ARTISTS
Arterial Streets Towards Sustainability

National WP2 Report of Denmark

Prepared by: Atkins Danmark A/S
Municipality of Copenhagen

Date: May 2003

European Commission Fifth Framework Programme
Key Action: City of Tomorrow and Cultural Heritage
## Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Denmark and Greater Copenhagen</td>
<td>2</td>
</tr>
<tr>
<td>2. Municipality of Copenhagen</td>
<td>13</td>
</tr>
<tr>
<td>3. Jagtvej – unchanged street</td>
<td>24</td>
</tr>
<tr>
<td>4. Jyllingevej-Sallingvej – unchanged street</td>
<td>47</td>
</tr>
<tr>
<td>5. Vigerslev Allé – unchanged street</td>
<td>69</td>
</tr>
<tr>
<td>6. Amagerbrogade – reconstructed street</td>
<td>91</td>
</tr>
<tr>
<td>7. Frederikssundsvej – reconstructed street</td>
<td>122</td>
</tr>
<tr>
<td>8. Valby Langgade – reconstructed street</td>
<td>156</td>
</tr>
<tr>
<td>9. Discussion</td>
<td>189</td>
</tr>
<tr>
<td>References</td>
<td>191</td>
</tr>
</tbody>
</table>

Appendix 1. House numbers, street names and photo locations
Appendix 2. Location of street cases in Copenhagen
Appendix 3. Street classification in Copenhagen
1. Denmark and Greater Copenhagen

The text of this chapter is primarily based on information from the Municipality of Copenhagen, text of laws, circulars and guidelines, and general information about reconstruction of arterial streets in Denmark.

Fig. 1. Maps of Denmark and Copenhagen (© Kort & Martrikelstyrelsen). Black lines on the left map indicate the Greater Copenhagen Area. Black lines on the right map show borders of the Municipality of Copenhagen, which completely surrounds the Municipality of Frederiksberg.

Regional planning in the Greater Copenhagen Area (GCA) is coordinated by HUR (Greater Copenhagen Authority). In GCA exist 5 counties (Fredensborg County, Copenhagen County, Roskilde County, Municipality of Copenhagen and Municipality of Frederiksberg) and 50 municipalities. About 1.8 million people live in GCA and 0.5 million live in the Municipality of Copenhagen.

1.1 Formal / legal and traditional road planning

The law about publicly owned roads say, that the county councils are the road authority and administration for the county roads, and the city councils are the road authority and administration for the municipal roads [1]. Objections and complaints against county and city councils decisions regarding roads can be send to the Minister of Transport. Disputes between road authorities are up to the Minister of Transport to rule on.
The duties for a road authority are to keep the roads in such a condition, which the traffic volumes and compositions demand for. The road authority has the full responsibility and ability to decide changes and maintenance, but also has to defray the costs. However, if new roads are constructed or existing roads are reconstructed to be reserved for certain traffic, the decision to prohibit use of the street for some kinds of traffic can only be made after the city or county council has negotiated with the police. The police in Denmark are exclusively a state organisation.

Before decisions in county councils about construction or closure or major changes of layout and cross section of county roads can be made, the state represented by the Road Directorate and the city councils of the area, where the road is placed, must have the opportunity to make statements.

The state and county councils must have the opportunity to make statements about major road construction projects for municipal roads including major changes of cross section, if the municipal road cross or is linked to state or county roads.

The Municipality of Copenhagen is both a municipality and a county, i.e. has responsibility of both county and municipal roads. This means that the Municipality of Copenhagen is only to inform the surrounding Copenhagen County and eventually the surrounding municipalities, if there are made major changes of roads near the borderline of the Municipality of Copenhagen. The Municipality of Copenhagen must also inform the Road Directorate if they make major changes near the few state roads in the municipality and if they construct new major roads.

A municipality can only construct a new road in rural areas after an approval from the county council. However, every inch of the Municipality of Copenhagen is urban area.

Any other organisation than the road authority must not change the publicly owned road, e.g. digging or removing surface material, without an explicit consent from the road authority. Others must not use the publicly owned road for placement of trash, materials, sheds, slot machines, signs, fences, vehicles for sale or repair etc. without permission from the road authority. This means e.g. that a public transport planning authority can not establish a bus stop without a permission from the road authority.

The road authority can in consent with the police decide limitation and charges to parking of motorised vehicles.

The road authority can place road name signs, traffic signs, traffic signals, road lighting, poles and surveying marks on buildings and sites along publicly owned roads, but these placements must be notified by letter to property owners and users at least 2 weeks before implementation.

According to the Danish road traffic act, the decision about construction or reconstruction of roads and traffic areas, including parking areas and bus terminals and stops, that have considerable influence on accessibility, speed and traffic safety is made by the road authority with consent from the police [2]. If disagreement arises a settlement are taken by the Minister of Transport. Also decisions regarding parking, stopping, marking of pedestrian crossings, prohibit certain road users on special roads like pedestrian streets, give-way restrictions, one-way traffic and local speed limits must the road authority have consent from the police or negotiate with the police.
Decisions regarding access roads and parking and people spaces in connection with rail stations and ferry berths can be made after negotiations with relevant rail and ferry / port authorities.

In short, the police must approve traffic control or major changes of cross section of arterial streets. In cases where changes affect traffic on roads owned by other road authorities to a larger degree these other road authorities must be informed and have the right to make statements prior to the implementation of the changes. The road authority must also negotiate with rail authorities if the traffic and parking areas close to the station is to be changed.

Implementation of major constructions that are assumed to influence the environment considerably must not be started before guidelines in the region plan for layout and design with additional VVM-report (Assessment of Impacts on the Environment) has been provided according to the Danish law about planning [3]. Such major constructions are among others new roads with at least 4 traffic lanes or enlargement of existing roads from 2 traffic lanes to 4 or more traffic lanes, if the new or reconstructed road is longer than 2 km. A VVM-procedure involves two public participation phases, where the first is the scooping phase where the VVM assessment framework is decided and a second phase of at least 8 weeks where the total project and additional VVM-report is discussed. A typical VVM-procedure takes about one year.

The region plan must include the placement / layout of major traffic infrastructure of regional importance. The Greater Copenhagen Authority (HUR) carries out regional planning including traffic infrastructure. However, HUR does not own roads. A municipal plan must not be contrary to a region plan. The “main structure” of a municipal plan must include elements about traffic system, road classification and traffic services. The “review” of a municipal plan must also include information about accessibility for different road users to shopping areas. A local plan further determines road and path conditions including access from roads and streets to buildings and land and separation of road users. The local plan can also define greeneries and road lighting. The local plan must not be contrary to the municipal plan. Both for region, municipal and local plan there is a hearing period of at least 8 weeks. The release of the plan proposals must be send to the Minister of Environment and relevant other state and local authorities. Relevant land and building owners, tenants, associations, NGO’s must also be informed, which is typically done by inserting advertisement in local news papers that are distributed to all in the area and by sending the proposals to selected people / organisations.

However, the level of detail in municipal and local plans is different from municipality to municipality, i.e. changes of arterial streets may in one municipality mean that a public hearing is needed due to supplement municipal plan or new local plan proposals, whereas another municipality may not need to make new proposals, because the same change does not contradict the previous plan.

In short, in Denmark there is typically made public involvement processes regarding changes of arterial streets in relation to municipal plans, supplement municipal plans and local plan proposals. Changes that typically are handled in these plans are reclassification of roads, major reallocation of space between road users, major limitations or relocation of access to road network and in some municipalities also road lighting. Public involvement processes are rare for reconstructions of arterial streets. However, in the Municipality of Copenhagen public involvement processes prior to reconstructions are common, maybe up to half of the reconstructions is accompanied by some sort of public involvement.
Land use along arterial streets is defined in municipal and local plans. Minor changes of land use do not result in changes of these plans, e.g. one small shop is changed into a flat. However, larger changes sometimes means that a new local plan is needed, and in special cases that a supplement to the municipal plan is needed, and hence a public hearing of 8 weeks has to be done in such cases.

Besides the hierarchy of plans, i.e. regional, municipal and local, there most often exist several thematic plans in a municipality, e.g. traffic plan, local road safety plan, plan for accessibility for disabled persons, public transport plan, etc. In terms of legislation, some of these plans may be perceived as supplements to the municipal plan, and hence a public hearing of 8 weeks has to be carried out at least. However, the legislation on this area is “flexible”, i.e. in most cases the municipality can avoid a public hearing if the plan does not contradict the municipal plan to any major extent.

In Denmark, there exist no official guideline from a national government organisation on public involvement processes. However, the Ministry of Environment that has responsibility of planning of cities, traffic, energy, etc. send out ad-hoc guidance and there exist several forums about public involvement processes.

### 1.2 Financial structure

The general situation in Denmark is that the road authority that own the road finance more than 90% of the reconstructions and other changes of arterial streets through local taxes on income, business and land. This is also the case in the Municipality of Copenhagen in most financial years. Local authorities in Denmark control and administer to a major degree both revenues and expenditures related to arterial streets. However, the financial structure for new arterial streets is different, where the private sector and sale of building sites constitute a larger part of the total budget.

A general policy in the Municipality of Copenhagen is that the municipality do not initiate citizens and business to pay for changes on publicly owned streets. However, shop keepers, business and citizens sometimes want to and do pay for certain changes on roads, which is not on the municipality’s list of priorities. The Municipality do not invite the private sector to co-finance major reconstruction projects of arterial streets. Some other local and regional road authorities are more “aggressive” on this policy issue and initiate the private sector or other authorities to pay much more of the changes of arterial streets.

The Municipality of Copenhagen co-operate financially with the Greater Copenhagen Authority (HUR), DSB (rail operator), the Danish Rail Authority and the Oerestad Development Corporation (metro), especially about public transport terminals.

In recent years there has been invested many billions of Euros in new traffic infrastructure and buildings in Greater Copenhagen. Some new arterial streets have been financed by private investors through sale / rental of buildings and ownership been handed over to the Municipality of Copenhagen who then maintain and run these arterial streets. A corporation partly owned by state and partly by the Municipality of Copenhagen has built the new Metro and several streets including
a few arterial streets and financed this through sale of building sites in the Oerestad, which is a new urban district.

When new buildings are built the owners must construct a number of car parking spaces according to the local defined parking norms or if they do not want to use the space on their building site they must pay to a municipal parking fund. This fund must then construct the parking spaces close to the building site within 5 years otherwise the money is paid back to building owners. The Municipality of Copenhagen also has another arrangement, where building developers/owners do not pay to the municipal parking fund, but instead there is stated in the land register that the municipality has an outstanding construction costs for a certain number of parking spaces. The complexity is even bigger, because with one hand the number of parking spaces is reduced due to backyard and traffic control changes and with the other hand new parking spaces are generated.

Every municipality is allowed to sell building sites and charge parking, which is the case in the Municipality of Copenhagen. However, these revenues are not earmarked.

The two tables below sums up the financial situation related to arterial streets in most years and most local authorities in Denmark. The tables include both reconstructions and new constructions of arterial streets. The state owns a very limited length of arterial streets in the Municipality of Copenhagen. For these streets the state finance reconstruction and other changes. However, in some Danish middle-sized and minor towns the counties own a rather large part of the arterial street networks, and in such cases the county may have a higher share of the budget related to arterial streets than stated in the tables.

<table>
<thead>
<tr>
<th>Financing organisation</th>
<th>Percentage of arterial street construction budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Municipality of Copenhagen</td>
<td>&gt; 90%</td>
</tr>
<tr>
<td>Public transport planning authorities and agencies incl. HUR</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>State (Road Directorate)</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Private investors</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Local shop keepers and alike</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td>Special funds (national targeted funds)</td>
<td>&lt; 1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Origin of funds</th>
<th>Percentage of arterial street construction budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local and regional taxes (both Municipality of Copenhagen)</td>
<td>&gt; 80%</td>
</tr>
<tr>
<td>National taxes</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Hiring out public traffic areas</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Other local revenues (parking charges, etc.)</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Other private funds</td>
<td>&lt; 5%</td>
</tr>
</tbody>
</table>

1.3 Reconstruction experience and tradition

In the forthcoming, there are comments about experience of the individual design elements that are relevant to arterial streets in a Danish context. An overview table of Danish reconstruction experience and how this experience is accumulated follows this.
Marking of traffic lanes: This “highway design” phenomenon started as traffic increased rapidly and motorways were built in the 1950s and 1960s. The experience is that marking of traffic lanes only has little effect on road safety, but it makes driving less stressful and easier, and speed may increase a little. It is surely a realistic option on almost any larger road / street wider than 5.9 m. It is viewed almost as a norm in many cases among traffic engineers (something that is needed to do) and viewed as a minor success.

New arterial streets by demolishing buildings: Many “new” and wider arterial streets were constructed in the period 1890-1940 by demolishing buildings in Denmark. At that time it was viewed positive due to the building of much better homes and the need to house the newcomers from the rural districts in the growing, industrial towns and cities. From the mid 1950s up till the first oil crisis in 1973-74 some arterial streets (often radial streets) were also established by demolishing buildings, but this was most often viewed as a failure. This is probably due to a large political “distance” between traffic politicians and the public, but also due to the lack of housing improvements in these projects and that city dwellers viewed it as residents in suburbia just made yet another catastrophe in more central urban districts. Making arterial streets in such way is not a realistic option today. However, after the second oil crisis 1978-81 there has actually been demolished several buildings especially to make space for different types of ring roads, which has given mixed attitudes.

New arterial streets in non-built-up areas: Ring roads, bypasses and central main streets in new urban districts are viewed as a minor success. The reallocation of through traffic to other more compatible roads / streets is viewed positively and important in relation to traffic growth. It does not improve safety much, but helps a lot in relation to noise and vulnerable road users.

New signal-control at junctions: Most of the signal-control at junctions was implemented in the period 1960s-now. In the 1960s very many junctions in the Municipality of Copenhagen were equipped with signal-control. Most other metropolises at that time implemented the first systems of co-ordinated, dynamic signal-controlled junctions, but these was viewed as too slow and with too few options in Copenhagen. Therefore the Municipality of Copenhagen implemented another strategy, where the municipality would not manage more traffic than the arterial streets and the worst bottlenecks could handle. Certain strategic signal-controlled junctions were then set to make this strategy possible, so at that time and nowadays there are typically long queues every morning on motorways and main radial roads outside the central urban districts, but the traffic inside central urban districts flows well. However, the car ownership in central urban districts increased very much in 1994-2000, which has resulted in some congestion in central areas. In general, most seem to have the understanding that signal-controlled junctions are needed otherwise the traffic will break down, but few is happy about the waiting time. In Copenhagen, signal-control is also view as a measure to provide better road safety with respect to cyclists and pedestrians feeling of safety, accessibility and travel speed.

Green waves: Green waves exist in Denmark in many forms ranging from static to very dynamic. However, the signal-control strategies and systems are seldom very advanced in Denmark. It is difficult to have both a green wave for motorists and only little waiting time for other road users, but platoon driving often make the road easier to cross for pedestrians and provide better safety.
**Roundabouts to other type of junction:** Some roundabouts were changed into other types of junctions in the two decades after the Second World War, because circulating road users had to give-way to incoming road users. Some of these reconstructions are today viewed as failures, because roundabouts are a safe junction type and that a “stupid” law was winning over common sense.

**New roundabouts:** Since 1980s till now many new roundabouts have been built primarily due to the good safety effect. Most of the roundabouts have been built in rural and suburban areas. Actually the number of roundabouts is rather limited on arterial streets in urban areas that were built-up before 1960. Only within the past 5 years or so roundabouts have also been part of speed management projects. Traffic planners are just starting to get their focus on roundabouts and increased mobility/less waiting time. Mini-roundabouts are also growing in popularity on roads with less than 10,000 vehicles per day. Roundabouts are mostly constructed where incoming traffic is evenly distributed on the crossing roads. In the Municipality of Copenhagen, roundabouts are seldom viewed as a relevant or realistic option on arterial streets due to low capacity and the amount of space required.

**Parking:** The systematic experience related to on-street parking is limited in Denmark. Parking is often prohibited or time-restricted in order to improve flow of motor vehicles on arterial streets, but the knowledge about effects on this area is little. Legalising parking is seldom used to diminish flow of through-going traffic. Knowledge about relations between shops turnover and car parking are limited in Denmark, but it seems that parking charges in areas with high vitality is improving turnover. There are many options of parking schemes and limited knowledge in Denmark, and that is probably the reason for mixed attitudes among traffic planners.

**One-way traffic:** One-way systems of arterial streets are almost non-existing in Denmark. There exist a few, but the knowledge and experience is limited. For local or minor streets it is a tradition in Denmark to let a one-way street go in the same direction of no more than one or two blocks, i.e. you can not drive very long in the same direction. One-way street systems in Denmark are therefore most often used to diminish traffic in central urban areas.

**More / fewer traffic lanes:** Few arterial streets have in the past three decades been widened with more traffic lanes. Such projects are often viewed positively, because planning for cyclists and pedestrians have been taken serious and no or very few houses have been demolished. However, in most situations land use is detached houses or industry / office and therefore the objections or protest against the projects is therefore little. There was a tendency to build rather wide arterial streets compared to the amount of traffic before 1980s. Many arterial streets now have fewer or narrower traffic lanes in Denmark primarily due to construction of medians, cycle tracks and bus lanes. This is often viewed as positive due to a better use of the cross section.

**Closure of tramlines:** The last tramlines in Denmark were closed in 1972.

**New bus lanes:** Some bus lanes have been implemented especially in the 1990s. It improve bus services both reliability and travel speed, and the bus driving are less stressful, but there are problems with stopped / parked cars in the bus lanes. Most taxi and some private car drivers feel it reduce speed of traffic in general, and are very anxious for using the bus lanes.
New cycle tracks / lanes (narrowing footways): The first cycle track along an arterial street was built in Denmark in 1910, but most cycle tracks have been established after the first oil crisis. Construction of cycle tracks in the Municipality of Copenhagen have reduced the capacity for motorised vehicles about 10-15%. Cycle tracks or reinforced wide cycle lanes (use of dividing islands at important spots) improve safety on arterial streets with high traffic volumes. Often it means that on-street car parking is prohibited and sometimes construction of cycle tracks narrow footways, which can cause problems in shopping streets both to pedestrian movement and lower turnover in shops. Construction of cycle tracks / lanes also change the problems at bus stops so bus passengers have more problems and cyclists travel speed is lowered, but in general it means that cyclists have much fewer problems or interaction with other road users. It is rather seldom that footways are narrowed due to other reasons than construction of cycle tracks, and in such cases it is most often a comprehensive reconstruction of the entire cross section. But traffic planners and the public focus in general on pedestrians in arterial streets are rather small in Denmark.

Pedestrian streets (widening footways): There are about 100 pedestrian streets in Denmark, which previously were used for all kinds of traffic. Only a few of these streets are “arterial streets”. The first pedestrian street, Stroeget, was created in Copenhagen in 1962. Up till the mid-1980s many cities and towns created pedestrian streets, but the bad economic situation both locally (shopping activity was not high enough) and nationally resulted almost in a complete stop so only few pedestrian streets have been opened since 1986. Instead footways have been widened in some shopping streets and at the same time traffic has most often been redirected. However, very few of these streets are arterial streets. Important differences between the two types of street is that artists like street musicians and entertainers have much better conditions in the pedestrian street, but the wide footway streets do not necessarily have to have enormous car parking facilities in back-streets.

Pedestrian crossing / median islands: Mid-block signalised pedestrian crossings are rare in Denmark probably because of a very small safety effect and a major resistance to use guard railing both on medians and at kerbside. Zebra stripes are used at almost all signalised pedestrian crossings both mid-block and at junctions. Zebra stripes are also used at non-signalised pedestrian crossings if the road only has one traffic lane in each direction and there are many pedestrians and speed limit is lower than 60 km/h. At most other places there are no formal pedestrian crossings, but medians and median islands are most often made in such a way that they aid pedestrians very well.

Noise reducing pavements: Trials in Copenhagen show a 4 dB(A) long-term reduction with two-layer drainage asphalt compared to a normal asphalt. Implementation of noise reducing pavements gives a clear decrease of annoyance among residents. Long-term economic comparisons show that the same noise reduction costs less than half when using noise reducing pavements compared to noise barriers and insulation. However, co-financing often occur with measures like noise barriers and insulation and windows.

The table on the next page sums up the general experience among traffic planners in Denmark, and what today’s view is on the schemes and whether or not it may be viewed as a realistic option today by most local road authorities.
<table>
<thead>
<tr>
<th>Scheme on arterial streets</th>
<th>Experience?</th>
<th>Realistic option?</th>
<th>Today’s view?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marking of traffic lanes</td>
<td>Unchanged safety, easier driving, small speed increase</td>
<td>Yes</td>
<td>Minor success</td>
</tr>
<tr>
<td>New arterial streets by demolishing buildings</td>
<td>Increase of mobility, large debates, many opponents</td>
<td>Seldom</td>
<td>Ring roads: mixed attitudes</td>
</tr>
<tr>
<td>New arterial streets in non built-up areas</td>
<td>Unchanged safety, higher mobility, fewer noise problems, better for vulnerable road users</td>
<td>Yes</td>
<td>Minor success</td>
</tr>
<tr>
<td>Implementing signal-control at junctions</td>
<td>Better safety, higher mobility, good for cyclists</td>
<td>Yes</td>
<td>Minor success</td>
</tr>
<tr>
<td>Green waves through signalised junctions</td>
<td>Better safety, higher mobility</td>
<td>Yes</td>
<td>Minor success</td>
</tr>
<tr>
<td>Reconstruction of roundabout to other type of junction</td>
<td>Increased capacity if done correctly, lower perceived risk among vulnerable road users</td>
<td>Seldom</td>
<td>Minor failure</td>
</tr>
<tr>
<td>New roundabout</td>
<td>Much better safety, higher mobility in certain situations, can cause unsafe feelings among vulnerable road users</td>
<td>Yes</td>
<td>Major success</td>
</tr>
<tr>
<td>Prohibit car parking</td>
<td>Limited knowledge and experience, large debates, many opponents – all are experts</td>
<td>Yes</td>
<td>Mixed attitudes</td>
</tr>
<tr>
<td>Legalise car parking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marking of car bays</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New parking charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-way to two-way traffic</td>
<td>Limited knowledge and experience</td>
<td>No</td>
<td>Minor success</td>
</tr>
<tr>
<td>Two-way to one-way traffic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More traffic lanes</td>
<td>Unchanged or better safety, more equal and better use of cross section, more uniform use of individual lanes of traffic</td>
<td>Yes</td>
<td>Minor success</td>
</tr>
<tr>
<td>Fewer traffic lanes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road closures</td>
<td></td>
<td>No</td>
<td>Major failure</td>
</tr>
<tr>
<td>Closure of tram lines</td>
<td></td>
<td>?</td>
<td>Mixed attitudes</td>
</tr>
<tr>
<td>New tram lines</td>
<td></td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Closure of bus lanes</td>
<td></td>
<td>?</td>
<td>Mixed attitudes</td>
</tr>
<tr>
<td>New bus lanes</td>
<td>Better bus service, less stressful bus driving, problems with car parking</td>
<td>Yes</td>
<td>Mixed attitudes</td>
</tr>
<tr>
<td>Closure of cycle lane/track</td>
<td></td>
<td>?</td>
<td>Major failure</td>
</tr>
<tr>
<td>New cycle lanes/tracks</td>
<td>Better safety on links but often worse at junctions, less car parking, better cyclist level of service</td>
<td>Yes</td>
<td>Major success</td>
</tr>
<tr>
<td>Narrowing footways</td>
<td>Problems in shopping streets otherwise no problem</td>
<td>Yes</td>
<td>Minor failure</td>
</tr>
<tr>
<td>Widening footways</td>
<td>Better level of service for pedestrians</td>
<td>Yes</td>
<td>Minor success</td>
</tr>
</tbody>
</table>
Pedestrian streets | Better safety, better level of service for pedestrians, new parking lots needed | No | Major success
---|---|---|---
Pedestrian crossings, Median / median islands | Better safety, easier to cross, few cars stop for pedestrians at non-signalised zebra stripes | Yes | Minor success
Noise reducing pavements | Good noise reduction, cheaper than both noise barrier and insulation | Yes | Minor success

**Accumulated knowledge:**

Arterial streets have not been subject to much research in Denmark. Many research projects in Denmark have included specific design elements, where some of the studied cases have been arterial streets. But seldom research projects have had a major focus on arterial streets.

Most of the knowledge about street design and traffic control is accumulated in the organisations mentioned below. Some of the relevant publications are mentioned in references [11-17].

- **Academia:** Two universities in respectively Aalborg and Copenhagen have made some textbooks for education, which also is used to little extent by professionals. None of the textbooks focus on arterial streets or have special chapters about arterial streets. The teaching on universities also involve urban traffic, but the amount of involvement in urban traffic is very much up to the students through their choice of projects.
- **Road Directorate:** The national road administration has through many reports accumulated knowledge also among their experts. However, only few of the many reports actually focus on arterial streets. These reports are used to little extent by professionals in daily business.
- **Road Standards and Guidelines Organisation:** This organisation has a cross party committee and many project and working groups with members coming from municipalities, counties, national organisations and the private sector. The secretariat is within the Road Directorate. The guidelines from this organisation are used rather much by professionals in daily business. One set of guidelines is specifically dedicated to traffic in urban areas.
- **Local written design policies:** Many municipalities and counties have a non-public written design policy due to wishes for uniformity. These design policies are based on guidelines, recommendations and research results coming from other organisations and local experience.

The information in written documents is also presented in education on universities and engineering colleges, through seminars delivered by a special in-service training organisation called VEJ-EU, and other seminars and conferences predominantly held by universities, organisations of transport professionals, and the road administrations.
### Way of accumulating knowledge about arterial streets

<table>
<thead>
<tr>
<th>Source</th>
<th>Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Standards and Guidelines Organisation (cross party)</td>
<td>A lot</td>
</tr>
<tr>
<td>Road Directorate research and consultation reports</td>
<td>Some</td>
</tr>
<tr>
<td>University / college textbooks</td>
<td>Little</td>
</tr>
<tr>
<td>Other research and consultation reports and reviews</td>
<td>Little</td>
</tr>
<tr>
<td>Local policies based on previous local experience and guidelines,</td>
<td>Some</td>
</tr>
<tr>
<td>recommendations and research results coming from other organisations</td>
<td></td>
</tr>
</tbody>
</table>

### Used accumulated knowledge about arterial streets

<table>
<thead>
<tr>
<th>Source</th>
<th>Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Standards and Guidelines Organisation (cross party)</td>
<td>Used most sometimes</td>
</tr>
<tr>
<td>Road Directorate research and consultation reports</td>
<td>Used seldom</td>
</tr>
<tr>
<td>University / college textbooks</td>
<td>Used seldom</td>
</tr>
<tr>
<td>Other research and consultation reports and reviews</td>
<td>Used seldom</td>
</tr>
<tr>
<td>Local policies based on previous local experience and guidelines,</td>
<td>Used sometimes</td>
</tr>
<tr>
<td>recommendations and research results coming from other organisations</td>
<td></td>
</tr>
</tbody>
</table>
2. Municipality of Copenhagen

This chapter focuses on 1) policies and rationales in relation to traffic and land use at arterial streets in general, and 2) processes and experience related to reconstructions and changes of arterial streets in general. Policies, rationales, processes and experience related to the individual street case is included in the text of the street cases, and therefore not in this chapter.

2.1 Policies and Rationales

Below there is a list of traffic and land use plans and policies in force in the Municipality of Copenhagen that are related to the arterial streets:

2. Traffic and Environment Plan for Copenhagen, passed September 1997, a new Traffic and Environment Plan 2003 is currently being prepared
3. Road Safety Plan for Copenhagen, passed May 2001
5. Series of traffic plans for city districts, Traffic plan for Amager, January 2001, and Traffic Plan for Kongens Enghave, December 2001, plans for other districts are currently being prepared

There exist a Regional Plan 2001 from the Greater Copenhagen Authority, but the policies and rationales in that plan are included in the five above listed policies and plans.

Municipal Plan 2001:

A municipal plan in Denmark is often viewed as a strategic tool to make the many sectors work together for some holistic aims. The municipal plan can especially in larger municipalities be seen as a framework for action plans in the different sectors. However, the municipal plan give clear instructions on land use.

Selected main aims of the Municipal Plan 2001 from the Municipality of Copenhagen:

- Population: “It is a long-term aim to get a more balanced population in the municipality by providing a more varied supply of homes. This may attract and retain more families and contribute to a social and economic sustainable population.”
- Business: “It’s the municipality aim to increase the number of permanent and future-oriented jobs and to be a dynamic business centre of the Øresund Region. It is also an aim to localise job and visit intensive businesses close to rail stations for environmental reasons, i.e. reducing private car traffic, and in order to optimise traffic accessibility to jobs.”
- Retail: “It’s the municipality aim to ensure the city’s position as the country and region most important shopping area and to maintain an up-to-date and fine-meshed net of shops that can give life and identity to city districts and ensure citizens without a car a good retail service. The ground floor along primary shopping streets in city districts must as far as possible
continue to be used for retail and other public-oriented functions. The primary shopping streets in the outer city districts are sought to be supported by centre areas/shopping centres to special types of shops and public-oriented functions that are hard to fit into the shopping streets.”

- Traffic: “In ‘Action plan for traffic management in Copenhagen’ is stated that there must occur an improvement of the conditions for public transport and cycling and a traffic calming of the inner city and residential areas in such a way that Copenhagen can evolve into an attractive housing area. The traffic calming can continue as a continuation of the previously implemented local projects or as comprehensive traffic plans for larger neighbourhoods or as major comprehensive traffic plans for entire city districts.”

The four main aims of the Municipal Plan 2001 along with several parts of the plan focus on two dominating issues; 1) Attracting and retaining high-income jobs, and 2) Improving quality of life and homes so a more balanced population can provide a sustainable tax base. This plan deviate from previous municipal plans due to the non-acceptance of high-income jobs and families (often with children) moving out of the municipality. The municipality will no longer accept being a “social security office” for many “rich” municipalities. It has to be more economic and social sustainable. In many cases, the policy about close localisation to stations is high on the agenda.

There are many restrictions on land use, so here is only mentioned some of the very relevant. The required car parking facilities is normally about 1 parking space per 100 m² floor space for homes, industry, business, retail and so on. In some areas it is lower and higher in others. The Municipal Plan 2001 also include limits for retail regarding maximum total m² of new or converted buildings for retail for each area / shopping street and maximum m² for shops with respectively food (3,000 m²) and non-food (1,000 m²). Other typical limitations are function, pollution class, noise, plot ratio, number of floors/building height and open space ratio.

Several other parts of the plan give an impression of thinking and rationale related to traffic among politicians and administration. Compared to the four main aims, which may be viewed as a strategic policy level, the quotations below are rationales and goals on a more operational policy level:

- The capital region experience in times with favourable economic development an increasing car and traffic growth, which reduce travel speeds and increase the environmental impacts.
- A decisive base for metropolises, also for Copenhagen, is good traffic infrastructure and high traffic accessibility. At the same time is car traffic one of the city’s major environmental problems. The Municipality of Copenhagen’s urban development strategy support a traffic system, which is primarily based on public transport services, and especially rail, but also a main road network, which to the highest degree possible must keep high density neighbourhoods free of through-going car traffic and gather traffic on regional roads in order to keep traffic on local roads as low as possible.
- For many years has incoming commuter traffic to the municipality been a dominating feature. Increasing car ownership and commuting out of the city among the municipality’s own citizens will in the future set new demands for regulation of car traffic. Copenhagen is an old city with narrow streets and many buildings and spaces worthy of preservation. At the same time residents is exposed to the nuisances of traffic. It is not the aim to adapt the city to the car traffic growth, but on the contrary through regulation to create a sustainable traffic development that is adapted to the city in such a way that energy consumption and environmental impacts are minimised.
The general aim is to create a sustainable and co-ordinated land use and traffic development, where as much traffic as possible is made by public transport, bicycle and on foot and as little as possible is made by private car.

This means that the total level of car traffic in the municipality must not increase, and that increasing transport demands must be met by public transport and bicycle.

Effective and flexible tools to regulate car traffic must be developed as soon as possible.

An aim is to improve bus traffic travel speed by implementation of a bus priority plan.

An aim is to increase the bicycle’s share of the total traffic, and it is the aim to fulfil this by better safety, comfort and travel speed.

Another aim is that urban and people spaces must be beautiful and harmoniously areas for human displays and experiences.

For certain issues the Municipal Plan 2001 operates on an even more operational and tactical policy level. Most of the aims are, however, qualitative and most of the actions stated do not point out specific locations for action. But even though many statements are interesting, and here is a jumble:

- **Bus traffic:** The aim is to improve the bus services and ensure good interchanges … The main part of bus hours that is released due to the Metro and ring rail opening must be used to improved bus services in central parts of the capital area… The buses travel speed in the municipalities of Copenhagen and Frederiksberg must be increased through implementation of bus lanes and signal-controlled bus priority.

- **Car traffic:** Realising that road pricing due to legal, administrative and technical reasons is not feasible in this plan 4 year period, an action plan for controlling car traffic growth in Copenhagen is being implemented… The necessary car traffic must be ensured an adequate and smooth travel speed on the most adequate roads, primarily the regional roads.

- **Parking:** The total parking capacity must not increase in the inner city due to considerations of traffic calming of the inner city… In the old districts just outside the inner city parking in time restricted to two hours morning and afternoon on weekdays… For the publicly owned streets (in outer districts) there often exist special parking restrictions … due to for instance travel speed and access to retail in shopping streets.

- **The visual street environment:** The amount and size of street furniture must be restricted… A rule of thumb is to use the same type of street furniture in all streets… Façade lighting must be dim with good colours.

- **Noise and air pollution:** A target is to have a maximum of 35,000 homes with more 65 dB(A) in 2010, and the indoor noise level in homes is no more than 30 dB(A)… Towards 2010 the aim is a reduction of energy consumption and CO2 emission of 5 per cent and a halving of other emission compared to 1995.

- **Road safety:** The target for road safety in the Municipality of Copenhagen is that the number of killed and seriously injured must be reduced by at least 40% before the end of 2012 as compared to 1998.

Traffic and Environment Plan for Copenhagen:

This plan is currently in a transition phase, where the old plan from 1997 is being replaced by a new plan in 2003. The old plan from 1997 has already been overtaken on many issues and most of the policies and rationales are stated in the other plans mentioned in this part of the national report.
Therefore focus is on the new plan. However, the first part of the preface of the old plan state the prime thinking and rationale related to traffic in the Municipality of Copenhagen:

- Copenhagen is in a favourable position in terms of traffic compared to most other larger cities. The city’s public transport system is being improved considerably these years: New local trains, new railway to the airport and Sweden and a new Metro and continued improvements of the bus services. Furthermore has the Copenhageners exceptionally maintained and enlarged the cycling tradition. This has together with a targeted traffic policy contributed to that streets not to the same extent are flooded with cars as in other larger cities. The car traffic volume has increased 80% outside the municipal boarder during the past 25 years whereas traffic has remained unchanged inside the municipality.

The new plan is currently being debated in public. This debate started as phase one in spring 2002, where residents and stakeholders were interviewed. A public meeting was held and an attitude survey based on 1,000 interviews of residents was made. The ambition was to identify and analyse the most important problems related to traffic and environment, and to get clear and well-documented ideas for solutions that gain major support from the public. Phase two that ends with the end of 2002 is partly a dialogue between citizens, experts and politicians partly a proposal to main actions of the plan. Phase three in spring 2003 is focusing on making the final proposal, political processing, public hearing of 8 weeks and finally approval in city council.

The conclusion of phase one was that the citizen’s primary interest is to have a daily traffic with fewest problems as possible. The attitude survey shows that reducing air and noise pollution is the first and primary challenge to meet, secondly is improved bus and train services, thirdly better conditions for cyclists, fourthly better conditions for private cars and fifth better conditions for pedestrians. There also is major support to safer roads. The business sector points at accessibility for cars, bicycles, pedestrians and public transport and car parking as important issues.

Phase two focus on a debate about five important actions: More metro, better conditions for cyclists, new roads in urban development areas, more car parking for residents and regulation of car traffic.

The city wants a Metro ring in the central city districts. Price: DKK 10 billion. The debate material states that metro is faster, more environmental friendly and safer than buses, trams and local trains, and that a metro to a larger extent is at disposal day and night, and there is a focus on limited space. However, the Municipality of Copenhagen is dependent on other municipalities, counties and the state in terms of finance. (The new national Traffic Investment Plan from February 2003 also mention the metro ring as a possible future project.)

The city also wants better conditions for cyclists. Price: DKK 0.7 billion. The actions are described elsewhere. However, it seems like that the city have found out that cycle parking in some projects may be rather expensive.

The city now suggests two new roads in order to improve the accessibility to the North and South ports, which are urban development areas, and to relieve traffic pressure on existing arterial streets and relocate through-going traffic. Price: DKK 3.5 billion. The rationale here is traffic growth due to urban development, i.e. more jobs, homes and residents.
The city also focuses on more car parking for residents, which the debate in spring 2002 showed to be an important issue. There are two rationales: 1) it is becoming increasingly difficult for residents to find a place to park their car, and 2) parked cars occupy much of street and people space. It seems as if the city wants more car park spaces, but is unclear about who is going to pay the costs.

There also is a focus on road pricing and parking charges. The city is fully aware of the need to regulate car traffic if the aim about unchanged amount of car traffic is to be meet. However the debate material say that such regulations need a wide public acceptance, an understanding of the need to use hard measures.

Road Safety Plan for Copenhagen:

“Every day two persons are injured in traffic in Copenhagen. This corresponds to 9 full buses every year – and that is completely unacceptable.” “In 1998 was 739 persons injured, which means that the Municipality of Copenhagen has an expenditure of approximately DKK 157 million as a consequence of traffic accidents. Therefore, there is a major economic incentive to improve road safety.” These two sentences dominate the rationale of the plan, i.e. the “prevention” focus and the “economic” focus. The plan has also been elaborated to make the work with road safety more visible and effective.

The overall target in the Municipality of Copenhagen is to reduce the number of killed and seriously injured in road traffic by 40% before the ending of 2012 in relation to the level in 1998 – no matter the extent of traffic growth. In 1998 there was 499 killed and seriously injured in the Municipality of Copenhagen, so 40% corresponds to 200. The overall target has been divided into 7 goals:

- Reduce number of killed and seriously injured in accidents with excessive speed by 50%
- Reduce number of killed and seriously injured motorists who do not use safety belt by 50%
- Reduce number of killed and seriously injured in accidents with drunk drivers by 30%
- No junction may have more than 2.5 injury accidents per year (seen over three years)
- No junction may have an accident frequency of more than 2.5 per 10 million incoming motor vehicles (seen over three years)
- Reduce number of killed and seriously injured cyclists by 50%
- Reduce number of killed and seriously injured pedestrians by 30%

The plan focus on five actions or safety measures (in brackets it is mentioned how many killed and seriously injured the action is expected to prevent per year in 2012 as compared to 1998):

- Reduced speed limits and actual speed of motorised traffic (35)
- Regulation / adjustment of left-turn conflicts (5)
- Black-spot treatments of junctions (12)
- Campaigns and information (35)
- Medians / median islands and footway build-outs (26)

However, in the daily road safety work there will also be used other safety measures in relation to road maintenance and larger maintenance projects, and it is expected that these other safety measures can prevent the number of killed and seriously injured by 25 per year in 2012 as compared to 1998. In practice, there is often a need to act fast and quickly in order to improve road
safety such actions can not wait for long-term plan perspectives (read hasty decisions). The idea is also to anchor the road safety plan in land use planning in general.

It is expected that the local safety measures in total will reduce the number of killed and seriously injured by 124 before the ending the year 2012. There is an overlap of the effect of the actions of 14 killed and seriously injured. The rest of the overall target comes from safety measures implemented by the state corresponding to 76 killed and seriously injured.

The plan does not state why the particular actions have been chosen other than they may prevent fatal and injury accidents. The plan does not say if these actions are the most political feasible or have the highest cost-efficiency or are most beneficial to society. And the plan does not say which actions were rejected.

During the plan preparation, the road safety plan was in conflict with the Traffic Management Plan, because the road safety plan suggested a reduced speed limit on the major arterial streets. The Traffic Management Plan 2000-2005 won, i.e. no speed limit reduction.

Cycle Policy 2002-2012:

The plan was commissioned from the Budget Agreement 2000-2003 of the Municipality of Copenhagen, which said: “An overall action plan for the improvement of cycling conditions shall be drawn up. The plan shall contain provisions for the extension of the cycle track network and proposals for new cycle routes and include proposals for the improvement of travel speed, cyclist safety and comfort, including necessary maintenance.”

The aim in the action plan is to achieve the following goals in 2012:

- The proportion of people cycling to workplaces in Copenhagen shall increase from 34% to 40%.
- Cyclist risk of serious injury or death shall decrease by 50%.
- The proportion of Copenhagen cyclists who feel safe shall increase from 57% to 80%.
- Cyclist travelling speed on trips of over 5 km shall increase by 10%.
- Cyclist comfort shall be improved so that cycle track surfaces deemed unsatisfactory shall not exceed 5%.

The quantitative goals are continuously assessed based on data from accident and travel survey databases and the city’s own Bicycle Account [10] and interviews.

A dominating rationale is the high (and a higher) share of trips on bike in Copenhagen to a major degree contributes to relatively favourable traffic and environmental position. Better “quality of transport” is another rationale covering feeling of safety, road safety, travel speed, public health, experiencing the city and riding comfort.

In order to fulfil the objectives of Cycle Policy 2002-2012, work will be concentrated on nine main actions or focus areas:

- Cycle tracks and reinforced cycle lanes
- Green cycle routes
• Improved cycling conditions in the City Centre
• Combining cycling and public transport
• Bicycle parking
• Improved signal-controlled junctions
• Better cycle track maintenance
• Better cycle track cleaning
• Campaigns and information

Three of these focus areas have a direct influence on the street design and traffic control of arterial streets: 1) several arterial streets will be reconstructed from a situation were cyclists are mixed with car traffic to a situation with separate cycle tracks or lanes (however all six ARTISTS street cases in Copenhagen already have cycle tracks), 2) bicycle parking facilities both new supplementary spaces and replacements will be done in several arterial streets (facilities are right now being established in the street case Amagerbrogade), and 3) many signal-controlled junctions will be redesigned. However, better cycle track maintenance and cleaning will also be visible and felt in the arterial streets, and the all other focus areas may result in more cyclists in arterial streets.

The reason for choosing the above focus areas is that they are thought or known to contribute to the goals of the plan. The basic idea is that cyclists should feel welcomed in the Municipality of Copenhagen by feeling safe, comfortable and have the possibility to travel at high speed, and that campaigns should greet them positively – lots of pat on the back. The Bicycle Account also gives clear indications of what cyclists find unsatisfactory.

Even though it is mentioned in the plan that road pricing, parking charges to private car drivers and car sharing probably could increase use of bicycles, such actions are not included in the plan. Based on the known competition between modes of transport, the plan will probably predominantly reduce use of public transport and increase cycling.

The Cycle Policy 2002-2012 seems to be a plan that the city will work hard to implement and realise the goals. An example is that one third of the total road construction budget for 2002 (DKK 60 million) was earmarked for the improvement of bicycle conditions.

The total plan operate with a long-term (goes beyond 2012) construction budget of more than DKK 700 million and “run” (maintenance, clearance, campaigns etc.) budget exceeding DKK 13 million a year.

Series of traffic plans for city districts:

Until now two plans for respectively Amager and Kongens Enghave have been made. These plans are made together with representatives from the city district and other authorities. Such plans are typically rather long time in preparation. An example is the plan for Vesterbro, which is one of two plans currently under preparation. Traffic discussions on Vesterbro between residents and the municipality started in 1997 and in 2001 started Roads & Parks the work together with a group of 48 local stakeholders.

These plans are viewed as proposals, i.e. not decided by City Council and no budget. There may exist minor or major conflicts between the proposed projects in the district traffic plans and the overall traffic policy and budget. These conflicts are currently not solved in the district plans.
The work with these traffic plans for city districts has three phases: 1) Mapping of local traffic problems, 2) Future traffic system and structure, and 3) Action plan. Phase one involves problems experienced by local people and other problems realised by the municipality and other authorities. In phase two, the problems are held up against aims and wanted results. And in phase three, the discussions are made more specific ending with proposed projects.

Traffic Management Plan in Copenhagen 2000-2005:

The rationale of this plan is based on the Traffic and Environment Plan from 1997. The Traffic Management Plan is an action plan that specify rather precise the projects and costs. The plan operates with a budget of 120 million DKK. The plan is split into measures related to capacity on radial arteries (13 million DKK), bus priority (14 million DKK), terminal improvements (74.5 million DKK), bicycle traffic (13 million DKK), and evaluation and project development (5.5 million DKK).

Capacity on radial arteries: It is considered to be relevant to worsen the bottlenecks (signalised junctions) related to incoming traffic to the city in morning rush hours in order to increase travel speed inside the central districts. Investments focus on more advanced signal-control in relation to these bottlenecks and elsewhere.

Bus priority: Focus is on two arterials, Vesterbrogade and Jagtvej (Danish demonstration case), and on solitude spots on routes with many buses.

Terminal improvements: About 58 terminals are in focus. The idea is generally to improve the quality of the terminals and the possibilities of interchanges between modes.

Bicycle traffic: Please see Cycle Policy 2002-2012.

About the project development issues are park-and-ride, kiss-and-ride and road pricing mentioned as ‘on the list’.

Core rationales:

The overall traffic policy in the Municipality of Copenhagen is that an unchanged amount of car traffic is a highly favourable position, primarily in terms of environmental impacts. This policy – “No more car traffic” – has become a rationale for many other policies, e.g. better conditions for public transport and cyclists, economic regulation of car traffic and regulation of parking. However, this core rationale / policy is threatened by increasing car ownership among residents and by the city’s own urban development strategy, which include building of more homes and offices. The municipality seems to have partially abandoned the core rationale by focusing on more car parking for residents and new roads.

Another important rationale is a high level of democracy or public involvement. Traffic policies are discussed to a much further extent with local stakeholders than the law about planning demands for. It seems like that the core rationale “No more car traffic” will be threatened even more, if the public involvement was not so high. An example is that the district traffic plans actually is even more pro the core rationale than the traffic policies.
Secondary rationales seem to be the concentration of car traffic to regional roads, unacceptable high number of killed and injured, and elements about pleasant transport and experiencing the city.

2.2 Processes and Experience

The decision-making and design processes related to reconstructions of arterial streets are different from project to project, i.e. only unique processes exist. However, here are general points from the Municipality of Copenhagen about the processes.

Three typical processes:

1) The administration has acknowledged a traffic management problem or similar problem. Some assessments of project ideas and funds are made. The best project idea is added to the list of wishes in the investment plan. There may go short or long time before the project is processed politically. If politicians find the project interesting then it is added to the investment plan and a project definition phase is initiated. This phase may include dialogue with stakeholders and public hearings.

2) The public has wishes/needs that is presented to either politicians or administration or both. These projects often have long problem identification phases, because the initial “ownership” of the project lies at the citizens not at the politicians or administration.

3) A preceding planning with principles and aims has allocated funds for unspecified projects, e.g. a road safety plan and a cycle policy. This preceding planning is often the time-consuming part of the planning process, and makes the political processing much easier and less time-consuming for the individual projects, e.g. reconstruction of an arterial street. The politicians are more or less just informed about current projects and future projects, then funds are released unless something controversial arises from the project.

Decision to design:

Most often the decision to design, i.e. going from preliminary planning phase to a project definition phase, is made by the Building and Construction Committee (politicians). However, sometimes even for larger projects the decision to design is made on executive level in the administration.

Decision to reconstruct:

The municipal road administrations investment plan defines the annual framework for construction and reconstructions of arterial street, etc. Work can not be initiated until the Building and Construction Committee (politicians) has allocated earmarked funds on the basis of a request for funds including a detailed description of the project and its consequences.

Implementation:

Here is a list of nine arterial street reconstruction made in the latest decade:
Sjaeloer Boulevard: Reconstructed in 1992. The street was changed primarily due to local wishes. Median islands were constructed as speed reducing measures. The project was designed by the municipal road administration, and was in public hearing at schools and institutions.

Kalkbraenderihavnsgade: Reconstructed in 1993. This street was reconstructed due to major changes in the port area. Copenhagen Port paid the project, which was a widening of the road from two traffic lanes to four traffic lanes. Before the detailed design phase there was made a VVM-procedure. The municipal road administration designed and managed the project.

Vesterbrogade: Reconstructed in 1996. The project was to construct one-way cycle tracks on both sides of Vesterbrogade. The project was based on experiences from constructing cycle tracks on similar roads in Copenhagen, e.g. Noerrebrogade and Amagerbrogade. The municipal road administration made the design. There was no public involvement. A bus priority system has been designed, but is currently in public hearing and not yet political processed.

Frederikssundsvej: Reconstructed in 1998. The purpose was to improve conditions for elderly and walking-impaired by establishing a median and other pedestrian crossings. The road was narrowed to 1 traffic lane in each direction, which has resulted in a speed reduction. The project was designed by the municipal road administration in dialogue with groups of elderly and the Road Directorate, who financed half of the project. Bus priority at signal-controlled junctions has subsequently been made due to a worsening of bus travel speed of the first project.

Valby Langgade: Reconstructed in 1998-99. The purposes were to lower car speeds by establishing a median etc. and improve pedestrian crossing possibilities. The design was made by the municipal road administration and is a copy of the Frederikssundsvej project.

Amagerbrogade: Reconstructed in 1996-1998. This was a large project called PrioBus, which was about increasing travel speed for buses. The project was partially financed by the Ministry of Transport, the Municipality of Copenhagen and HT (bus planning authority). The project included bus lanes, bus priority at signal-controlled junctions and real-time information at bus stops and inside buses. It was designed by the municipal road administration and HT without dialogue with citizens and stakeholders.

Kalvebod Brygge / Christians Brygge: Reconstructed in 2001. The project included improved cycle tracks, narrowing of traffic lanes and new trees. The municipal road administration made the design in dialogue with landlords (mostly new office buildings, hotel and shopping centre).

Tietgensgade: Reconstructed in 2002. First there were established cycle lanes as a trial, which was evaluated by asking cyclists. The result was, that the cycle lanes were not good enough and a design of reinforced cycle lanes (stronger separation at bus stops and junctions) was made. However, the final and implemented design was cycle tracks with kerbs between cyclists and cars due to a political wish. The municipal road administration made the designs.

Gammel Koege Landevej: Reconstructed in 2002. The road was to be resurfaced. Instead of just resurfacing it was decided to reconstruct the road by establishing a median in the same way as on Frederikssundsvej and Valby Langgade. The municipal road administration made the design.
Only for Frederikssundsvej, Amagerbrogade and Tietgensgade there have been made proper evaluations. These three projects are all development projects, i.e. they are different compared to the other projects, because the objective was partly to develop and analyse new schemes, and partly to improve the traffic conditions. There is no tradition to make follow-ups on every project after completion.