

*Measure title:* **City Bike Scheme in Aalborg**

*City:* **Aalborg**

*Project:* **Archimedes**

*Measure number:* **52**

---

## **0 Executive Summary**

Creating good facilities for cycling is an important element in any strategy for sustainable transport. With this measure a high class city bike scheme has been implemented in Aalborg as a new cycle transportation option in the city.

The City Bike Scheme is implemented within the ARCHIMEDES corridor. The scheme consisted at the implementation time of 125 City Bikes and 17 City Bikes Stations within the ARCHIMEDES corridor supplemented by 12 City Bikes and two City Bike Stations located outside the ARCHIMEDES corridor. In 2010 and in 2011 the city bike system was expanded with an extra station. In addition, the city bike scheme was in 2010 and 2011 expanded with 70 and 30 extra bikes, which means that the system now consists of more than 200 city bikes distributed on the 21 stations within the city.

As part of the planning process different potential user groups were considered, as different user groups need different cycle types and different type of deposits systems. It was decided to implement a High Class City Bike scheme, - within the limitations set by tamper proofing and economy, - to attract users especially people with a spontaneous need of transport including students and tourists, so the system would be intensively used. At the same time it was the expectation that a high class product, well maintained, would minimize vandalism.

The measure has been evaluated through a qualitative questionnaire and a quantitative count of the bikes. The questionnaire surveys took place in the summer 2011. The survey showed that:

- most users (48 %) were 18-29 years old and many (27 %) were 30-44 years, and nearly half of the users are students.
- more than 70 % of the users of the City Bike Scheme were either users of bicycle or public transportation as the daily mode of transportation,
- more than half of the respondents would have walked if there was no City Bike Scheme, and 5 % would have taken the car,
- 1/3 uses the city bike in a relative long period, 1-3 hours and another 1/3 uses the bike for a short period of time, less than ½ hour.
- 86 % agree that the city bike system contributes to giving the city a green image.
- 95% state that they are either very satisfied or satisfied with the system.

In addition, the experience from previous years show that the disappearance rate is very low – only 11,4 % over 3 seasons. This number shows that nearly all the bikes despite of being lent for longer periods return to the system.

## **A Introduction**

### **A1.1 Objectives**

The measure objectives are:

(A) High level / longer term:

- To increase the number of trips on bicycles and thus improve energy efficiency and public health.

(B) Strategic level:

- To change transport modes towards multimodality including cycling.
- To stimulate the use of bicycles on short trips within the city.
- To attract new users of bicycles

(C) Measure level:

- (1) To raise visibility of cycling.
- (2) To reduce the number of stolen private bicycles.
- (3) To reach two transactions per city bike per day.

### **A1.2 Target groups**

As part of the ARCHIMEDES project 17 city bike stations and 125 bikes were implemented to cover the corridor. During the project the system is expanded to 21 stations and over 200 bikes and mainly financed outside of the ARCHIMEDES budget.

The city bike scheme is especially designed to be used by:

- Visitors in the city: Visitors in the city includes tourists that through the city bike scheme are offered a flexible and green way of exploring the city.
- Students: Students are expected to be a target group of the city bike scheme, since the city bikes offer an easy accessible and flexible transport mode that can be combined with public transport.
- Other groups of people with a casual transport need in the city (commuters etc.). This group has a casual need for transport for shorter trips within the city. This group could include commuters with public transportation that needs transportation for a smaller part of their journey.

## **A2 Description**

The City Bike Scheme is implemented within the ARCHIMEDES corridor. The scheme consisted at the implementation time of 125 City Bikes and 17 City Bikes Stations within the ARCHIMEDES corridor supplemented by 12 City Bikes and two City Bike Stations located outside the ARCHIMEDES corridor.

As part of the planning process different potential user groups were considered, as different user groups need different cycle types and different type of deposits systems.

It was decided to implement a High Class City Bike scheme, - within the limitations set by tamper proofing and economy, - to attract users, so the system would be intensively used. At the same time it was the expectation that a high class product, well maintained, would minimize vandalism.

The size of each City Bike Station was designed according to expected use – from 6 bikes to 20 bikes per station. The bike stand is in modules of 2 bikes, to make this possible and to facilitate an easy adjustment to future need and to urban space.

The City Bike Stations are located in Aalborg and Nørresundby, where the distance between the stations is shorter the closer you get to the city centre, see Figure 1.



**Figure 1: Map showing location of the City Bike stations, 2012 – 21 stations.**

The City Bike stations are located in the ARCHIMEDES corridor near changing points to Public Traffic, educational institutions, tourist attractions and other locations that attract people. The City Bike stations are located at visible places in the streets so the bikes are easy accessible.

In 2010 and in 2011 the city bike system was expanded with an extra station. In addition, the city bike scheme was in 2010 and 2011 expanded with 70 and 30 extra bikes, which means that the system now consists of more than 200 city bikes distributed on the 21 stations within the city.

### **A3 Person in charge for evaluation of this measure**

*Measure title:* **City Bike Scheme in Aalborg**

*City:* **Aalborg**

*Project:* **ARCHIMEDES**

*Measure number:* **52**

Name of person Jens Mogensen

Name of organisation City of Aalborg

Direct telephone +45 9931 2329

e-mail jms-teknik@aalborg.dk

---

## **B Measure implementation**

### **B1 Innovative aspects**

The innovative aspects of the measure are:

- **Development of a city bike scheme in Aalborg - locally** – A city bike scheme has never been set up before in Aalborg. A number of Danish cities have experiences with city bike schemes.
- **Development of a lighter and more comfortable bike - nationally** – The city bikes used in Aalborg are the first ones in Denmark build with an aluminium frame. Together with the equipment the scheme provide a high quality bike that is lighter and more comfortable than the bikes used in city bike schemes in Denmark previously.

### **B2 Planning of Research and Technology Development Tasks**

Not relevant.

### **B3 Situation before CIVITAS**

So far a city bike scheme has never been set up in Aalborg, and this will be a new option in the transport system.

Figures from 2007 show that the modal share of cycling within the Municipality of Aalborg is 15%. National figures have indicated a decrease in cycling across Denmark in recent years and to counteract this trend, several initiatives including the cycle motorway have been implemented within the City of Aalborg during the ARCHIMEDES project period from 2008 to 2012.

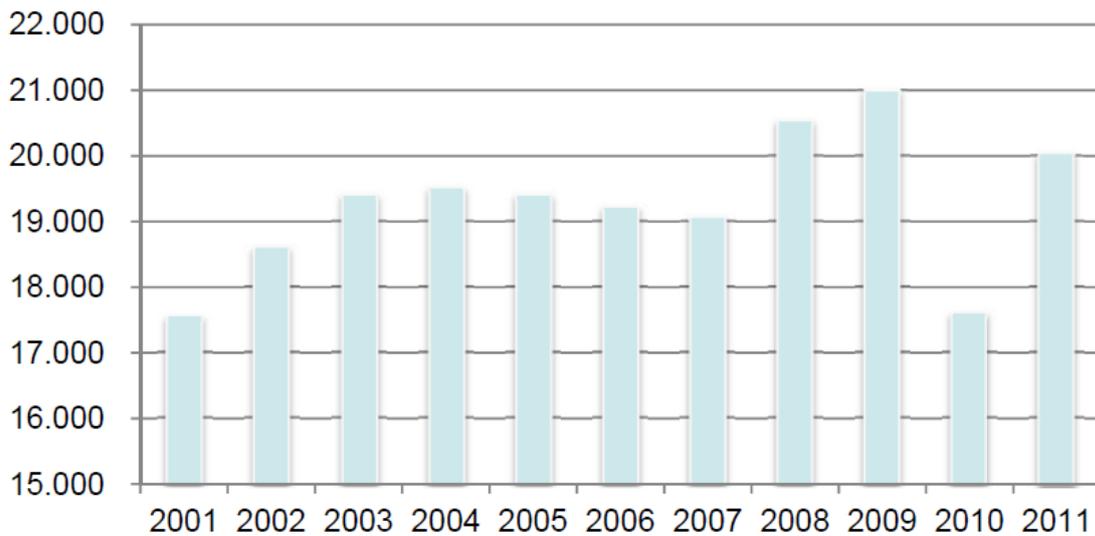
On Figure 2 the development in the number of cyclists in Aalborg the last 10 years can be seen. As it can be seen the tendency from 2003 until 2007 is a decrease in the number of cyclists. The winters in the start of 2010 and 2011, were the coldest for decades and included many months with snow and cold days. The total numbers of cyclist these two years are thus heavily affected by an unusual low number of cyclists in the winter months. Analyses of a randomly selected counting station on the Limfjord bridge, one of the central cycle passages in Aalborg, shows that calculated on the non-winter months the rising trend from 2008 to 2009 continues in 2010 and 2011.

In the table below the bicycle traffic in 2010 and 2011, is compared to the bicycle traffic in 2008.

	Winter (Jan-Feb+Dec)	Spring (Mar-May)	Summer (Jun-Aug)	Autumn (Sep-Nov)
2010	-55%	-8%	+6%	+0,3%
2011	-23%	+1%	+1%	+11%

**Tabel 1 Bicycle Traffic over seasons in 2010 and 2011 compared to 2008.**

When one compares the variations across seasons it can be observed that the decrease in bicycle use in 2010 and 2011 entirely is related to decreases in the bicycle use during the winter months. In the summer and autumn months a slight increase can be observed.



**Figure 2: Development in the number of cyclists in the City of Aalborg the last 10 years. The numbers are based on the average daily number of cyclists on 14 permanent counting stations in Aalborg.**

Recent Danish research on the use of the bicycle has shown that it is especially the shorter commuting trips (< 5 km) that can be changed to bicycle use. Therefore, working with creating good facilities for cyclists on shorter commuter trips in the city is seen as an important focus area.

## **B4 Actual implementation of the measure**

The measure was implemented in the following stages:

**Stage 1: Gathering of experiences from other city bike schemes (15-09-08 – 1-02-09)** – *Gathering of experience from other city bike schemes. The process consisted of looking at cases from other European countries and other Danish cities. As part of this work, meetings with other Danish cities that have experiences with city bike schemes were carried out.*

**Stage 2: Contract with a stakeholder to sponsor the city bike scheme (15-09-08 - 1-04-09)** – *A new form for image based sponsorship with no commercials on the wheel discs has been developed.*

**Stage 3: Planning of the scheme (1-02-09-1-07-09):** *This stage includes localisation of the stations, design of the bike and stands, and agreement with a company concerning operation of the city bike scheme.*

**Bike:** *It was decided to go for a relatively strong and tamperproof bicycle as the city centre can be a tough environment. But at the same time we wanted to offer a lighter City Bike than usually seen, and a bicycle with more equipment than usually.*

*As we didn't want to invent a City Bike from scratch but wanted the bicycle to be built on the experiences from other City Bike systems, the contract for bicycles was placed at an experienced City Bike supplier.*

*As the first City Bike in Denmark the Aalborg bike was build with an aluminium frame as opposed to the usual iron frame. This reduced the weight of the frame by 3-4 kg. The bicycle was equipped with 3 gears, 2 brakes, lights and a handlebar basket. Additionally a decision was made to go for spoke wheels rather than plate wheels. Taken together this made it a light, comfortable and secure cycle.*

Measure title: **City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

**Bicycle Stands:** For the bike stations a new stand has been designed. The stand was designed according to traditional Nordic design traditions in stainless steel, and the design incorporates experiences from Copenhagen and Aarhus, especially concerning size and dimensions of material.

The stand is a module with room for two bikes. The top of stand shows the City Bike logo to avoid mix-up with ordinary bike stands. On a version of the stand the logo part is increased in height and supplemented with the text 'City Bikes' to form a pylon.

Each City Bike station is composed of one of the high pylons to make the station visible in the street supplemented with two or more of the stands in normal height.

**Deposit system:** In order to motivate users to return the cycle to the stations the cycle is locked to the stand with a coin lock, and can be released by the deposit of a 20 DKK coin. The coin is returned when the cycle is returned to any of the City Bike stations.

**Stage 4: Planning of the launching event (15-03-09-1-07-09):** Planning of a launching event. The event was intended to generate attention to the scheme and cycling in general.

At the 4<sup>th</sup> of July 2009 a big event was held to welcome the City Bikes to Aalborg. At the same time the event was used as a dissemination event for ARCHIMEDES where the project and key measures were presented. The event can be seen as one of the initiatives trying to create ownership to the scheme among the citizens. Pictures from the event can be seen on Figure 3.



**Figure 3:** Pictures from the launching event in July 2009.

Measure title: **City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

**Stage 5: Operation and monitoring (4-07-09 – 15-09-12):** *The city bikes are in operation in the summer months (April-October). During the period continuously collection of user statistic, maintenance statistic and evaluation results have been collected. In summer 2011 a survey focussing on the use of the bikes and the acceptance of the scheme was conducted.*

*The focus at securing a high level of ownership to the scheme among citizens has been a focus area during the operation of the scheme. In all media we have tried to focus on three messages:*

- *“The City Bikes belong to all of us – please take good care of them so they are ready for use next time.”*
- *“Remember that you have to return the bike to a City Bike Station after use”.*
- *“Tell us if you know of a lost City Bike. We will fetch it so it’s ready for your use next time you need a City Bike.”*

## **B5 Inter-relationships with other measures**

The measure is related to other measures as follows:

- **Measure 1** – Clean Fuelled Tourism Shuttle Bus: Both measures have tourist as a main target group. The city bike stations and the stops of the shuttle bus are located in proximity to each other.
  - **Measure 51** – Cycle Motorway in Aalborg: Provision of a cycle motorway connecting the city centre with the university area will provide an improvement of the cycling facilities within the corridor. City bike stations are located in the city centre and in the university area as well, servicing the travellers within the corridor.
  - **Measure 58** - City bike scheme in Donostia: Measure 52 can be related to a similar measure in Donostia.
  - **Measures 59, 60, and 62:** Measure 52 can also be related to with other measures from different cities promoting bicycles as a greener mean of transportation.
-

Measure title:

City Bike Scheme in Aalborg

City: Aalborg

Project: ARCHIMEDES

Measure number: 52

## C Planning of Impact evaluation

### C1 Measurement methodology

#### C1.1 Impacts and indicators

##### C1.1.0 Scope of the impact

The high level/longer term objective of the city bike scheme is to increase the number of trips made on bicycles and thereby, improve energy efficiency and public health. By looking at the use of the bike and the acceptance of the bike it will be indicated whether the bikes contribute to achieving these goals.

On the measure level, the measure is expected to have a positive effect on the number of stolen private bicycles. Therefore, an indicator will be police records on bicycle theft levels.

Furthermore, the measure is expected to have a positive impact on the image of the city and bicycle as a mode of transportation. These changes are expected to be captured by having image value and acceptance as indicators.

##### C1.1.1 Selection of indicators

NO.	EVALUATION CATEGORY	EVALUATION SUB-CATEGORY	IMPACT	INDICATOR	DESCRIPTION	DATA /UNITS
	<b>ECONOMY</b>					
		<b>Benefits</b>	Sponsor money raised	Amount of money	The scheme is sponsored and the amount of sponsor money will be collected.	Euros, quantitative, collected
2a		<b>Costs</b>	Operating Costs	Operating costs	Costs per pkm	Euros/pkm, quantitative, derived or measurement
2b			<b>Capital Costs</b>	<b>Capital costs</b>	<b>NEW!</b>	<b>NEW!</b>

Measure title:

**City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

NO.	EVALUATION CATEGORY	EVALUATION SUB-CATEGORY	IMPACT	INDICATOR	DESCRIPTION	DATA /UNITS
			Operation	Operation statistics	Service log for each bike. The service log will give an indicator of the expenses for servicing the bikes and an indicator of the durability of the equipment.	Service intervals and repairs, quantitative, collected
	<b>SOCIETY</b>					
14		<b>Acceptance</b>	Acceptance	Acceptance level	Attitude survey of current acceptance of the measure	Index (%), qualitative, collected, survey
			Bicycle theft	Bicycle theft level	Number of stolen private bikes.	No., quantitative, collected.
	<b>TRANSPORT</b>					
			Bike use	Average use of bikes	Number of transactions per city bike per day.	No., quantitative, collected.
				Vehicle kilometres	Number of vehicle kilometres per city bike per day.	No., quantitative, collected/survey
20		<b>Safety</b>	Transport Safety	Injuries and deaths caused by transport accidents	Number of accidents, fatalities and casualties caused by transport accidents	No, Quantitative, measurement

Measure title:

**City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

### C1.1.2 Methods for evaluation of indicators

No.	INDICATOR	TARGET VALUE	Source of data and methods	Frequency of Data Collection
	Image value		The image value of the city bike scheme for the city in general will be estimated. The estimate will be made in co-operation with the city's trade association.	1 time after implementation of the measure
2a	Operating costs		Operator will keep service and repair logs for each bike.	From M10 and onwards
	Operation statistics		Service logs collected by the operator. Logs are proposed to be kept for each bike to make sure an accurate overview of the service and maintenance is achieved.	From M10 and onwards – on a daily basis.
14	Acceptance level		<p>Attitude survey conducted to reveal the attitude towards the city bike scheme among the citizens and the users of the bikes in the autumn of 2010. The following general issues are expected to be addressed:</p> <ul style="list-style-type: none"> <li>- The use of the bikes (How are the bikes used? Who uses the bikes?)</li> <li>- For what purposes are the bikes used? (Which kinds of trips are the city bikes used for? Which mode of transportation would be used if the city bikes were not used?)</li> </ul> <p>The survey also provides input in relation to vehicle kilometres performed (see below). The survey was conducted as a stop survey at the city bike stations revealing user perception and attitude towards the city bike scheme including the use of the bikes. Depending on the use the specific day each interviewer was expected to be able to track 20-30 city bike users. The targeted sample size ended up being 60 respondents.</p>	1 time after implementation of the measure
	Bicycle theft level	Decrease in number of stolen private bikes.	Police records on the number of stolen private bikes. The police already keep records on bikes reported stolen by private people. In addition to being compared to the baseline situation data collected in the winter half year will be compared to data collected in the summer half year (where the bikes will be on the streets) to investigate the schemes impact on the bicycle	2 times.
	Average use of bikes	2 transactions per bike pr. day.	Manually conducted counts at the stations at specific times/days. On specific dates the bikes will be registered at the stations in order to register the flow of the bikes.	2 time in a specific period.
	Vehicle kilometres		The data could be collected by conducting counts at the stations at specific times/days.	1 time in a specific period.

Measure title: **City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

### **C1.1.3 Planning of before and after data collection**

<b>EVALUATION TASK</b>	<b>INDICATORS INVOLVED</b>	<b>COMPLETED BY (DATE)</b>	<b>RESPONSIBLE ORGANISATION AND PERSON</b>
Inquire the police about access to the statistics and explore the possibilities to extract on city/corridor level.	Bicycle theft level	May 2009. (Data collected onwards)	Jens Mogensen, City of Aalborg
Operator develops a service log for each bike and ensures the logs are being kept.	Operation, Operating cost	M10 and onwards	Operator
Design and conduction of a survey focussing on the acceptance of the bikes and the use of the bikes.	14 Acceptance level, average use of bikes, vehicle kilometres	Summer 2010	Jens Mogensen, City of Aalborg
Inquire the police about the possibilities registration of accidents with city bikes involved.	20 Injuries and deaths caused by transport accidents	May 2009. (Data collected onwards)	Jens Mogensen, City of Aalborg
Collect data on capital costs.	Capital cost	M10.	Jens Mogensen, City of Aalborg
D12.2 Baseline and first results from data collection	All indicators	Month 34	
D12.3 Draft results template available	All indicators	Month 37	
D12.4 Final version of results template available	All indicators	Month 39	

## **C1.2 Establishing a baseline**

Baseline data is based on historic cyclist counts, data on modal split and bicycle thefts. Aalborg has never had a city bike scheme before, and, therefore, there is no before data for the indicators linked directly to the city bike scheme.

## **C1.3 Method for Business as usual scenario (For Evaluation Focus measures and where possible also for non focus measures)**

Business as usual includes not establishing the city bike scheme. Baseline data and historical data constitute the basis for the business of usual scenario.

The City of Aalborg has historic cyclist counts and data on modal split. These data have been used to describe how the development would have been without the city bike scheme. Especially the use of bikes on shorter trips within the city centre has been analysed. Similarly historic data on bicycle theft level have been used to establish the baseline data.

## **C1.4 Methods for Cost-Benefit Analysis**

### **Appraisal case, relevant alternatives and base line case**

The project includes as described in B4 introduction of 200 city bikes placed at 21 stations. The business as usual case would result that no scheme was introduced.

A relevant alternative would be to expand the scheme with more bikes to cover a larger part of the city.

### **Project life**

The project life time is expected to be 6 years. This number of years is expected based on the durability of the bicycles. Experiences from other Danish city bike schemes show that well maintained bikes are expected to last at least six years. The aluminium frame is never tested before in Denmark, but the expectation is that it will not result in reduced service life.

### **Main parties affected**

Agent	Implications
Users of the bikes	With the city bike scheme the users will get a new opportunity to use bikes in the city. Thereby, the city bike scheme is expected to have positive health benefits for the users of the bikes. Furthermore, the possibility to use the city bikes is also believed to constitute a recreational value for the individual users. Depending on which mode of transport the users would have used instead of the city bikes the project will result in either time savings or time costs.
Local authority	The local authority is responsible for the implementation and the maintenance of the system. Therefore, the local authority will be responsible for the capital and operation costs. Furthermore, the local authority receives the sponsorship.
Rest of society	The provision of a city bike scheme is expected to have a positive impact on the bicycle theft level. In addition, the city bike scheme is expected to have a value in relation the cities image. The city bike scheme is of importance both for tourists visiting the city and people doing shopping in the city centre.

### **Key impacts of the project**

The key impacts of the project are:

- Capital costs
- Image value
- Operating costs
- Bicycle theft level
- Vehicle kilometres/Time cost/savings.
- Health benefits
- Recreational benefits
- Emission reduction

Some of the key impacts listed above are soft values like for instance image value and recreational benefits. The Guidelines from SA POINTER will be followed in relation to the monetarisation. It is not expected to be possible to include these factors in terms of monetarisation, but they will be listed as important factors related to this measure.

**Main parties affected by the project**

<b>Agents</b>	<b>Costs<sup>1</sup></b>	<b>Benefits</b>
Users of the bikes	Time costs	Health benefits Recreational benefits Time savings
Local Authority	Capital Costs Operating Costs	Additional revenue from sponsorship
Rest of society		Image value Bicycle theft level Emission reduction

**C2 Measure results**

**C2.1 Economy**

A contract has been signed with a private company for the maintenance and operation of the City Bike Scheme. This includes daily inspection and cleaning of the City Bike stations. Inspection and repair of minor errors on the bikes in the stations, repair of major errors on repair shop within 72 hours, and redistribution of cycles between stations once a day. In the winter all bicycles go through a major maintenance check.

---

<sup>1</sup> Tax loses will not be included in this Cost Benefit Analysis.

Again, it has been the stipulation that a high class well maintained system will lead to more use and less vandalism.

Often City Bike schemes are partly financed by advertising on the bikes – usually on plate wheels. Although co-financing from advertising is often a prerequisite for having a City Bike Scheme at all, heavy use of advertising on the bikes and use of plate wheels undermines the image of a high class system. In addition, plate wheels make the bike heavy and uncomfortable to drive.

In Aalborg we have been able to sign one major – and long-term - sponsor contract with the Power Supplier, saying that the company will not have commercials on the wheels but instead have its images connected to the City Bike system and the company logo on the frame of the bikes. In this way it is possible to avoid the plate wheels and to keep the high class image.

The cost related to the scheme is described in detail in section C2.6, and summarised in the table below. Regarding image value of the scheme Aalborg's image as an environmental contious city is improved with this measure, which might increase it's population's feeling of pride and it's satisfaction with it's local government. As the survey also revealed (see section C2.5) the city bike system is seen as an element in giving the city a green image. Furthermore, it might increase, or be a prerequisite for, the migration of people, companies and students in Aalborg. These impacts are not easily quantified, but should none the less be taken into account when evaluating the success of the measure.

**Table C2.1.1: Summary of evaluation results in terms of economy**

Indicator	Before (date)	B-a-U (date)	After (date)	Difference: After – Before	Difference: After – B-a-U
Image value	N/A	N/A	Improved. 86 % of the users agree that the city bike system contributes to giving the city a green image. (see section C2.5)		
Operating costs	N/A	N/A	€136.000/year		
Operation statistics	N/A	N/A	A contract has been signed with a private company for the maintenance and operation. This includes daily inspection and cleaning of the stations. Inspection and repair of minor errors on the bikes in the stations, repair of major errors on repair shop within 72 hours, and redistribution of cycles between stations once a day. In the winter all bicycles go through a major maintenance check.		

## C2.4 Transport

The City Bike scheme was implemented with the beginning of third quarter 2009 and here the police experienced a large fall in bicycle theft. As it can be seen on Figure 4 the average for the 2.5 years before the implementation was 650 stolen bicycles pr. quarter, but for the 2 years following the implementation this number has decreased to 530 stolen bicycles per quarter.

When comparing the tendency lines for before implementing the city bikes with after, a shift in theft level is clear. When comparing these numbers to the tendency for the whole Denmark two factors can be observed. There is no similar shift in level in the national figures, but a new falling tendency is noticed. This falling tendency can not be seen in Aalborg probably due to effect of the level-shift.

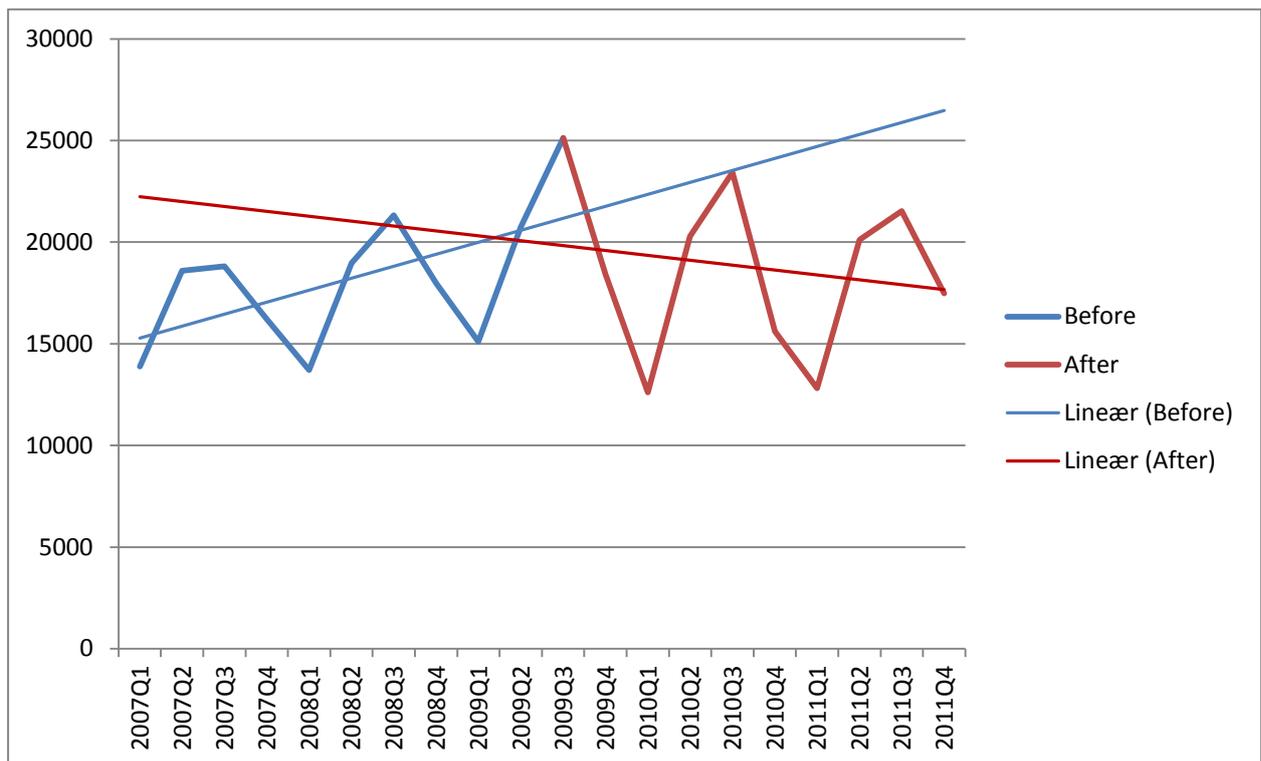
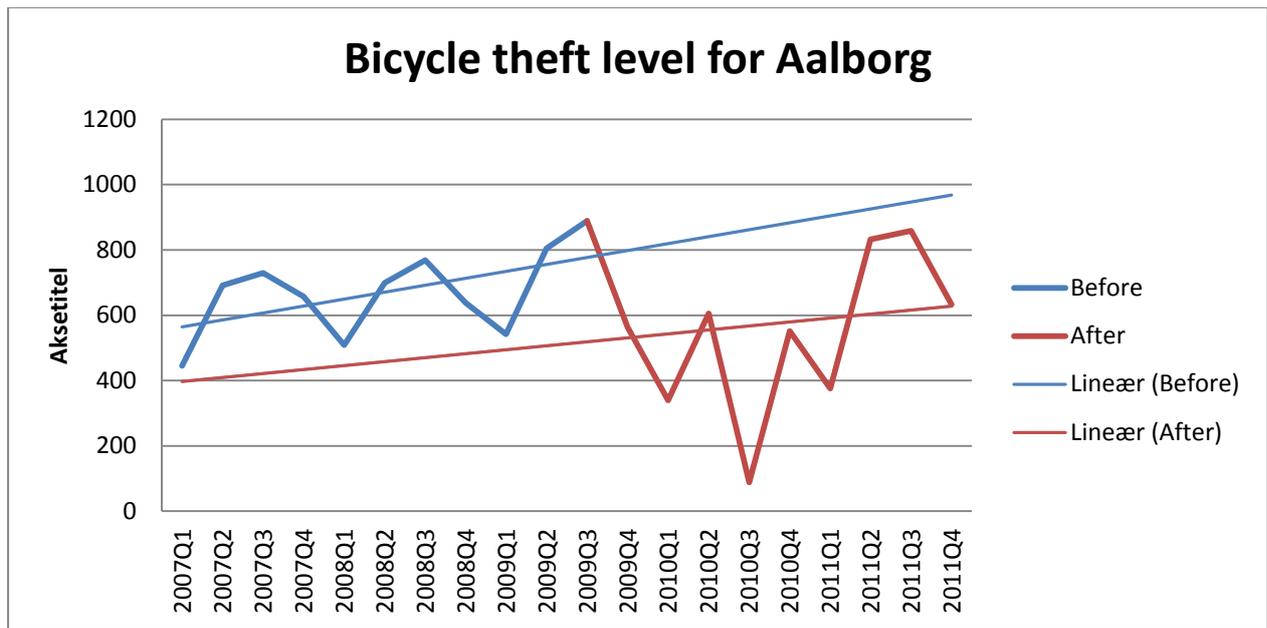


Figure 4: Bicycle theft levels with tendency lines for Aalborg and Denmark from 2007 to 2011.

Looking at the modal split the share of bicycle has fallen since the implementation of the City Bike scheme in Aalborg from 2007 to 2010. It is not much and is probably caused by the weather described above. In 2007 the average temperature was 9.5 degrees and in 2010 it was 7.0 degrees.

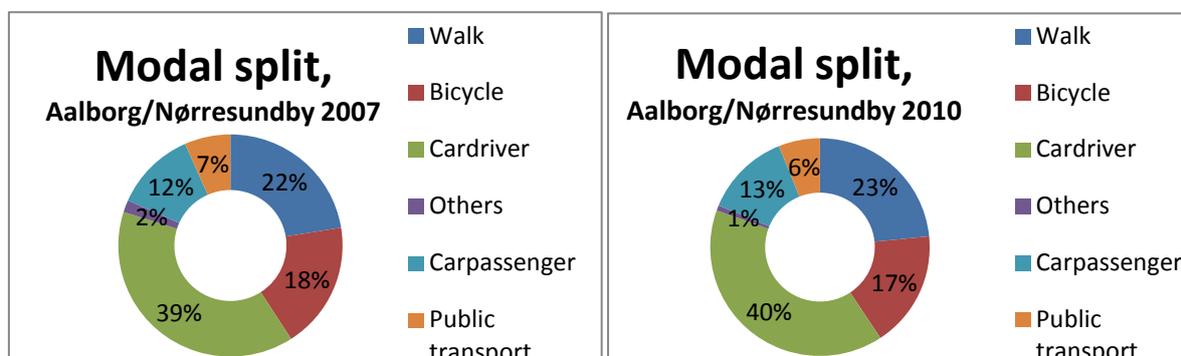


Figure 5: Modal split in Aalborg/Nørresundby in 2007 and 2010.<sup>2</sup>

Compared to the general development in the number of cyclist/moped drivers in Aalborg the tendency during winter 2010 and 2011 has been a drop in the number of cyclist due to very cold winters (see section B3). However, as described in section B3 2010 and 2011 are extreme situations that do not reflect the general development in bicycle use in Aalborg. The tendency from 2003-2007 was a drop in the number of cyclists and therefore it is assumed that the business as usual scenario would include a decreasing level of cyclists.

Table C2.4.1: Transport

Indicator	Before (date)	B-a-U (date)	After (date)	Difference: After – Before	Difference: After – B-a-U
Bicycle theft level	Average from 2007-2008K2: 650	The same level	Average from 2008K3_2011K: 530	-120	-120
Average use of bikes	18.5 % of trips made, is made on bicycle (2007)	Falling based on the countings in Aalborg between 2003-2007) before.	17 % of trips made, is made on bicycle (2010)	-1.5 % point	
Vehicle kilometers	N/A	N/A	(See section 2.5 below) 1/3 of the trips are between 1-2 km, while 26% of the trips constitutes of longer trips between 5-6 km.  In 2009 a registration		

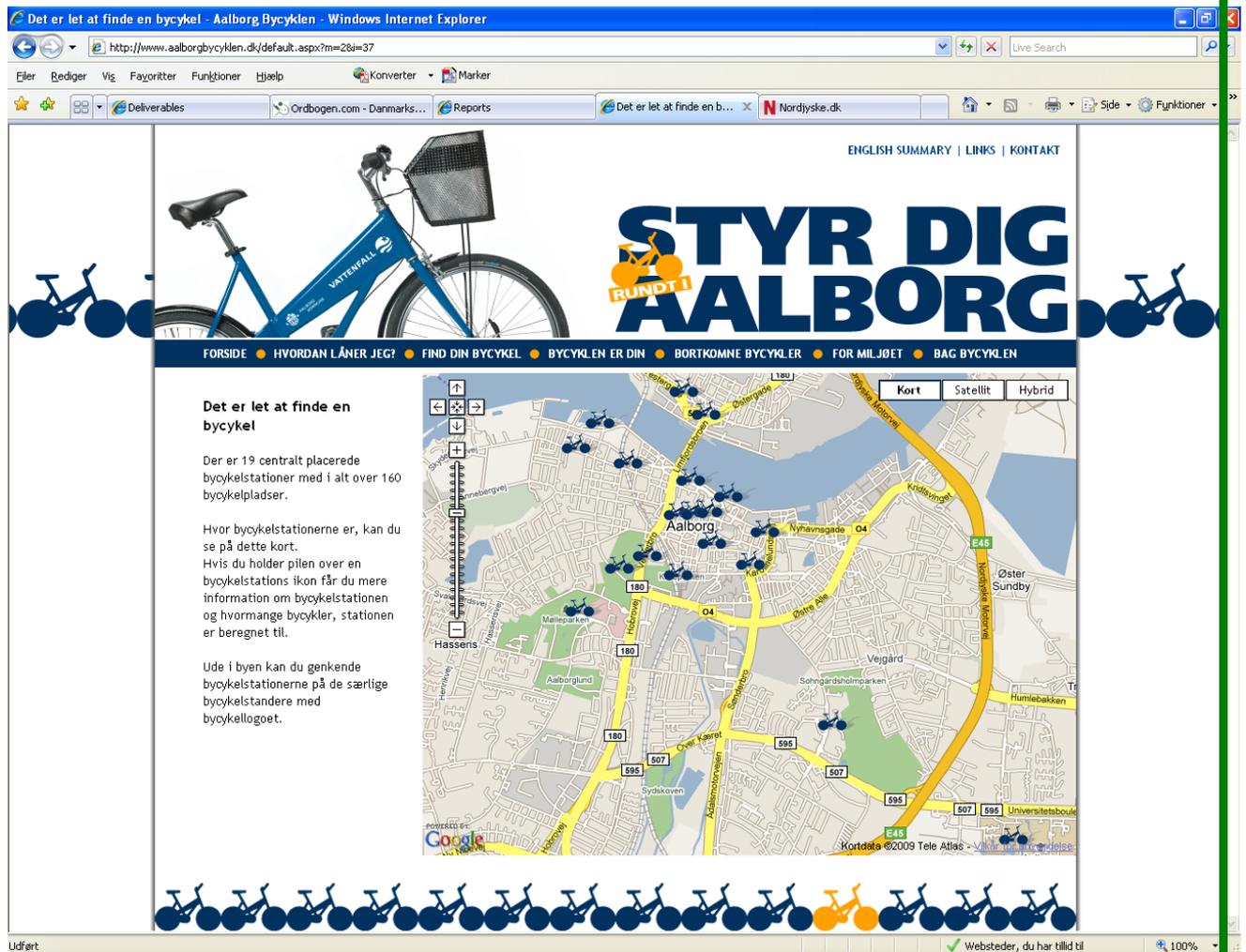
<sup>2</sup> The Modal split data is obtain through tu-data that is a national wide survey on travel habits that is completed every year and where it is possible to extract statistically secure results on modal split on city level. For more information visit: <http://www.dtu.dk/centre/Modelcenter/TU/Hvad%20er%20TU,-q-,.aspx>

			showed that the bikes were used at least 1,2 times/day. In 2012 this number was 1,4		
--	--	--	---	--	--

### C2.5 Society

The City Bike scheme has been the one measure attracting most public attention from press and citizens in Aalborg. Throughout the planning process, during implementation and in the operating period there has been intense press coverage in the papers and on TV and radio.

To have two more channels of communication to the citizens and to the users, the project launched the City Bike home page [www.AalborgBycyklen.dk](http://www.AalborgBycyklen.dk), with among other functions, a Google Map function for finding the City Bike stations - and founded the Facebook group “[Aalborg Bycyklen / Aalborg City Bikes](#)”. A screen shot from the homepage can be seen on Figur 6



Figur 6: Screen shot from the homepage of the city bike. The picture shows the page where a map with the location of the stations is presented.

A potential problem in City Bike schemes is users not being able to use the system because of empty City Bike stations due to users not returning the bikes. The deposit system is intended for minimising this problem. But in spite of this some bikes are left in parks or bike sheds. It is a part of the operation contract that the company collects these bikes every day.

Motivating citizens to report 'lost bikes' is an important task, and to make reporting easy there is a reporting formulary on the City Bike home page (see Figure 7), a SMS short number services and an automatic telephone answering service.

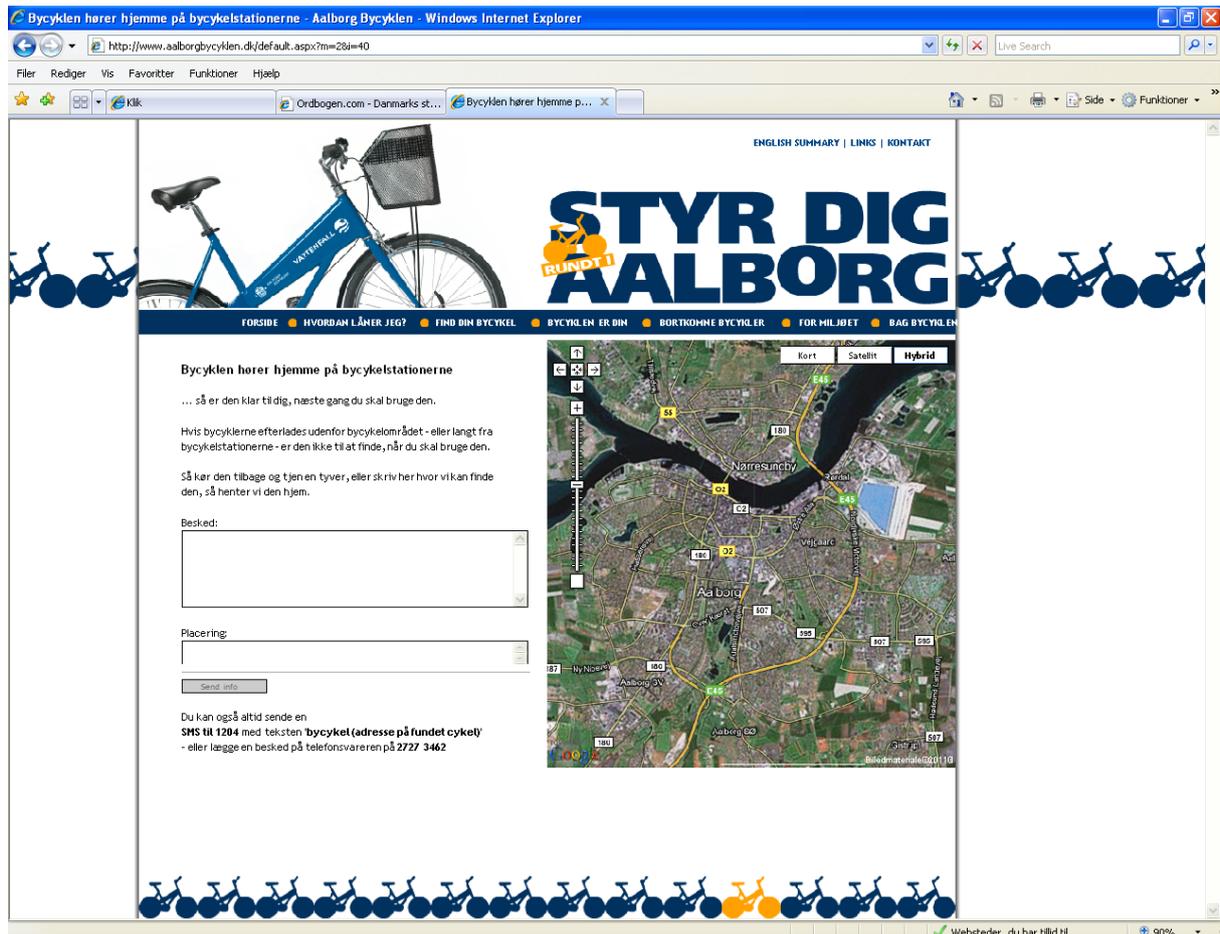


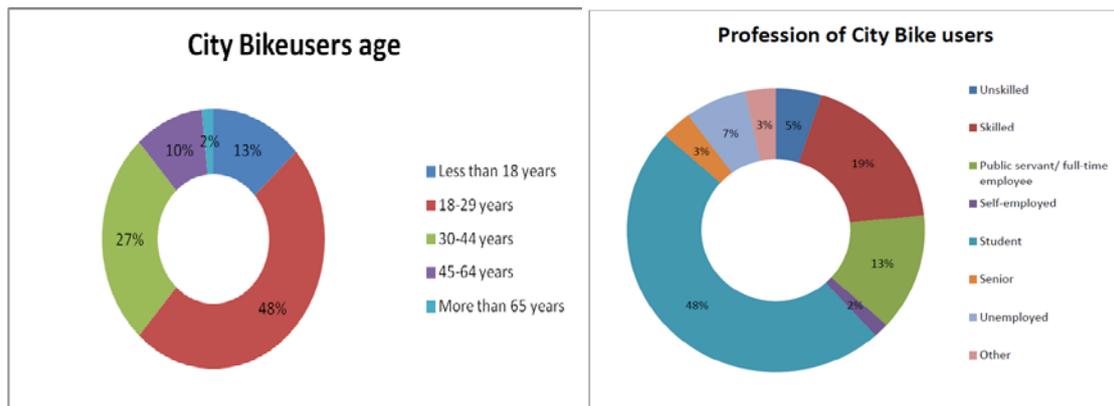
Figure 7: Screen shot from the homepage where 'lost bikes' can be reported.

As part of the opening event a video was taken and a short version were produced and uploaded to Youtube. [http://www.youtube.com/watch?v=zaAAO0nE0\\_g](http://www.youtube.com/watch?v=zaAAO0nE0_g)

The movie was integrated as a newsflash on [www.AalborgBycyklen.dk](http://www.AalborgBycyklen.dk) and on the Facebook group to create a feeling of sense of community between the City Bike users.

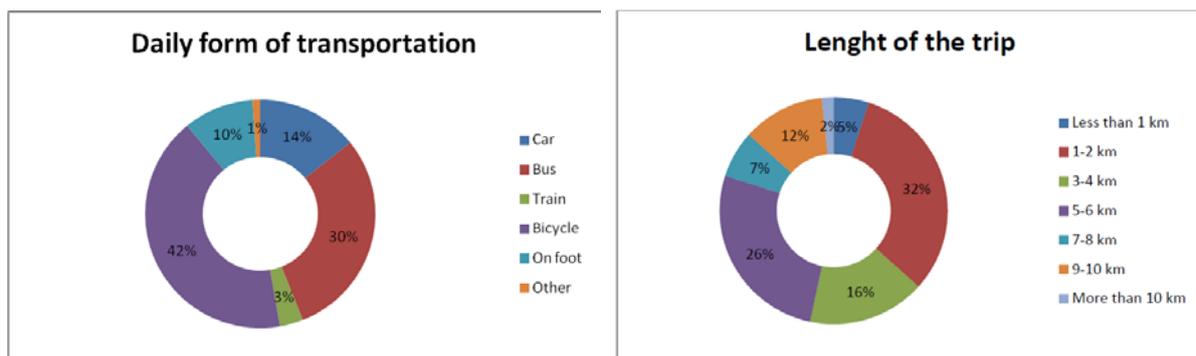
### Questionnaire to outline the use of the bikes.

In June 2010 a questionnaire was made to outline the use of the bikes, who are the users, what are the purposes, which kinds of trips are the city bikes used for etc. Results from the questionnaire are presented below:



**Figure 8: The city bike users age and profession.**

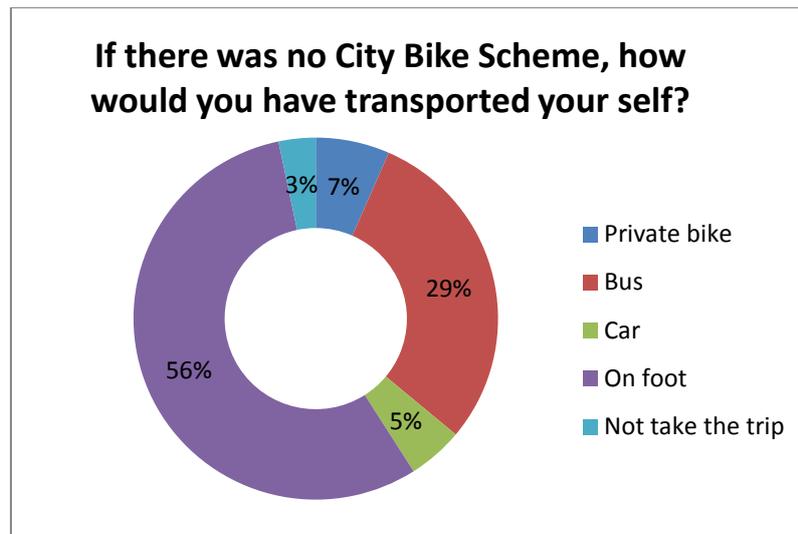
One of the target groups were students age 18-29, and as the graph indicates this age group constitute nearly half of the group answering the questions as shown on Figure 8. The question about profession also reveals that nearly half of the users are students, while skilled and public servants/ full-time employee constitute another third. Nearly ¼ of the interviews were conducted in English with foreign people visiting the city. This also reflects that the system is popular among tourists.



**Figure 9: The city bike users normal daily form of transportation and the lengths of the trips on the city bikes.**

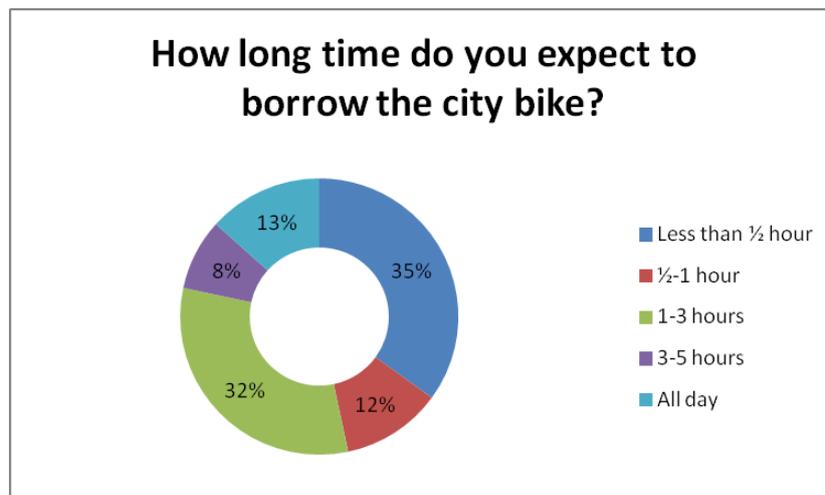
Users were asked what their daily form of transportation was, and more than 70 % are daily users of public transportation or bicycle. The lengths of the trips are for nearly 1/3 of the trips short between 1 and 2 km. However, 26% of the trips are between 5 and 6 km. Looking at the longer trips there seems to be a tendency that tourists are overrepresented within the group making the longer trips. This confirms that the intention of making a city bike scheme suitable for citizens in need of a mode of transportation on the shorter spontaneous trips within the city centre and for tourists for longer trips has succeeded.

Users of the City Bike Scheme were also asked how they would have transported them self if there was no City Bike Scheme.



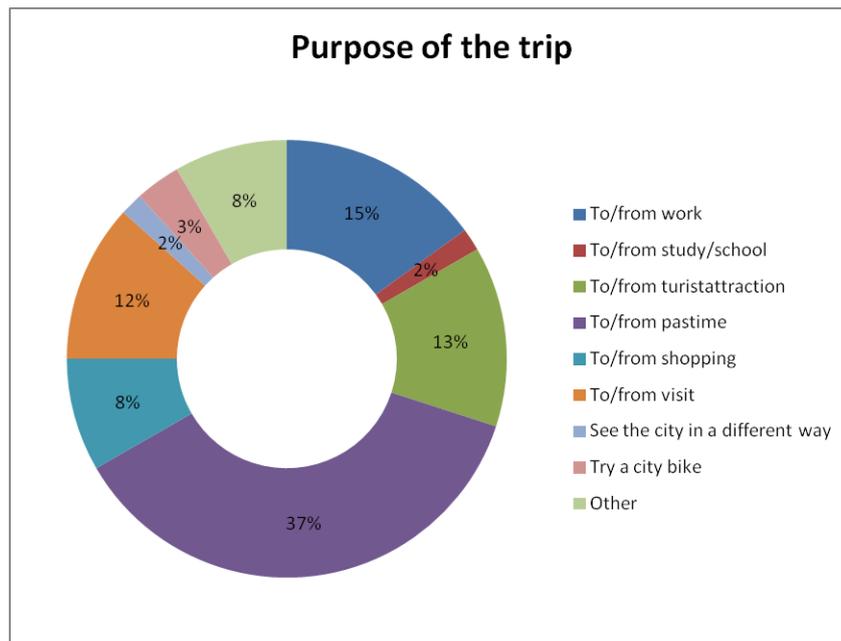
**Figure 10: Alternative mode of transport if the city bike scheme did not exist.**

As illustrated on Figure 10 more than half of the respondents would have walked if there was no City Bike Scheme, and 5 % would have taken the car. Nearly 1/3 stated that they would have taken the bus if there had been no City Bike Scheme. This again, indicates that the city bike is used for spontaneous trips in the city centre where the alternative would have been to walk or take the bus.



**Figure 11: Expected time the users plan to borrow the city bike.**

1/3 uses the city bike in a relative long period, 1-3 hours and another 1/3 uses the bike for a short period of time, less than 1/2 hour.



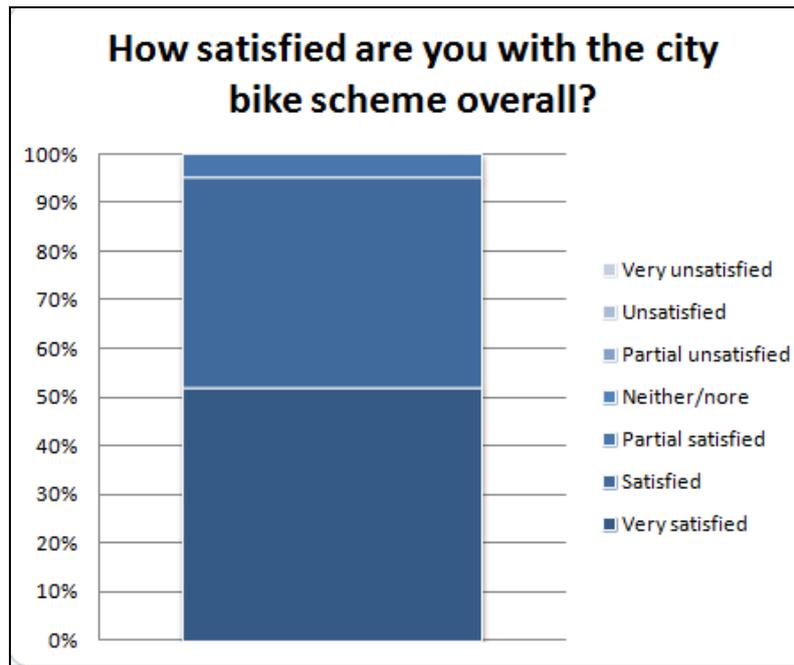
**Figure 12: Purposes of the trips on the city bikes.**

One of the target groups was students, but as it can be seen in Figure 12, the students are not using the bikes to the daily commuting but rather to different kind of spontaneous leisure trips. This tendency is enlarged by the fact that the survey was carried out during June where it is reading period for a lot of the students. In accordance with the findings above, it can be concluded that the group still constitutes a major part of the user group, but does not use the bikes to go to school, especially not during this time of the year.

### **Perception of the city bike scheme**

The survey also included questions about the users' perception of the city bike scheme. These questions were asked to reveal whether the city bike system are perceived as valuable for the citizens and the tourists, and overall to obtain knowledge on the acceptance of the system.

Overall, the general satisfaction with the city bike scheme is seen in Figure 13. As it can be seen on the figure all of the interview state that they in general are satisfied with the city bike scheme. In fact 95% state that they are either Very Satisfied or Satisfied with the system. This general satisfaction with the system reflects that the system is well working and that the users are positive towards the system.



**Figure 13: The overall satisfaction with the city bike scheme.**

When asked about whether the users believe that the free city bike system is a good offer for the users 96% agree. The users have also been asked about whether the city bike system contributes to giving the city a green image and 86 % agree with this statement. In addition, 70% state that it for them is important that the city bikes contribute to the city’s image as a green image.

The overall satisfaction with the system and the users’ believe that the city bike system is an important element in giving the city a green image indicates that the city bike system has a value in terms of creating the environmental friendly city and also in terms of branding value. As a green image is very important for the city and for the political level in the city, these statements reflects that even though it is not possible to monetarise and use these aspects in a cost-benefit analysis they are important positive effects of implementing a city bike scheme that should be taken into account when a city considers to implement a city bike scheme.

**Table C2.5.1: Summary of evaluation results in terms of society**

Indicator	Before (date)	B-a-U (date)	After (date)	Difference: After – Before	Difference : After – B-a-U
Acceptance level	N/A	N/A	<p>Nearly half of the users of the city bike system are between 18-29 years old.</p> <p>During June a trip on the City Bikes typically takes place to/from pastime activities (37% of the trips) or to/from work (15% of the trips).</p> <p>If there was no City Bike Scheme half of the users would have walked instead.</p>		

Measure title: **City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

			1/3 of the trips are between 1-2 km, while 26% of the trips constitutes of longer trips between 5-6 km.		
			86 % agree that the city bike system contributes to giving the city a green image.		
			95% state that they are either very satisfied or satisfied with the system.		

As the results indicate, the users of the City Bike Scheme in the summer 2010 were, to a large extent, visitors or tourists. In order to gather results based on answers from the students an additional survey was conducted in the spring 2012 (Wednesday, May 2nd). The methodology was the same as the 2010 questionnaire survey. However, even though the weather was warm and sunny, the interviewers only managed to hit a few city bikes being collected from the stations where the interviewers were on the particular day. Hence, only a few interviews were completed which is not satisfactory for analysing the results statistically. The low amount of completed interviews indicates a low exchange rate at even the busiest stations, during the interviews. The week day, the time of the day (12:00-18:00) and coincidence may have influenced the results. Another explanation behind the unsuccessful survey could be that the weather was too good and the users of the bikes therefore used the bikes for longer trips around the city.

### **Counting the unique city bikes at the stations and mapping the movements**

The questionnaires in 2010 and the 2012 were supplemented with quantitative counts of the bikes at the stations each week and a mapping of the bikes movements in two investigations in 2009 and 2012.

#### *2009*

The results of the counting, which took place in 4 different time windows during the day, show that 53 of the bikes were being registered at some time at a station. There were at least 63 trips on the registered bikes. This corresponds to at least 1.2 trips pr. registered bike.

<b>2009: Times for bike count</b>
7:30-8:30
10:00-11:00
13:00-14:00
17:00-18:00

However, at 7:30 in the morning only 34 bikes out of app. 125 bikes in total were registered and at 18:00 38 were registered. This implies that the majority of the city bikes are being borrowed for longer time periods or are parked at other locations than the stations. 8 stations were empty at a certain time - this corresponds to the likelihood of experiencing an empty station of 10.5 %. Two stations were registered as empty during the entire period. The typical coverage is 20-40 %.

The results of the count in 2009 indicated that the highest exchange rates were registered at the stations in close proximity to leisure and cultural activities such as Aalborg Zoo, the art museum and the cultural centre near the football stadium. This is another indicator of tourists as one of the main user groups of the city bike scheme in the summer period.

The stations at Nørresundby experienced a high coverage while some stations in the city centre of Aalborg were nearly empty. Thus, it could be hard to find an unoccupied city bike in the city centre.<sup>3</sup>

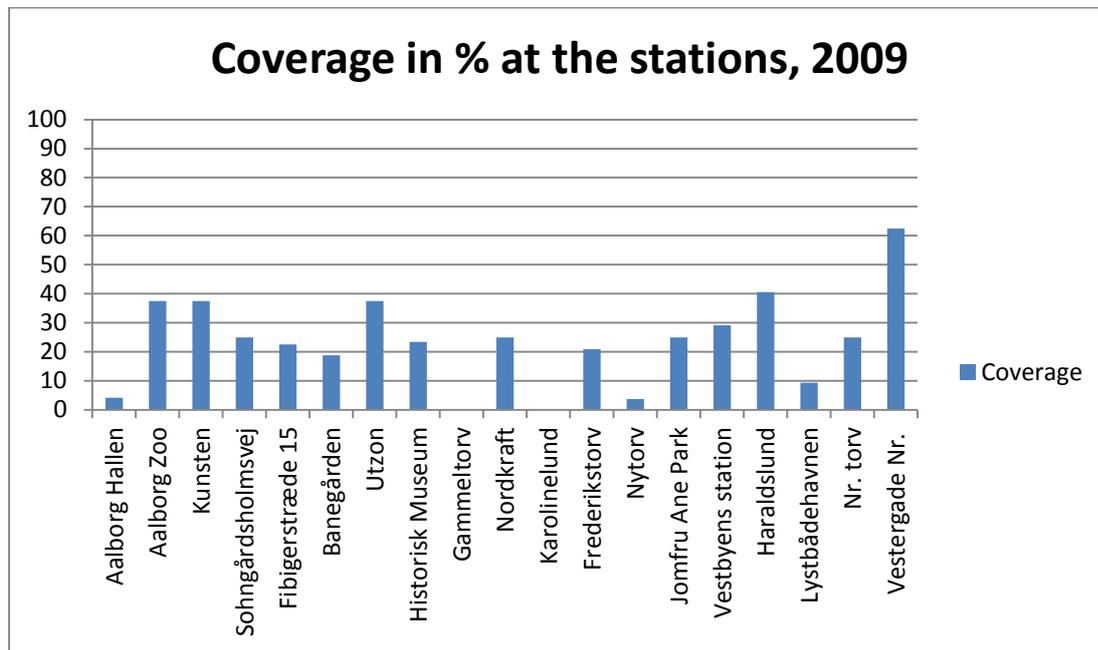


Figure 14: Coverage in % at the stations in 2009.

## 2012

The results of the counting, which took place in 7 different time windows during the day, show that 48 of the bikes were being registered at some time at a station. There were at least 63 trips on the registered bikes. This corresponds to at least 1.4 trips pr. bike. Although more bikes have been added to the City Bike Scheme and 2 additional stations have been added, fewer bikes are being registered in the stations. Only 28 bikes were registered in the first count in the morning and 30 bikes were registered at the latest count in the night even though more than 200 bikes are known to be in circulation on that day. This implies, that the bikes are being used more frequently than in the previous count and that even more bikes are being borrowed for a longer time period than in 2009.

2012: Times for bike count
7:30-8:30
10:00-11:00
13:00-14:00
15:00-16:00
17:00-18:00
19:00-20:00
21:00-22:00

56 times during the counting a station has been recorded as empty - this corresponds to the likelihood of experiencing an empty station of 38.1 %. Two stations were registered as empty during the entire period. The typical coverage is 0-20 %. These results indicate that many stations are empty and those which are not experience a significant lower coverage than in the previous count. It is remarkable that the station with highest coverage is the one located centrally at the campus (Fibigerstræde 15). However, an explanation can be that AFA JCDecaux might have filled the station recently and that many students are preparing for the summer exams.

Many stations were empty during the day although no clear pattern is recognisable. However, there is a tendency of decreasing coverage on the city bike stations during the day. This tendency is reversed with regard to the station at the railroad station, which is experiencing an increasing amount of parked

<sup>3</sup> The low amount of bikes in the stations, and the following probability to meet an empty station were mitigated in 2010 by expanding the number of bicycles with 70 new bikes

city bikes during the day. As very few city bikes moved from most stations (0-3), other tendencies cannot be explained very clearly due to the matter of coincidence.

However, the experience from previous years shows that the disappearance rate is very low. Registration of the bikes through 2011 shows that over 210 of the 237 bikes acquired through the whole project period were serviced at some point during the season. This corresponds to an accumulated loss of 11.4% of the bikes over 3 seasons. This number shows that nearly all the bikes despite of being lent for longer periods returns to the system – unlike in most city bike schemes in larger cities.

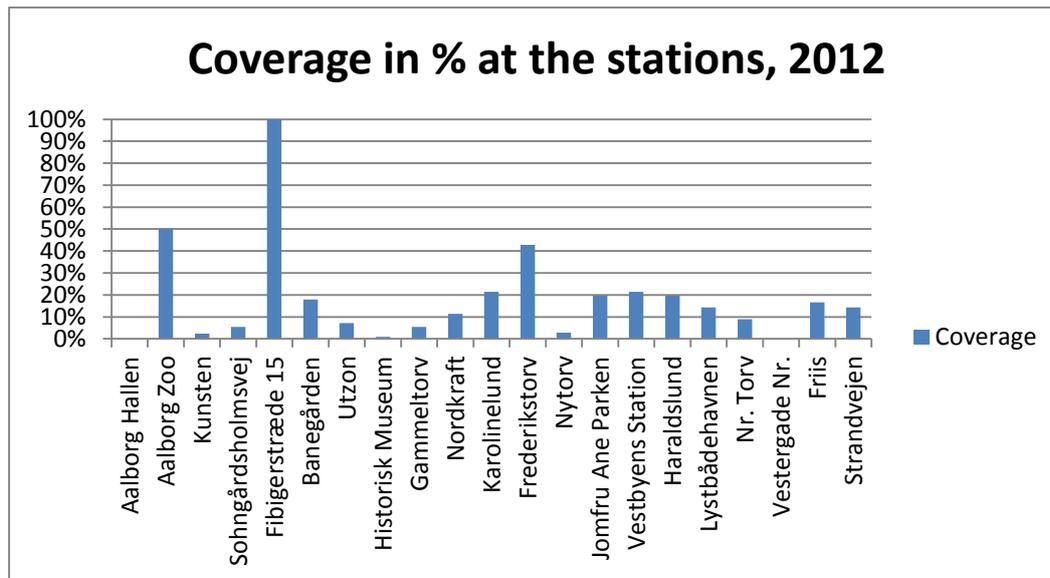


Figure 15: Coverage in % at the station in 2012.

## C2.6 Cost benefit analysis

The following conducts a cost benefit analysis (CBA) of the City Bike Scheme in Aalborg as it is described above. The overall objective of this CBA is to evaluate the costs and benefits of the projects and be able to indicate whether the investment that is made into this project results in satisfactory returns.

### C2.6.1 Evaluation period for CBA

In order to evaluate the project its key impacts will be compared to a "before" scenario, since this City Bike Scheme is the first of its kind in Aalborg.

Experience from city bike schemes in other cities in Denmark indicates that the expected lifetime of these kinds of projects is approximately 6 years. The aluminium frame used in the city bikes in Aalborg have, though, never been used before in Denmark. But, there is no reason to think that the lifetime of these bikes should be less than 6 years.

The European Commission (EC) suggests that non-cohesion countries apply a social discount rate (SDR) of 3.5 %. Furthermore the base year for discounting, and the price base, will be set to 2008. Finally, an exchange rate of 750 DKK/EUR is applied when relevant, all externalities are discounted using a GDP deflator and all other prices are discounted using the consumer price index (CPI).

### C2.6.2 Method and value for monetarisation

As described above the key impacts of the project are:

1. Capital costs
2. Maintenance costs
3. Sponsorship
4. Bicycle theft level
5. Vehicle kilometer- and time cost savings
6. Health benefits
7. Recreational benefits
8. Emission reductions
9. Image value

As a rule project financing is not included in a CBA. It is argued that the sponsorship contract with Vattenfall should be regarded as a revenue in this CBA. The argument is that it can be considered as a sale of advertising space; the bikes are colored in Vattenfall's blue colour and their names is on the bar of the bikes.

Bullets 4 to 8 are external impacts and as such they need to be monetarised if included in the calculation of the project's net present value. But as there has been no measurable change in the use of bikes as transportation mode, the monetarised impacts of bullets 5 through 8 will be effectively zero. As shown in figure 10, 93 % of the city bike users state that they would have used other transportation measures for there trips, or not take the trip at all, if the city bike scheme did not exist. Therefore, the scheme has increased the change in use of bikes as transportation mode by 55.726 trips, which is 93 % of the trips on city bikes. There has actually been measured a fall of 1.5 percentage points, from 18.5 % to 17 %, in the share of trips made on bicycle, but this small change could be caused by a number of factors, such as the wheather, hence the change is regarded as negligible. Without the city bike scheme this fall would have been even larger.

With regards to bullet 6, health benefits cover the fact that public health is increased when more citizens use bikes as transportation instead of bus, car etc. From figure 10 on page 22 it is seen that 37 % of the city bike users otherwise would have taken the trip by car, bus or not at all. Therefore, the city bike scheme increases the health of 37 % of the users, decreasing expences on public health. This in combination of other external factors has saved the community €20.600 per year. On the other hand there has been a remarkable drop in number of thefts of bicycles in the project period. Before the introduction of city bikes Aalborg experienced 650 thefts of bicycles every quarter of the year on average. After the City Bike Scheme has been put in place this has decreased to 530 thefts per quarter; a decrease of 18.5 %. Unfortunately there exists no estimates of the costs to society from the theft of bicycles. But it seems a valid assumptions that these costs are significant considering the following examples of effects from bicycle thefts:

- Inconvenience to the owner
- Police case work
- Inefficient allocation of private funds

The subject of the reduction in bicycle theft levels will be adressed in the sensitivity analysis at the end of the CBA.

With regards to bullet 9, monetising the improved image value is very complex. But it seems a valid assumption that this project will have a positive effect on the image of the Municipality of Aalborg. The issue will be addressed in the summary..

### C2.6.3 Life time cost and benefit

Table C2.6.1 illustrates the timing of capital costs of the project:

Table C2.6.1 Capital cost in the evaluation period (not discounted)

	Cases for comparison	Cost
2009	CIVITAS measure	-€18,667
	Reference case (or BAU)	€0
2010	CIVITAS measure	€0
	Reference case (or BAU)	€0
2011	CIVITAS measure	€0
	Reference case (or BAU)	€0
2012	CIVITAS measure	€0
	Reference case (or BAU)	€0
2013	CIVITAS measure	€0
	Reference case (or BAU)	€0
2014	CIVITAS measure	€0
	Reference case (or BAU)	€0

As it is seen from the table above the capital costs that are directly linked to the City Bike Scheme in Aalborg accumulate to €18,667. These costs cover the following:

1. Bikes
2. Stations
3. Setup of stations
4. Restoration of surfaces

Table C2.6.2 below illustrates the the timing and magnitude of the maintenance costs required to keep the city bikes running at an acceptable level:

Table C2.6.2 Maintenance cost in the evaluation period (not discounted)

	Cases for comparison	Values
2009	CIVITAS measure	-€36,000
	Reference case (or BAU)	€0
2010	CIVITAS measure	-€36,000
	Reference case (or BAU)	€0
2011	CIVITAS measure	-€36,000

	Reference case (or BAU)	€0
2012	CIVITAS measure	-€136,000
	Reference case (or BAU)	€0
2013	CIVITAS measure	-€136,000
	Reference case (or BAU)	€0
2014	CIVITAS measure	-€136,000
	Reference case (or BAU)	€0

It is seen that maintenance costs amount to €136,000 every year of the project. These costs cover:

1. Maintenance
2. Spare parts
3. Marketing, etc.

Table C2.6.3 in the following shows timing of the realisation of the revenues from the City Bike Scheme:

Table C2.6.3 Revenue in the evaluation period (not discounted)

	Cases for comparison	Values
2009	CIVITAS measure	€64,000
	Reference case (or BAU)	€0
2010	CIVITAS measure	€64,000
	Reference case (or BAU)	€0
2011	CIVITAS measure	€64,000
	Reference case (or BAU)	€0
2012	CIVITAS measure	€64,000
	Reference case (or BAU)	€0
2013	CIVITAS measure	€64,000
	Reference case (or BAU)	€0
2014	CIVITAS measure	€64,000
	Reference case (or BAU)	€0

As argued above, the sponsorship contract with Vattenfall can be considered as a sale of advertising space, hence it has been included as revenue to the project. The sponsorship contracts amounts to €64,000 per year.

Table C2.6.4 in the following shows the magnitude and timing of the monetised savings from the City Bike Scheme:

Table C2.6.4 Savings from transferring bus- and car passengers to city bikes (not discounted)

	Cases for comparison	Values
2009	CIVITAS measure	€20,608
	Reference case (or BAU)	€0
2010	CIVITAS measure	€20,608
	Reference case (or BAU)	€0
2011	CIVITAS measure	€20,608
	Reference case (or BAU)	€0
2012	CIVITAS measure	€20,608
	Reference case (or BAU)	€0
2013	CIVITAS measure	€20,608
	Reference case (or BAU)	€0
2014	CIVITAS measure	€20,608
	Reference case (or BAU)	€0

It is seen in the table above that it is estimated that there is a benefit to the society of €20,608 per year in the 10-year period the measure is evaluated over. The benefit is calculated based on the following:

1. There are 200 city bikes in Aalborg, on average they are each used for 1.4 trip per day. The city bikes are available for the public 214 days per year, which leads to a total of 59,920 trips being made on the city bikes per year.
2. The average trip on a city bike is 4.37 km.
3. If the scheme did not exist, 29 % of the trips would be made by bus, 5 % would be made by car and 3 % of the trips would not have been made.
4. 1 km. on a city bike instead of by bus, generates a saving for society of €0.21. The saving to society from taking a city bike instead of a car and not taking the trip are €0.26 and €0.16, respectively.

#### **C2.6.4 Compare the lifetime costs and benefits**

There are three measurable key impacts from the City Bike Scheme in Aalborg; capital costs, maintenance costs and revenues. Capital costs are only incurred in the project's first year, whereas the benefits and maintenance costs are incurred in every year of the project. From a business perspective there is a disadvantageous relationship between investments, maintenance costs and revenue. Thus the City Bike Scheme has to be carried through by the benefits of reduced theft and increased image as perceived by Aalborgs population; this will be addressed in the summary.

Measure title: **City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

Table C2.6.5 Lifetime cost/benefit of CIVITAS measure (discounted)

	Capital cost	Maintenance cost	Revenue	Social Benefits	Total cost	Total Benefit	Cumulated cost
2009	-€14,600	-€31,401	€1,836	€19,911	-€246,055	€81,746	
2010	€0	-€26,957	€9,745	€19,237	-€26,957	€78,982	-€64,308
2011	€0	-€22,664	€7,724	€18,587	-€22,664	€76,311	-€12,284
2012	€0	-€18,516	€5,772	€17,958	-€18,516	€73,731	-€58,637
2013	€0	-€14,508	€3,886	€17,351	-€14,508	€71,237	-€303,422
2014	€0	-€10,636	€2,064	€16,764	-€10,636	€68,828	-€46,693
Total	-€14,500	-€724,683	€41,027	€109,809	-€839,337	€450,836	-€888,501

Measure title: **City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

Table C2.6.6 Lifetime cost/benefit of the reference measure/case (discounted)

	Capital cost	Maintenance cost	Revenue	Total cost	Total Benefit	Cumulated cost
2009	€0	€0	€0	€0	€0	€0
2010	€0	€0	€0	€0	€0	€0
2011	€0	€0	€0	€0	€0	€0
2012	€0	€0	€0	€0	€0	€0
2013	€0	€0	€0	€0	€0	€0
2014	€0	€0	€0	€0	€0	€0
Total	€0	€0	€0	€0	€0	€0

### **C2.6.5 Summary of CBA results**

The overall conclusion is that the capitalised benefits, when compared to the capitalised maintenance costs, are not enough to yield satisfactory returns on the City Bike Scheme's capital costs. The project has an NPV of approximately -€100,000. This, though, ignores inter alia the following equally important, but not quantifiable, benefits:

- Reduced wear on the physical infrastructure.
- Increased happiness of residents in Aalborg due to the availability of bikes.
- Reduced traffic accidents.

Finally it can be argued that Aalborg's image as an environmental conscious city is improved which might increase its population's feeling of pride and its satisfaction with its local government. As the survey also revealed the city bike system is seen as an element in giving the city a green image. Furthermore it might increase, or be a prerequisite for, the migration of people, companies and students in Aalborg. These impacts are not easily quantified, but should none the less be taken into account when evaluating the success of the measure. The same goes for the drop in bicycle thefts and the positive effect, the City bike scheme presumably will have when it comes to attracting tourists and visitors to Aalborg

If the benefits from increased perceived image and reduced theft could be capitalised, they were to exceed approximately €3,500 per year in the evaluation period, to turn the project's NPV positive, and thus yield a satisfactory return.

#### **C2.6.5.1 Sensitivity analysis**

In order to test the robustness of the conclusion a sensitivity analysis on select key impacts have been carried out. If any one of the following bullets were to be realised, the NPV of the project will turn positive:

1. The maintenance costs is reduced to €3,000.
2. The revenue from the sponsorship contract is increased to €73,000

Based on this sensitivity analysis it is argued that the overall conclusion, as laid out above, is robust.

### **C3 Achievement of quantifiable targets and objectives**

<b>No.</b>	<b>Target</b>	<b>Rating</b>
<b>1</b>	To increase the number of trips on bicycles and thus improve energy efficiency and public health.	<b>*</b>
<b>2</b>	To change transport modes towards multimodality including cycling.	<b>*</b>
<b>3</b>	To stimulate the use of bicycles on short trips within the city.	<b>*</b>
<b>4</b>	To attract new users of bicycles.	<b>*</b>
<b>5</b>	To raise visibility of cycling.	<b>**</b>
<b>6</b>	To reduce the number of stolen private bicycles.	<b>*</b>
<b>7</b>	To reach two transactions per city bike per day.	<b>*</b>
<p><b>NA = Not Assessed    O = Not Achieved    * = Substantially achieved (at least 50%)</b>  <b>** = Achieved in full       *** = Exceeded</b></p>		

### **C4 Upscaling of results**

The following is the upscaling scenarios that will be taken into account in the evaluation:

- The City Bike scheme could be expanded with more bicycles and more stations.

This scenario will be based on the results from the measure.

### **C5 Appraisal of evaluation approach**

To capture the students' use of the City Bike Scheme two surveys were conducted. The evaluation resulted in very few completed interviews as the flow was somehow low. It has not been possible to conduct meaningful statistics based on the results. The difficulties of getting respondents in the second survey is seen as a combination of the way bikes are used at this time of the year and the particularly good weather at the time of the survey.

### **C6 Summary of evaluation results**

The measure has been evaluated in 2010 and in 2012 through a qualitative questionnaire and a quantitative count of the bikes from 2009 and 2012. The qualitative survey consists of stop interviews with the users of the city bikes and the quantitative survey consists of a counting of the bikes at the stations at certain times during the day.

The questionnaire surveys took place in the summer 2010. The survey showed that:

- most users (48 %) were 18-29 years old and many (27 %) were 30-44 years, and nearly half of the users are students.

Measure title: **City Bike Scheme in Aalborg**

City: **Aalborg**

Project: **ARCHIMEDES**

Measure number: **52**

- more than 70 % of the users of the City Bike Scheme were either users of bicycle or public transportation as the daily mode of transportation,
- more than half of the respondents would have walked if there was no City Bike Scheme, and 5 % would have taken the car,
- 1/3 uses the city bike in a relative long period, 1-3 hours and another 1/3 uses the bike for a short period of time, less than ½ hour.
- 86 % agree that the city bike system contributes to giving the city a green image.
- 95% state that they are either very satisfied or satisfied with the system.

The count of the city bike showed, that in 2009 the most frequent utilised stations were located near leisure and cultural activities. The level of bikes in the stations was 30-40, and the stations with the highest coverage are located outside the city centre. In 2012 the count showed that the stations with the highest activity are those in the city centre - especially the station at the railroad station is very active.

In general, only 0-20 % of the city bikes were parked at the stations in 2012. However, the experience from previous years show that the disappearance rate is very low – only 11,4 % over 3 seasons. This number shows that nearly all the bikes despite of being lent for longer periods return to the system. As the tendencies of vandalism or disappearance are rather low this suggests that the city bikes primarily are being borrowed for longer periods.

## **C7 Future activities relating to the measure**

The City Bike scheme has been expanded with another station and 116 bikes. There are now 237 bikes distributed at 21 stations.

---

## D Process Evaluation Findings

### D.0 Focused measure

0	No focussed measure
1	Most important reason: City policy: <i>The City of Aalborg works continually with providing the cyclist with good facilities. The city bike scheme will constitute a new mode of cycle transportation within the city.</i>
2	Second most important reason: Transferability: <i>A number of european cities work with implementing city bike scheme. Eventhough a lot of local aspects affect the design of a city bike scheme the general considerations can be of value to other cities.</i>
3	Third most important reason: Stakeholders: <i>The city bike scheme in Aalborg represents an alternative way of implementing a image based sponsorship with no commercials on the wheel discs.</i>

### D1 Deviations from the original plan

The City Bike Scheme is as mentioned one of the ARCHIMEDES measures that has had most attention in Aalborg. The City Bike Scheme was from the beginning of the project intended to be in operation from summer 2010.

However, during the planning worked it showed out to be possible to implement the scheme by July 2009.

- **Deviation: The City Bike Scheme was implemented a year earlier than planned** – During the preparation of the project it became obvious that it was possible to move the implementation one year ahead. A dedicated working group, political support and no technological barriers were all important factors that made it possible to move the time planning forward.

### D2 Barriers and drivers

In the planning phase several drivers made it possible to implement the system one year earlier than planned.

First, the scheme was from the beginning of the project supported by politicians and key stakeholders that were positive towards getting a city bike scheme to the city. This made the planning and implementation easier, and it was possible to draw on for instance contacts from the trade organisation in relation to the season opening events.

Second, it was possible to draw on the learning from other cities that already had city bike schemes. Learning from previous experiences and exchange with other cities gave valuable input to the process of defining the system, and deciding on such parts as the lending system and technical specification of the bikes.

During the planning, implementation and operation phases a couple of important barriers were encountered:

A city bike scheme like the one proposed in Aalborg depends on support from the users of the bikes and the public in general. Therefore, it has in the planning process been important to focus on

preparing the marketing and promotion of the scheme and keeping focus at this during the implementation and operation phase.

Another important part of the securing a successful scheme was in the planning phase to set up requirements to produce clear standards for the daily maintenance of the bikes and stations. Preparing clear guidelines for the operator has therefore been a focus during the planning phase.

A third barrier encountered during the planning was the struggle for space in the urban area between different modes of transportation. The location of the bike station demands space and since the bike stations are proposed to be located at central and attractive places this process demands attention. Mitigation is information on environmental benefits from city bikes.

After the scheme has been implemented the main work with the system has been in terms of the communication about the scheme. Focus in the communication about the City Bike Scheme has emphasised that the city bikes are every bodies' responsibility and every year opening events have been held to engage with the users. This has ensured that the level of lost bikes have been kept low. During the three seasons the scheme has been in operation the media has also several times focused at the scheme. Often the angle on the scheme has been the number of stolen/lost bikes. This negative angle on the system has been handled by trying to focus at the positive experiences with the system. When the experience with the low loss of bikes became evident this has naturally also been part of the communication.

## **D2.1 Barriers**

### **Preparation phase**

- **Press attention** – The press has after the implementation of the scheme focussed at the number of stolen bikes. Mitigation of the negative effect this could have on the image of the city bikes has been to focus at emphasising the good results and securing that the cities support the bikes and see them as their responsibility.
- **Struggle for urban space** – The location of the bike station demands space and since the bike stations are proposed to be located at central and attractive places this process demands attention.

### **Implementation & operation phase**

- **Continuous focus at creating support for the scheme** – A continuous focus on this is necessary to make people support the scheme, treat the bicycles well and report misplaced bikes.

## **D2.2 Drivers**

### **Preparation phase**

- **Drawing on learning from other city bike schemes** – The possibility to draw on the experiences from other cities gave valuable input to overall strategic design decisions and solutions to practical challenges.

### **Implementation phase**

**Support from politicians and key stakeholders** – Support from politicians and key stakeholders eased the implementation phase.

## **D.2.3 Activities**

### **Preparation phase**

- **Struggle for urban space** – In the struggle for obtaining the best locations for the bike station an important argument was to emphasize the environmental benefits from the city bike scheme.
- **Set up of maintenance requirements** - Preparing clear guidelines for the operator was a focus during the planning phase in order to secure a well functioning and high quality city bike scheme.

### **Implementation phase**

- **Launching event** – In order to create attention to the scheme and secure that the citizens were aware about “that the city bikes are everybody’s responsibility an inauguration event was planned.

### **Operation phase**

- **Handling the press attention to lost bikes** – This negative angle on the system has been handled by trying to focus at the positive experiences with the system.
- **Opening events** – In order to maintain the support of the citizens and create attention to the scheme an opening event has been held every year in spring when the bikes are put on the streets again.

## **D3 Participation of stakeholders**

### **D.3.1. Measure Partners**

- **City of Aalborg** – Responsible of the planning and implementation of the measure. The planning and implementation of the measure involved different divisions of the Technical Department of Aalborg City.

### **D.3.2 Stakeholders**

- **Vattenfall (energy company)** – Sponsor of the city bike scheme.
- **Operator** – Responsible of the daily maintenance of the city bikes and city bike stations.
- **Aalborg City Forening (the trade association in Aalborg)** – Cooperation on the marketing and promotion of the scheme. The launching event and the opening events are arranged in cooperation with this association.

## **D4 Recommendations**

The City Bike Scheme in Aalborg has been tailored students, tourists and other persons with a spontaneous need for transportation on shorter distances within the ARCHIMEDES corridor. The system is tailored to the specific situation in Aalborg – both in terms of the relative high use and ownership of bikes in general and the cultural context. Many lessons learned through this initiative are therefore related to the context of the city. However, a couple of general recommendations and learning can be used across cities:

### **D.4.1 Recommendations: measure replication**

- Consider the entire City Bike Scheme. The bike, the loan method, the maintenances of the system, primary user group – and the context. If the winter is with snow take the bikes of the streets during the winter period to avoid high maintenance costs.

### **D.4.2 Recommendations: process**

- Make the City Bike System a part of the community through strategic communication and events, and thereby avoid vandalism and theft.

