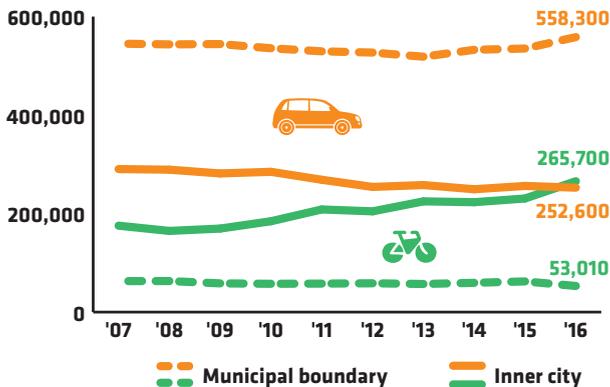


The “I bike CPH” route planner app has been downloaded 60,000 times. The route planner provides tips on the fastest way to get from A to B as well as finding the greenest route.

REGIONAL COHESION

Bicycle traffic within central Copenhagen overtook car traffic in 2016. However, when it comes to crossing the municipal boundary bicycle traffic is falling and car traffic is on the rise. The regional Cycle Superhighways can help encourage more people to cycle longer distances.

TRIPS ACROSS THE INNER CITY AND THE MUNICIPAL BOUNDARY



+51%

rise in bicycle traffic within central Copenhagen 2007-2016.

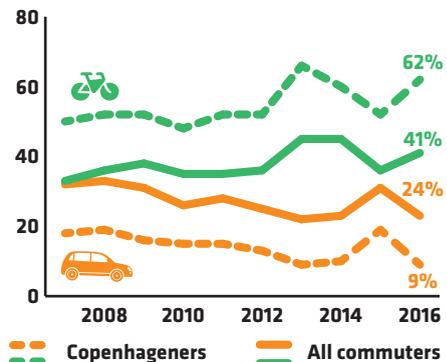
-16%

fall in bicycle traffic crossing the municipal boundary 2007-2017.

Commuter trips

Generally speaking cycling is the dominant transport form for trips to work and education in Copenhagen. However, the bicycle share among Copenhageners who work or study in Copenhagen is significantly greater than the total bicycle share. Consequently more commuting trips to and from the surrounding municipalities need to be made by bicycle if the goal of a 50% bicycle share is to be reached by 2025.

TRIPS TO WORK AND EDUCATION IN CPH





Cycle Superhighways equals more cyclists

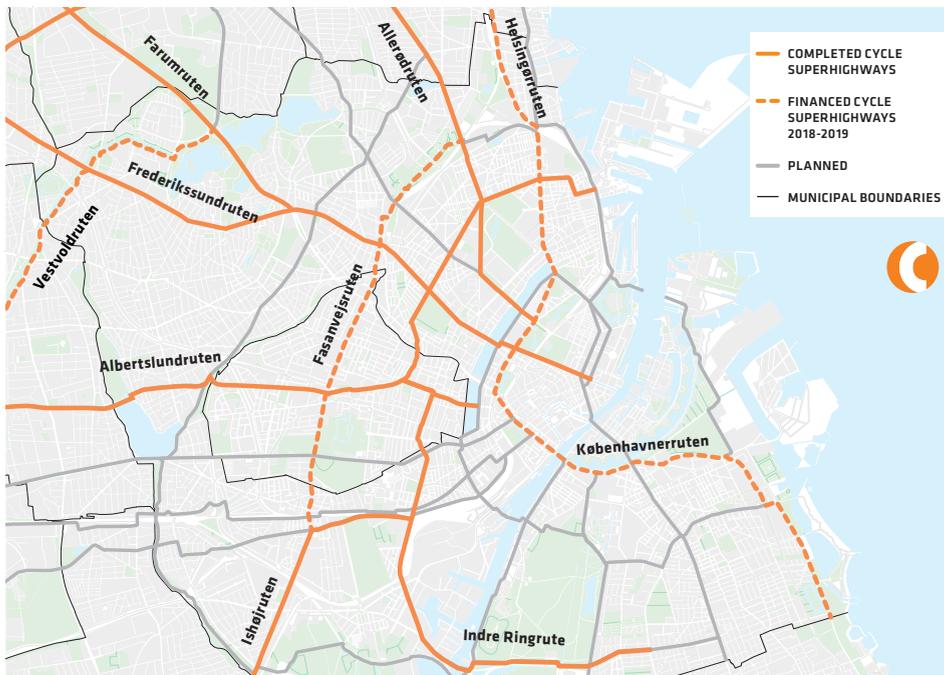
Today eight Cycle Superhighways have been completed in the Capital Region and five more are under way. Almost 500 km have been planned of which 206 km have already been financed at approx. DKK 400 million. The Danish government has appropriated DKK 176 million, and the municipalities will pay for the rest.

+61%

rise in cyclists on the Farum route since it opened in 2013.

25%

of the new cyclists on the Farum route are former car users.

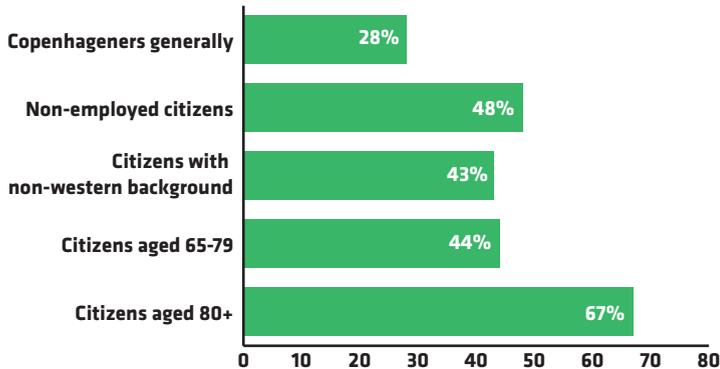


HEALTHY TRANSPORT

Physical inactivity is a growing social problem. It can be hard to find time for physical exercise and sports on a busy workday, and more than 25% of Copenhagen residents led physically inactive lives in 2016, almost 50% in certain groups. Daily cycling ensures the

recommended 30 minutes of daily physical activity, and produces significant health benefits for both the individual and the community in the form of increased productivity and reduced health care costs.

SHARE OF COPENHAGEN RESIDENTS WHO ARE PHYSICALLY INACTIVE



Fewer short car trips

The shorter the trip, the easier it is to switch from car to bicycle. Consequently the City of Copenhagen has concentrated efforts on encouraging citizens to make short trips by bicycle rather than by car. The project Fewer Short Car Trips which ran from 2012-2016 offered cycling options that were specifically targeted at motorists. As a result the number of short car trips of less than 5 km dropped from one third of all car trips in 2010/11 to one out of four in 2015.





Socio-economic benefits

The health benefit of every new km cycled in Copenhagen is the equivalent of DKK 0.99 in health care costs saved by the City

of Copenhagen. This includes increased productivity (60%) and reduced treatment costs (40%).

DKK 0.99

is saved by the City of Copenhagen in health care costs per cycled km.



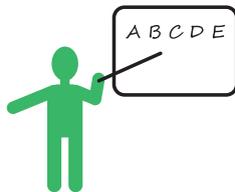
DKK 4.04

is the socio-economic impact of 1 km cycled rather than driven at peak times.



4 hours

children who cycle to school can concentrate for up to 4 hours longer than children who are driven to school.



19

The health benefits from switching from car to bicycle are 19 times higher than the drawbacks from accidents and air pollution.



5-6 years

longer life expectancy is a consequence of a physically active life style compared with physical inactivity.



30%

reduced mortality rate as a consequence of cycling 30 minutes a day over a longer period.



What is the Bicycle Account?

The Bicycle Account is a biennial assessment of the City of Copenhagen's efforts to boost cycling. The Account surveys the city's cycling initiatives, analyzes Copenhageners' own rating of Copenhagen as a cycling city, and discusses other factors that have an impact on cycling development. This year's Bicycle Account is primarily based on 2016 figures which among other things are build on telephone interviews with 1,008 randomly selected Copenhagen residents and include data from the Danish National Travel Survey published by the Technical University of Denmark.

The Bicycle Account 2016 is the 12th Bicycle Account in a row. The account is primarily addressed to Copenhageners, but also serves as an inspiration to cities wishing to optimise the cycling potential of their city. For the City of Copenhagen the Bicycle Account serves as an important tool in its efforts to make Copenhagen an even better cycling city.

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