



TRAFFIC IN COPENHAGEN 2008



Preface

Dear reader

You are now holding "Traffic in Copenhagen, 2008" in your hands! This is a publication that attempts to provide a cohesive overview of the results from traffic counts, and air and noise measurements collected by the Technical and Environmental Administration of the City of Copenhagen in 2008. Besides this information, this year's edition includes two topical themes on subjects we have put a particularly great amount of work into. These are the area of cycle parking and the "traffic trial" in Nørrebrogade.

The cycle parking theme deals with the 5,000-plus new cycle parking spaces added around the city, and the way we have tidied up often chaotic facilities for bicycles so that we are now able to offer options and amenities to support and develop the cycling culture for which Copenhagen is so well-known, and rightly so.

The traffic trial in Nørrebrogade can scarcely have passed anyone by. The theme describes the biggest traffic engineering trial ever undertaken in Copenhagen and the underlying concepts. At the heart of this trial is prioritizing urban life, bicycles and public transport over through car traffic.

As in previous editions of this publication, we will be following up the 20 areas of commitment from the Traffic and Environmental Action Plan from 2004. What happened in 2008?

I hope you will find the publication easy and enjoyable to read, and that it will provide you with answers to any questions you may have about traffic in Copenhagen.

Copenhagen, May 2009

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Masthead

Published by:	City of Copenhagen Technical and Environmental Administration Copenhagen Traffic Department Islands Brygge 37 DK-2300 Copenhagen S
Editorial:	Copenhagen Traffic Department, Environment Department, and COWI A/S
Layout:	COWI A/S
Pictures:	Cover photo: Ulrik Jantzen, photos on pages 7 and 12: Marie Louise Brandt, photo on page 8: Troels Heinen, other photos: City of Copenhagen
Base map:	City of Copenhagen, Technical and Environmental Administration
Printing:	Jønsson Grafisk Produktion ApS. Printed on Galerie Art Silk.
Environmental:	Swan mark printed item, ISO 14001
Translation:	ad Astra Translators - www.ad-astra.dk
Circulation:	500

Cycle traffic

Cycle traffic is a central part of the overall traffic scene in Copenhagen and there are ambitious targets for its development in the run-up to 2015 (the Eco-metropole).

With the construction of new cycle tracks, cycle lanes and green cycling routes (incl. "Åbuen", the architecturally dramatic cycling bridge) in 2008, Copenhagen now has 338 kilometres of cycle tracks, 19 km cycle lanes and 39 km green cycling routes. In addition, cycling has been permitted over a 2 km section along the inner-city lakes.

Cycle tracks have been installed on Folke Bernadottes Allé, Nørre Voldgade and part of Hillerødgade. Shorter stretches of cycle track have also been built on Sundkrogsgade, Frederiksborgvej and Enghavevej.

The Nørrebro Cycle Route was expanded in 2008 to include a cycling and walking bridge, "Åbuen", across Ågade, thereby creating an attractive linkage between the districts of Nørrebro and Frederiksberg.

Three intersections have been improved, including shortish sections of cycle track: Jarmers Plads, Englandsvej and Grøndals Parkvej/Jernbane Allé. At a large number of intersections, the stop line for cars has been withdrawn so that motorists can more easily see cyclists intending to go straight on.

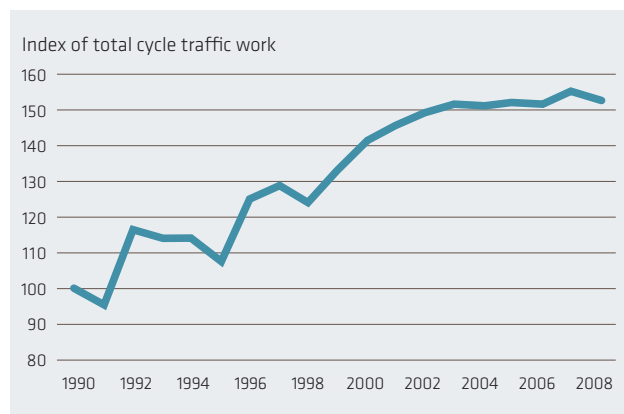
The cycle link in Strædet between the City Hall Square and Kongens Nytorv is complete, with a contra-flow track having been created in Lille Kongensgade and a contra-flow lane in Store Kirkestræde. In addition, a cycle lane has been set up on Enghavevej up to Vesterbrogade.

The next step will be cycle tracks on Stormgade, Carl Jakobsens Vej and Øresundsvej, scheduled for completion during 2009-10.

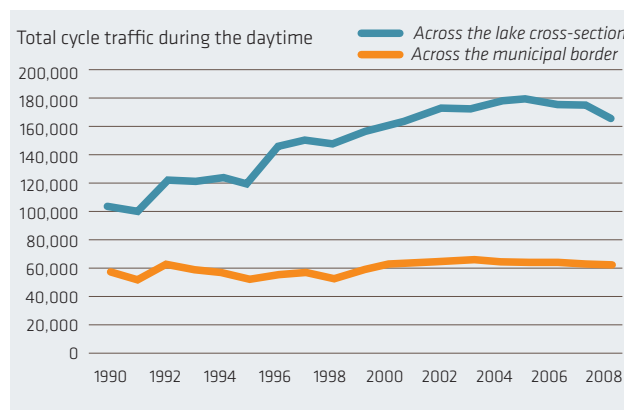
The development in cycle traffic work – i.e. the number of kilometres ridden on a bicycle – has risen more than 50% from 1990 to 2008. There has been a slight drop from 2007 to 2008, but the level has been virtually constant since 2003.

2008 saw the publication of a free Cycle Map and operationalization of www.ibikecph.dk, so that Copenhageners now have a forum in which they can discuss and develop the cycling culture in Copenhagen.

Internationally, there is still great interest in Copenhagen as the world's best city for cyclists. Even greater interest is expected in conjunction with the Climate Change Conference in Copenhagen at the end of 2009.



Development in total traffic work (no. of km ridden) on a bicycle from 1990 to 2008.

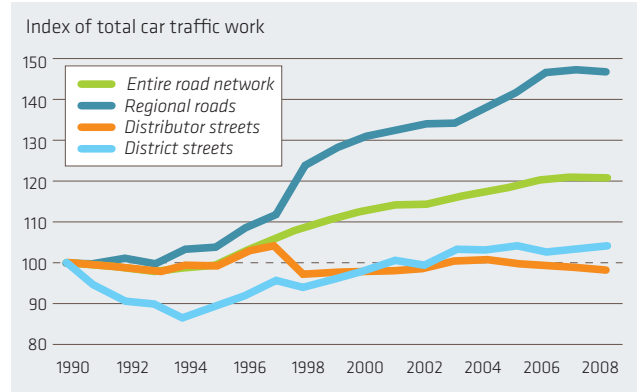


Development in cycle traffic from 1990 to 2008.

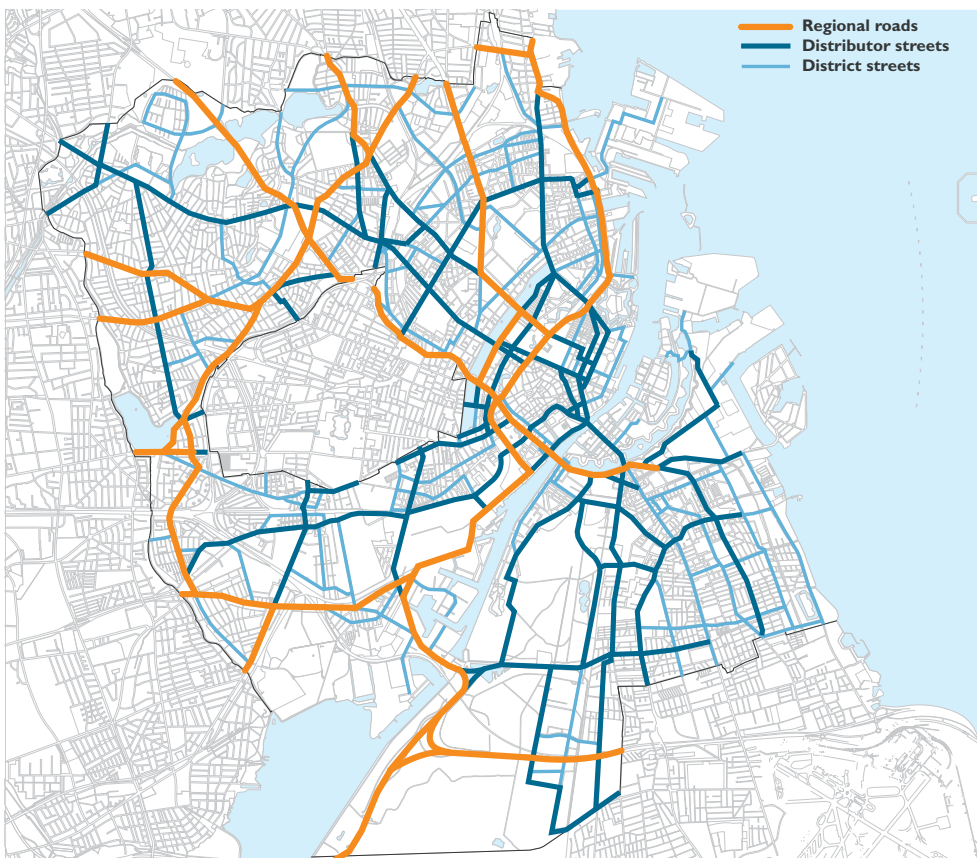
Car traffic

The overall development in car traffic work (no. of km driven) in Copenhagen shows an increase of about 20% from 1990 to 2008. The increase has centered mainly on the largest of the roads, while there have been no major changes to distributor streets and district streets in recent years. The City of Copenhagen has revised its road network plan and, among other things, introduced a new type of road: lightly trafficked, main shopping streets. In the years ahead, the traffic counts will be spread out according to the new road network plan. From 2007 to 2008, the volume of traffic on the road network as a whole has remained virtually unchanged.

Over the past 10-15 years, car ownership among Copenhageners has risen. The number of private passenger cars was 21% higher in 2007 than in 1999. From 2006 to 2007 there was an increase of slightly over 4% in the number of private cars in Copenhagen.



Development in overall traffic work (no. of km driven) in a car from 1990 to 2008.



The City Authority's major roads broken down by road type.

In 2007 there were some 180 privately owned cars per 1,000 inhabitants in the municipality. Nationwide, the equivalent figure is over 300. Thus there are still far fewer cars per inhabitant in Copenhagen than in the rest of the country, but the number is rising.

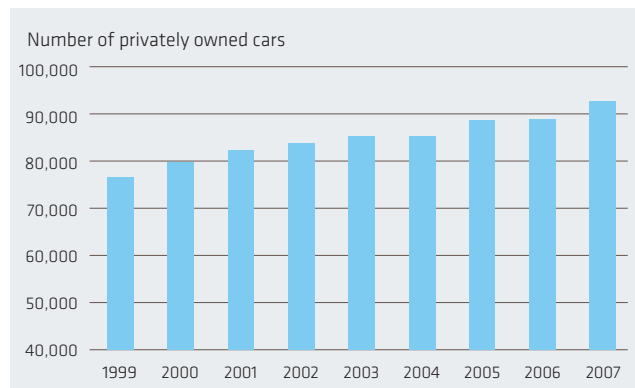
The increase in car ownership has put great pressure on street parking. Partly for this reason, the City of Copenhagen adopted a parking strategy in 2005, one result being the opening in 2008 of a municipal parking facility for the public and the start of building work on three fully automated underground parking installations.

Car traffic is not growing evenly throughout the municipality. One cross-section, where the roads cross the municipal border, has seen growth well in excess of 30% since 1990. From 2007 to 2008 the volume of traffic fell marginally, so that traffic in 2008 was on a par with traffic in 2005. Car traffic across the lake cross-section, where the roads cross the lakes and the port, has remained virtually unchanged from 1990 to 2008. Since 2002, however, there has been a slight downward trend.

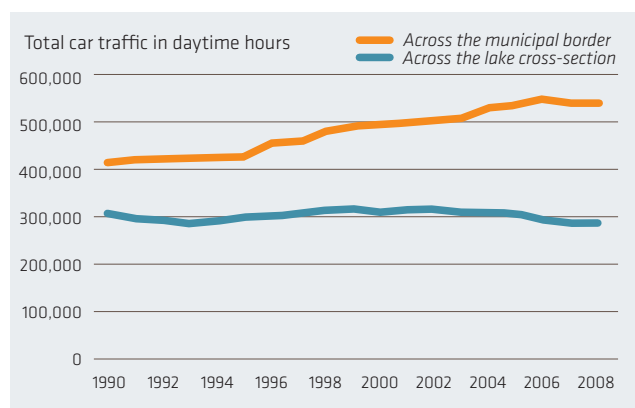
The proportion of heavy goods vehicles (HGVs) varies from section to section. At the municipal border and the lake cross-section that proportion is around 6% in 2008. The heavy traffic at both the municipal border and the lake cross-section has generally been on the decline since 2000. From 2007 to 2008 there was a drop of about 3% for the municipal border and about 7% for the lake cross-section



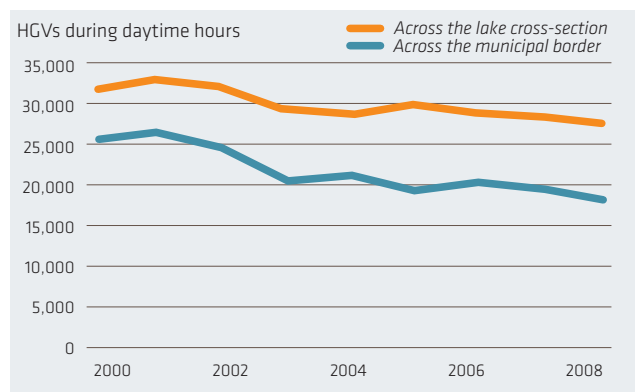
Every year the municipality counts the traffic at the lake cross-section and the municipal border.



Development in the number of privately owned cars in the City of Copenhagen from 1990 to 2007. Figures for 2008 have not yet been computed.



Development in car traffic, 1990-2008.



Development in the number of HGVs, 2000-2008. Figures from previous years have not been computed.

Public transport

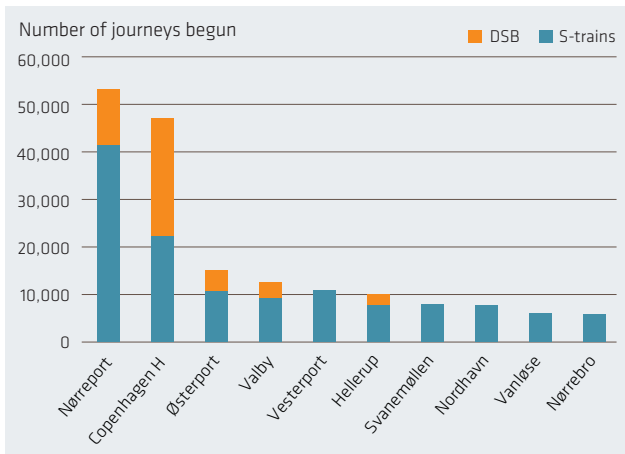
On a normal weekday, public transport takes more than 700,000 passengers in the City of Copenhagen. Public transport is accessible from about 1,200 bus stops and 40 stations to trains, metropolitan S-trains and the Metro.

More than half of passengers take the bus, while the rest use the train or Metro.

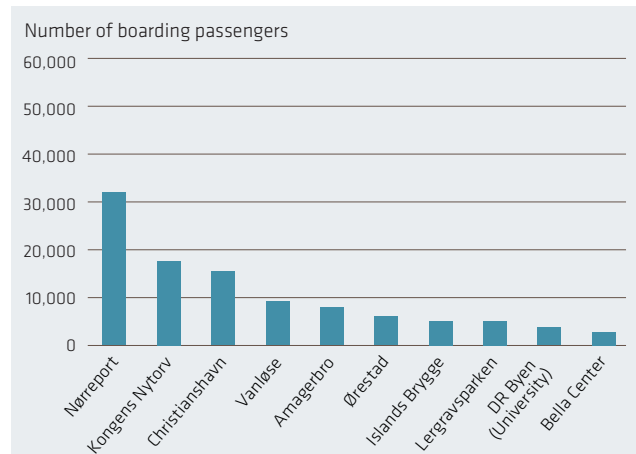
Nørreport Station and Copenhagen Central Station are the two stations where most passengers start their train journey. Nørreport is the station most used by train, Metro and bus passengers alike.

The number of Metro passengers in the City of Copenhagen has risen by 15% from 2007 to 2008. The increase is primarily due to general growth in passengers, but the opening of the Metro section to the airport, where three of the five new stations are located in the City of Copenhagen, is also contributing to the increase.

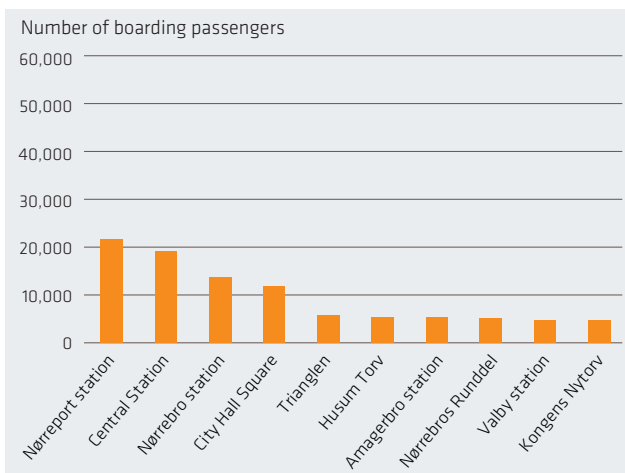
Overall passenger figures for public transport rose 5% from 2007 to 2008, and are at their highest level since 1995 at almost 750,000 passengers daily.



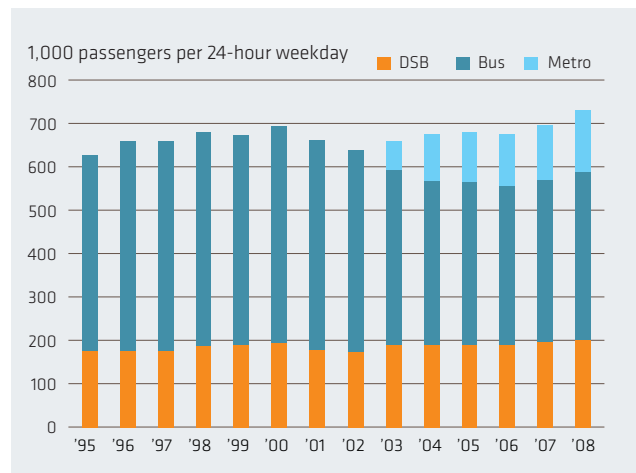
Journeys begun by S-train and other trains at the ten most used stations in the municipality counted on a weekday in November 2007.



Metro passengers at the ten most used stations in the municipality on a weekday in 2008.



Bus passengers at the ten most used bus stop groups in the municipality on a weekday in November 2008.



Development in public transport in the municipalities of Frederiksberg and Copenhagen, 1995-2008.

The traffic trial in Nørrebrogade

Background

In 2007-2008 the City of Copenhagen has been working on an overall plan for Nørrebrogade, the overriding objective of the plan being to ensure that Nørrebrogade will form the central nerve of the Nørrebro district and be an attractive place to visit and move around. More specifically, three main objectives have been defined for the development of Nørrebrogade:

- to consolidate urban life
- to improve conditions for cyclists
- to strengthen public transport and create shorter ride times.

In order to meet these objectives, pedestrians, cyclists and buses need to be prioritized over car traffic.

For a number of years Nørrebrogade has had a heavy traffic load, and in 2008 Queen Louise's Bridge was being traversed by about 16,000 cars, just under 30,000 cyclists and some 26,500 bus passengers daily.

As the first step along the way to fulfilling the objective for Nørrebrogade, 2008 saw the City embark on a traffic trial in which Nørrebrogade was closed to through car traffic.

The trial

The traffic trial includes the entire section from Queen Louise's Bridge to Nørrebro Station, and on smaller subsections more extensive changes have been implemented. The styling of these sections has been temporarily modelled along lines that reflect the traffic-engineering principles of a possible future solution.

The physical modifications to Nørrebrogade include the creation of short bus lanes, aimed at preventing through traffic in Nørrebrogade. In addition to this, a reduction has been made in the width of the traffic lane as well as an extension to the cycle tracks on large parts of Nørrebrogade.

Results

One of the upshots of the trial in traffic terms was that, taken as a whole, car traffic in Nørrebrogade was cut by approx. 50%. This reduction in car traffic has led to an improvement in trafficability and serviceability for buses, and the per-

ceived safety has also grown for bus passengers, cyclists and pedestrians alike. In addition, the extension to cycle tracks and the build-outs at bus stops have brought about better conditions for cyclists and bus passengers. The results of the trial are mainly positive, though among other things it has had the unintentional consequence of generating an increase in car traffic in a number of local streets in Nørrebro. But in absolute terms the increases are less than the decrease in Nørrebrogade. The trend, then, has been for car traffic in Nørrebro as a whole to fall.

One of the points to emerge from a survey conducted among households was that 67% of Nørrebro residents wished the trial to be made permanent, and a number of stakeholders have also lent their support to extending the trial.

Future

On the basis of the predominantly positive experience gleaned from the traffic trial, the Technical and Environmental Committee decided in December 2008 that the trial should be continued with minor adjustments in 2009, aiming at creating a permanent solution.



Cycle parking

Copenhagen aspires to be the best city for cyclists in the world, in terms of cycle parking too. That is why 2008 saw the start of work to install new cycle parking at a great many points around the city.

In total, bicycle stands with space for 4,333 bicycles were erected, as well as 1,000 mobile spaces for use at large-scale events in the city. That makes a total of more than 5,000 new spaces for the benefit of the city's residents.

The culture and stands

One such activity is the clear-up campaign dubbed "The Bicycle Vulture", in which bicycle clutter is removed from the city. The campaign was conducted in 2008 in the Inner City and Inner Østerbro. Of 7,927 marked bicycles, 1,372 were removed, corresponding to a "disposal rate" of 17%, or in other words: more than 1,300 "free" parking spaces in the cityscape after the Vulture had passed by.

After that, new bicycle stands were also erected in the Inner City (882), Inner Østerbro (623), and Amagerbro (117) and Inner Nørrebro (460): 2,082 spaces in all.

Pavement corners and stands

By building out a total of 24 pavement corners, it was possible to set up an additional 362 spaces..

Public transport and stands

In collaboration with Danish State Railways' (DSB) S-trains, the City of Copenhagen installed stands offering a total of 455 spaces at Dybbølsbro, Husum, Sjælør and Sydhavn stations. In association with Movia, stands with a total of 91 spaces were installed at five bus stops. At the Metro stations, stands were set up with a total of 1,343 spaces divided between Vestamager, Ørestad, DR-Byen, Lergravsparken and Amagerbro stations. That makes 1,889 new cycle parking spaces overall in connection with public transport.

Mobile cycle stands

The City of Copenhagen also commissioned the design and development of a mobile stand, to be used for future events in the city: 200 stands with five spaces each, making a total of 1,000 spaces.



Nørreport

In 2008 a trial was conducted to clear illegally parked bicycles at the entrance down to the Metro in Frederiksborggade (Nørreport). The City's Cleaning Department has been moving these bicycles on a daily basis and placing them in the bicycle stands on the square at Israels Plads. This trial will now be evaluated and, if successful, will subsequently be rolled out to other Metro stations.

Stand-free

The City also carried out preliminary work on a trial with stand-free cycle parking. The actual trial will be conducted in 2009. The idea is, in selected spots, to plot out a cycle parking bay, within which bicycles then have to be left.

A future with air and barometers

In the years to come, six automatic air pumps will be set up around the city for the free use of cyclists. Bicycle barometers will also be erected in H.C. Andersens Boulevard and at Queen Louise's Bridge. The barometers will count the number of cyclists on a daily and annual basis, saving the recordings for statistical use.

Traffic safety

One of the adverse consequences of traffic is the occurrence of accidents that take their toll in human terms. The City targets its work at reducing the scope of accidents, and has devised a traffic safety plan in 2006 as one of its tools. The aim

is to slash the number of killed and seriously injured among road-users by 40% by the end of 2012. The baseline figure is an average for the years 2003-2005.

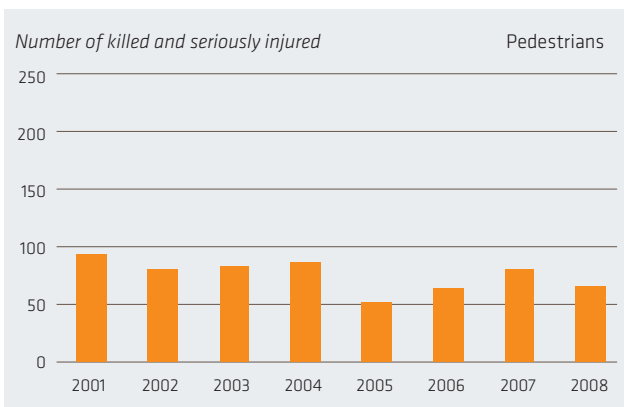
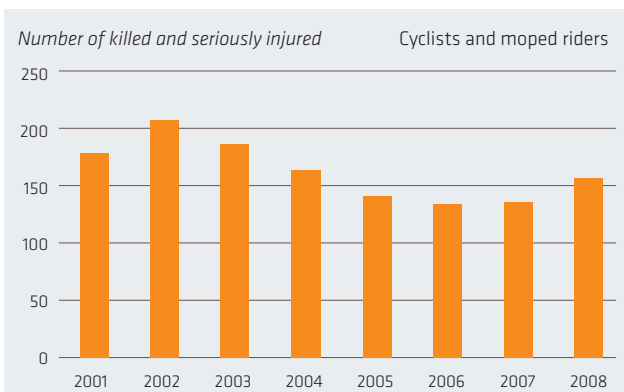
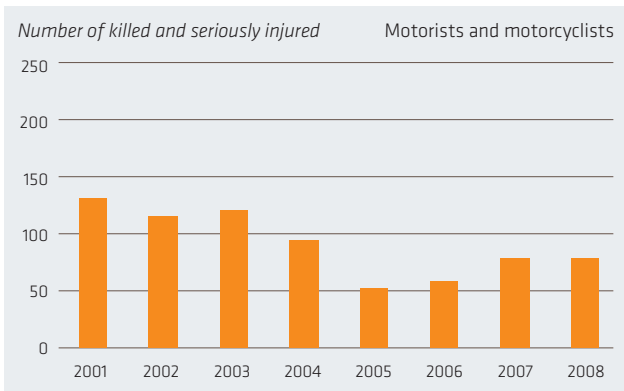
The traffic safety plan highlights four important commitments: cyclists, pedestrians, intersections and young at-risk motorists. The Traffic Department has already focused largely on rebuilding intersections and drawn up initiative plans for cyclists and pedestrians. From 2009 the focus will also be on young car-drivers who are not averse to taking risks.

In 2008 a total of 297 fatalities and serious casualties was recorded in the City of Copenhagen. This is on a par with the 2007 level and, unfortunately, means that 2008 has failed to meet Copenhagen's ambitious targets.

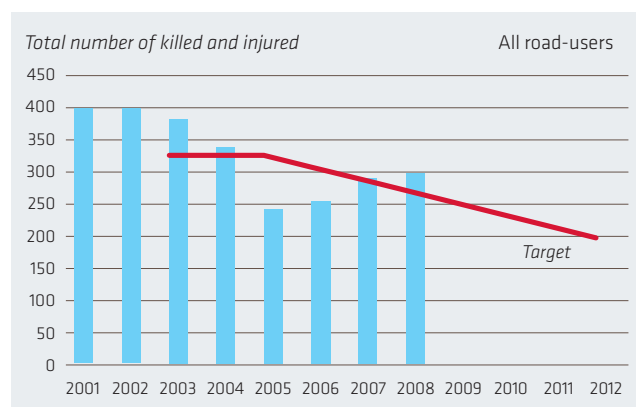
Cyclists account for a large part of casualties, and in 2008 the number of cycling casualties rose, unfortunately. They made up 41% of all serious casualties and fatalities, and together with moped riders (11%) made up a total of 52%.

The number of pedestrians injured fell in 2008 after a couple of years with increases. The proportion of pedestrians is now 22% of the total number of casualties. Together the soft road-users - pedestrians, cyclists and moped riders - comprise 74% of those injured.

For the other road-users the situation was static. Motorists account for 18% and motorcyclists 7% of the casualties.



Development in the number of killed and seriously injured.

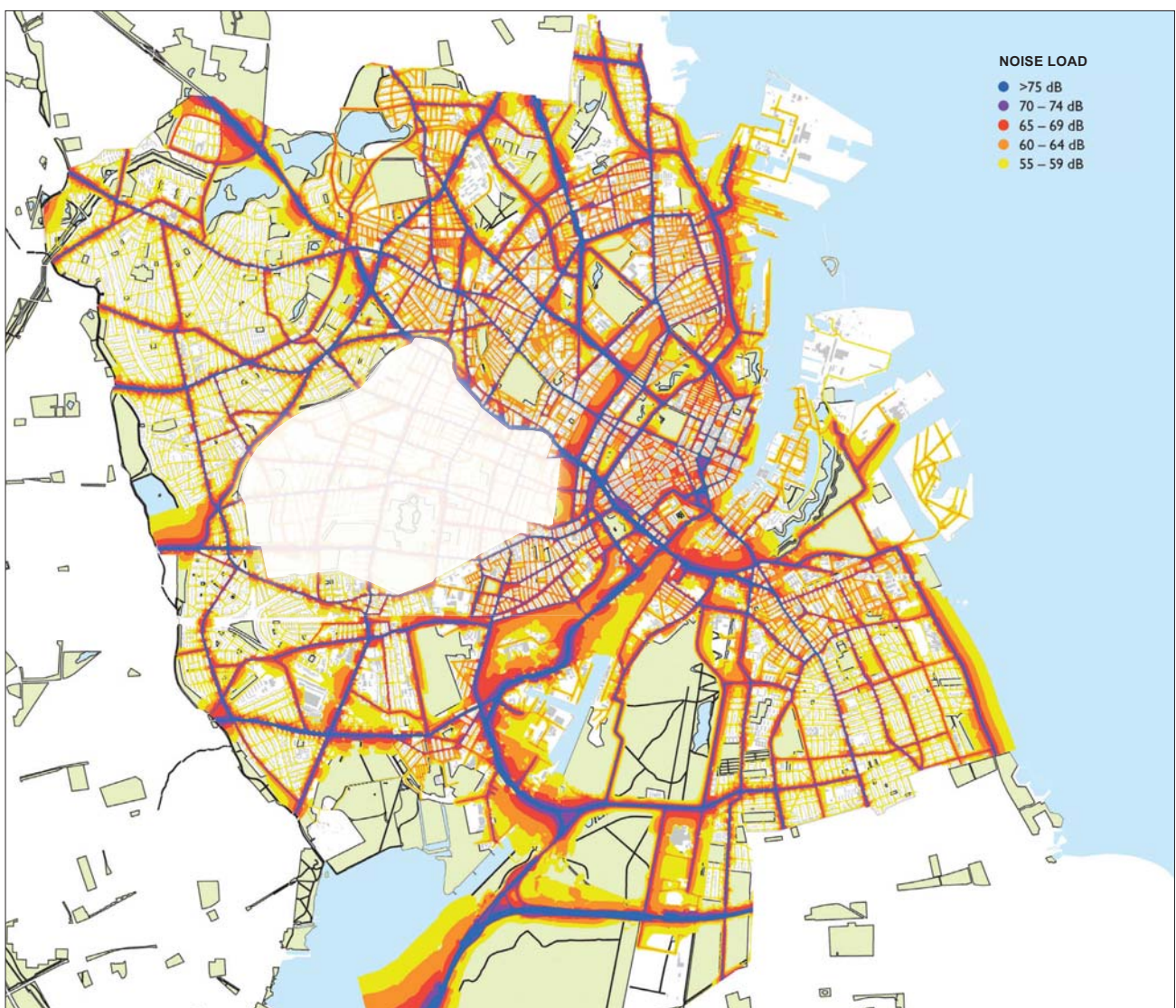


Development in the overall number of killed and seriously injured.

Noise and air pollution

In Copenhagen a large proportion of the noise stems from road traffic and the busiest roads are flanked by homes. Road traffic noise is averaged out over a 24-hour period by use of a complex noise model that includes lots of data

about traffic volumes, speeds and the siting of homes etc. Noise in the evening and at night is weighted high, being allocated an extra 5 and 10 dB, respectively. The map shows the noise impact from traffic at a height of 1½ metres in the City of Copenhagen.



Mapping of the average noise load from traffic in the City of Copenhagen. Data from 2005.

The table below shows the noise impact on Copenhagen homes from traffic at facade level. Data have been calculated as weighted daily averages, taking into account the actual position of the homes in terms of height.

Daily average for traffic noise in Copenhagen					
	< 58 dB	58-63 dB	63-68 dB	68-73 dB	> 73 dB
Number of homes	112,827	79,432	44,713	42,435	6,673
Proportion of all homes	39 %	28 %	16 %	15 %	2 %

At just under 40% of the homes in Copenhagen, the daily average of the noise is below the Danish Environmental Protection Agency's guideline threshold value of 58 dB for noise from roads. 58 dB is characterized as a low noise level, at which a maximum of between 10 and 15% of all individuals perceive the noise as a severe nuisance.

Another nuisance from car traffic is the escape of air pollutants. Car traffic is estimated to account for up to 90% of the pollution in the busiest street spaces of Copenhagen. The City of Copenhagen therefore has a metering station in H.C. Andersens Boulevard to monitor developments in the concentration of health-hazardous substances in the air.

Concentrations of certain pollutants such as lead, carbon dioxide (CO) and sulphur dioxide are falling and are currently

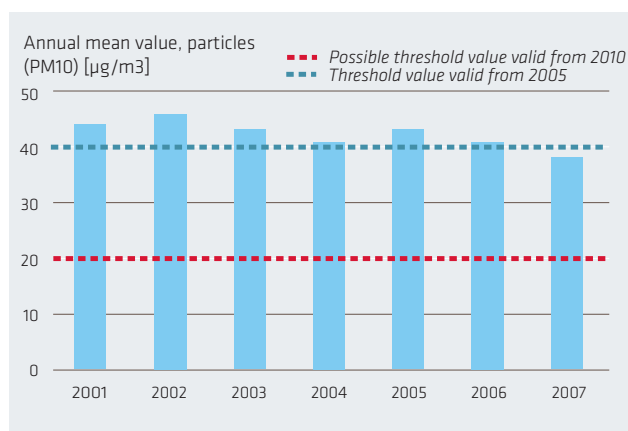
far below applicable threshold limits. This is due to a reduction of sulphur in fuels, the introduction of unleaded petrol and the requirement for catalytic converters on new petrol-powered cars.

Since 1990 there has been a constant level of suspended dust particles in H.C. Andersens Boulevard, and recent years have seen a focus on the health-hazardous effects of particulate pollution. In 2007 the annual threshold value for PM10 was not exceeded, whereas the air quality requirement for daily threshold values was not met, sadly. The annual threshold value has been applicable since 2005 and may possibly be halved from 2010. It is very uncertain whether it is possible to fulfil this requirement.

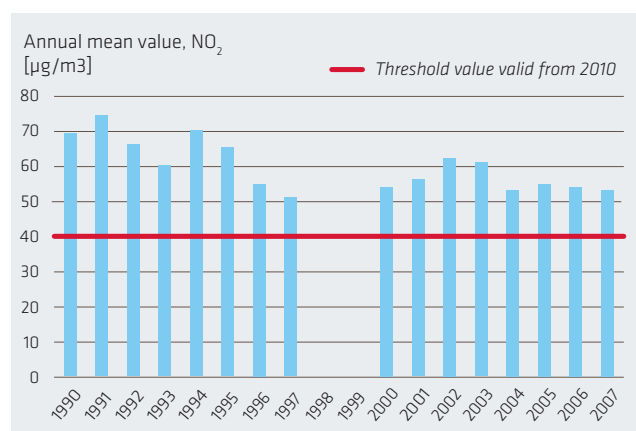
There has been a drop in the NO₂ concentration since the start of the 1990s to the present. This is partly due to the requirement for catalytic converters on new passenger cars, introduced in Denmark in 1990.

Since 2000 there have been no sizable fluctuations in the NO₂ concentration and the level is still above the threshold value.

The content of pollutants in the air is generally on the decline, though some local increases in nitric oxides (NO_x) and soot are being recorded, presumably due to more diesel traffic in the city.



Concentration of particles (PM10) at metering station on H.C. Andersens Boulevard during the period 2001-2007.



Concentration of NO₂ at metering station on H.C. Andersens Boulevard during the period 1990-2007.

The 2004 Traffic and Environment Plan - status

On 28 April 2005 the Copenhagen City Council adopted the 2004 Transport and Environmental Action Plan for the City authority. The plan has been worked out in a dialogue with the citizens and includes the City authority's vision of the way traffic and traffic development can be planned and influenced in the years ahead so as to achieve a smooth-functioning and healthy city.

The Transport and Environmental Action Plan's overriding objective is to assure a fully functional transportation system to service the city while creating substantially lesser environmental impact than today. This means that it will be attempted to cater for the increase in traffic activity by increasing use of public transport and bicycles, and to minimize environmental problems.

The Transport and Environmental Action Plan contains an action plan on 20 initiatives. These will be implemented within the existing economic framework of the administration, possibly supplemented with extra appropriations. An update will be given below on the status of what has been happening in these areas of commitment in 2008.

1. Construction of missing cycle tracks and expansion of those under the most strain

To all intents and purposes, the Cycle Track Priority Plan 2006-2016 is being followed, and in 2008 good progress has been made in constructing new cycle tracks. For instance, a cycle track has been built on Folke Bernadottes Allé. With the creation of a bicycle lane on Enghavevej, "particularly problematic sections" have been broached; these are a special category in the Cycle Track Priority Plan. Nørrebrogade has seen many other changes, including an extension of the subsections in an interim design.

2. Creation of the cycling routes expected to handle most cycle traffic

A new section of the Nørrebro route, with a park and cycling route between Ågade and Rantzausgade with the "Åbuen" Bridge across Ågade, was completed in June 2008. The continuation to Jagtvej is scheduled for completion at end-2009. In 2008 the Nørrebro route has been indicated with signage bollards and information



Åbuen.

pylons from Lersø Park at Lyngbyvej to Åbuen at the border with Frederiksberg.

3. Work to create a Circle Line in collaboration with the government and the Municipality of Frederiksberg

The construction of a Circle Line has been agreed, and an environmental impact assessment (EIA) prepared. Work is continuing on the actual design of Metro and stations. The Circle Line is expected to be complete by 2018. The length of the underground railway will be 15.5 km, and there will be 17 new Metro stations in the Circle.

4. Planning public transport in urban development areas

In new urban development areas the City authority has set itself the objective of spreading traffic sustainably across different forms of transport. That means that at least one-third of all trips have to be done by bicycle, at least one-third by public transport and at most one-third by car. Urban planning is therefore being viewed from a strategic perspective in terms of achieving the best possible service by public transport. The international ideas competition as regards Nordhavn has ended, and a winning project has been nominated, which includes servicing Nordhavn with public transport in the form of a Metro. In addition, work is still in progress on relocating Enghave Station in order to ensure good servicing of the Carlsberg area by public transport.

5. Improvement in bus manoeuvrability on key sections

Among other things, 2008 saw a great concerted effort to tackle manoeuvrability for bus line 5A. At 11 signal-controlled intersections – divided between Nørrebrogade, Amager Boulevard and Amagerbrogade – active bus-prioritizing measures were put in place using GPS technology. As a result, buses can prolong the green period at the traffic signal, allowing them to get across while the lights are green – by transmitting their position to the traffic signal installation. The project has turned out to create considerable time savings for the buses. In addition to bus prioritization at traffic signals, by eliminating through car traffic in Nørrebrogade, the trial has turned out to create a great saving for the buses.

6. Improving traffic safety

The City of Copenhagen is constantly working to improve traffic safety by physically converting junctions and sections of road. In 2008 the conversion of large intersections at accident black spots along H.C. Andersen's Boulevard continued with the conversion of the densely spaced junctions at Vester Farimagsgade/Nørre Farimagsgade and Jarmers Plads. At the same time, the speed limit was reduced from 60 to 50 kph, in addition to which the signal-regulated intersections at Vigerslevvej/Folehaven and Frederikssundsvej/Borups Allé were re-engineered to provide safer traffic management; and at Vigerslevvej between Folehaven and Valby Langgade, rebuilding work has begun to make a slightly narrower road with a new speed limit of 50 kph.

The City of Copenhagen is also working to achieve better road-user behaviour, and this is being accomplished largely by campaigns targeting individual groups of road-users. Here Copenhagen and Frederiksberg are cooperating on the City Road Traffic Council – see www.byenstrafikraad.dk (in Danish).

7. Work to influence Copenhageners' traffic habits

In 2008 too the City has been encouraging more people to cycle by handing out rolls for breakfast and urging everyone to take part in the "We cycle to work" campaign. At the same time, branding Copenhagen as a city for cyclists is instrumental in getting more people to

reach for their bicycles. In developing new urban areas, work is in progress to provide access to the cycling infrastructure and public transport, making it appealing to choose these modes of transport over the car. In addition, the City is encouraging people to car-pool by making reserved parking spaces available and allowing car-poolers to park in all payment zones free of charge.

8. Providing traffic management on the Copenhagen road network

The City of Copenhagen has devised a new road network plan, as part of the work on the 2009 Local Authority Plan. A road network plan includes classifying the municipality's roads into a number of categories corresponding to the road's traffic function. Traditionally, roads have been divided into the following categories: regional roads, distributor streets, district streets and local streets.

The overriding objective of the new road network plan is to concentrate car traffic on the larger roads and, to an even greater extent than previously, enhance the urban qualities of individual urban districts by introducing a new category of road called *lightly trafficked, main shopping streets*.

A lightly trafficked, main shopping street is a commercial focal point for a district with a concentration of retail and grocery stores as well as a café and restaurant milieu. Lightly trafficked, main shopping streets therefore need to offer a good range of facilities for lingering on the street, and crossing the street must be simple.

9. Setting up 40 kph speed zones in local streets in all residential areas

40 kph speed zones have been set up in the Inner City and Christianshavn. By way of a trial run, in selected areas (Nansensgade quarter, the roads through Christiansborg and an area near Sofiegade in Christianshavn), a speed restriction of 30 kph has been introduced. This has come about since parts of these areas were already designed and earmarked for 30 kph. As part of the ongoing process, the plan is to set up 40 kph speed zones in Vesterbro.

10. Work to construct a road link between Nordhavn and the Helsingør motorway

The Nordhavn road was adopted as part of the agreement between the City of Copenhagen, the government and the Municipality of Frederiksberg relating to construction of the City Circle Line. An EIA was circulated for consultation in February 2009. Two main proposals are being worked on: an excavated tunnel between Lyngbyvej and Strandvænget or a drilled tunnel between Lyngbyvej and the Nordhavn area. The road is expected to open in 2015.

11. Considering the possibilities of traffic-calming the Inner City

A strategy has been elaborated for development of the mediaeval centre, and that strategy will be presented to the Technical and Environmental Committee at the beginning of 2009. The purpose of the strategy is to reinforce the identity and the urban spaces for the benefit of residents, commercial life and visitors. In particular, the focus has been on the mediaeval town and the water (port and canals), the linkages (bridges) and the spaces (squares). Read more at www.kk.dk/middelalderbyen (in Danish).

12. Devising a new parking strategy

The first municipal parking facility was opened to the public in February 2008. This is the existing parking installation at Rejsbygade in Vesterbro with 77 parking spaces. From April it became possible for holders of a residents' licence to park free of charge at the Amager Centre car park structure outside of the Centre's opening hours. March-June saw the start of building work on three fully automated underground parking installations at Nørre Allé in Nørrebro with 164 parking spaces, Leifsgade in Islands Brygge with 408 spaces and Under Elmene in Amagerbro with 268 spaces. They are scheduled for completion during 2010. Together with the evaluation of the parking strategy to date, a 2005 proposal to revise the parking strategy will be the subject of a policy review in spring 2009.

13. Drawing up local noise action plans and sound-insulate dwellings

By way of follow-up to the noise mapping conducted, a noise action plan is being put together for the whole municipality in accordance with the Danish Executive Order

on Noise. The action plan will take as its basis the Eco-metropole's objective that by 2015 Copenhageners should be able to sleep peacefully without being bothered by unhealthy levels of noise from street-level traffic, and that all schools and day-care centres may only be exposed to low levels of noise from traffic during the daytime.

14. Laying noise-deadening asphalt during maintenance works on noise-impacted sections

In 2008 some 92,000 m² noise-reducing asphalt wearing course was laid. Since 2006 the City of Copenhagen has laid noise-reducing asphalt on approx. 275,000 m², roughly equivalent to 21 km road. In 2009 the City of Copenhagen will continue laying noise-reducing asphalt on noise-impacted road sections due for imminent refurbishment. At the same time, the trial pavement will be followed up to measure the noise-reducing effect over time and the durability of the pavement.

15. Creating an "Environmental Zone" in the inner half of the municipality

Copenhagen's Environmental (low-emission) Zone came into effect on 1 September 2008 and takes in two-thirds of the municipality. That means that diesel vehicles weighing more than 3.5 tonnes must be fitted with particulate filters or be so new that they already comply with Euronorms for particulate emissions (Euro 3 until 1 July 2010, then Euro 4). Moreover, the City has decided to extend the Environmental Zone to the municipal border on 1 November 2009. Read more about the Environmental Zone at www.miljozone.dk.

16. Active support for trialling and developing eco-friendly technologies

For the sake of our citizens' health, it is important to cut down the air pollution in Copenhagen. The municipality has therefore initiated a project with climatically sound vehicles—including the purchase and operation of 15 hydrogen cars and installation of a publicly accessible hydrogen filling station. As part of the Danish Energy Agency's trial scheme on electric cars, the municipality is also buying 20-30 electric cars, which together with the hydrogen cars will be used as part of its daily operations within domiciliary care, the fire services, the Cleaning Department and the Parks Department. The climatically sound vehicle project is one of the Eco-metropole's ten

star initiatives. The vehicles and hydrogen filling station will be launched up to and during COP 15 in December 2009.

17. Drawing up a heavy traffic strategy

A proposal has previously been drawn up for a prohibitive zone on heavy traffic over 18 tonnes' gross weight, which has been published for public consultation. At the same time, a safety review of the prohibitive zone has been conducted by independent experts. The traffic safety review concluded that, overall, the prohibitive zone would not bring about any improvement in traffic safety. With this in mind, a project has been instigated on an overall heavy traffic strategy, which is to evaluate other solution models, including other zoned solutions.

As part of the strategy, an international workshop will be held in March 2009. Work is simultaneously going on to put in place road signs so that heavy traffic from Nordhavn weighing more than 18 tonnes is routed northward via Ring 02 and Strandvænget/Strandvejen and Tuborgvej. In Vester Voldgade a ban has been put in place on heavy traffic over 18 tonnes. The Environmental Zone for lorries will be extended out to the municipal border as of 1 November 2009 (see pt. 15).



18. Generating new knowledge about pedestrian travel patterns, accessibility, congestion etc.

In 2008 the City of Copenhagen acceded to the International Charter for Walking and thus pledged to create a pedestrian culture, in which people choose to get around on foot. Measurements of pedestrian traffic and resi-

dent surveys about city life and pedestrians started in 2008 and will be included in a set of actual city life accounts in 2010.

19. Publishing an annual overview of developments in the field of traffic and the environment

The publication "Traffic in Copenhagen" is the City of Copenhagen's annual, overall summary of developments and status in the field of traffic and the environment. This publication is the fourth edition.

20. Help clarifying how congestion problems in the metropolitan area can be solved

In 2008 the City of Copenhagen, together with 15 other municipal authorities in the metropolitan area, studied how a payment ring system can be established to create better accessibility and a better environment in the metropolitan area without shifting the problems elsewhere. The results are set out in the report entitled "Congestion Charging in the Greater Copenhagen Area", which can be viewed at www.traengsel.dk. The main conclusions are that, with a payment ring in place in the City of Copenhagen, we can achieve a transport work reduction of just under 25% within the payment ring, in excess of 15% in the municipality as a whole and 4% throughout the metropolitan area as a whole. The payment ring must be combined with improvements in public transport, initiatives for cyclists and pedestrians, utilization of intelligent transport systems (ITS) and soft initiatives such as campaigns. In addition, registering and recording motorists will provide excellent scope for monitoring future traffic trends, as the "gateways" can be viewed as permanent counting and registration stations. The chief barrier to introducing congestion charging is that it will require a change in legislation, and right now there is no majority in the Danish parliament in favour of doing that.

Sources and references

Supplementary information and background data can be found at the City of Copenhagen and the public transport authorities:

http://www.kk.dk/borger/byogtrafik	(Links to other publications about traffic from the City of Copenhagen)
http://www.kk.dk/miljoe	(Facts about noise and air pollution)
http://www.kk.dk/statistik	(General statistics about the City of Copenhagen)
http://www.moviatrafik.dk/	(Facts about public transport in the metropolitan area)
http://www.m.dk/	(Facts about the Metro)
http://www.dsb.dk/	(Search for "Østtælling" (DSB's annual count of passenger traffic east of the Great Belt))



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