



The Bicycle Account 2018

# Copenhagen City of Cyclists







# Foreword

In 2018 Lonely Planet named Copenhagen the number one city to travel to in 2019. European expats give it top ranking as a city to live in. Most recently it was decided that Denmark will host the start of Tour de France 2021, partly because of our unique everyday cycling culture.

Our cycling city is not only valued by the outside world. When we ask everyday cyclists in Copenhagen what they think, more than 97% are satisfied with cycling conditions.

It is precisely the thousands of everyday cyclists that help fulfill Copenhagen's ambitions for an environmentally and climate friendly city where health and quality of life are a top priority, and where the majority have access to a cheap, effective transport mode.

In 2018 49% of all trips to work and education were done by bicycle. We are closer than ever to our target of 50%. During the same period 1.44 million km were cycled daily, which is the greatest number registered since 1970.

Copenhagen has laid out more cycle tracks, Green Cyclerroutes and cycle superhighways in recent years, which together with new bridges across the harbor and more bicycle parking stands boost the quality of life for everyday cyclists.

After many years of Metro station construction there's even a cycle track across Town Hall square by now.

We can be proud, but we mustn't rest on our laurels. As bicycle traffic increases, cycle tracks and cycle stands for parking become increasingly congested. We must make a concentrated effort to create space for everyone regardless of whether they are bicycle commuters, six year olds on their first bike, the elderly at a leisurely pace, or newcomers who have just moved here from abroad.

We must ensure that the city's most vulnerable citizens have equal access to good, cheap transport. Better cycling and walking connections across the city help link Copenhagen's neighborhoods and encourage Copenhageners to meet and mix.

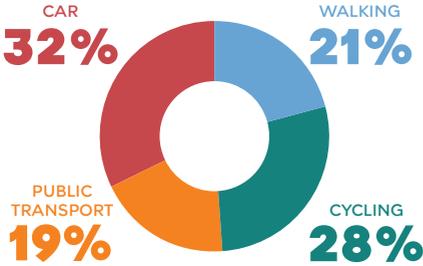
And then, of course, there are the new kids in town, the electric scooters, the speed pedelecs, and the free floating bike sharing, which together with the new Metro circle line will have an impact on future traffic. However I'm convinced that the bicycle will continue to play a leading role.

## Happy reading and happy cycling

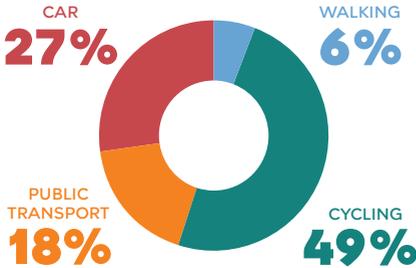
Karina Vestergård Madsen  
Functioning Mayor for the Technical and  
Environmental Administration  
City of Copenhagen

# Targets and key figures

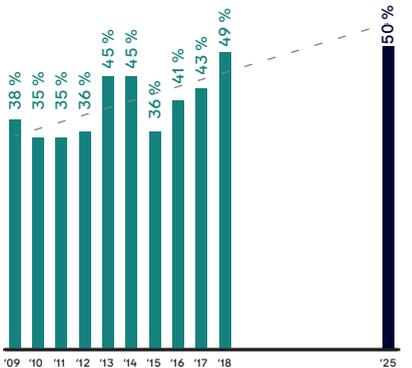
ALL TRIPS TO, FROM, AND IN COPENHAGEN, 2018



TRIPS TO WORK AND EDUCATION IN COPENHAGEN, 2018



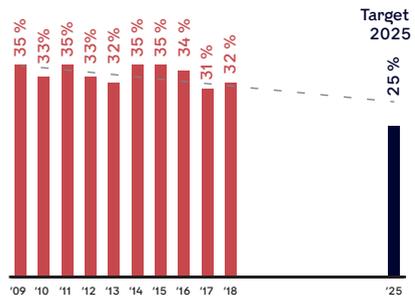
THE BICYCLE SHARE OF TRIPS TO WORK OR EDUCATION IN COPENHAGEN



The bicycle share of trips to work and education situated within the city borders has risen from 41% in 2016 to 49% in 2018. Copenhagen is now merely one percentage point away from achieving its target of a 50% bicycle share in 2025.

In the category of all trips regardless of purpose the bicycle share is now 28% and the car share is 32%. The stated target of the City of Copenhagen's Bicycle Strategy and the CPH 2025 Climate Plan is that maximum 25% of all trips in 2025 should be by car. The figures include a statistical uncertainty of up to 6 percentage points. However, the positive trend is confirmed by a rising bicycle share and a minor drop in the motor traffic share over a ten year period. The figures for how many km are respectively carried out by car or by bicycle on a weekday show a similar trend. The car share figure dropped from 4.73 km in 2017 to 4.71 km in 2018, whereas the bicycle share figure rose from 1.39 million km in 2017 to 1.44 million km in 2018.

THE CAR SHARE OF ALL TRIPS TO, FROM AND IN COPENHAGEN



# 1.40 → 1,44 mio.

Increase in number of km cycled per weekday from 2016-2018

# 41% → 49%

Increase in the bicycle share of trips to work and education in Copenhagen from 2016-2018

## POLITICAL TARGETS OF CITY OF COPENHAGEN'S BICYCLE STRATEGY 2011-2025 AND CPH CLIMATE PLAN 2025

'08	'10	'12	'14	'16	'18	'25	Targets
37	35	36	45	41	49	50	Share that cycle to work/education in Copenhagen (%)
51	67	76	74	76	77	90	Share of cycling Copenhageners who feel secure (%)
121	91	102	92	94	81*	0	Seriously injured cyclists (number per year)
-	-	17	19	20	20	80	Share of PLUS network with three lanes (%)
-	-	-	7	6	9	15	Reduction of cycling travel time (%)
54	50	61	63	71	73	80	Satisfaction with the state of the cycle tracks (%)
-	67	73	70	71	72	80	Satisfaction with cycling culture's impact on urban life (%)
26	27	29	33	37	37	70	Satisfaction with bicycle parking in general (%)

\*2017

## OTHER KEY FIGURES

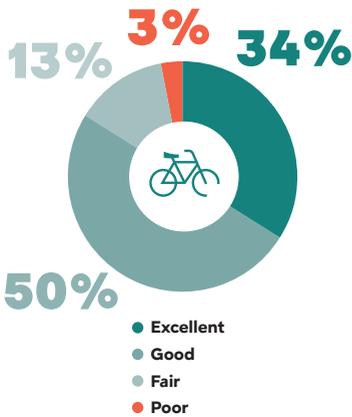
'08	'10	'12	'14	'16	'18	
1.17	1.21	1.27	1.34	1.40	1.44	Kilometers cycled (million km per weekday)
3.2	4.4	4.2	4.9	4.9	5.7*	Cycled km between each serious accident (million km)
16.2	15.8	15.5	16.4	16.3	16.9	Cycling traveling speed (km/h)
338	346	359	368	375	382	Cycle tracks (km)
18	23	24	28	33	33	Cycle lanes (km)
41	42	43	58	61	63	Green Cyclerroutes (km)
-	-	17	38	52	167	Cycle superhighway tracks in the capital region of Denmark (km)
-	-	-	-	-	179*	Public bicycle parking spaces (1,000)

\*2017

# What do Copenhageners think?

Copenhageners' satisfaction with their cycling city has been rising steadily over the past ten years as investments in better cycling conditions have been strengthened.

CYCLIST'S ASSESSMENT OF COPENHAGEN AS A CYCLING CITY



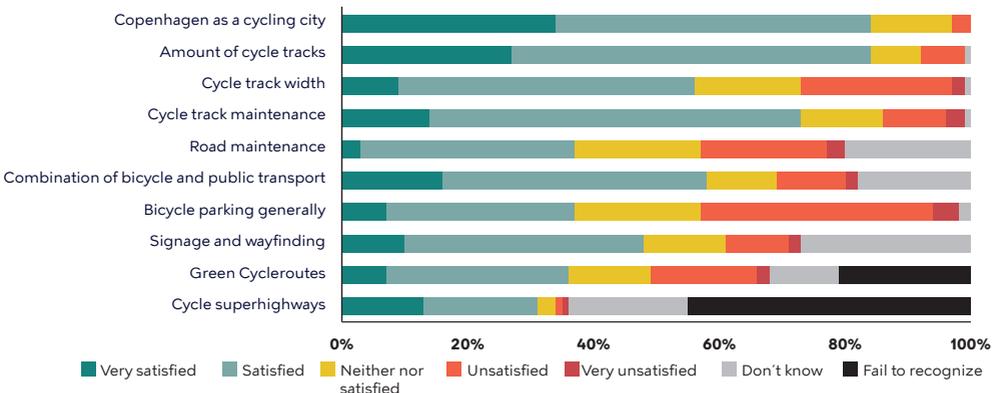
## Increasing satisfaction over 10 years

General cyclist satisfaction has been on the rise over the past 10 years. Satisfaction has been stable at 97% since 2016. Satisfaction with combining cycling and public transport has risen by 5 percentage points whereas satisfaction with the amount and width of cycle tracks has dropped by 3 and 6 percentage points respectively.

## Lack of public awareness of the cycle superhighways and the Green Cycleroutes

31% are satisfied with the cycle superhighways and only 2% are dissatisfied. 37% are satisfied with the amount of Green Cycleroutes. The relatively low figure is due to the fact that many cyclists are not aware of these types of cycle routes. 45% are unaware of the cycle superhighways and 20% are unaware of the Green Cycle Routes. There is consequently great potential for strengthening public awareness of the routes.

COPENHAGEN CYCLIST SATISFACTION 2018



### Dissatisfaction with bicycle parking and cycle track width

Cyclists are most dissatisfied with bicycle parking facilities and cycle track width. 42% and 26% are actually dissatisfied. This indicates that the increase in bicycle traffic creates space problems on the cycle tracks and in cycle stands.

In 2018 general satisfaction was 71%, but the figure covers varying degrees of satisfaction with specific transport modes.

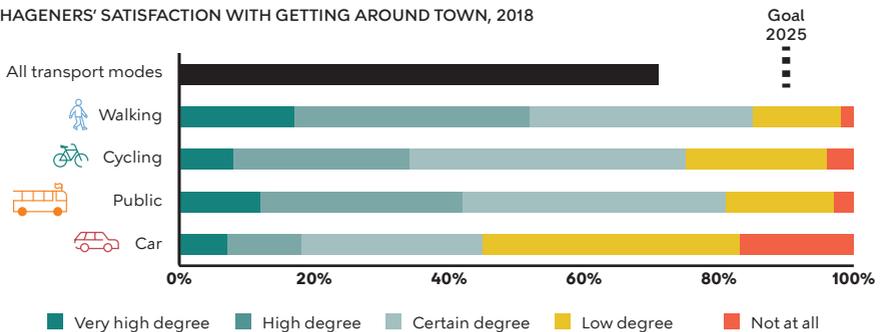
Satisfaction levels with walking, cycling and public transport are all close to 80%, but satisfaction with getting around town by car is approx. 45%.

### Copenhagens' satisfaction with getting around town

One of the goals of the Technical and Environmental Administration is that 90% Copenhagens shall be satisfied getting around town by 2025.

This is consistent with the city of Copenhagen's overall aim to make the choice of cycling, walking and public transport more attractive. These three transport modes are responsible for 68% of all trips to, from and in Copenhagen.

COPENHAGENERS' SATISFACTION WITH GETTING AROUND TOWN, 2018



COPENHAGEN CYCLIST SATISFACTION OVER THE PAST TEN YEARS

'08	'10	'12	'14	'16	'18	Goal 2025	
85	93	95	94	97	97		Copenhagen as a cycling city
65	68	76	80	87	84		Amount of cycle tracks
43	47	50	53	62	56		Cycle track width
54	50	61	63	71	73	80	Cycle track maintenance
26	31	32	36	44	37		Road maintenance
49	55	60	60	53	58		Combination of bicycle and public transport
26	27	29	33	37	37	70	Bicycle parking generally
-	76	73	70	71	72	80	Cycling culture's impact on urban life and atmosphere

# Safe cycling city for young and old

Cyclist casualty risk is falling as more and more people choose to cycle. Infrastructure investments and educational campaigns along with general traffic calming measures have contributed to this trend.

## Traffic safety

The total number of cyclist accidents in 2017 was 150, including 2 fatalities, 79 serious injuries and 69 slight injuries. Still, cyclist risk of serious injury is going in the right direction, and has been reduced by 59% over the past decade.

**143**

times around the world were cycled between each serious accident in 2017.

## Copenhagen has the lowest cyclist risk

Figures from the OECD International Transport Forum show that Copenhagen was the city with the lowest risk of cyclist fatalities among 30 other major cities in Europe and the USA from 2011-2015. In 2017 an average of 55.7 million km were cycled between each serious accident.

**92%**

of cyclists state they haven't been in a traffic accident within the past two years.

## Pilot project with ambulance data

Many cycling accidents are never registered by the police and are consequently not included in the official casualty statistics. The City of Copenhagen is working on a pilot project to include ambulance data in order to form a more accurate picture of cyclist traffic safety.

**77%**

of Copenhageners state they feel safe cycling in traffic.

## Goal: Zero traffic fatalities in 2025

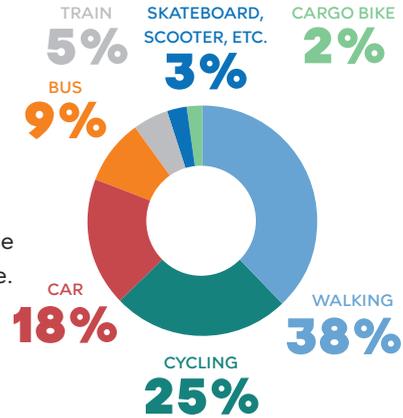
In December 2017, the Copenhagen municipal council approved a traffic accident Vision Zero. The vision applies to all road users and the goal is that no one shall be killed or seriously injured in traffic by 2025. In 2017 there were a total of 177 serious traffic injuries or fatalities, 70% of whom were cyclists or pedestrians.

### School children's transport habits

A study of 15,000 school children's transport habits in the city of Copenhagen was carried out in 2018.

66% use physically active transport, i.e. walking, cycling, scooter, roller skates, etc., and 34% go by car or public transport. 25% cycle and 38% walk to school. The high share of active transport is probably due to the small distance between home and school in Copenhagen. Private schools have a lower share of active transport (38%) compared to public schools (74%) partly because private school pupils typically have a longer school route.

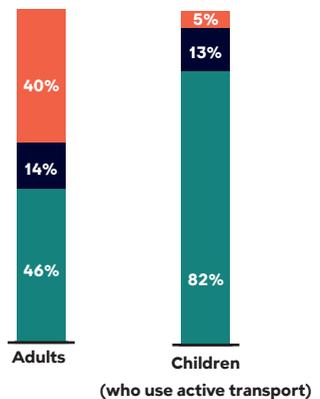
COPENHAGEN SCHOOL CHILDREN'S TRANSPORT MODE TO SCHOOL



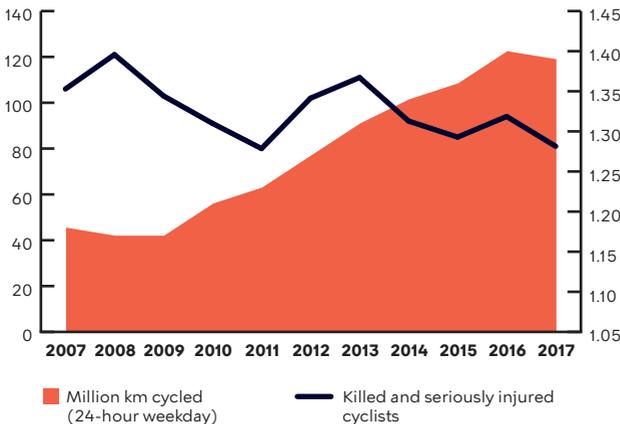
### The difference between children's and adult's perception of security

Children appear to feel more safe in traffic than parents feel on their behalf. A school transport study shows that 82% of children who use active transport perceive the school route as secure. Parents' perception of security is half that. The figures are not directly comparable since they derive from different studies, but they indicate that parents' lack of security on their children's behalf may be a barrier preventing more children from cycling and walking to school.

ADULT PERCEPTION OF CHILDREN'S SCHOOL ROUTE SECURITY vs CHILDREN'S PERCEPTION OF SCHOOL ROUTE SECURITY



TREND IN RELATIVE CYCLING RISK IN COPENHAGEN



- Insecure/ very insecure
- Neither/nor
- Very secure/ secure

# Investments and constructions

An approximate total of DKK 2 billion was invested in cycling related measures in Copenhagen over the past ten years. The investments were used to expand and improve the cycling infrastructure, and more people now choose to cycle to the benefit of the individual and the society alike.

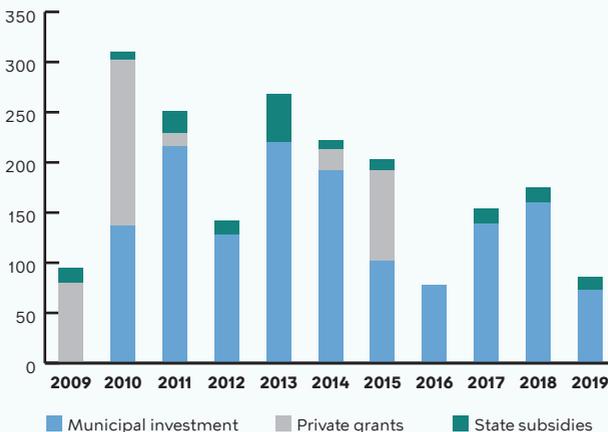
## Investments

The City of Copenhagen, the State and private foundations have invested in improving cycling conditions in the city since 2009.

Approx. DKK 2 billion have been invested in so-called bicycle packages, independently granted bicycle projects, traffic safety measures, safe school routes,

bicycle and pedestrian bridges, and shopping street projects. External financing accounts for approx. 27% of the total amount including state pool funding, subsidies for bicycle parking at stations, and private financing of bicycle and pedestrian bridges. Most recently in connection with the municipal budget for 2018 and 2019 DKK 265 million were appropriated, including external contributions of DKK 32 million.

INVESTMENT IN CYCLING RELATED INITIATIVES 2009-2019 (DKK MILLION)



## Cycling projects in 2017 and 2018

In 2017 a 1.4 km cycle track on Amager-brogade was widened, and 395 new bicycle parking spaces were installed, 96 new trees were planted, 45 new benches and 42 new public litter bins were set up.

In 2018 the one-way direction on Kronprinsessegade was reversed for cars on the stretch between Gothersgade and Sølvgade in order to establish a contra-flow cycle track so cyclists can now cycle in both directions. 8,800 cyclists were already counted on Kronprinsessegade shortly after the opening, which is the equivalent of a total bicycle traffic increase of 70% since 2016.

In addition the Svanemølle Route section and the Amager Route section of the Green Cycleroutes were established during the period, the latter as a combined cycle and climate project, and Alfred Nobels Bridge, which will be car-free until 2024, was opened in Sydhavn.

Finally four new cycle superhighways were opened in Copenhagen, and legal right-turn on red for cyclists was established at three intersections.

## Future construction

Copenhagen's overall planning foundation for cycling investment has been updated with two new plans within the past two years.

The Cycle Track Priority Plan 2017-2025 calls for the establishment of 40 to 50 km of new cycle tracks, 30 to 40 km of Green Cycleroutes, and 62 km of cycle superhighway.

The Bicycle Parking Priority Plan 2018-2025 is the first of its kind, and calls for the establishment of a total of 22,000-55,000 bicycle parking spaces for example as bike stands or by converting car parking spaces. Large constructions with space for 4,000 to 15,750 bicycles at a cost of DKK 0.5-2.5 billion are also necessary if space issues in central Copenhagen are to be seriously addressed. This level of investment requires a high degree of external financing.

The level of total municipal investment necessary to realize the plans will be approx. DKK 2.35 billion, the average of a min/max- scenario of 1.7/3.0 billion, and depends on external financing of bicycle parking. In addition, state and private co-financing can be an option as seen during the last decade.

## Constructed in 2017 and 2018

7 km	New cycle tracks along roads
2 km	Green Cycleroutes
115 km	Cycle superhighways, Capital Region of Denmark
26 km	Cycle superhighways, City of Copenhagen
4,100	Bicycle parking spaces



Pavillon

HOLLEN 2019

Alsing





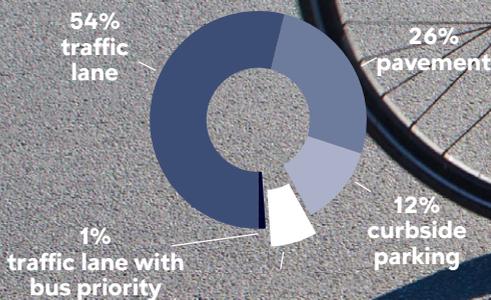
Kronprinsessgade was opened to cycling in both directions in 2018, and 8,800 cyclists already use the street on a daily basis.

# Facts about the cycling city



**4 out of 5**

Copenhagen households have access to a bicycle.



**7%**

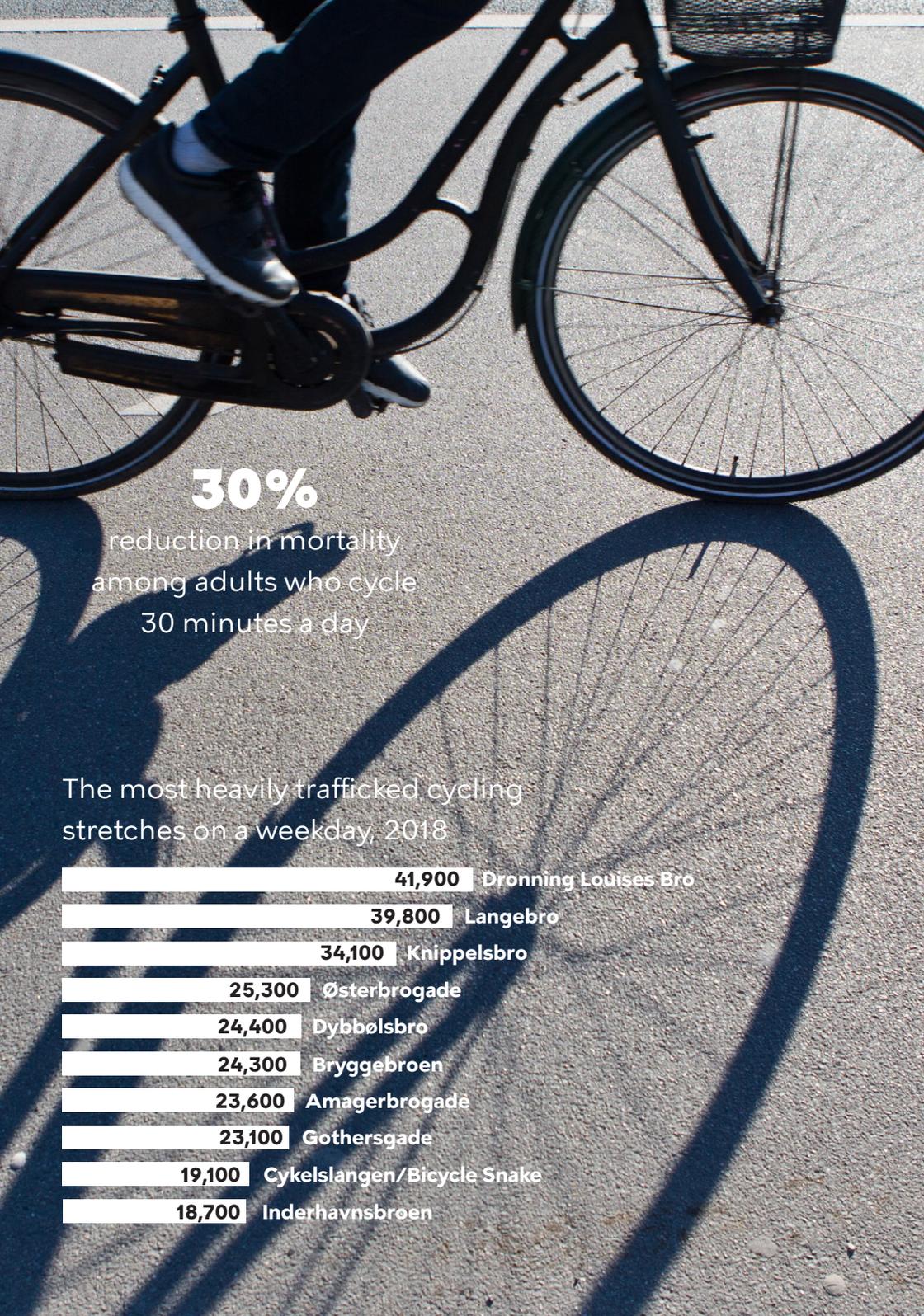
cycle track area of the total road area between houses in Copenhagen, 2016

Copenhageners' reasons for choosing to cycle, 2018



**26%**

of all families with two or more children have a cargo bike



**30%**

reduction in mortality  
among adults who cycle  
30 minutes a day

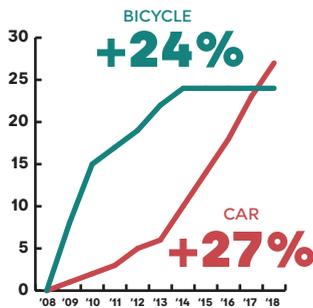
The most heavily trafficked cycling  
stretches on a weekday, 2018



# Bicycle parking

Satisfaction with bicycle parking facilities is relatively low in Copenhagen, especially at stations and near shops. A concentrated effort must be made to achieve the target that 70% of Copenhageners shall be generally satisfied with bicycle parking by 2025.

TRENDS IN PRIVATELY OWNED  
CARS AND BICYCLES IN 2008-2018  
(2008=INDEX 100)



## 14%

of parking spaces are thought to be taken up by abandoned bicycles

## 115%

is the bicycle parking occupancy rate in Copenhagen

## Many bicycles

In 2018 Copenhageners owned approx. 672,000 bicycles. That's around five times as many bicycles as cars, but whereas bicycle ownership has been stable in recent years, car ownership is on the rise. It's estimated that the population growth up to 2025 will result in 100,000 more bicycles and 20,000 more cars among Copenhageners.

## There's not enough space for all the bicycles

The large number of bicycles increases the need for bicycle parking facilities. The city of Copenhagen has installed 12,400 new bicycle parking spaces within the past ten years. This is the equivalent of 7% of the total number of public bicycles parking spaces in the city.

## Abandoned bicycles

Removal of abandoned bicycles is another effective means of making space for more bicycles. In 2018 15,000 abandoned bicycles were removed. It's estimated that abandoned bicycles take up 14% of the space at public cycle stands.

## One out of two bicycles is parked outside the stand

The lack of cycle stands means that many bicycles are parked along walls and on pavements to the inconvenience of other cyclists and pedestrians. In the summer of 2017 around 100,000 bicycles outside a stand were counted in the entire city.

This is the equivalent to one out of two bicycles parked outside a stand. A similar number were parked in the stand and in addition there were around 80,000 empty stand spaces. One reason for this is that the stands were inappropriately placed, and that the need for bicycle parking facilities varies across the city.

### The Bicycle Parking Priority Plan 2018-2025

The first strategic plan for bicycle parking (2018) provides an overview of all bicycle parking initiatives that are considered necessary. The estimated cost of the initiatives set forth in the plan is between DKK 0.6 -2.7 billion depending partly on external financing and the amount of building bicycle parking constructions as opposed to the installation of surface bike stands, which is cheaper.

### Satisfaction is low at stations and shops

The target is that 70% of Copenhageners should be satisfied with bicycle parking facilities in Copenhagen by 2025. In 2018 satisfaction was 37%, which is an increase of 11 percentage points since 2008. Satisfaction is particularly high around homes and workplaces where satisfaction has increased by 8 percentage points since 2008.

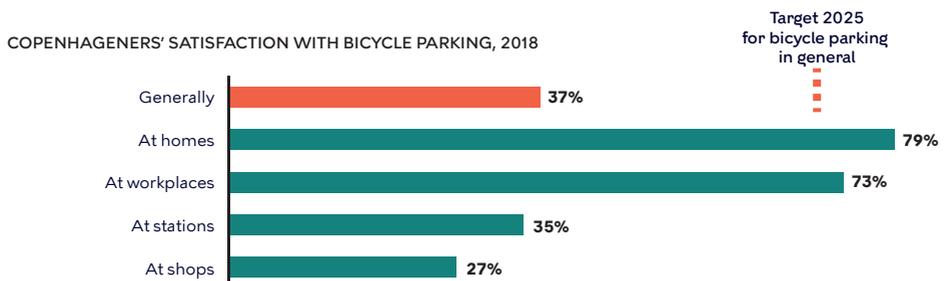
Good bicycle parking facilities at workplaces are an important factor in getting more people to cycle to work.

On the other hand parking at shops and stations still leaves much to be desired. Nevertheless satisfaction at stations has risen by a total of 13 percentage points over the past ten years, and is now 35%. Bicycle parking at stations plays an important role for satisfaction combining bicycle and public transport, where the level of satisfaction is 58% in 2018.

### Bicycle parking means more business

A recent study carried out by the municipality of Frederiksberg shows that 74% of visitors to Frederiksberg shopping streets arrive by bike (38%) or on foot (36%). Visitors by car only account for 15%, and 11% arrive by public transport.

The study shows than one parking space for cars can be converted into at least six bicycle parking spaces. In principle this would generate greater turnover since one driver spends an average of DKK 600 per shopping street visit whereas six cyclists would spend an approx. average of DKK 2,100.



# Cycle superhighways and cost-benefit

The cycle superhighways of the Capital Region of Denmark are a cooperative venture among the 26 municipalities and the Capital Region. The aim is to create a cohesive network of cycle routes across municipal borders in order to get more people to cycle for longer distances.

Assessments of the eight established routes show that the measures have had a favorable impact when it comes to getting more people to cycle.

**+23%**

more cyclists when a route is upgraded to a cycle superhighway

**14%**

of the new cyclists are former drivers

**30%**

is how many more car commutes there would be in the Capital Region of Denmark if no one cycled.

## From countryside to city

The cycle superhighways connect the country and the city and are intended to make it easy, flexible and secure to choose the bicycle to and from work. Today eight cycle superhighways are already completed and eight more are on the way. In 2045 there will be 746 km of cycle superhighways in the Capital Region distributed over 45 routes. A quarter of the planned routes in the City of Copenhagen were implemented by 2018.

## Cycle superhighways pay off

The cycle superhighways project is one of Denmark's most profitable infrastructure projects. The total network of cycle superhighways of 746 km will have a cost-benefit return of 11%, which is the equivalent of DKK 5.7 billion. The total cycle superhighway network of 45 routes will mean 1 million fewer car trips and 6 million more cycle trips annually, which will result in 40,000 fewer sick days and 1,500 fewer tons of CO<sub>2</sub> annually.

## Time-effective transport

The average trip length on the cycle superhighways is 11 km (per trip). Users of the cycle superhighways cycle for a considerable distance even though the bicycle is not necessarily the fastest transport mode for longer distances. Commuters' primary motivation for cycling is the wish to include exercise into their daily transport. Taken as a whole, cycling is the most time-effective transport mode

when it comes to fitting different activities into a busy workday.

### Cars are popular on trips in and out of Copenhagen

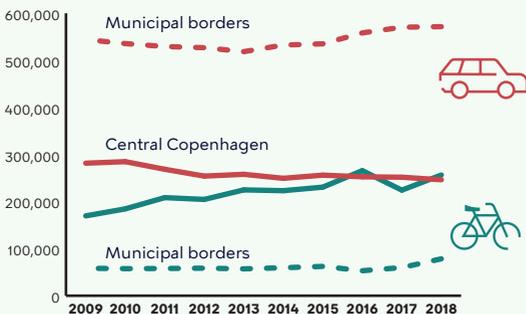
The number of bicycles in central Copenhagen has increased by 51% over the past ten years. The number of cyclists who cross the municipal boundary has increased by 34%.

At the same time counts show that even though car traffic into and out of the city has only increased by 5% during the same period, it is still the dominant transport mode. The car accounts for approximately seven times as many trips as the bicycle. 40% of car trips are driven by Copenhageners on their way out of town while 60% are visitors driving into the city.

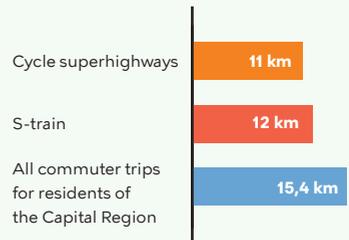
### Alternatives to cars on longer trips

The bicycle is not a realistic alternative to the car for everyone for longer trips. However, the cycle superhighways show that good, cohesive infrastructure can get commuters to cycle further than they otherwise would. Electric bicycles/e-bikes can also significantly increase the range without reducing comfort or increasing travel time. Dutch experience shows that e-bikes can increase trip length by 40% compared to ordinary bicycles. In the Netherlands 40% of recently sold bicycles today are e-bikes, and in Denmark only 13%. Around 2% of Copenhagen households have access to e-bikes. Finally the combination of bicycle and train is an obvious choice for longer distances.

TRIPS ACROSS MUNICIPAL BORDERS AND THROUGH CENTRAL COPENHAGEN



AVERAGE LENGTH OF COMMUTER TRIPS IN THE CAPITAL REGION OF DENMARK



**97%**

of commuting trips crossing the municipal border by car have one person in the car.

**65%**

of commuting trips by car across the municipal border have free parking.

**30%**

of car trips across the municipal border are commuter trips.

**38%**

of car trips across the municipal border are leisure trips.

# Bicycle commuters are a winning proposition

**DKK 467 million**

in health benefits if cycling in the Capital Region of Denmark is increased by 10%.

**DKK 4.80**

is the cost-benefit gain for each extra kilometer cycled in Copenhagen.

**DDK 10.09**

is the cost-benefit gain for each extra kilometer switched from car to bicycle in Copenhagen.

**DKK 5.28**

is the cost-benefit expense for each extra kilometer driven by car in Copenhagen.

30 minutes of daily cycling contributes to 30% reduced mortality or the same health effect as moderate fitness training. This benefits us as individuals as well as our employers.

## **Increased bicycle traffic means fewer sick days**

In 2018 the Confederation of Danish Industry published an analysis assigning values to the benefits of increased bicycle commuting in the Capital Region. The analysis calculated the consequences of a bicycle traffic increase of 10% vs. a bicycle traffic decrease of 10% with a focus on health and congestion.

If bicycle traffic in the Capital Region increases by 10% the improvement in commuter health will mean that there will be 109,000 fewer annual sick days. Private enterprises will save approx. DKK 60 million annually, and the public section will save DKK 28 million annually. The total cost-benefit gain is DKK 467 million annually, when the benefits for the individual citizen and saved health costs are all factored in.

## **Bicycles instead of cars mean more space for everyone**

Bicycles take up much less space than cars. Consequently switching trips from cars to bicycles frees up space for other traffic. The analysis shows that a 10% increase in bicycle traffic in the Capital Region will reduce total congestion by 6%, which is the equivalent of an annual cost-benefit gain of DKK 184 million. Two thirds of the car trips whose travel time is reduced as a consequence of reduced congestion will be commuter car trips or car trips for other work related activity.

## 177 tons a year

is how much the Technical and Environmental Administration reduced its CO<sub>2</sub> transport emissions from 2009-2016

### City of Copenhagen employees cycle

The City of Copenhagen's own transport habits are included in the CPH 2025 Climate Plan's goal that Copenhagen shall be CO<sub>2</sub> neutral by 2025.

The Technical and Environmental Administration has 2,500 employees. From 2011-2017 concentrated efforts were put into working with an internal transport plan including better bike share options, bicycle parking facilities, We Bike to Work campaigns, purchase of e-bikes and e-cars, no more taxi vouchers, etc.

### More employees cycle and fewer drive

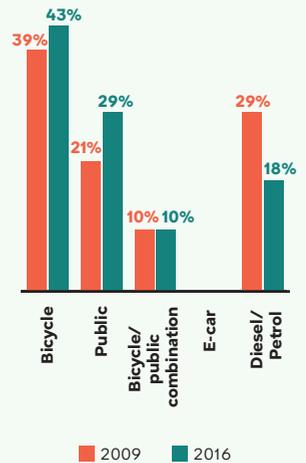
From 2009-2016 we succeeded in increasing the use of the bicycle and public transport to and from work and during working hours. Despite the increase in the number of employees, the number of kilometers driven by car was reduced as well, and the use of petrol and diesel cars during working hours was reduced by half.

### Green and healthy on e-bikes

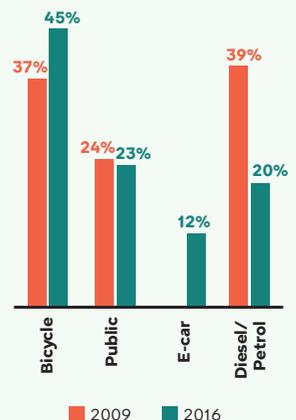
It may even be an advantage to replace e-cars with e-bikes. The city's parking enforcement officers are a case in point. In 2018 new e-bikes were purchased so the officers should use an e-bike instead of an e-car. E-bikes are easier for getting around town, easier to park, and you get more exercise than by sitting in an e-car.

### FIGURES FROM THE TECHNICAL AND ENVIRONMENTAL ADMINISTRATION'S TRANSPORT PLAN

#### EMPLOYEE TRIPS FROM HOME TO WORK



#### EMPLOYEE TRIPS DURING WORKING HOURS







In 2018 parking enforcement officers in the city of Copenhagen switched from e-cars to e-bikes to make getting around town easier.

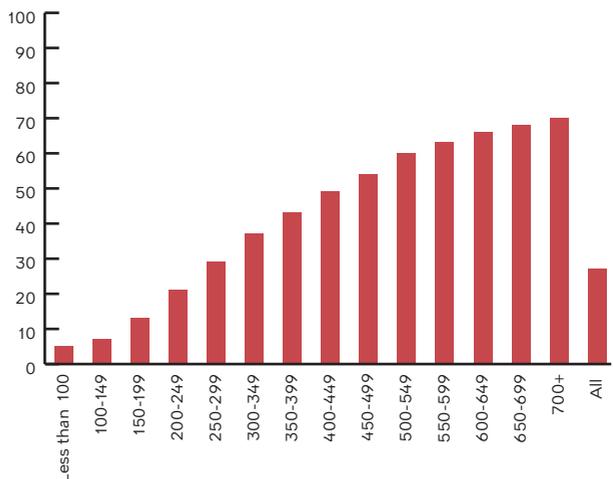
# Equal opportunities for transport

The easier it is for citizens to move freely around town, the better it is for the individual's quality of life and the better it is for society as a whole. The bicycle can be an attractive option for citizens from all walks of life or geographical location.

## Income and transport choice

27% of Copenhagen cyclists state that one of the most important reasons for choosing to cycle is the low cost. Apart from walking, cycling is one of the cheapest transport modes, and when a bicycle replaces a car or public transport, money is freed up for other purposes.

SHARE OF FAMILIES WITH CARS IN RESIDENTIAL PARKING PERMIT ZONE  
BASED ON DISPOSABLE INCOME (DKK 1000), 2017



There is a clear link between Copenhagen citizens' income and access to a car. An average of 27% have a car at their disposal, but when the family's total disposable income is less than DKK 100,000 the figure is only 5%. In families with a disposable income of DKK 700,000 and higher, 70% have a car at their disposal.

### **Cycling and pedestrian facilities open up the city**

More and better cycle tracks and pedestrian links are an excellent method for opening up vulnerable urban areas and strengthening cohesion to the outside world. Residents gain greater freedom of movement and improved urban space, and interaction with citizens from the surrounding areas is increased.

The Nørrebro Green Cyclerooute is a case in point. It links affluent areas in Frederiksberg, trendy urban life and shopping areas around Stefansgade and Nørrebrogade, and council housing and vulnerable urban areas further north.

### **Entry to the labour market**

A number of social initiatives use the bicycle as an activating, networking activity. Bicycle repair shops can encourage young people to learn more about mechanics and do-it-yourself activities, and work as a bicycle mechanic later on.

Figures from the administration's report about more immigrants on bike (2012), indicate that 48% of Copenhageners with a background in countries without a strong cycling culture never cycle. Most are women (56%), and they don't cycle partly because they either don't know how or feel insecure (59%) even though many would like to learn how (60%).

Cycling courses are in great demand, both as volunteer initiatives and on the Fælledparken traffic playground. In addition to teaching the women how to cycle, the courses contribute to the formation of networks, increased employment opportunities and better health.





The Nørrebro Green Cycle-route links affluent areas in Frederiksberg, trendy urban life and shopping areas around Stefansgade and Nørrebrogade, and council housing and vulnerable urban areas further north.

# Cycling city of the future

The world of transport is currently undergoing a period of rapid development. New technological and societal opportunities will shape the cycling city of the future.

## Micro-mobility

In 2018 the Danish Ministry of Transport approved a trial project legalizing the use of “speed pedelecs”, i.e. electric bicycles that can go up to 45 km an hour. Early in 2019 another trial project was introduced permitting electric scooters, mono-wheels, skateboards, etc. on the cycle tracks.

This type of small, new vehicles is known as micro-mobility and may become an attractive alternative to the car, but also to ordinary bicycles. No one knows yet whether they will have a significant impact on trip distribution, or whether they will pose a serious inconvenience to other cyclists. Increased variation in travel time and unpredictable acceleration and braking maneuvers may create traffic safety issues, but the actual effect cannot be predicted in advance.



## Own, rent, share

Copenhagen's official bike share and commuting bicycle system has 1,860 bicycles set up in bicycle stands. In addition a new type of free floating bike share system was introduced in 2017 and electric scooters were added in 2019. Such mobility system may have the potential of providing a flexible supplement to the more traditional mobility solutions such as privately owned bicycles, cars, walking and public transport.

Available space for setting up free floating mobility solutions is limited, particularly in the historic city center and at major squares and stations. The city is studying how licenses may be granted in order to create an optimal balance between the city's needs and the expansion of the new, commercial mobility offers.

## Smart transport planning

The City of Copenhagen is continually working on using the many new technological options for traffic planning in the city. Here are some of the different measures that are being developed:

### Min rejseplan / My travel plan

The municipality has developed an expanded version of Rejseplanen in collaboration with DOT (Din Offentlige Transport), which includes walking, cycling, bike share, car share, etc. Users can form a broader picture of the various combination options so they can plan their trip based on personal preferences. The idea of collecting all mobility solutions in one app is called Mobility as a Service (MaaS).

### Dynamic traffic flow and signal control

Copenhagen's new traffic management system, Mobimaestro, makes it possible to detect and calculate the different transport modes' flow, on real time. This also applies to bicycle traffic, making it possible to continually optimize and adjust travel time along corridors and road stretches depending on congestion, special events, road-works and the like. Future signal control can be more focused and real time information can be communicated directly to cyclists via interactive signs, which have been set up initially at four locations in the city.

### Bicycle traffic models

Traditional traffic models usually focus primarily on motor and public transport. However, since cycling and walking together account for 49% of all trips in Copenhagen, there's a need for more detailed calculations of these transport modes.

Copenhagen is consequently developing the traffic model, Compass, which is expected to be operational in 2020. In addition another program, CyKap, was developed in 2017 for a more detailed simulation of smaller solutions such as intersection reconstruction and cycle tracks.

### Quick response to abandoned bikes

The city of Copenhagen annually collects around 15,000 abandoned bicycles clogging the cycle stands. In order to be able to locate the abandoned bicycles more quickly the city has developed an intelligent algorithm, which can predict the likeliest places to find abandoned bicycles.

The algorithm is based on data from former collections and has helped the city collect 90% more bicycles for the same price compared with the 2011-2017 average.

### Focused winter salting and snow removal

Copenhagen's winter maintenance service is studying whether mobile sensors can provide more accurate information about weather conditions at specific locations in Copenhagen. This would make it possible to focus salting on specific stretches and smaller areas than is the case today, and would conserve operational and maintenance resources and protect the environment.



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## WHAT IS THE BICYCLE ACCOUNT?

The Bicycle Account is an assessment of Copenhagen's progress in achieving its targets in the field of cycling. The Account is about the city's initiatives, targets and results in the field of cycling, as well as Copenhageners' perception of Copenhagen as a cycling city, and other factors that have an effect on cycling developments. The Bicycle Account addresses Copenhageners among others, and also serves as an inspiration to cities who wish to optimize cycling in their own city. The Bicycle Account is a valuable tool for helping us make Copenhagen an even better cycling city.

This year's Bicycle Account is primarily based on 2018 figures and telephone interviews with 1,013 arbitrarily selected Copenhageners, as well as transport habit studies carried out by DTU Transport. The Bicycle Account is published every two years in a Danish and an English version, and the Bicycle Account 2018 is thirteenth in the row.

[www.kk.dk/cityofcyclists](http://www.kk.dk/cityofcyclists)

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*If no other source is given: The City of Copenhagen's user surveys for the Bicycle Account; the City of Copenhagen's own traffic counts, other counts, measurements, calculations, or studies.*