



AALBORG

Aalborg

T42.1 Provision for Soft Modes in Aalborg

Aalborg Kommune
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Author	Maria Quvang Lund Vestergaard/Anne Marie Lautrup
Quality Control	Alan Lewis
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1. Introduction

1.1 Background CIVITAS

CIVITAS - cleaner and better transport in cities - stands for City-VITAlity-Sustainability. With the CIVITAS Initiative, the EC aims to generate a decisive breakthrough by supporting and evaluating the implementation of ambitious integrated sustainable urban transport strategies that should make a real difference for the welfare of the European citizen.

CIVITAS I started in early 2002 (within the 5th Framework Research Programme); CIVITAS II started in early 2005 (within the 6th Framework Research Programme) and CIVITAS PLUS started in late 2008 (within the 7th Framework Research Programme).

The objective of CIVITAS-Plus is to test and increase the understanding of the frameworks, processes and packaging required to successfully introduce bold, integrated and innovative strategies for clean and sustainable urban transport that address concerns related to energy-efficiency, transport policy and road safety, alternative fuels and the environment.

Within CIVITAS I (2002-2006) there were 19 cities clustered in 4 demonstration projects, within CIVITAS II (2005-2009) 17 cities in 4 demonstration projects, whilst within CIVITAS PLUS (2008-2012) 25 cities in 5 demonstration projects are taking part. These demonstration cities all over Europe are funded by the European Commission.

Objectives:

- to promote and implement sustainable, clean and (energy) efficient urban transport measures
- to implement integrated packages of technology and policy measures in the field of energy and transport in 8 categories of measures
- to build up critical mass and markets for innovation

Horizontal projects support the CIVITAS demonstration projects & cities by:

- Cross-site evaluation and Europe wide dissemination in co-operation with the demonstration projects
- The organisation of the annual meeting of CIVITAS Forum members
- Providing the Secretariat for the Political Advisory Committee (PAC)
- Development of policy recommendations for a long-term multiplier effect of CIVITAS

Key elements of CIVITAS

- CIVITAS is co-ordinated by cities: it is a programme “of cities for cities”
- Cities are in the heart of local public private partnerships
- Political commitment is a basic requirement
- Cities are living ‘Laboratories’ for learning and evaluating

1.2 Background ARCHIMEDES

ARCHIMEDES is an integrating project, bringing together 6 European cities to address problems and opportunities for creating environmentally sustainable, safe and energy efficient transport systems in medium sized urban areas.

The objective of ARCHIMEDES is to introduce innovative, integrated and ambitious strategies for clean, energy-efficient, sustainable urban transport to achieve significant impacts in the policy fields of energy, transport, and environmental sustainability. An ambitious blend of policy tools and measures will increase energy-efficiency in transport, provide safer and more convenient travel for all, using a higher share of clean engine technology and fuels, resulting in an enhanced urban environment (including reduced noise and air pollution). Visible and measurable impacts will result from significantly sized measures in specific innovation areas. Demonstrations of innovative transport technologies, policy measures and partnership working, combined with targeted research, will verify the best frameworks, processes and packaging required to successfully transfer the strategies to other cities.

1.3 Participant Cities

The ARCHIMEDES project focuses on activities in specific innovation areas of each city, known as the ARCHIMEDES corridor or zone (depending on shape and geography). These innovation areas extend to the peri-urban fringe and the administrative boundaries of regional authorities and neighbouring administrations.

The two Learning cities, to which experience and best-practice will be transferred, are Monza (Italy) and Ústí nad Labem (Czech Republic). The strategy for the project is to ensure that the tools and measures developed have the widest application throughout Europe, tested via the Learning Cities' activities and interaction with the Lead City partners.

1.3.1 Leading City Innovation Areas

- The four Leading cities in the ARCHIMEDES project are:
- Aalborg (Denmark);
- Brighton & Hove (UK);
- Donostia-San Sebastián (Spain); and
- Iasi (Romania).

Together the Lead Cities in ARCHIMEDES cover different geographic parts of Europe. They have the full support of the relevant political representatives for the project, and are well able to implement the innovative range of demonstration activities.

The Lead Cities are joined in their local projects by a small number of key partners that show a high level of commitment to the project objectives of energy-efficient urban transportation. In all cases the public transport company features as a partner in the proposed project.

2. Aalborg

The City of Aalborg, with extensive experience of European cooperation and having previously participated in CIVITAS I (VIVALDI) as a ‘follower’ city, is coordinating the consortium and ensures high quality management of the project. The City has the regional public transport authority (NT) as a local partner, and framework agreements with various stakeholder organisations.

Aalborg operates in a corridor implementing eight different categories of measures ranging from changing fuels in vehicles to promoting and marketing the use of soft measures. The city of Aalborg has successfully developed similar tools and measures through various initiatives, like the CIVITAS-VIVALDI and MIDAS projects. In ARCHIMEDES, Aalborg aims to build on this work, tackling innovative subjects and combining with what has been learned from other cities in Europe. The result is an increased understanding and experience in order to then share with other Leading cities and Learning cities.

Aalborg has recently expanded its size by the inclusion of neighbouring municipalities outside the peri-urban fringe. The Municipality of Aalborg has a population of some 194,149, and the urban area a population of some 121,540. The ARCHIMEDES corridor runs from the city centre to the eastern urban areas of the municipality and forms an ideal trial area for demonstrating how to deal with traffic and mobility issues in inner urban areas and outskirts of the municipality. University faculties are situated at 3 sites in the corridor (including the main university site). The area covers about 53 square kilometres, which is approximately 5 % of the total area of the municipality of Aalborg. The innovation corridor includes different aspects of transport in the urban environment, including schools, public transport, commuting, goods distribution and traffic safety. The implementation of measures and tools fit into the framework of the urban transport Plan adopted by the Municipality.



Figure 1 The ARCHIMEDES Corridor in Aalborg

3. Background to the Deliverable

The central section of the harbour front in Aalborg is currently under re-development. Within a 1 kilometre section, the old harbour front has been redesigned to accommodate a new city park with more activities, an open-air harbour-bath, more restaurants, an exhibition centre including (among other things) a part of the university, Nordkraft - the new Civic Centre, for multiply cultural activities -, and the new Music House.

To promote this area's new role as an attractive recreational area, and to ensure road safety for vulnerable road users in the area, it is the ambition to manage the traffic more on the terms of the soft road users. To achieve this, a main road separating the city centre and the waterfront has been narrowed from 4 to 2 lanes, to encourage cars to choose the alternative ring road. And as an output of the ARCHIMEDES measure 42, the road Østerbro, at one side of the Nordkraft Civic Centre, has been redesigned and reconstructed as a Shared Space road.

The project area of "Østerbro" is an important cycling route and road for buses. Currently cyclist accidents account for about 30% of the accidents in the ARCHIMEDES corridor, which is above city average. When increasing the number of cyclists – as a result of the reconstruction of the harbour area and as a result of the promotion of cycling in the ARCHIMEDES project, especially via ARCHIMEDES measure 51 the Cycle Motorway, that starts in the new 'Shared Space area' - it is very important to address this problem.

The project area lies in front of a new big cultural hub, Nordkraft, and connects to the pedestrian streets and the waterfront. The new cultural hub is expected to generate a great amount of new traffic in the area; especially pedestrians and cyclists who are expected to use the area. Prior to the redevelopment, the street Østerbro in front of Nordkraft was an uninspiring street with only a very narrow pavement which was not sufficient for the increased volume of pedestrians and cyclists expected to use the area.

This deliverable provides information about the implementation of ARCHIMEDES task 5.1, 'Provision of Smart Modes in Aalborg'.



Figure 2. Østerbro in front of Nordkraft before the redevelopment.

3.1 Summary Description of ARCHIMEDES Task 5.1

In the Østerbro area, which is in front of the cultural hub “Nordkraft”, the city of Aalborg has established a shared space area to provide for soft modes.

The area is shared by cars and cyclists and an area is allocated to pedestrians. Since it is a shared space, the areas are not separated by kerbs but instead marked out by different kinds of pavement. This is done to make motorists aware of other road users and hence lower their speed.

The redesign of the area is expected to contribute to general traffic safety in the area and to ensure a better environment for particularly vulnerable citizens such as the elderly, disabled people and children.

The planning and pre-data collection took place in April and May and involved counting the number of vehicles and cyclists using the street. Before the beginning of the project a meeting was also held with representatives from Tivoli to hear what their plans were for the future, and the project was also discussed in the working group of Nordkraft.

The construction of the shared space area at Østerbro took place from September 2010 to 14th June 2011 and after that, after-data collection and evaluation began. During construction, the residents were kept informed of what was happening through different communication channels.

4. Provision for Soft Modes in Aalborg

4.1 Specification of Provision for Soft Modes in Aalborg

4.1.1 Project Area and Surroundings

The project area is marked in red in Figure 3, and the surrounding areas are outlined in white text.



Figure 3. The redevelopment of Østerbro and Kjellerupsgade is marked with red, whereas the surrounding areas are written in white.

The area is located close to the waterfront and to the west of the area is a pedestrian street. On the northern side of the street is the cultural hub, Nordkraft, and nearby a new city beach will be constructed in autumn 2011. Between Nordkraft and the waterfront a concert house, House of Music, is under construction and is planned to be finished in 2013. On the southern side of the street is the former Tivoli, Karolinelund, which in the future will also be redeveloped. A few hundred metres to the east is a green area, Østre Anlæg, and another redevelopment area, Østre Havn.

The street is approximately 200 metres in length and around 40 metres of Kjellerupsgade has also been reconstructed. The street functions as an important route for cyclists commuting between the City Centre and the University, therefore the street is related to measure 51 “Cycle motorway in Aalborg”. Also two bus lines run along the street.

4.1.2 Specification of the Project

Several features are part of the redevelopment of Østerbro and Kjellerupsgade into a road with provision for soft modes. In general the overall objective of the project is to make the road a shared space area, which means that there is no physical separation between the different modes of transport and no signals. Instead an integrated, people-oriented understanding of public space is strived for. An outline of the road is shown in Figure 4.

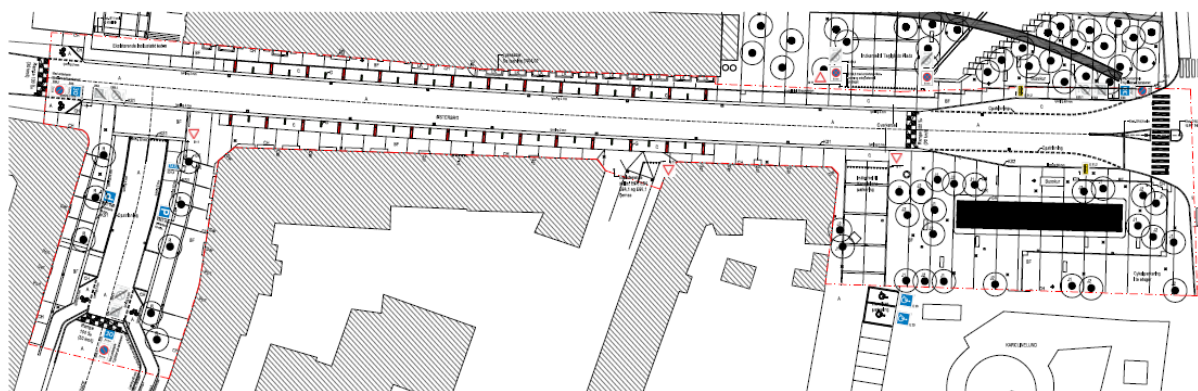


Figure 4. Detailed outline of the area.

The specific features of the project are outlined below:

1. Removal of traffic lights

The traffic lights at the intersection Østerbro/Kjellerupsgade have been removed. This has been done to secure a consistency within the shared space and to ensure that in all parts of the road, the road users have to pay attention to each other. The removal of the traffic lights also secures a good flow of traffic for cyclists and buses driving from east to west, which previously had to stop at the intersection.



Figure 5. 'Before picture' of the removal of traffic lights



Figure 6. 'After picture' of the same intersection

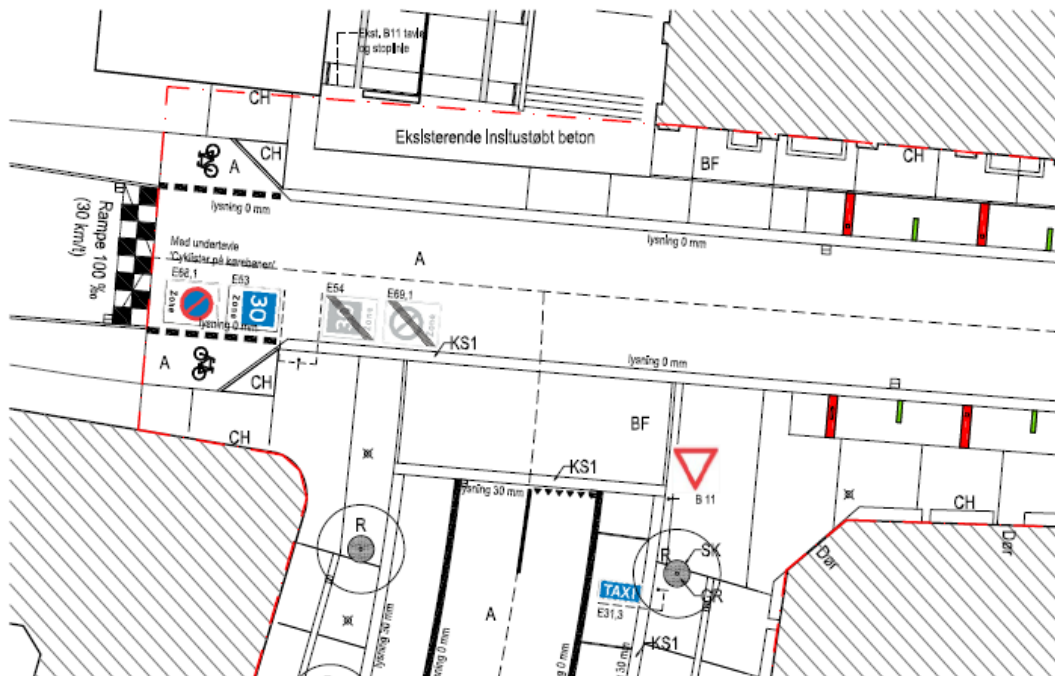


Figure 7. The outline of the intersection after the redevelopment.

2. Road width

The road is designed to be only 6.25 metres wide which is to secure a low speed in the area. The road is not wide enough for cars and buses to overtake cyclists and therefore they have to lower their speed and stay behind them. This should also contribute to the cyclists' traffic safety.



Figure 8. Narrow road profile to secure Shared Space use.

The narrow road also leaves a wider area for pedestrians to use, which provides good facilities for all the pedestrians that are expected to use the area.



Figure 9. The reconstruction allocates a wide area to the pedestrians. The grey area will be colored as indicated in figure 15.

3. 30 km/h zone

In the entire shared space area, the speed limit is 30 km/h whereas in the surrounding areas the speed limit is 50 km/h. This is to heighten traffic safety for the vulnerable road user.



Figure 10. In the Shared Space area speed is limited to 30 km/h and parking of cars is prohibited.

To mark the area and to lower the speed from the west and south entrances the area is provided with a ramp that only makes it comfortable for cars to pass over it at a speed of 30 km/h or less.



Figure 11. The car speed in the area are slowed down by use of ramps

4. Different kinds of pavement

Different kinds of pavement are used to reserve areas for pedestrians, cars and bicycles. Normally in Denmark a kerb is used to separate areas for different modes of transport; a kerb between pedestrians and cyclist areas and a kerb between areas for cyclists and cars. In this area, only two different pavements are used, which means that cyclists and cars have to share the road.



Figure 12. Both the area with pavement tiles and the grey area is dedicated to pedestrians. The grey area will be painted as indicated in figure 15

5. Design

Besides reconstructing Østerbro and Kjellerupsgade, Teglgårdsplads and the area in front of Karolinelund will also be reconstructed and all in the same design to secure consistency. Aalborg also went the extra mile in the planning of details to make the area beautiful and inviting to users of soft modes. Examples of this are that trees will be planted along Kjellerupsgade and that the pavement in some areas consists of seven different kinds of stone.



Figure 13. The pavement consists of seven different kinds of stone.

Coloured lighting bollards, as shown in Figure 14, are placed along Østerbro on both sides of the road.



Figure 14. Bollards with coloured lights all along the shared space

The pavements on both sides on the road are decorated with red and green graphics.

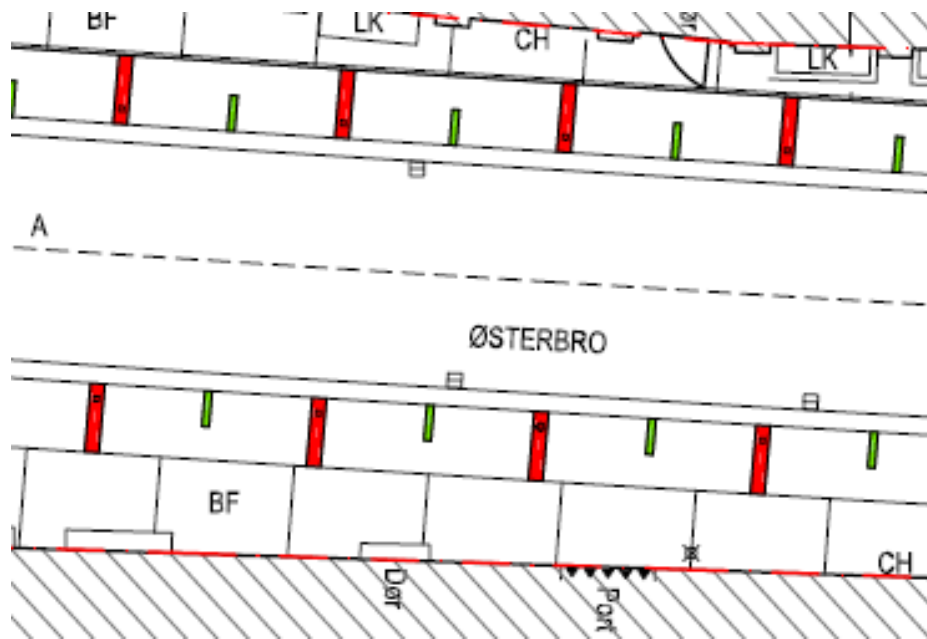


Figure 15 design drawing showing the red and green decoration of the grey part of the pavement. The small dots on the red graphic are lighting bollards. The area marked "BF" is made of seven different kinds of stones. The area marked with "LK" along Nordkraft marks the light shafts.

Another design element in the area is light shafts along the south side of Nordkraft on Østerbro. The light shafts are made from glass and illuminated with light in different colours and are installed in the basement of Nordkraft.

As design landmarks and for the use of both pedestrians and cyclists, clocks have been placed at both ends of the street.



Figure 16 The design landmarks, one of the two watches.

4.2 Description of Work Done

4.2.1 Planning Phase

A company with specialist architect and road safety expertise were chosen to design the redevelopment of the area. The same company is responsible for the redevelopment of Teglårdsplads and the area in front of and behind the Tivoli to achieve a unique and coherent design.

First the landscape architect company made a sketch of the area in dialog with people from the ARCHIMEDES team and from the Project Engineering Department. During this process a range of different ideas were discussed, the principles for the shared space concept were chosen and the speed limit and the physical measures and design were fixed.

In the next phase the company made the detailed drawings for the project and for this part they teamed up with the Danish Consultant company, COWI, as they are experts in traffic

planning. The landscape architect company designed the project in dialogue with COWI and the Project Engineering Department and afterwards COWI made a traffic safety revision to the project. During this period of detailed planning the elements of the project were discussed with the local police and with the bus operators. These discussions secured that the design elements, especially the speed reduction measures, were effective while at the same time still acceptable for car and bus traffic.

After all the planning was complete, the implementation was tendered out. Five companies made an offer and Hirtshals Entreprenør Forretning were chosen to be the constructors.

Knowing the problems the Danish winter can cause for infrastructure work, the implementation schedule in the contracts were setup so all the infrastructure work could be finished before the start of winter, even though the official deadline according to the DoW was set to 14th March 2011.

During the planning phase car speed measurements and counts of vehicles and cyclists was carried out. The counting showed that almost the same amount of cars and cyclists passed through the area. On a weekday 5,499 cyclists used the road and 5,262 cars.

4.2.2 Construction

The construction work began in the middle of August 2010. After a few weeks of construction, two problems became visible. Some existing heating pipes were lying so high in the ground that it was not possible to reuse the existing elevation of the street. So the final surface level had to be raised. In addition, the plan was to lay the new road on top of the old pavement, but due to the quality of the existing substructure this turned out to be impossible. Therefore new level calculations and new plans had to be made and the infrastructure work had to be more comprehensive than originally planned. The result was that the implementation process was rescheduled and instead of the entire project being finished by the end of November it would be finished by the end of December. This also rescheduled the planned opening event but the project would still have been finished within the timeframe of the DoW.

Had the winter been a normal winter, the project would have been finished within the timeframe of the DoW project plan, but in the middle of November the first snow fell and a lasting period of frost started. This put the construction work on hold. Very unusually for Denmark, the frost lasted more or less without pause until March. Even though the continuation of the construction work was attempted more times, the work had to be paused during from the middle of November 2010 to March 2011.

4.2.3 Implementation and Evaluation

By 14th June all construction work was finished and the measure was ready for launch. This is three months late, according to the Dow, but in due time for the summer on the new harbour front. The delay is not critical as the new House of Music is still under construction.

New vehicle and cyclist counts will be carried out in September 2011 and in addition, qualitative questionnaires will be distributed to reveal the users' perception of the area.

4.3 Communication

Before planning the project the City of Aalborg held a meeting with representatives from Tivoli to discuss their plans for the future, and to hear if they had any ideas to add to this project. The project was also discussed in the working group of Nordkraft.

At the beginning of the construction period an information notice was put in the local paper and a short leaflet was distributed to local residents and companies.

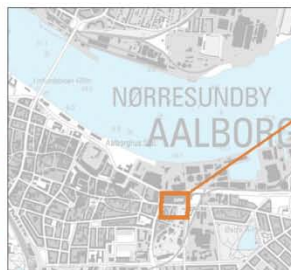
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Spørgsmål og kontakt
Har du spørgsmål til anlægsarbejderne er du velkommen til at kontakte:
Aalborg Kommune
Michael Flørbæk
Tlf. 99 31 23 52
Eier
COVIAS
Thomas Sørensen
Tlf. 99 36 79 28



Infolder

Renoveringen af Østerbro



AUGUST-DECEMBER 2010
Renovering af Østerbro mellem Kjellerupsgade og Karolinelundsvej samt den nordlige del af Kjellerupsgade.



Figur 17 Information leaflet page 1-2

Renoveringen af Østerbro

Nu igangsættes ombygningen af Østerbro ved Nordkraft i Aalborg. Ombygningen omfatter Østerbro på strækningen mellem Kjellerupsgade og Karolinelundsvej samt den nordlige del af Kjellerupsgade nord for Søndergade. Ombygningen medfører, at det relativt smalle kørespor fra Nytorv videreføres, og der etableres brede sidearealer for gående. Nord for Karolinelund etableres et torv med beplantning, hvor der vil være mulighed for ophold.

Anlægsarbejderne gennemføres i perioden fra august til december 2010.



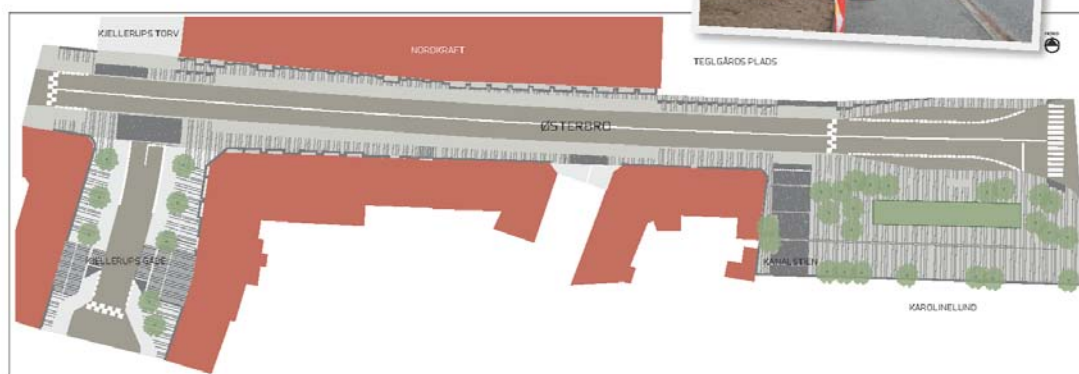
Under arbejdet
Vejbetjening
Under anlægsarbejdet vil strækningen mellem Kjellerupsgade og Karolinelundsvej blive spærret for trafik. Omkørsel bliver via Karolinelundsvej og Kjellerupsgade.

Bustrafik
Bustrafikken opretholdes på strækningen i hele perioden. Stoppestedet ved Karolinelund bliver nedlagt i en periode.

Gående og cyklende
Gående henvises til modsatte

fortov i forhold til arbejdsområdet, og cyklende berørt af anlægsarbejdet henvises til færdsel på kørebanelen.

Vi sikrer i anlægsperioden, at borgere på betryggende vis kan komme til de enkelte ejendomme.



Figur 18 Information leaflet page 3-4

When the digging up began a letter was also sent to the residents.

During the construction period the City of Aalborg received a few enquiries from citizens about the project and the timeframe due to the standstill of the construction caused by the snow and frost, The long period where it was not possible to use Østerbro because of the construction work, was of cause to some irritation for some of the citizens, but when the reasons were explained, there did understand and accept that the work had to await thaw.

4.4 Problems Identified

No risks identified.

4.5 Future Plans

As described above, a lot of redevelopment is taking place in the area generally, and therefore the area is expected to host many cultural activities in the city. The city beach at Teglgårdsplads will be finished by autumn 2011, the House of Music will be finished by 2013 and the redevelopment of Tivoli Karolinelund is also expected to take place within the coming years.

The redevelopment and use of the area will be evaluated in autumn 2011, based on new counting of car and cyclist, new car speed measurements and on measurements of perceived safety.