Mobility Management for Business and Industrial Zones
MoMa.BIZ

Results of the Local Mobility Survey & Cost-Benefit Analysis of the Implementation Chosen for the BIZ of Ropka

Deliverable D5.a

WP: 5
WP Leader: EAP

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1. LOCAL MOBILITY SURVEY

1.1 INTRODUCTION

1.1.1 GENERAL INFORMATION

The BIZ of Ropka is situated on the south part of Tartu where many production companies and service providers are operating. The number of local residents is low thus majority of the employees of the BIZ live in the different districts of the city of Tartu or even further. To reduce the impact caused by the unsustainable mobility behaviour of the employees of the BIZ to the environment and urban space, a local mobility plan for the area will be prepared.

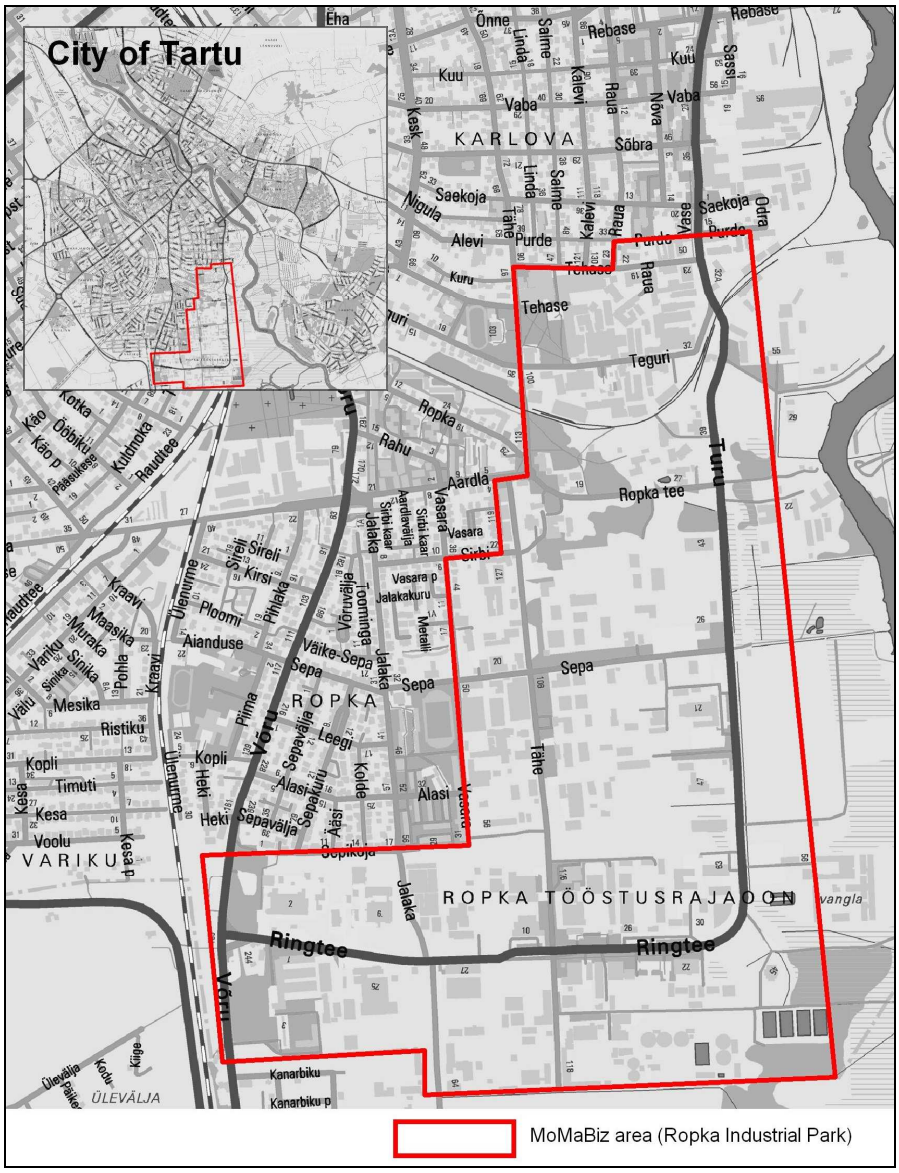


Figure 1. MoMa.Biz area

1.1.2 METHODOLOGY OF THE SURVEY

A questionnaire was prepared for the survey that was sent to the local companies. At the initial phase questionnaires were sent by e-mail. For that a web-based questionnaire was composed. Managers and employees were asked to fill it. At the end of the set time for the internet-based survey all answers were compiled and analysed. Also decision was made to turn to companies that have not responded. For this

interviewers visited those companies and handed out printed questionnaires giving the respondents the choice to answer immediately or complete it the next day.

Altogether 497 employees of local companies responded to the survey, that is 17,7% of all the employees of the BIZ. Thus the sample could be considered adequate for the analysis of the mobility behaviour, attitudes and problems needs to be solved.

The results of the survey were analyzed and are an input for the preparation of the local mobility plan.

1.2 RESULTS OF THE MOBILITY SURVEY

1.2.1 GENERAL INFORMATION REGARDING THE SAMPLE

The share of women among the respondents of the mobility survey conducted in the BIZ of Ropka was slightly higher than men (42%). Most of the respondents were 31-50 years old, 26% were between 21-30 years and 21% older than 50 years. 1% of the respondents were under 21 years old.

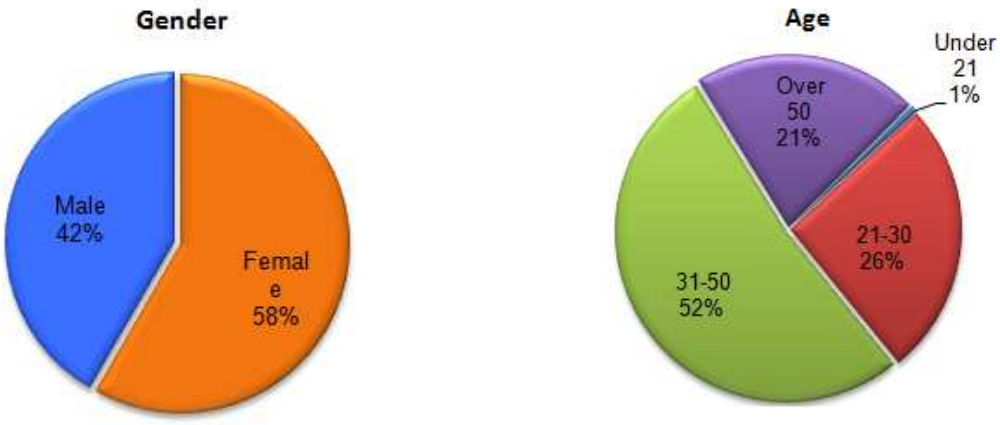


Figure 2. Gender and age of respondents

Main place of residents of the employees of the BIZ was the city of Tartu. 74,8% of the respondents lived in the city. The rest of the employees lived mainly in close-by boroughs: Ülenurme (7,5%) and Luunja (3,5%). Other places were represented to a lesser extent.

36% of all the respondents were working as office employees. Workers or laborers constituted 29% and the share of the rest of the positions of work was considerably smaller. Among the office employees were more men and workers were mainly women. Also managers were more probably men.

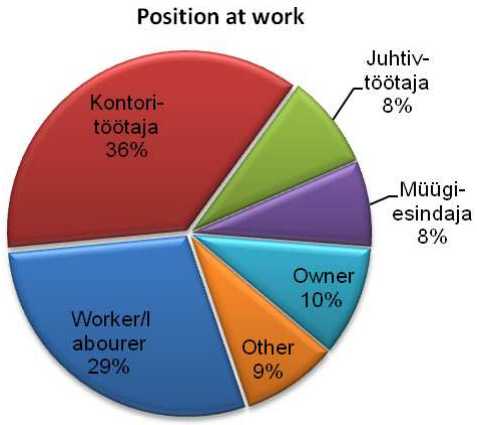


Figure 3. Position at work

67% of the employees of the BIZ have central working hours (8:00-17:00 or 9:00-18:00). Several employees are also working in shifts. Mainly workers or labourers work in shifts. The rest of the employees work mainly during central working hours. Almost equal share of women and men work in shifts.

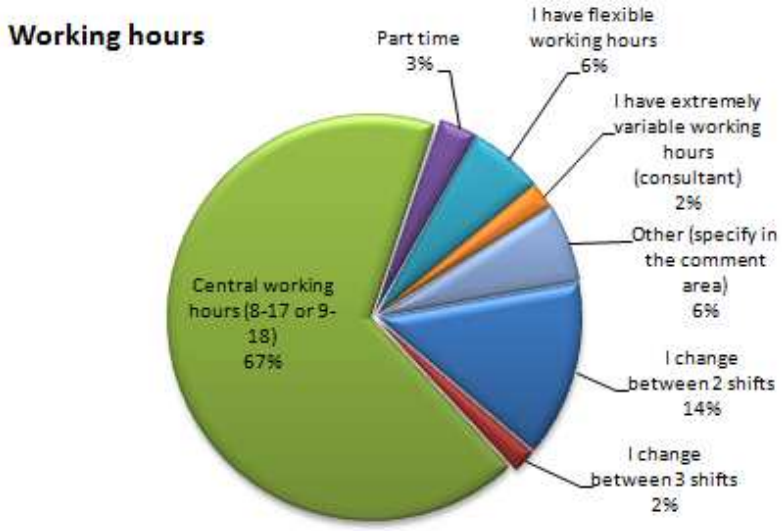


Figure 4. Working hours

Although majority of the respondents does not do overtime, great share of the respondents must work after their working hours. Almost one third of the respondents make overtime. Usually office employees and managers with central working hours do overtime. The share of workers doing overtime is low.

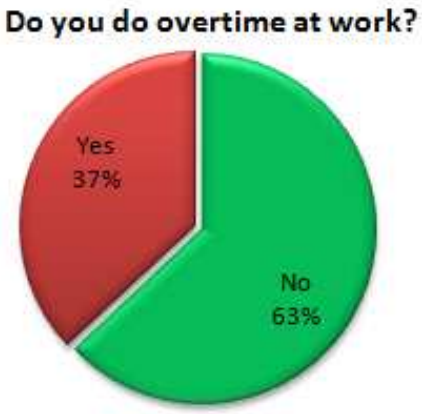


Figure 5. Working overtime

More than half of the respondents do not have to leave their place of work during the day. 42% had to leave due to their work assignements. Mainly office employees and managers must make work-realted trips during the day. Workers are less mobile and usually make no trips during working hours.

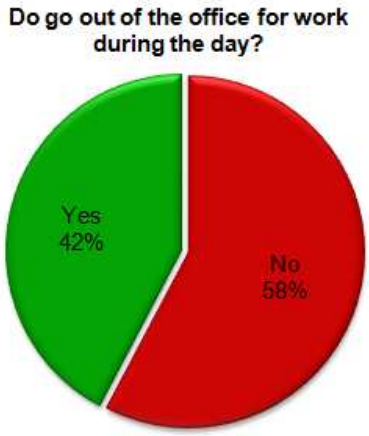


Figure 6. Leaving office for work during the day

Job transfers are rare, many respondents did not went on one at all. Only fifth of the respondents had gone on a job transfer per month or even often. Mainly office emplyees and managers go on job transfers. Workers have usually no job transfers. Usually private car is used for job transfers, to a lesser extent also a busses. Thus the majority of job transfers are made to rather short distances. Mainly women use busses or train for job transfer, men usually do not use public transport for this purpose.

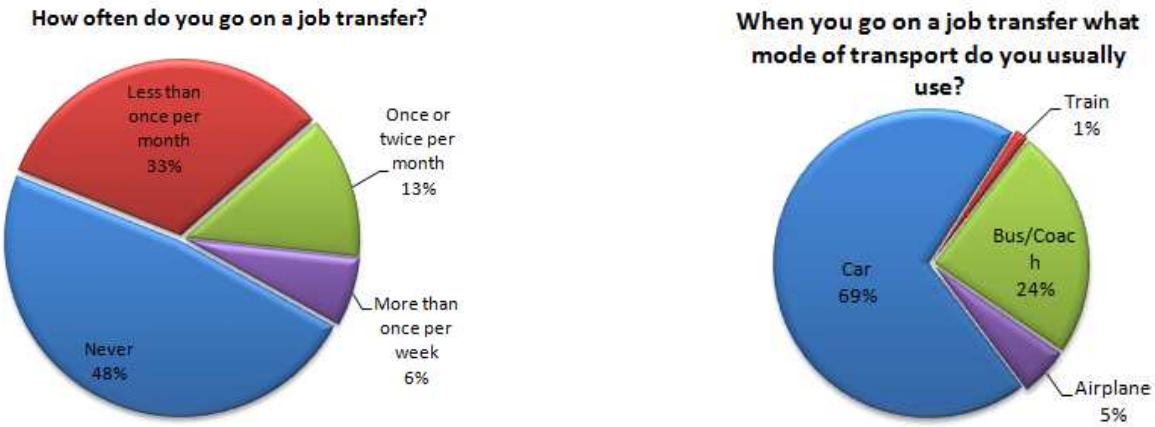


Figure 7.Job transfers regularity and mode of transport

1.2.2 MODE OF TRANSPORT USED

Most of the respondents owned a car or had access to one. Favoring factor for car usage is also convenient parking possibilities near the place of residence. Many respondents owned bicycle, which is a good precondition to raise the usage of this mode of transport. Only fifth of the respondents owned a season ticket for public transport.

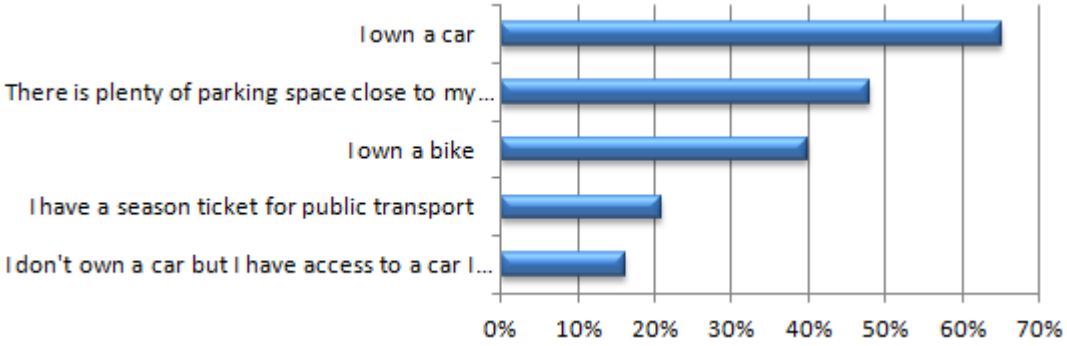


Figure 8. Accessibility to transportation modes

Majority of the employees of the BIZ of Ropka use private car for home-work trips. In addition to using the car as driver, car usage is increased by the share of those using this mode of transport as passengers. Thus car usage constitutes about 2/3 of all home-work trips of the employees of the BIZ of Ropka. 20% of the respondents use public transport and 10% of home-work trips are done by foot or by bicycle. Car usage is prevailing no matter of the position at the work. Still workers used slightly more public transport compared to office employees. Directors and managers, also sails persons mainly did not use public transport. Most often women are those using public transport; almost 91% of the respondents owning a car also used it for everyday travel to work.

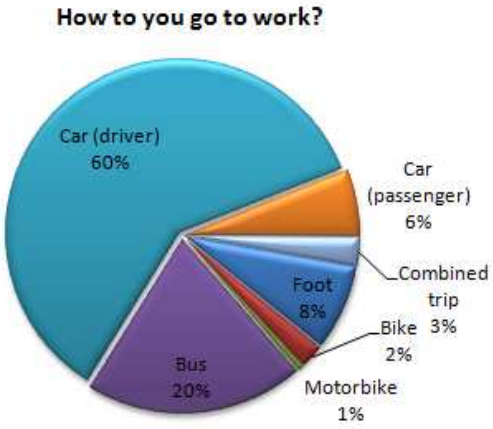


Figure 9. Modal split

Estonian climate makes it difficult to use certain modes of transport. During winter cycling is considerably complicated due to the snow cover. Weather conditions also influence the attractiveness of walking. Still seasonality has a minor effect on mobility habits of the employees of the BIZ. Almost 92% of all respondents use the same mode of transport in spite of the time of year. Mainly alternative transport mode users changed their usual mode of transport. Those using a bicycle during the summer will, depending of their place of residence, use either bus or travel by foot in winter. Also everyday walkers often preferred public transport in case of the bad weather.

Mainly car users travel to work alone. Still often passengers were taken on board. More often a female driver will ride with a passenger.

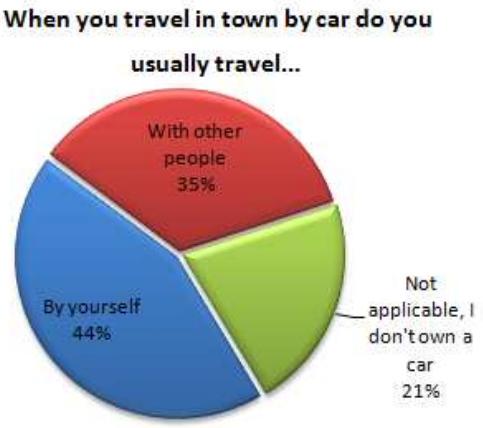


Figure 10. Car usage

When intermediate stops are made between home-work trips, they are mainly related to visiting a market or super market. Almost 69% of the respondents visited markets or super markets when travelling to or from work. Mainly women are those visiting markets after work, men visit markets mainly when they accompany an other person. Often intermediate stops are made also to transport children to and from educational institutions.

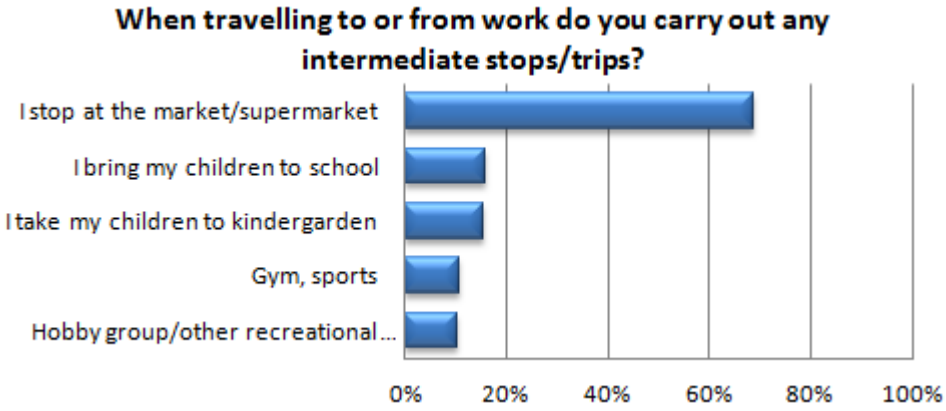


Figure 11. Combined trips

For most of the employees of the BIZ of Ropka the distance covered to get to work is between 1-3 km. This distance is optimal for a quick bicycle connection. 47% of the respondents lived 1-3 km from their place of work. 23% lived closer than 1 km thus their optimal mode of transport would be walking. In summary approximately 70% of all the employees of the BIZ live within the distance where the optimal mode of transport to use for home-work trips would be bicycle or walking. Also 63% of everyday car users live closer to work than 3 km. This means that using a car will provide no great time advantage over other modes of transport.

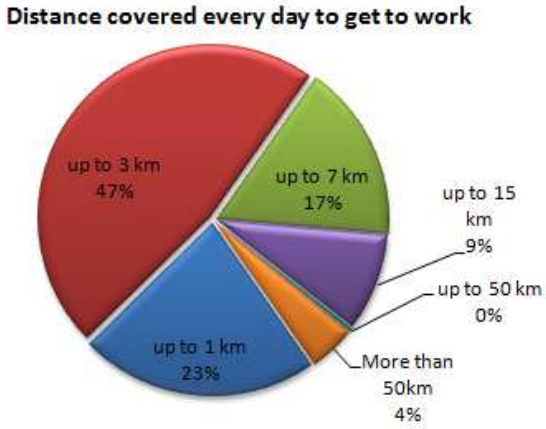


Figure 12. Distance from home to workplace

For most of the respondents a trip to work will take less than 15 minutes. The trip from work to home is usually longer due to intermediate stops. Still majority of the people will get to home within 30 minutes.

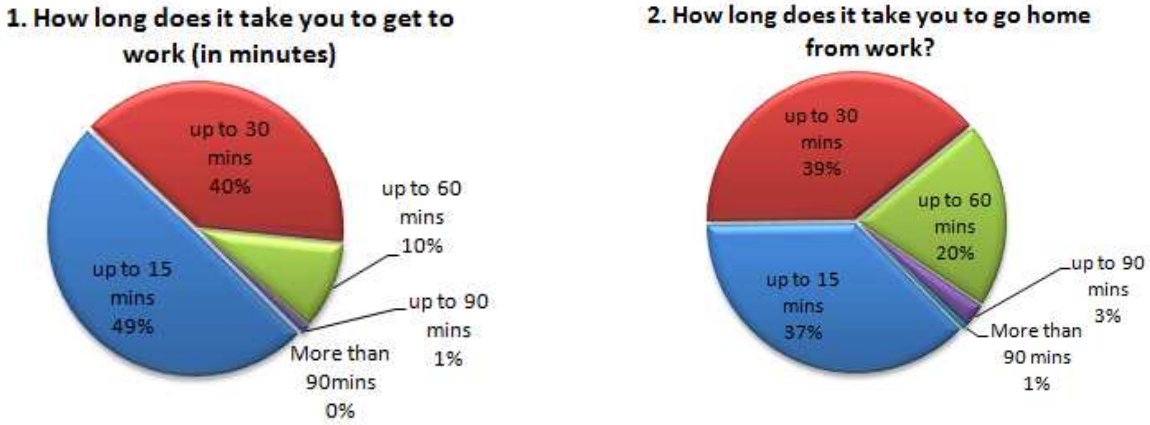


Figure 13. Travel time

Great share of the respondents had met traffic. Almost half found that the traffic is frequently dense and 9% stated that it is always so. Still, 37% said that this happens rarely and 4% said that never. It is also note worthy that public transport users considered the situation with traffic more problematic than car users.

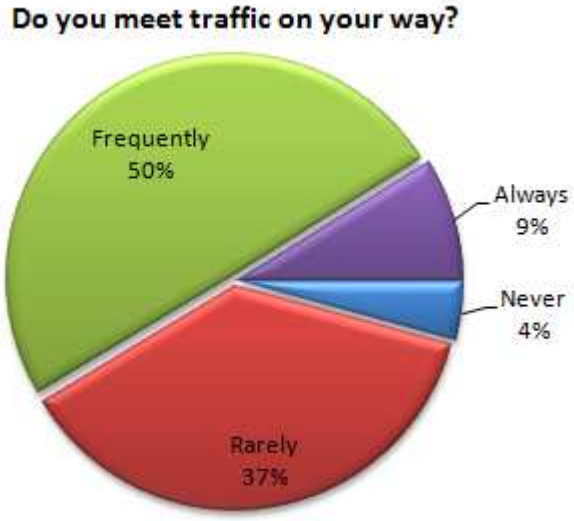


Figure 14. Noticing traffic problems

1.2.3 FACTORS INFLUENCING CHOICE OF MODE OF TRANSPORT

The main factor behind choice of mode of transport was comfort. Also important was freedom of movement, independency of the timetables and predetermined routes, also duration of the trip. These preferences explain mainly why car is chosen over alternative transport modes. Almost third of the respondents stressed money saving as a relevant factor. Also lack of alternatives or inconvenient public transport services influenced the choice of mode of transport. Mainly greater comfort of car use and issues with public transport availability and quality were stressed, thus car is the preferred transport mode.

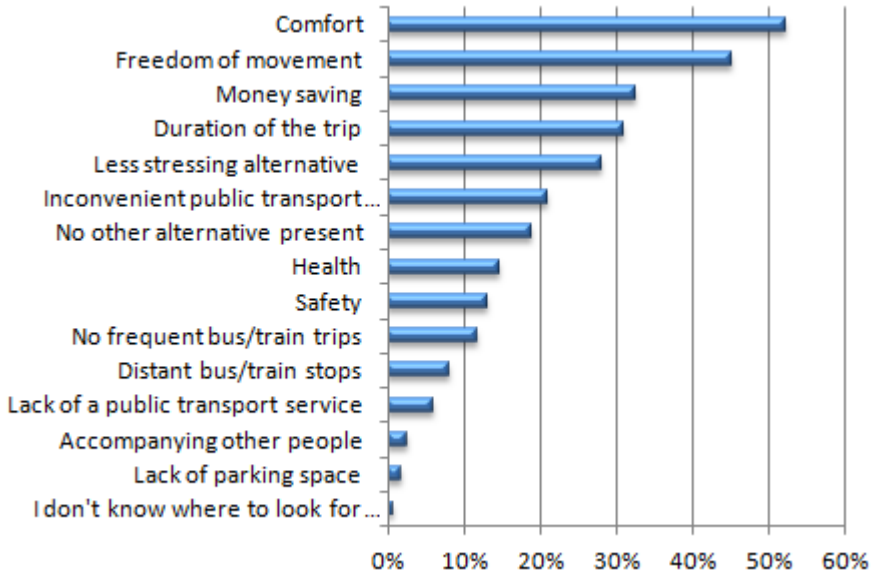


Figure 15. Factors influencing choice of mode of transport

Main advantages of a private car were its comfort and freedom of movement, also speed and the possibility to arrive at the destination was considered important. Less important was the fact that respondents liked driving/traveling by car. Sustainable usage of the car was irrelevant for many respondents.

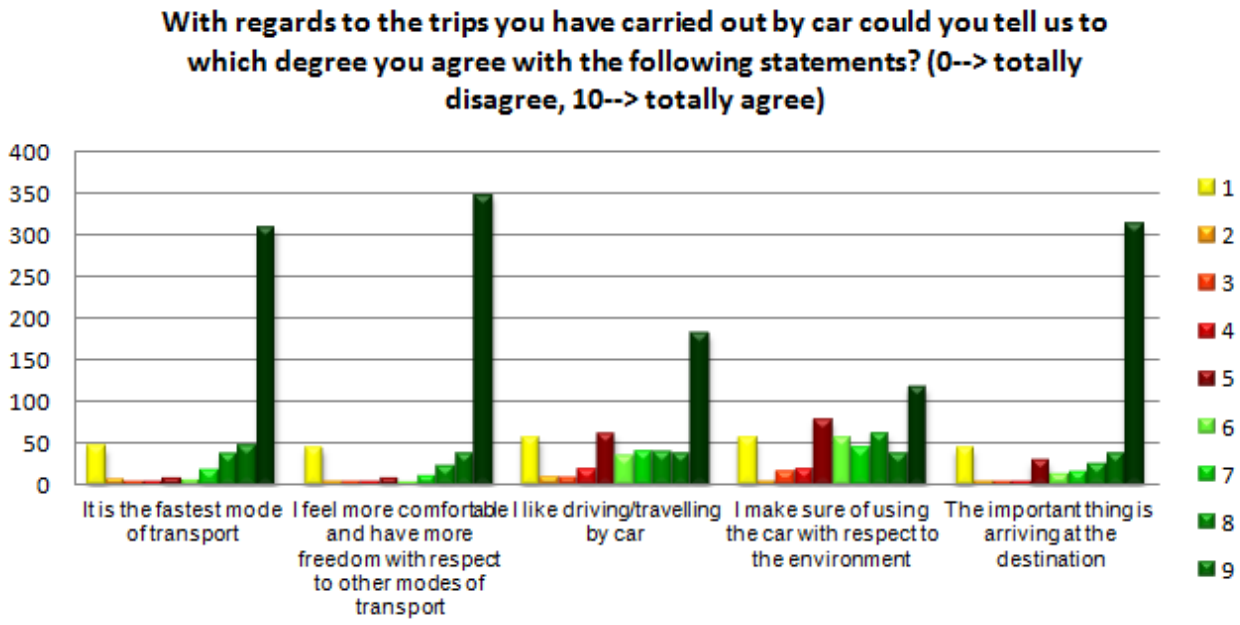


Figure 16. Advantages of car usage

It is important for the people to arrive at the destination as soon as possible and not to be late. The trip must be comfortable and safe and not cause extra stress. Some of the respondents liked the feeling they get when driving. Others enjoyed walking and cycling. Based on these preferences also attitudes are formed and choices of mode of transport are made.

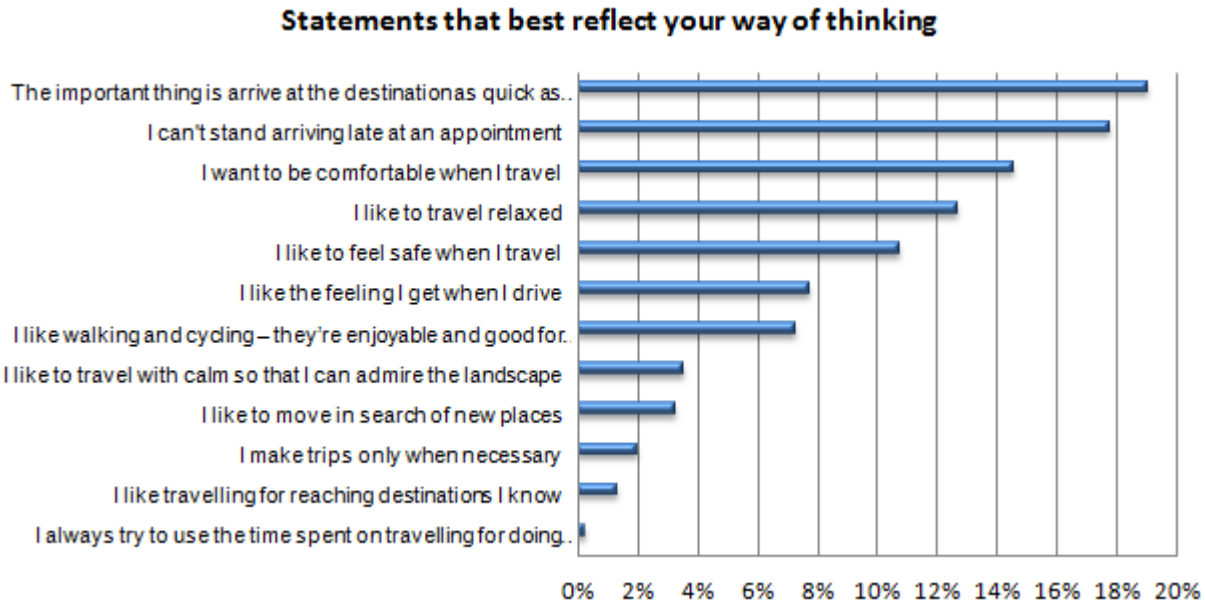


Figure 17. Factors influencing need for transportation and transportation mode

The cost of traveling to work per month is greatly dependent on the chosen transport mode and also mobility needs of the respondent. Thus the costs varied to a great extent. Pedestrian and bicyclists are those with smallest expenses, their monthly costs stay mainly under 15€. Majority of public transport users spend up to 30€ for transport. Costs of car users are usually higher than 30 €

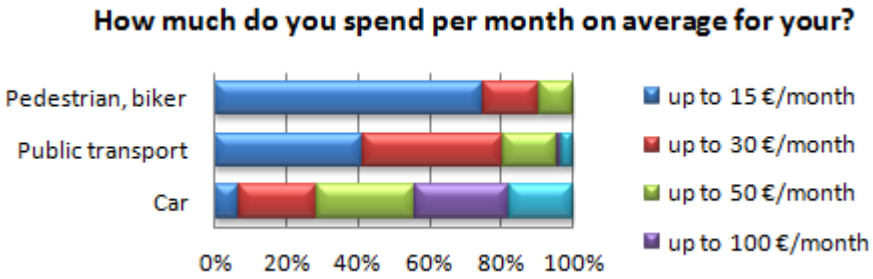


Figure 18. Cost of transportation

Respondents were mostly aware of the public transport present in the BIZ also of the possibilities to travel between home and work. Only 22% of respondents admitted that they are unaware of the public transport possibilities between home and work. Almost third of all car users stated that they do not have an overview of the public transport present.

Existing public transport services were more likely evaluated as unsuitable. Most unsatisfied were the car users. Altogether 87% of current car users, who evaluated public transport services, rated it as bad or sufficient. Still many of them admitted that they are not aware of the exact situation with public transport. Regular public transport users were more likely satisfied with the service or rated it as good. Still also great share of them also expressed their dissatisfaction with provided services.

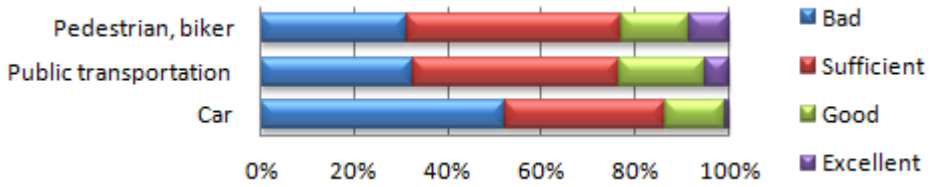


Figure 19. Assessment of accessibility of public transport by user groups

One problem that arose from the mobility survey was that public transport timetables are unsuitable for work schedules of almost half of the employees. Even regular public transport users considered timetables unsuitable. Also many car users pointed out, that existing timetables do not meet their requirements.

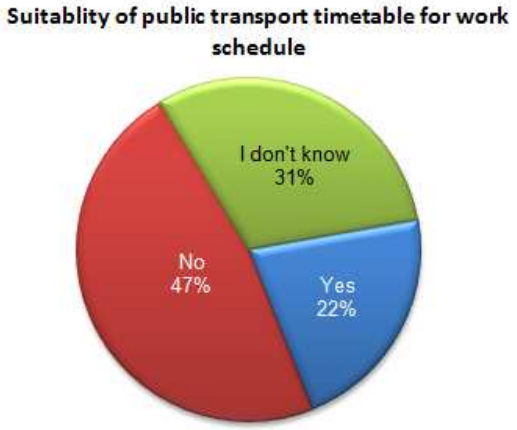


Figure 20. Suitability of public transport timetables for work schedule

The need to change timetables and frequency was the most stressed issue when areas needs to be improved with public transport service to/from work place were asked. Also faster connection speeds and cost of the tickets were considered, as relevant areas were improvements are needed. Other areas were less important.

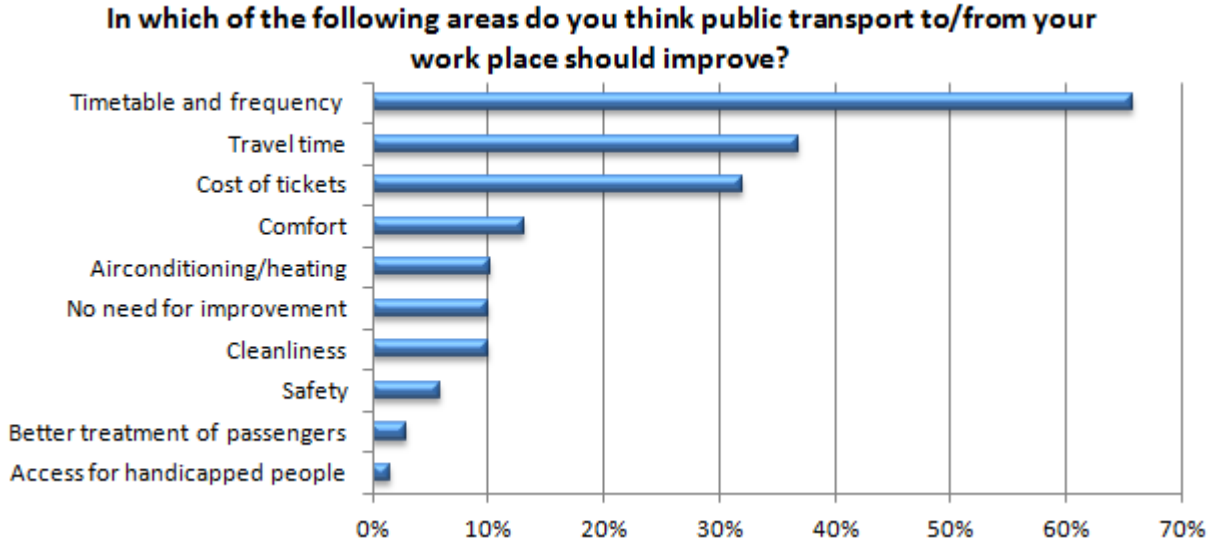


Figure 21. Public transportation problems which should be improved

Although one the problems with public transport was the high cost of tickets, price is not an influential factor behind choice of mode of transport. In case public transport was free of charge, only 8% of respondents

would not use the car anymore. Almost half of the respondents would still use the car, put also use more frequently public transport. 41% admitted that they would not change their current behaviour.

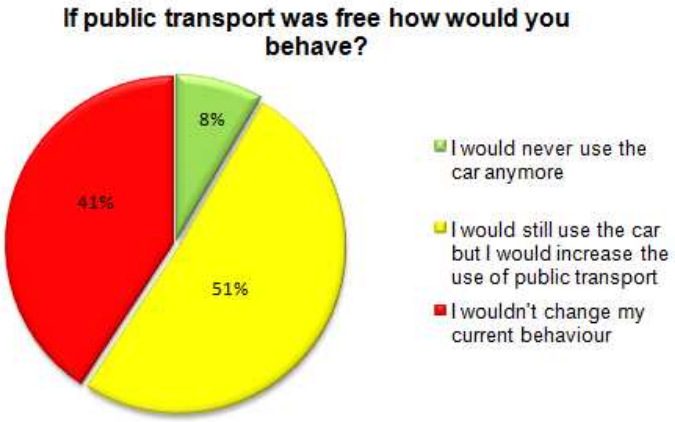


Figure 22. Willingness to change transportation mode if public transport will be free

Willingness to use public transport is high among the employees of the BIZ. Almost 71.6% of the respondents are ready to use public transport. Almost 26% of the respondents rated current availability and quality of public transport service sufficient to use it for everyday bases. Still many of the respondents demanded some changes to be made. People are willing to use more public transport if the schedules would suit better with their working hours and no interchanges had to be made. Also support for the purchase of the monthly tickets was stressed. Employees suggested that there should be more direct bus lines between their place of residence and work that would help to avoid interchanges.

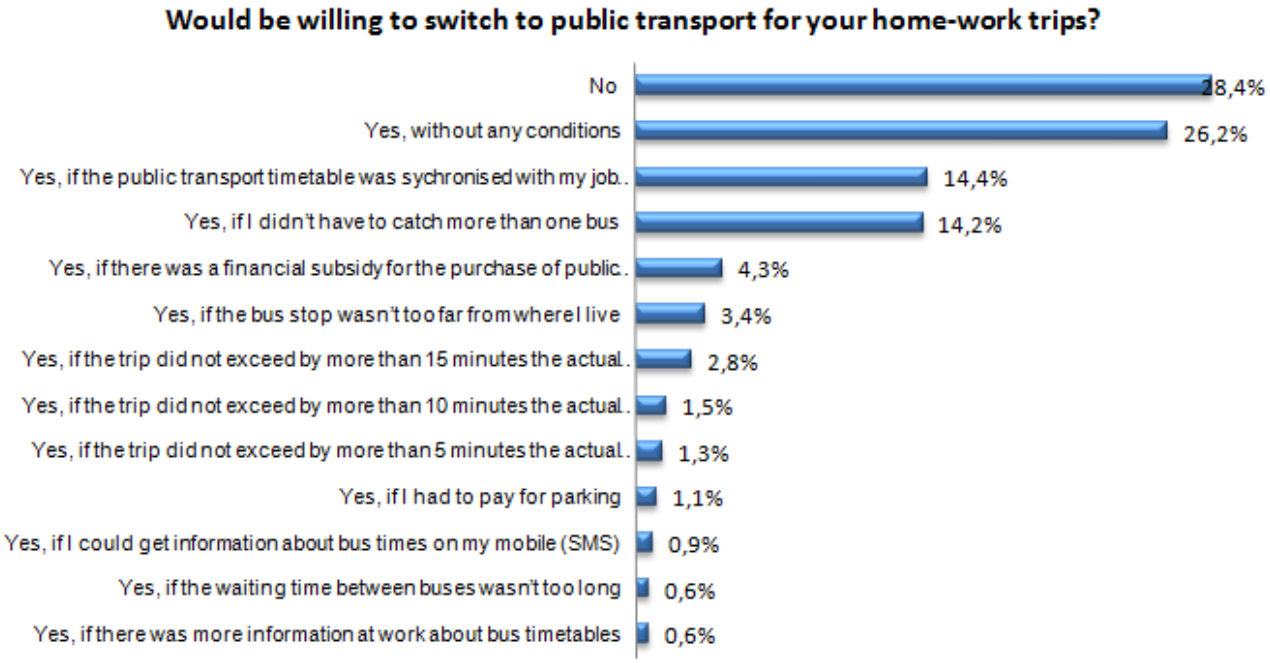


Figure 23. Willingness to use public transportation

Employees of the BIZ are willing to switch to car-pooling. Only 20% of the respondents were reluctant to do so. Majority of the respondents stated no precondition or changes that needed to be done beforehand. Considering the great share of people willing to car pool, it is still unclear why it has not been done so far. Thus it is also difficult to interpret this result.

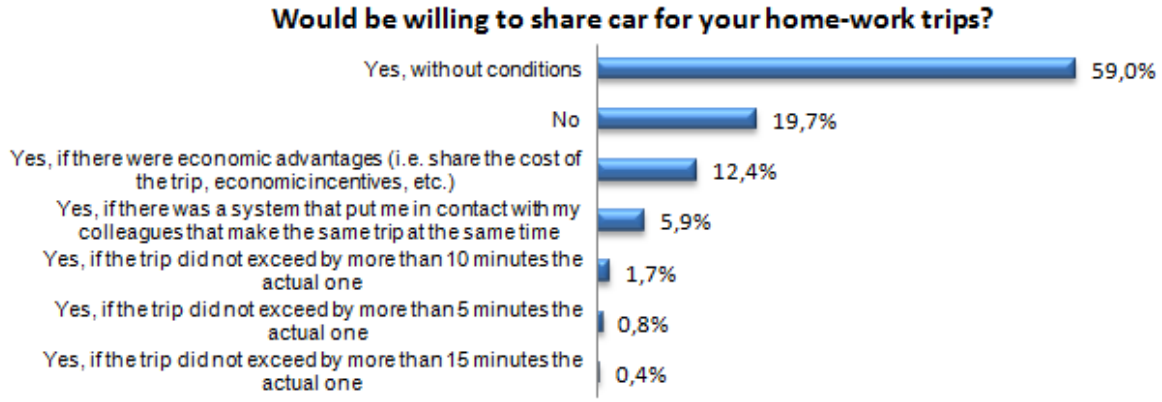


Figure 24. Willingness to share car

If the willingness to use public transport or carpool was rather high, than considerably smaller share of the respondents were willing to use bicycle. Approximately 42% of the respondents were willing to use a bicycle for commuting to work. 23,6% of the respondents would do so without any major changes. Majority of the respondents stressed the need for development of the bicycle road network and safer infrastructure for cyclists. Time factor had no substantial influence on the preferences of this mode of transport.

Figure 25. Willingness to use bike

2. COST-BENEFIT ANALYSIS OF THE MOBILITY SOLUTIONS CHOSEN

2.1 INTRODUCTION

The main aim of the Local Mobility Plan of the BIZ of Ropka is to satisfy the mobility needs of local employees and companies in a more sustainable way. Action plan, which is the strategic part of the plan, comprises of several mutually complementing measures or mobility solutions that in the end will raise the usage of alternative transport modes for home-work trips, increase awareness about sustainable transport and reduce emissions due to the mobility behavioral change.

Preparatory process of the local mobility plan was through and involved multiple consultations with different stakeholders and discussions among Local Mobility Group (LMG). Also a background study of the BIZ (Deliverable D2.b) and survey among employees of the local companies (results in the 1 section) were conducted.

Above all, it was important to find out present mobility behavior of the employees and what are the main obstacles preventing the usage of sustainable modes of transport for everyday trips to and from work. The primary source of information for making conclusions about relevant factors determining present mobility behavior was the aforementioned survey among employees. Solutions to the problems were selected and agreed on based on the boxed solutions methodology[1] that was developed in the framework of the MoMA.BIZ project. The main focus of the planned actions was to change the behavior of the current car commuters, at the same time it was equally important to motivate employees who already cycle, walk or use public transport for home-work trips.

More specifically, process of the preparation of local mobility plan for the BIZ of Ropka was following:

1. Background study of the BIZ and first evaluation of possible problem areas
2. The home-work mobility survey among employees of the BIZ with the aim to gather more information about their mobility behavior and factors affecting choice of mode of transport. At the same time problems that needed to be solved and the willingness to use different transport modes were also asked and gave a good indication of the reasons behind existing situation.
3. Consultations with the stakeholders (incl. City officials, traffic experts, transportation consultants, university lectors) to get an expert-opinion to the mobility problems, their causes and possible solutions.
4. Identification of mobility solutions for local mobility plan by the LMG of Tartu. The decision was made based on the current needs, set objectives and possibilities. There were many meetings held prior to the final selection of the solutions for the local mobility plan (see Table 2.1.) with the aim to:
    a. Map down the main mobility problems for home-work trips of the BIZ
    b. Formulate the objectives of the local mobility plan
    c. Find the best mobility solutions to overcome problems and achieve set objectives
    d. Specify the priorities based on expected impact, time and financial costs.
    e. Set up a monitoring and evaluation plan

[1] ***Boxed solutions methodology*** is a set of guidelines, flexible and easy to adapt in different circumstances, based on the implementation of mobility action at the project's business and industrial zones. It is a useful tool for the successful planning and implementation of standard mobility actions. Great help are practical examples, list of key factors for the success and possible barriers to consider

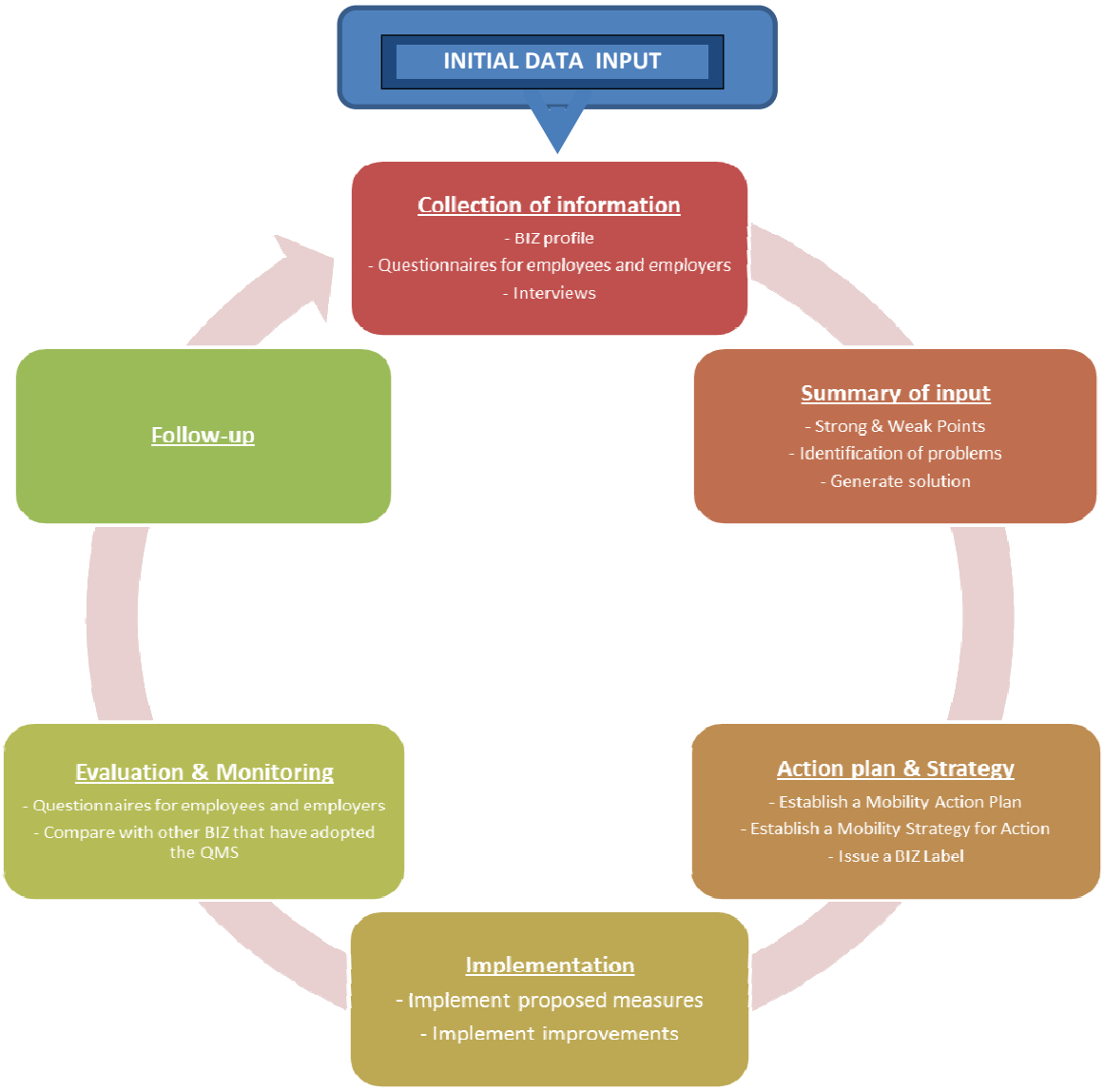
Table 2.1. LMG meeting concerning Local Mobility Plan

Date	Discussed topics
05.04.2012	First meeting of the Local Mobility Group (LMG) where following questions were discussed: • Objectives of the MoMA.BIZ project and related actions • Time schedule of the preparation of the local mobility plan • Information exchange among LMG: meetings and virtual reports of gathered materials (background study and the results of the mobility survey)
11.04.2012	Second meeting of LMG with the aim to: • Give an overview of the results of the background study and mobility survey of home-work trips • Analyze mobility problems of the BIZ of Ropka (incl. presentation of the results of mobility labeling[2] procedure) • Preliminary design of the objectives of local mobility plan and possible target groups.
18.04.2012	Third meeting of LMG, where following was discussed: • Possible mobility solutions that could be implemented in the BIZ of Ropka • Need for consultations with relevant specialists with the aim to get an expert opinion about planned actions and their extent.
08.05.2012	Fourth meeting of the LMG: • Presentation of the results of the consultation process • Identification of the mobility solutions for the local mobility plan, specification of the priorities. • Discussion over the evaluation and monitoring plan: expected results, indicators, measurement methods of the indicators
23.05.2012	Last improvements to the content (specification of the mobility solutions) and form (structure) of the local mobility plan

[2] ***Mobility Labelling System*** is established in the framework of the MoMA.BIZ project. The design of such a system is based on the Boxed Solutions Methodology. This tool will help to evaluate transport options and conditions of the Business and Industrial Zones and assign a mobility label (similar to labelling used for indicating the energy efficiency of electric appliances). At the same time it is also a good instrument for identification of current situation, problems and possible fields of actions.

2.2 COST-BENEFIT ANALYSIS OF THE MOBILITY SOLUTIONS TO BE IMPLEMENTED

Following MoMA.BIZ Quality cycle is being used for preparation and implementation of the Local Mobility Plan:



As stated before mobility solutions chosen for the mobility plan were based on the boxed solutions methodology. This meant that for problems identified during previous studies and consultation process an already existing mobility solution was chosen from the guidelines and adopted to the local conditions.

It should be kept in mind that although actions carried out as first priority are primarily “soft” and mainly infrastructural changes are not made or new services provided, those actions are needed for implementation of follow-up activities planned in the next phase of the local mobility plan.

The main aim of the actions implemented in the action plan is to change the mobility behavior of the car commuters to the BIZ of Ropka and as a result shift the modal split of home-work trips of the area to a more sustainable direction. Never less it is important to note in relation to behavioral change that:

- Firstly, in any given population some people are more susceptible to changing their travel behaviour than others. This partly relates to more subjective factors such as their attitudes and perceptions towards their current travel choices. For some people the barriers to modal shift are more objective: for example, if there is no bus service operating on the route for their journey, or if they have a disability that prevents them switching car trips to cycling or walking.

- Secondly, permanent behavioral change does not occur fast and is very difficult to achieve with only one action. Instead, this process should be viewed as a series of stages (or steps) as a result of what a new habitual behavior is accepted. Thus, if the changes occur solely in attitudes and perceptions towards alternative modes (reflecting a greater propensity to change behavior), there is still hope that an expected behavioral change will follow after some time.

The mobility plan is implemented based on the action plan stated in the end of this document. All interested companies, NGO's and stakeholders must be involved in the implementation process. Evaluation of the implemented actions, their effect and future needs, also updating of the mobility plan will be done at least once a year by the Local Mobility Group. If needed, surveys (inc. travel survey) and analysis are carried out before the evaluation.

2.2.1 BOX1: CYCLING & BOX2: WALKING SOLUTIONS

Pleasant and safe environment for pedestrians and cyclists

Mobility survey conducted among employees showed that considerable share, including everyday car commuters, lives at the distance less than 3 km from their work. Thus, to decrease overall motor vehicle traffic in the BIZ area and accompanying air pollution, also to raise traffic safety, it is important to gain significant increase of walking and bicycle use among home-work trips.

Car commuters (as drivers and passengers) but also public transport users living in the vicinity (3 km radius from) of workplace would be most potential target group for this change as in their case most sustainable alternatives are actually cycling and walking.

When considering possible barriers hindering usage of these transport modes, different explanations were given that could be summarized with the phrase: an unfriendly environment. Environment in the BIZ of Ropka does not create a wish to stay longer on the street and enjoy the journey; instead you want to get to the destination as fast as possible. Partly missing sidewalks and fragmentarily provided roads for bicycles and pedestrians do not assure adequate separation from the rather tense motorized traffic (incl. heavy vehicles) and thus even in case of small distances motorized modes of transport are preferred.

2.2.1.A ACCESSIBILITY AND SAFETY AUDIT OF THE BIZ: WALKING AND CYCLING

In addition to objective factors (distance, time, cost etc.), there are also emotional aspects behind every choice of mode of transport. The results of the mobility survey confirmed that even in case of small distances (up to 3 km), a large share of home-work trips was made with motorized transport modes.

In attempt to understand reasons for such decision, transportation specialists consulted mentioned unfavorable environment as one influential factor for low usage of bicycles and walking. Indeed, the BIZ of Ropka is a typical industrial landscape where flat production buildings, hangars and empty edges of the road fill the view. There are few eye-level mood-rising display windows and service facilities also the absence of benches, dustbins and other elements of street furniture create the feeling of an uninviting environment.

Also the employees have pointed out some issues with the accessibility. For example there are several roads for bicyclists and pedestrians (also shared ones) inside the BIZ but an overall network of bicycle roads covering whole city, is missing and thus accessing separated bicycle and pedestrian road along Turu street, is difficult. Also in some cases pavements are missing.

Figure 26. An example of a typical landscape of the BIZ (Source: GoogleMaps)

To better understand so-called end-users way of thinking and possibilities to change the BIZ of Ropka to more pedestrian and bicycle friendly place, it was decided that an audit should be conducted. The auditors would be usual road users who have the assignment to map down problematic places for pedestrians and cyclists on the predetermined routes (City centre- BIZ of Ropka, Veeriku district-BIZ of Ropka and district of Annelinn –BIZ of Ropka).

Also volunteer auditors are asked to give concrete suggestions about needed improvement to raise environmental quality in the BIZ. The second aim is to evaluate current mobility options and access to the BIZ area for pedestrians and bicycle users.

Following activities are planned in the framework of this measure:

- Agreement on routes, printing maps and creating internet-based platform for feedback
- Information campaign and recruiting volunteer auditors
- Conducting auditing (incl. internet-based possibility for feedback)
- Summarizing the results of the audits as a report and thematic map “Vision of the better environment”
- A draw among participants with small awards

The final analysis of the concrete tasks for the city administration will be made by the city officials. If solving some problem stated by the volunteers requires changes in the current road infrastructure, designs are made by the professionals. Also if needed a licensed auditor will be involved during the planning phase.

Benefits & Beneficiaries

This action is a preparatory step towards significant changes in current situation and thus it does not have a comprehensive effect. Still, during this process following objectives will be achieved:

- Awareness of the employees of the BIZ will increase about existing opportunities for walking and cycling
- This creates a justified expectation that changes are to be made in the current situation
- Local government will have up-to-date and compact information about the actions needed for a positive change.

Beneficiaries: 2812 employees (all the employees of the BIZ)

Costs

It is foreseen to print 1000 maps for this activity. In addition costs for analysis and creation of a thematic map.

The total cost of the action: 1500€

Cost-Benefit Comparison

Indicator	How to measure	Responsible	Expected result/Target
No of employees of the BIZ taking part in the auditing process	LMG will document information concerning the participants: • Participants will fill in a form with the information about their background incl. place of work	Municipality of Tartu, LMG of Tartu	3% of the employees of the BIZ have taken part in the auditing process

2.2.1.B PROVISION OF SAFE ROAD INFRASTRUCTURE FOR CYCLISTS AND PEDESTRIANS (SEPA-TURU INTERSECTION)

The share of trips done by foot is by far greatest (over 40%) in the modal split of the entire city of Tartu. Bicycle usage is also showing increasing tendency as the citizens are rather young (Tartu is a city of the university), distances are conveniently small due to the size and compact structure of the city and several roads and stands for bicycles have been provided during last few years. Also cycle training provided at schools has encouraged the usage of bicycles.

It seems that drivers of motor vehicles have not yet adapted to the new situation and have difficulties with increasing bicyclists sharing the road with them. Thus more vital than ever before are the mobility issues with the safety of bicyclists, also accidents that involve pedestrians are showing growing tendency in the city of Tartu. The reality is that unprotected road users suffer more serious consequences in case of a collision with a motor vehicle. Also bicyclists have a greater travel speed as an additional threat compared to pedestrians.

Within regular overviews of the road accidents with casualties in the city of Tartu also accident aggregation points are mapped. Based on the accident statistics, the first step towards raising road safety in the BIZ of Ropka, will be reconstruction of the intersection of Sepa and Turu streets to a traffic lights intersection. Although this solution was initially planned for the safety of motor vehicle users who were unable to make a left-turn from the Sepa street due to intense traffic on the Turu Street, this measure will also contribute to the safety of the cyclists and pedestrians passing this intersection.

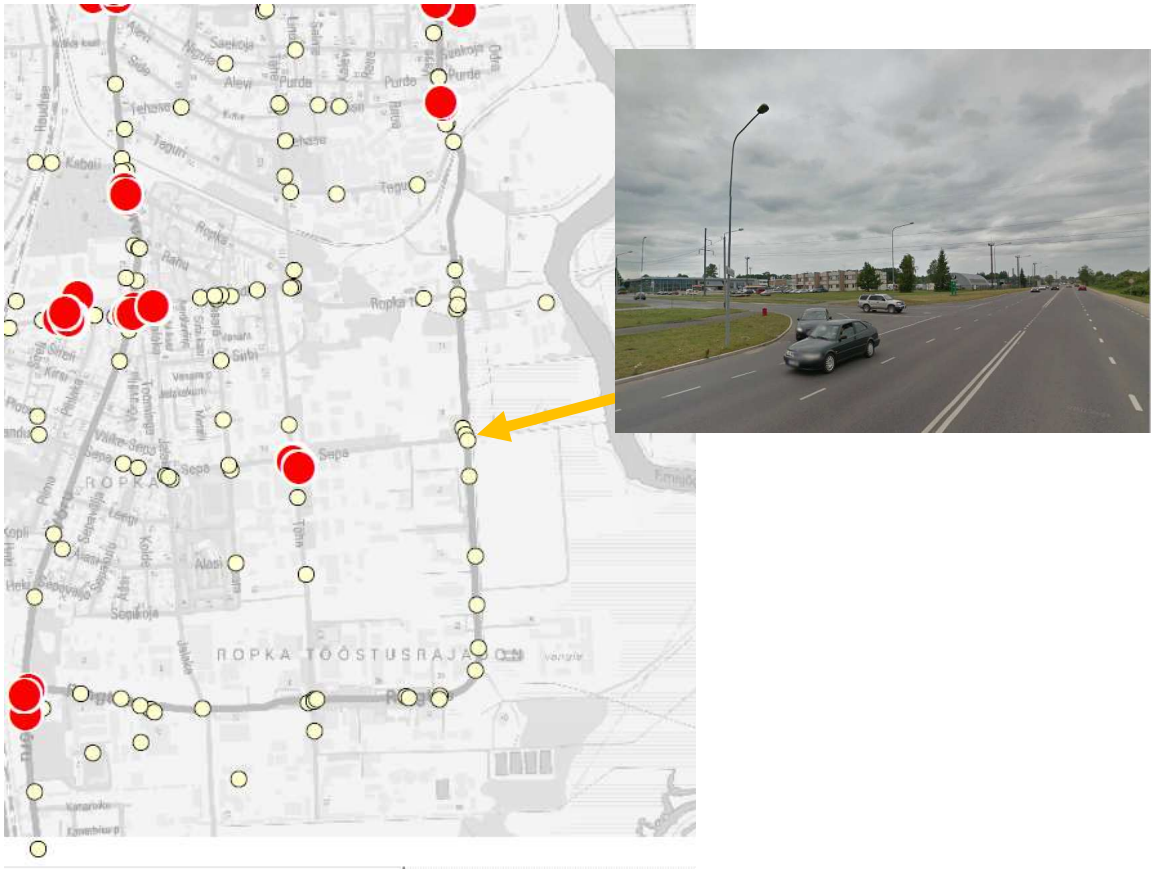


Figure 27. Accumulation points of the traffic accidents in the BIZ area 2005-2009.a. (Source: Traffic accident analysis for the city of Tartu 2009) and intersection of Sepa-Turu Str (Source: GoogleMaps)

Still it must be emphasized that this is just a start in the process of raising the safety of the area and provision safe road infrastructure for cyclists and pedestrians is a continuous act that will be included also into the subsequent mobility plans of the BIZ.

For example in the mobility survey employees stated their concerns about many road sections and intersections of which Tähe Street (and intersections on the same street) that is one of the main streets of the BIZ was the most frequently mentioned. Thus it would be advisable to ensure higher safety for cyclist and pedestrians at the Tähe Street as the follow-up measure.

Benefits & Beneficiaries

As a result of this action the number of road accidents will decrease. In particular, motor vehicle users (including transit traffic) passing that intersection will benefit. Also bicycle users and pedestrians that are traveling along bicycle and pedestrian road at Turu Street will have safer road crossing possibilities. At the same time this measure will help to reduce traffic speed on the four-lane Turu Street were official speed limit is 50 km/h, but existing road environment does not support it.

There are also several bus stops on the both sides of Turu street and only zebra crossings provided for crossing it. Thus the measure will indirectly also guarantee the safety to public transport users.

Direct beneficiaries are all employees who use Turu or Sepa street and pass the intersection, also public transport users who use bus stops of this district (Vangla or Sepa turg) and traffic to/passing the BIZ (mainly transit traffic).

Total: 10 000 beneficiaries (Approx. 1500 employees of the BIZ and 9 500 visitors, mainly transit traffic)

Costs

The estimated cost of this action is 150 000€

Cost-Benefit Comparison

Costs/Beneficiaries =150 000€/10 000 beneficiaries= 15 €/beneficiary

Indicator	How to measure	Responsible	Expected result/Target
No of road accidents with casualties in the BIZ of Ropka	Road accident statistics after the change (Officially recorded by the Estonian Road Administration): • 6 months • 1 year • 3 years	City of Tartu, Estonian Road Administration	The annual number of road accidents with casualties in the BIZ of Ropka has decreased by 5 %
No of employees who are satisfied with the safety of walking and cycling inside the BIZ	Survey among employees at the end of the project.	City of Tartu	50% of the employees are satisfied with the safety of pedestrians and cyclists inside the BIZ

2.2.1.C INSTALLATION OF THREE BICYCLE STANDS: NEAR LOCAL DINER (DUNORD),BUSINESS CENTRE (SEPA KESKUS) AND BY THE CENTRAL POSTAL OFFICE (EESTI POSTI TARTU KANDEKESKUS)

Although main barriers hindering bicycle use for home-work trips among employees of the BIZ were the condition of bicycle roads and the absence of interconnected road network, the background study also revealed scarcity of bicycle stands as one mobility problem. Also in some cases where stands were provided they were not safe to use due to their inadequate design.

When looking for suitable places, LMG and stakeholders agreed that bicycle stands should be installed at locations where most people benefit from them, thus private offices located in the closed territories were not considered. Instead service providers were preferred.

Based on this criterion, three locations inside the BIZ were chosen: near dining-place (DuNord), business centre (Sepa keskus) and central post office (Eesti Posti Tartu kandekeskus). Aforementioned dining-place can accommodate 80 visitors and due to its rather low prices is a perfect place for lunch breaks. Safe bicycle storage possibilities will encourage those coming to work by bike use it also for trips within the BIZ.

Business centre is mainly a shopping centre where manufactured and consumer goods are provided. In addition there is 1500 m^2 office-space for different businesses. Location at the bicycle and pedestrian road on Turu Street is perfect for visitors coming by bicycle.

Central post office is a central point where all the package-handling activities of the city are managed and performed. Also usual postal services are provided for clients. As the centre is located at the bicycle and pedestrian road on Võru Street, installation of bicycle stands that do not allow a bike to be stolen so easily, would promote this transport mode among visitors and employees.

Figure 28. Example of the current bicycle stands at the Central Post Office (Source: Toomas Põld)

Benefits & Beneficiaries

All employees and visitors at the location will benefit from the installation of new and safe bicycle stands. As a result of this action people are motivated to use bicycles also during their lunch breaks, shopping and

usage of postal services. This will influence the overall opinion about bicycle use and thus this has an indirect affect on attitudes and willingness to use bicycle.

Total: 260 beneficiaries (employees of the companies)

Costs

At every chosen location one bicycle stand accommodating 12-bicycles will be installed. Total cost with installation will be 1500 €

Cost-Benefit Comparison

Costs/Beneficiaries =1500€/260 beneficiaries= 5,8 €/beneficiary

Indicator	How to measure	Responsible	Expected result/Target
No of cyclists using the stands	Counting bicycle parking at the installed stands during a workday (not in winter-period) Estimated hours for counting: 8:30- 10:00 12:30- 14:30 16:30-18:30 Counting will take place after three time periods starting since the installation: • 1 week after • 1 month after • 3 months after	City of Tartu	Three months after the installation 50% of the places at the stands will be used.

2.2.2 BOX 9: MOBILITY MANAGEMENT SOLUTIONS

Managed access for freight transport

Many companies of the BIZ are directly or indirectly engaged with freight transport. Good access for heavy vehicles is important factor when choosing a place for a business and may become a deciding argument when considering establishment a successful branch office in Tartu. Thus any restrictions to vehicles' mass or size could reduce the attractiveness and competitive advantage of a business or industrial district.

Although access for freight transport is a basic precondition for the business success of many companies of the BIZ, still for the environmental and safety concerns it is also important to manage this heavy vehicle flow inside the area. As this is interconnected with the limitations to the mobility of heavy vehicles within the whole city, the overall situation must be considered.

2.2.2.A ANALYSIS OF THE LIMITATIONS FOR LARGE-SCALE MOTOR TRANSPORT (INCL. ACCESS-MAP TO/INSIDE THE BIZ)

The members of LMG who, keeping in mind the safety and environmental issues of the BIZ, decided to determine certain access routes to and inside the BIZ area for heavy vehicles, initially proposed this measure. When consulting with the experts about the content and range of this action, they pointed out an additional argument. It turns out that as a result of the project-based planning process it would be difficult for the large-scale vehicles in the future to get to the BIZ area at all. To explain the background of the problem, it is important to know that a bypass-network system is planned for the city of Tartu. This is divided into three separate projects:

1. Western bypass- technical design has been prepared (coordinator Estonian Road Administration)
2. Eastern bypass- preliminary design has been prepared. Technical design is in a preparatory phase and construction works have started. (Coordinator City of Tartu, outside the city local municipalities)
3. Northern bypass- draft design in ready (coordinator Estonian Road Administration)

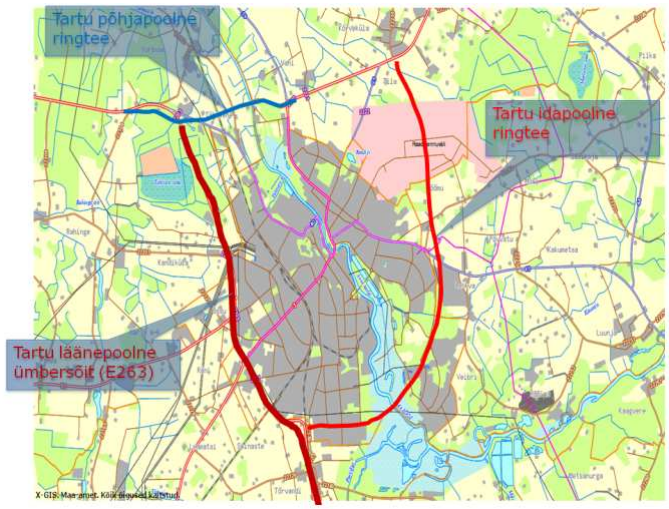


Figure 29. Bypass network (Source: Estonian Road Administration)

These aforementioned projects will assure the possibility to drive around the city and thus transit traffic passing the city and accompanying noise and air pollution will decrease. At the same time due to separate planning of different sections of the whole network, a problem for large-scale vehicles has been created as they will have several limitation on arterial roads (overpasses on Vaksali street, Ringtee street and Post

office junction and bridge over Aardla rail crossing) that restrict the access to different districts of the city. Thus large-scale vehicles will not be able to use the most direct or even optimal route to the destination inside the city.

To avoid another entering point or access possibility for large-scale vehicles being closed, specific access-routes must be reserved for such transport. As this is a problem that exceeds the borders of the BIZ, the overall situation must be analyzed and mapped. Granting the access to industrial zones– Rokpa and Ravila – is the priority.

Benefits & Beneficiaries

As a result of the analysis an access strategy will be developed together with a map showing specific road corridors that are assigned for the access of large-scale vehicles. Decision of concrete routes must be based on the current situation and road conditions, existing plans and estimated impact on the road safety. The map summarizing the results of the analysis of possible limitation and access-routes will in the future be added to the Master Plan of the city. This map will be available for all companies of the BIZ and they can use it for their drivers and customers showing how to access the park.

Direct beneficiaries are companies and the employees of the BIZ whose business activity involves transportation of goods. Indirectly all citizens will benefit as the threat from large-scale vehicles on roads without sidewalks or other unsafe situations will be prevented.

Total: approx. 1200 beneficiaries (employees of the companies engaged with freight transport)

Costs

The estimated cost of this action is 1500€

Cost-Benefit Comparison

Costs/Beneficiaries =1500€/1200 beneficiaries= 1,25 €/beneficiary

Indicator	How to measure	Responsible	Expected result/Target
Access for large-scale motor vehicles to and inside the BIZ	LMG will document the process of establishing specific routes for large-scale vehicles	LMG of Tartu	A map that determines access routes for large-scale vehicles to and inside the BIZ is completed.

2.2.3 BOX 3: PUBLIC TRANSPORT & BOX 10: NON-STANDARD SOLUTIONS

Public transport that meets the needs of local employees and companies

Public transport system in the city of Tartu has undergone many improvements: changes in timetables and routes have been introduced, even the looks of the urban buses has been unified as a result of a design contest. This all was aimed to meet the expectations of the customers. Still, it is difficult to find balance between financial possibilities and mobility demands of all citizens. Particularly difficult is to establish satisfying schedule for low-density settlements in private housing areas and also during low-demand hours (late evenings and early mornings). Weekends are also periods where intervals between buses are longer. This means that considering the size of the city, sometimes walking will be faster mode than to wait for the bus.

2.2.3.A FEASIBILITY STUDY OF FLEXIBLE PUBLIC TRANSPORT LINES (ANNELINN–BIZ OF ROPKA, CITY CENTRE–BIZ OF ROPKA)

If the aim is to stay competitive, public transport provision must also consider customers with untraditional working hours. Mobility survey showed that several employees are forced to use private car as they have no reasonable alternative. Main mobility problems arise from working in different shifts and on weekends.

To address the mobility problems of this target group, it seems at least in some specific directions rational to put into operation a flexible transportation service in the city of Tartu. As there are no former experiences with provision of this kind of services (also no good examples in the Estonia at all), it is important to consider the overall concept and scale of the service, also human and material resources needed for the operation. In detail a feasibility analysis must be conducted for the flexible transportation lines to the BIZ of Ropka. The most promising directions for these new lines would be centre of the city – BIZ of Ropka and the district of Annelinn – BIZ of Roka.

Thus this action will involve:

- Analysis of the overall concept of the flexible public transport in the city of Tartu
- Feasibility study of flexible transport lines to the BIZ of Ropka (in direction to centre of the city and district of Annelinn)

After the analysis of overall concept and positive results of the feasibility study, it is planned to start, initially as a pilot-project, a flexible transportation service to the BIZ. The aim of this service is to reduce the share of employees of the BIZ who stated that they could not use public transport due to lack of service or it was too much trouble to use it.

Benefits & Beneficiaries

One of the expected results of the flexible transportation line will be increasing comfort of the public transport which might influence the attitudes towards this mode of transport also among current car users. A sustainable and low-cost alternative for private car is provided.

Primary beneficiaries are workers with untraditional working hours also those doing overtime at work.

Total: 810 beneficiaries

Costs

The estimated cost of this action is 5000€

Cost-Benefit Comparison

Costs/Beneficiaries =5000€/810 beneficiaries= 6,2 €/beneficiary

Indicator	How to measure	Responsible	Expected result/Target
Concept for flexible transportation service	LMG will document all works concerned with preparation of the flexible transport concept	LMG of Tartu	City of Tartu has a comprehensive concept for the flexible transportation service provision
Readiness to put into operation first flexible transport line to the BIZ of Ropka	LMG will document all the preparation works carried out for putting into operation a flexible transportation line to the BIZ of Ropka	LMG of Tartu	At the end of the first phase readiness to put into operation at least one flexible transport line to BIZ of Ropka is achieved

2.2.3.B LOBBY FOR CHANGES IN THE TIMETABLES OF THE LINE 17 AND THE LINE 12

The mobility survey showed that the main problems with public transport for all employees, including car commuters, are unsuitable timetables and frequencies. It is noteworthy that even 42% of current public transport users stated that public transport schedules are not suitable with their working hours. In total 12% of car commuters are willing to use public transport if the timetables suited better with their working hours.

Thus it may explain why more than a quarter of car users considered using public transport troublesome and only 21% (mainly public transport users) of all respondents had purchased a season ticket for public transport.

Although proposals for changes were made for several public transport lines, most comments were addressed towards the lines 12 and 17. Urban bus line 17 is the only bus in direction Ringtee street- City centre and has currently one departure per hour. This frequency is not satisfactory for current users. There were more comments for changes of the line 12, among others departures also during weekends were demanded, changes in earliest and latest departure times and also general re-evaluation of the timetable was suggested by the respondents, also a proposition to re-locate the final stop or the line was made.

To better respond to the needs of the local employees, LMG of Tartu decided to start lobbying for changes in frequencies of the line 17 and 12. LMG also makes proposition to consider additional departures during weekends for the line 12. As major changes in the bus timetables and routes can be done twice a year: before switching to summer and autumn schedules, it is expected that desired changes are made before switching to autumn schedules in 2012.

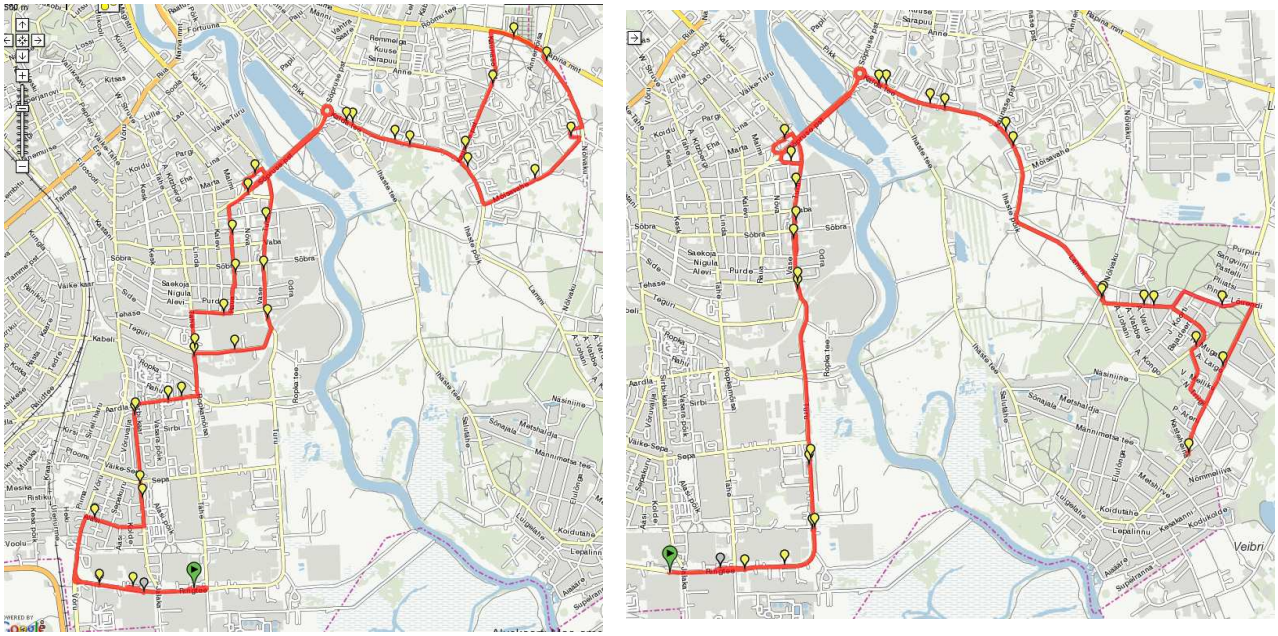


Figure 30. Routes of the line 12 (on the left) and the line 17 (Source: peatus.ee)

Benefits & Beneficiaries

Foremost beneficiaries are employees with usual working hours who use public transport or car- this means 58% of all employees of the BIZ

Total: 1630 beneficiaries

Costs

0€

Cost-Benefit Comparison

Costs/Beneficiaries = 0€/1630 beneficiaries= 0 €/beneficiary

Indicator	How to measure	Responsible	Expected result/Target
No of employees that evaluate public transport possibilities good or excellent	Survey among employees at the end of the project.	City of Tartu	No of employees that evaluate public transport possibilities good or excellent has increased by 5%
No of employees who declare that public transport timetables are suitable with their working hours	Survey among employees at the end of the project.	City of Tartu	No of employees who declare that public transport timetables are suitable with their working hours has increased by 10%

2.2.4 BOX 8: AWARENESS RAISING

Healthy and informed road users

2.2.4.A PREPARATION OF AN INTERCHANGE MAP FOR PUBLIC TRANSPORT

Although 25% of current car users would be willing to use public transport in case no interchanges would be needed, it is difficult to assure direct bus connection with all districts of the city. Thus the process of changing the bus on the way must be made as convenient as possible. One possible adjustment would be to improve the availability and provision of relevant information.

At the moment information about urban bus services are provided on the homepage of the city of Tartu, in printed booklets that are published twice a year containing information about timetables of urban bus lines and also on-line webpage (peatus.ee) gathering information about timetables and routes of all Estonian public transport lines has been created. Bus stops are equipped with timetables and partially with the map of urban bus line-network (see Figure below). Inside the busses only information about current and next stops is be provided.

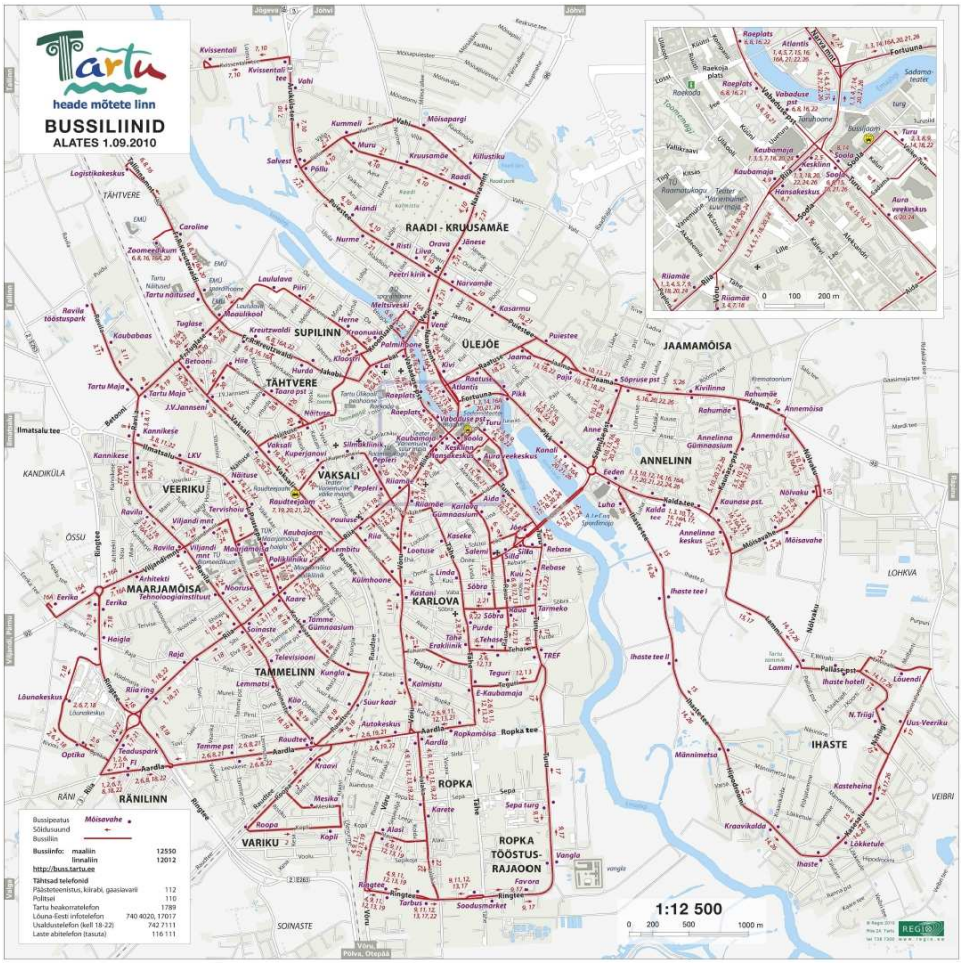


Figure 31. Line-network information on the map currently provided at sheltered bus stops of the city of Tartu (Allikas: AS Sebe)

Although those who can access internet, can use route planner (on the website of peatus.ee) and easily plan their trip beforehand, it might be difficult for a first-time public transport user to understand which bus to take solely based on the information provided at the bus stops.

LMG of Tartu found that for promotion of public transport usage and encourage trips demanding interchanges, the information provided to passengers must be in a less-complex form. Another idea was to provide this information also inside buses. This will help first-time users and visitors of the city with their decision to travel by public transport. To guarantee that employees of the BIZ of Ropka can access the information about interchange possibilities, companies who have stated their interest, will be provided with the map.

Thus the action will involve following:

- Preparation of easily understandable interchange maps of public transport of the city of Tartu
- Printing maps
- Putting the maps up into the urban buses
- Providing companies of the BIZ with the maps.

Benefits & Beneficiaries

Awareness of the employees about public transport opportunities for their home-work trips will increase as the share of those who declare that they are reluctant to interchange or consider using public transport as troublesome, will decrease.

As this service is directed towards all road users, all employees of the BIZ will benefit from it. Foremost those using or are willing to use public transport, even if for non-work related trips, will benefit the most.

Total: 6300 beneficiaries (employees and visitors of the BIZ)

Costs

Estimated cost for preparation and printing the maps for all urban buses and companies of the BIZ is 6000€

Cost-Benefit Comparison

Costs/Beneficiaries = 6000€/6312 beneficiaries= 0,94 €/beneficiary

Indicator	How to measure	Responsible	Expected result/Target
No of employees who are aware of the public transport opportunities for travelling between home and work	Survey among employees at the end of the project.	City of Tartu	90% of the employees of the BIZ of Ropka are aware of the public transport opportunities for travelling between home and work
No of companies interested in getting the interchange map of public transport	LMG of Tartu will keep an account over maps handed out to local companies	LMG of Tartu	50% of the local companies are interested in having the map

2.2.4.B PREPARATION OF AN ACCESS MAP TO THE BIZ AREA FOR SUSTAINABLE TRANSPORT MODE USERS

A precondition for present car drivers to even consider the usage of alternative modes of transport is the awareness of the existence of such opportunities. As the mobility survey showed, at least 22% of the employees were not aware about public transportation possibilities they could use for commuting, the share was slightly higher among car users (29%). Although mainly local employees knew rather well the current situation and mobility conditions for different transport modes, there are several service providers whose visitors may not be so informed.

Also provision of the objective information may help to overrule some misconceptions concerning for example the distances between destinations, public transport service provision or possibilities to use bicycle. Thus provision of information about sustainable transport modes inside BIZ area is important for employees who can re-evaluate their transport choices but also for the visitors to encourage them arrive by public transport, bicycle or walk to the BIZ.

The initial idea is to prepare maps, where all roads, routes and bus information for pedestrians, cyclists and public transport users are provided. Also additional information about different distances to main travel destinations are provided (district Annelinn, Veeriku, Ülenurme etc.) so the users can, based on their subjective preferences, physical form, economical situation and available time, decide on their mobility options. The map will be available on the paper and on-line.

Benefits & Beneficiaries

The map is useful for local companies that provide services, their employees and customers as it will help to explain how to reach them. Thus the attractiveness of the location among customers without access to private car will arise.

Total: 6300 beneficiaries (employees and visitors of the BIZ)

Costs

Estimated cost of the preparation and printing maps is planned 3000€

Cost-Benefit Comparison

Costs/Beneficiaries = 3000€/6300 beneficiaries= 0,47 €/beneficiary

Indicator	How to measure	Responsible	Expected result/Target
No of companies interested in getting the access map for sustainable transport modes	LMG of Tartu will keep an account over local companies interested in the maps	LMG of Tartu	At least 10% of local companies are interested in getting the map
No of maps handed out or downloaded	LMG of Tartu will keep an account over maps handed out or downloaded	LMG of Tartu	In total 500 maps have been handed out or downloaded

2.2.4.C AWARENESS RAISING CAMPAIGNS AND ACTIVITIES

One of the important objectives of the local mobility plan is to change the mentality of the local companies and employees regarding sustainable mobility. A positive step towards desired changes is if already alternative transport modes are considered as an option.

The main factors behind choice of mode of transport for car commuters of the BIZ were comfort, freedom of movement, having less stress and duration of the trip. Health was important only for 9% of the respondents currently using car for travelling to work. At the same time the positive fact is that majority of the car users state that they make sure of using the car with respect to the environment (in a 10-point scale the average rating was 7,1).

In spite of that, solely the fact that private car is being used at everyday bases in an urban environment where majority of the citizens have the opportunity to choose more sustainable modes of transport, is an important indication that environmental concerns are not a priority when choosing mode of transport and actual consequences of the mobility behaviour and responsibility for the environmental problems are not always acknowledged.

To raise the awareness of the employees of the BIZ about the personal (health) and societal (environmental quality) influences of their behaviour, also more specifically to introduce the objectives of MoMA.BIZ and address different target groups, several public campaigns and activities are planned.

Targeted campaigns are planned to raise awareness about the real costs of car usage as the travel survey revealed that many employees are rather price-sensitive when it comes to their everyday transport. Also interesting was that many respondents were willing to share their car with a coworker (without any preconditions) but still the number of carpoolers and car-sharers were rather modest. Thus it could mean that people just need encouragement and assurance that there are several positive outcomes (inc. financial benefit) if they share their ride with a colleague. Also to support communication between employees and help in partner search, an e-society is planned to put up.

Among others they will include following activities:

- Preparation of a YouTube video to introduce the objectives of the MoMA.BIZ project. The link will be shared via social networks (Facebook etc.) and other internet sites.
- Competition called “Green kilometres” aimed to promote a change in the mobility behaviour of the employees. The exact rules will be specified, but initial plan is that:
    - Teams signing up represent their companies
    - At least half of the team members must be regular car commuters
    - For every home-work trip made by a team member using a sustainable transport mode, the team will get so-called green kilometres to their total account. Those kilometres are in accordance with the travelled distance. Thus the team is motivated to involve people living further from the work.
    - The team members must regularly report about their travel behaviour in the “Green kilometres” blog.
- Provision information to local companies about installation, financing possibilities and design issues of bicycle stands.

- Printing and sharing promotional T-shirts with informative and interesting texts about sustainable mobility
- Campaign in the BIZ area showing real costs of car using in comparison to public transport.
- Campaign for promotion of car-sharing and carpooling with creation of a related e-society.
- Other information and awareness campaigns defined later

Benefits & Beneficiaries

People will be more informed about different modes of transport and their impact to environment and quality of life.

As the activities and campaigns are with different content and aimed to several target groups, the objective is to reach every road user. Altogether every employee of the BIZ will be a beneficiary.

Total: 6300 beneficiaries (employees and visitors of the BIZ)

Costs

Estimated cost of this action is planned 10000€

Cost-Benefit Comparison

Costs/Beneficiaries = 10000€/6300 beneficiaries= 1,59 €/beneficiary

Indicator	How to measure	Responsible	Expected result/Target
Competition „Green kilometres“			
No of teams signed up	LMG of Tartu will keep an account over teams signed up	LMG of Tartu	At least 3% of local companies are represented with a team.
No of home-work trips of the team members done by car	Team members must report their travel mode in the competition blog	LMG of Tartu	Home-work trips of the team members done by car have been reduced by 50%
YouTube video			
No of viewers	LMG of Tartu will document the no of viewers from the YouTube site	LMG of Tartu	The video introducing the objectives of the MoMA.BIZ project has been watched at least 2000 times
Informing companies about bicycle stand provision			
No of companies that are informed	LMG of Tartu will keep an account over companies informed	LMG of Tartu	At least 25% of local companies have received information about installation of bicycle stands
Other information and awareness campaigns			
No of employees who consider the project useful	Survey among employees at the end of the project.	City of Tartu	At least 75% of local employees will find the project useful
No of employees willing to use bicycle or walk to get to work	Survey among employees at the end of the project.	City of Tartu	The willingness to use bicycle or to walk to get to work has increased by

			5%
No of employees willing to use public transport to get to work	Survey among employees at the end of the project.	City of Tartu	The willingness to use public transport to get to work has increased by 5%
No of employees willing to share their ride with a coworker to get to work	Survey among employees at the end of the project.	City of Tartu	The willingness to share the ride with a coworker to get to work has increased by 5%

2.3 ADDITIONAL MOBILITY PROPOSALS TO BE CONSIDERED IN THE FUTURE

The following mobility proposals are also relevant for achieving stated objectives but their implementation as the first priority was not possible due to their complexity, prior need for planning or predictably smaller influence. Still mainly among actions with priority 2 are those which will expectedly give a great incentive for local employees to change their mobility behavior. Thus these should be implemented as soon as possible.

PLEASANT AND SAFE ENVIRONMENT FOR PEDESTRIANS AND CYCLISTS

The three actions stated below are all important but their implementation requires thorough planning and thus they are not listed as the first priority.

2.3.A CONSTRUCTION OF BICYCLE AND PEDESTRIAN ROAD BETWEEN BIZ OF ROPKA AND DISTRICTS ANNELINN AND IHASTE

Several current car users stated their willingness to use bicycle for trips to work. At the same time the primary precondition was that there were more and safer bicycle roads. In addition several suggestions were made about bicycle and pedestrian roads connecting different districts of the city.

As part of the biggest road construction project of upcoming years – eastern bypass – a new bicycle and pedestrian road will be built by the end of 2015. This will connect the BIZ with two city districts – Annelinn and Ihaste. Annelinn as the largest district (approx. 30% of citizens of Tartu live there) is also the main place of residence of local employees. Many respondents of the mobility survey also stated that construction of new bridge and accompanying bicycle and pedestrian road will alleviate current mobility problems incl. problems with the access.

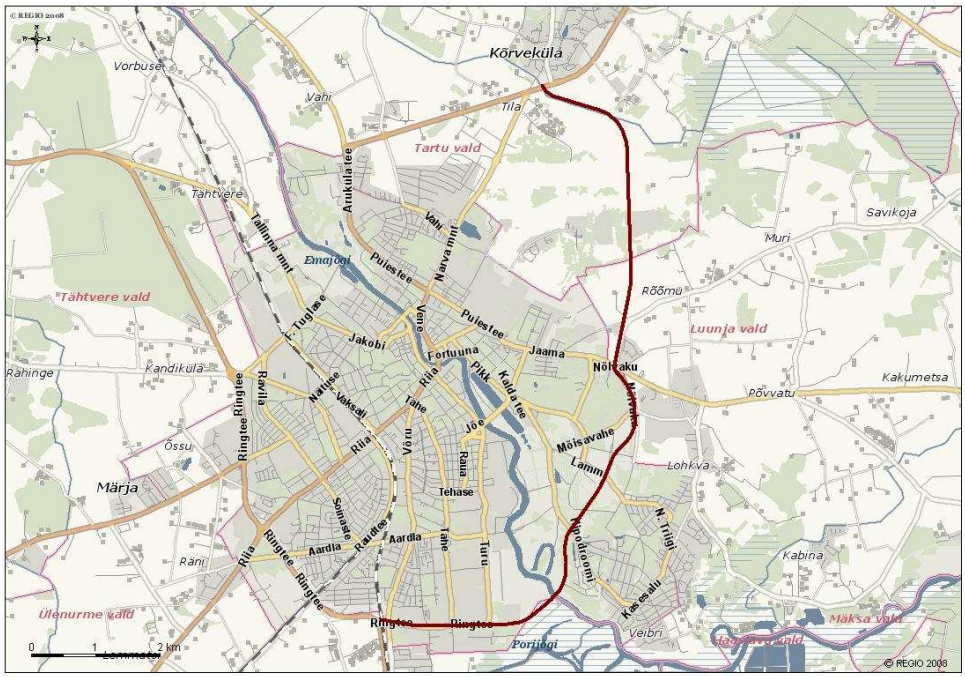


Figure 32. Eastern bypass (Source: City of Tartu)

Benefits & Beneficiaries

Reduction of travel distances, safer and faster access to the BIZ of Ropka. Increasing the number of river crossing opportunities. Raising the attractiveness of bicycle usage and walking.

Direct beneficiaries are those local employees walking or cycling to work.

2.3.B RAISING THE QUALITY OF LOCAL ENVIRONMENT (INSTALLATION OF BENCHES, GREENERY, LIGHTING ETC.) BASED ON THE RESULTS OF WALKING AND CYCLING AUDITS

As a result of the auditing process conducted, it is planned to improve the overall environment of the BIZ by starting to gradually implement the vision of the better environment. In the end the willingness to use bicycle or walk inside the BIZ should increase and for example most lunch breaks will be made by these transport modes. Also the overall feeling of safety and satisfaction will arise. Local employees consider the BIZ of Ropka as a pleasant working environment.

Benefits & Beneficiaries

If currently only 40% of local employees own bicycles, than better environment and access will presumably raise both the share of bicycle owners and users. Also it is predicted that the share of pedestrians among work- and non-work related trips will increase.

As public transport users also have to do part of their journey by foot (travelling to and from bus stop) better environment will also help to promote usage of this mode of transport.

Beneficiaries are all employees of the BIZ.

2.3.C SEPARATE BICYCLE AND PEDESTRIAN ROAD AT TÄHE STREET

One of the problematic streets of the BIZ for pedestrians and cyclists is Tähe Street where traffic is tense and sidewalks are partially missing. Thus unprotected road users are not safely separated from motorized traffic. To raise safety of pedestrians and cyclists and promote sustainable transport modes finances needed for building bicycle and pedestrian road at Tähe Street should be found.

Figure 33. Tähe Street (Source: GoogleMaps)

Benefits & Beneficiaries

The attractiveness of walking and bicycle use will increase when traveling to and inside the BIZ as this is one of the main roads inside the BIZ. The satisfaction with the existing conditions and safety will increase as unprotected road users are separated from the motorized traffic.
Beneficiaries are pedestrian and bicyclists of the BIZ including public transport users who use this street traveling between place of work and bus stop.

PUBLIC TRANSPORT THAT MEETS THE NEEDS OF THE LOCAL EMPLOYEES AND COMPANIES

2.3.D OPERATING FLEXIBLE TRANSPORT LINE SERVING THE BIZ OF ROPKA

As a result of the survey and feasibility study conducted in the first phase, the city of Tartu has a concrete vision of the flexible transport services needed – directions, times and overall organization of the service. In case of the positive results of the feasibility study, first flexible bus lines provided will be which are serving the BIZ of Ropka. This will be a sustainable alternative to private car for periods and districts with low demand.

Benefits & Beneficiaries

This measure will help to raise the competitiveness, usage and satisfaction with the public transport services.

Beneficiaries are all local employees with untraditional working hours.

2.3.E INSTALLATION OF A BUS SHELTER TO VANGLA BUS STOP

An important factor when evaluating comfort of the public transport services is also waiting conditions. Especially in Estonian climate where differences between four seasons are considerable and the annual mean rainfall (550-800 mm) exceeds evaporation (400 mm).

There are 282 bus stops in the city of Tartu, 18 of them are within the territory of the BIZ. Twelve stops are equipped with shelters, so the users of the other six stops will have to wait for bus under open sky or search shelter from nearby buildings. Partially also benches are missing (see the pictures below)

Mainly there are economical considerations behind installation of bus shelters– preferred are stops with higher passenger turnover. Still in some places local conditions must be considered as in case of Turu street where a high-voltage line prevents installation of a shelter to a bus stop (Sepa turg).

Although the further aim would be installation shelters to every bus stop, where it is possible, the first step should be improvement of the waiting conditions at the Vangla bus stop. Vangla bus stop serves all the employees (total 402employees) and visitors of Tartu Prison who use public transport thus installation a shelter at the stop should be a priority.

Figure 34. Examples of bus stops of the BIZ: Tehase (on the left) and Tarbus (Source: GoogleMaps)

Figure 35. Current situation at the Vangla bus stop (Source: Google Maps)

Benefits & Beneficiaries

Waiting conditions of the public transport will be improved and due to it also satisfaction with provided services.

Direct beneficiaries are users of the Vangla bus stop.

2.3.F APPLICATION OF REAL TIME PUBLIC TRANSPORT INFORMATION SYSTEM

Up until now any prompt information about breakdowns or delays of the urban buses could be obtained from the hotline of the bus company. Soon the city of Tartu is implementing a real time public transport information system. Within this measure following activities are planned:

- All buses will be equipped with real time tracking devices.
- Information displays are installed to 44 bus stops (in second phase additional 46 displays are planned including one stop inside the BIZ)
- Passenger counting devices will be installed into 10 busses
- Bus drivers will have displays showing deviation from the time table.

Although initially no displays are being installed in the BIZ area, the same application is available all the time to all owners of a smartphone.

Benefits & Beneficiaries

This action will provide an opportunity to operatively inform passengers and to reduce uncertainties concerned with waiting times. Overall reliability of the public transport service will increase and this will encourage testing this transport mode. Also information gathered about passenger turnover and delays will help to adjust timetables, frequencies and, if necessary, routes.

In the BIZ all employees who are using public transport will benefit from this action. Also satisfaction with the service will motivate current car users to decide in favor of this transport mode.

HEALTHY AND INFORMED ROAD USERS

2.3.G CAMPAIGN: "1 CAR TRIP LESSER"

As stated before, changing behavior is usually a long-term process. Because of this, regular car users might at first be reluctant to completely abandon their habitual transport mode. Instead better results might be attained if car users are guided to map down their everyday car trips and make at least one of them by alternative modes of transport. With the hope that great things start from smaller steps, campaign "1car trip lesser" might direct car users at least to try-out alternative possibilities.

Benefits & Beneficiaries

Number of car miles driven will decrease and this is mainly because trips to smaller distances are made by other transport modes. The campaign is successful if car users are more aware about their mobility behaviour and considers alternative transport modes as possible option.

Direct beneficiaries are regular car users whose health will improve due to increased physical activity and who are, after the campaign, more knowledgeable road users.

2.3.H BICYCLE DAY FOR LOCAL EMPLOYEES AND TEHIR FAMILIES

When good possibilities for accessing the BIZ are in place (bicycle and pedestrian road between BIZ and districts of Annelinn and Ihaste is ready), safe storage places are installed and overall traffic environment is improved, organizing a bicycle day for employees and their families would help to promote this transport mode. This day could include bicycle school for adults, cycling competitions for children, possibilities to purchase bicycle equipment with more favorable prices and also free of charge maintenance of bicycles. Also individual trip advice will be provided for those who wish to travel more sustainable.

Benefits & Beneficiaries

With bicycle infrastructure improvements favorable conditions have been created and thus organization of a bicycle day will be a final push towards deciding in favor of this transport mode. More shy adults are encouraged with bicycle school and individual trip advice to test this transport mode. Also main traffic rules are reviewed to assure the safety of all road users.

Beneficiaries are all employees of the BIZ who are interested in traveling by bicycle.

2.3 I PACKAGES FOR NEW EMPLOYEES WITH TRAVEL INFORMATION

With the aim to prevent the formation of unsustainable travel habits as soon as possible, one solution would be to distribute information about alternative transport modes to new employees. Packages for new employees might include public transport timetables, line-network and interchange information, and bicycle road maps also an access map for sustainable mode users and overall information about advantages of

sustainable travel. Initially it is planned to distribute these packages to five largest (considering the No of employees) companies of the BIZ.

Benefits & Beneficiaries

This measure will help to prevent formation of unsustainable mobility behaviors by supplying the new employees who are unfamiliar with local conditions with the objective information about alternative modes of transport.

Direct beneficiaries are new employees who are more informed.

2.4 SUMMARY

In the table below mobility solutions analyzed in this document are summarized. Those with priority 1 are the ones that will be implemented immediately, and will be partly financed by the project MoMa.BIZ. Installation of traffic lights at the Sepa-Turu intersection will be financed by the city of Tartu. The activities with the priority 2 or 3 will be implemented in the near future.

Priority	Mobility Solutions	Cost in €
1	2.2.1.a Accessibility and safety audit of the BIZ: walking and cycling	1500
1	2.2.1. b. Provision of safe road infrastructure for cyclists and pedestrians (Sepa-Turu intersection)	150 000
1	2.2.1.c Installation of three bicycle stands: near local diner (DuNord), business centre (Sepa keskus) and by the central postal office (Eesti Posti Tartu kandekeskus)	1500
1	2.2.2.a Analysis of the mobility limitations for large-scale motor transport (incl. access map to/inside the BIZ)	1500
1	2.2.3.a Feasibility study of the flexible transport lines (Annelinn-BIZ of Ropka, City centre-BIZ of Ropka)	5000
1	2.2.3.b Lobby for changes at the timetables of the line 17 and the line 12	0
1	2.2.4.a Preparation of an interchange map for public transport	6000
1	2.2.4.b Preparation of an access map to the BIZ area for sustainable transport modes	3000
1	2.2.4.c Awareness raising campaigns and activities	10000
Total Cost		**178 500**
Mobility Solutions for Future Consideration		
2	2.3.a Construction of bicycle and pedestrian road between BIZ of Ropka and districts Annelinn and Ihaste	
2	2.3.b Raising the quality of local environment (installation of benches, greenery, lighting ect.) based on the results of walking and cycling audits.	
2	2.3.c Separate bicycle and pedestrian road at Tähe street	
2	2.3.d Operating flexible transport line serving the BIZ of Ropka	
2	2.3.e Application of real time public transport information	
2	2.3.f Installation a bus shelter to Vangla bus stop	
3	2.3. g Campaign „1 car trip lesser“	
3	2.3.h Bicycle day for local employees and their families	
3	2.3.i Packages for new employees with travel information for largest companies of the BIZ	