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## Measure Evaluation Results

### 50 – Mobility Improvements in Ústí nad Labem

Deliverable D

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THE CIVITAS INITIATIVE  
IS CO-FINANCED BY THE  
EUROPEAN UNION

*Measure title:* **Mobility Improvements in Ústí nad Labem**

*City:* **Ústí nad Labem** *Project:* **Archimedes** *Measure number:* **50**

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## **Executive summary**

Ústí nad Labem aims to provide improved mobility services to citizens with limited mobility. First step is to provide adequate information to them. The required information for disabled people was established through surveys among city residents.

Ústí nad Labem is currently developing a web portal to provide its citizens with improved mobility opportunities. The website application is primarily aimed at providing access routes for citizens with mobility disabilities, including handicapped residents, parents with strollers and other vulnerable route users. It provides information about local access routes presented in interactive maps with videos from each route recorded in a user's point of view from a height of a wheelchair person.

Web portal visitors can view each desired route from its source (PT stations, parking lots) to its destination (offices, social services, healthcare facilities in the city) with all detailed information including detailed description of all barriers on the route, of all pedestrian crossings, ramps and stairs, safety warnings on the route, videos and photo gallery from the route, and other user related information. It is accessible from the official city website and on the address <http://bezbari.usti.cdsw.cz/imapa.aspx>.

The accessibility deficits for these vulnerable groups on routes identified during the field survey were submitted to the relevant office authorities (City Municipality, City District authorities, Directorate of Roads and Motorways and Regional Authority of the Ústí region) for corrections with priorities of their need of implementation, especially concerning the pedestrian crossings in the city centre.

The web portal allows citizens with mobility restrictions to plan and review their walking trips and presents complex information specially referred to them at a unique location. The website enables its users to get acquainted, both visually and practically, with local mobility possibilities according to their personal needs or restrictions.

The Web will be continuously improved. Routes will be further extended to other important points of interest in the city, such as cultural destinations and free time facilities in the city. Also other features were initiated, such as downloadable maps for mobile phones and paper maps of barrier-free access routes in the city.

The measure improved awareness about mobility possibilities for vulnerable road users, primarily people with mobility restrictions.

## **A Introduction**

### **A1 Objectives**

The measure objectives are:

(A) High level / longer term:

- To improve public facilities for mobility (especially for disabled citizens)

(B) Strategic level:

- To improve access solutions to various public transport services and on the road network, in general.

(C) Measure level:

- (1) To improve awareness about mobility options and barrier free access routes for people with handicaps and mobility restrictions
- (2) To provide information on security issues and the quality characteristics of each route in order to improve safety of users and encourage mobility of vulnerable pedestrians
- (3) To develop an website application for people with mobility restrictions dedicated to barrier-free access routes in the city

### **A2 Description**

Ústí nad Labem developed a web portal to provide its citizens with improved mobility opportunities. The website application is primarily aimed at providing access routes for citizens with mobility disabilities, including handicapped residents, parents with strollers and other vulnerable route users.

It provides information about local access routes presented in interactive maps with videos from each route recorded in a user's point of view from a height of a wheelchair person.

The web portal allows citizens to plan and review their walking trips and presents complex information about access routes both visually and practically to get them acquainted with local mobility possibilities according to their personal needs or restrictions.

## **B Measure implementation**

### **B1 Innovative aspects**

The innovative aspect of the measure is:

- **Targeting specific user groups** – Disabled residents in the city cooperated on data gathering and decision-making in the process of developing the website dedicated to mobility improvements of vulnerable pedestrians and specifically to barrier-free access routes in the city in order to provide people with mobility restrictions with required information useful to get acquainted with their mobility options according to their specific needs.

### **B2 Research and Technology Development**

The measure involved field survey of barriers and access routes in the city and development of the website with the interactive map of these routes and related information for people with mobility restrictions.

*Figure 1 – Electric scooter utilised for the video shooting from the wheelchair person's point of view during the field survey for the website application.*



The web portal includes the following features:

- Continuous viewing of maps in various scales.
- Identification of selected pedestrian routes from its source to its destination
- Information about barriers on the route – edges, stairs, ramps, etc.
- Videos of each route showing the position on the interactive map.
- Detailed information on points of interest in the city.
- Downloadable application for a cell phone.

### **B3 Situation before CIVITAS**

There was no complex information provided about city mobility issues in Ústí nad Labem. There was a need to offer sufficient, user-friendly and targeted information that will help to stimulate mobility of vulnerable road users and specifically to improve mobility of disabled people and people with mobility restrictions and improve their accessibility of important destinations in the city.

Therefore, the city has a goal to improve conditions for handicapped and vulnerable road users and to introduce mobility services promoting road safety. Within the official city website, an integrated transport portal is being developed with all comprehensive transport information from the city available from one site to provide its citizens with improved transport services. The aim is to support use of sustainable urban transport modes, increase safety of transport in the city and improve accessibility for all city residents, including residents with mobility restrictions.

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

**Stage 1: Field survey (M7 – M12)** - *Field surveys were conducted to gather background data for the website database, which included mapping of the major access routes, recording of GPS location, collecting photos of the route and points of interest and videos from each route, gathering data about all barriers on these routes (height of a barrier, safety hazards, accessibility of destinations, etc.). Field surveys were carried out by an electric scooter with a camera attached in eye height of a wheelchair mobile person.*

**Stage 2: Data processing (M12 – M15)** – *processing gathered data for the website application, setting the interface for data recall, implementing web application from source code and graphical interface.*

**Stage 2: Development of the website application improving mobility of vulnerable pedestrians (M15 – M18)** – *Implementing the interactive maps for the web portal, integrating relevant information on routes, barriers, points of interest and other data gathered via field surveys and requested by disabled residents, debugging the web application features.*

**Stage 3: Launching the website application online as a trial version (M18 – M21)** – *Providing the trial version online and processing the feedback to improve its features in order to make the website more user-friendly.*

**Stage 5: Mobility survey (M22 – M26)** - *For the purpose of measure evaluation, a mobility survey was performed among city residents.*

**Stage 4: Gathering feedback from the public and measure promotion (M26 – M32)** – *Continuous improvements of the online application and its promotion through leaflets, meetings with disabled people, production of paper brochures and maps, etc.*

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

The measure is related to other measures as follows:

- **Measure no. UNL 49** – Road Safety Measures in Ústí nad Labem – improving mobility of vulnerable and handicapped road users requires safe environment for pedestrians and PT users.
  - **Measure no. UNL 60** – Cycle Transport Improvements in Ústí nad Labem – field survey of cycle routes in the area and processing of gathered data into the website application was performed together and with common methodology and equipment as the field survey of access routes in the city and the subsequent data processing for the website application.
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## C Impact Evaluation Findings

### C1 Measurement methodology

#### C1.1 Impacts and Indicators

**Table C1.1.1: Indicators.**

NO.	EVALUATION CATEGORY	EVALUATION SUB-CATEGORY	IMPACT	INDICATOR	DESCRIPTION	DATA/UNITS
	<b>SOCIETY</b>					
13		<b>Acceptance</b>	Awareness	Awareness level	Awareness of the policies/measures	Index (%), qualitative, collected, survey
14			Acceptance	Acceptance level	Attitude survey of current acceptance of the measure	Index (%), qualitative, collected, survey
15		<b>Accessibility</b>	Spatial Accessibility	Perception of accessibility	Improvement in perception of physical accessibility of service	Index(%), qualitative, collected, survey
19	<b>TRANSPORT</b>	<b>Quality of service</b>	Quality of service	Quality of service	Perception of Quality of service	Index(%), qualitative, collected, survey

**Table C1.1.2: Indicators.** Detailed description of the indicator methodologies

No.	Indicator	Target value	Source of data and methods	Frequency of data collection
13	Awareness level	25 %	data were collected before and after measure launch through surveys realized during the public events held within the project and online through the city website	2 x
14	Acceptance level	25 %	data were collected before and after measure launch through surveys realized during the public events held within the project and online through the city website	2 x
15	Perception of accessibility	15 %	data were collected before and after measure launch through surveys realized during the public events held within the project and online through the city website	2 x
19	Quality of service	10 %	data were collected before and after measure launch through surveys realized during the public events held within the project and online through the city website	2 x

**Data collection:**

Direct observation, recording of events and a mobility survey realised by the Civitas team in Ústí nad Labem



## **C1.2 Establishing a Baseline**

Usti nad Labem is in a process to become a pedestrian-friendly city. This development also needs to follow requirements of people with mobility limitations, such as wheelchair users, and also elderly people or parents with strollers.

Currently, there are specific regulations applied on newly constructed transport infrastructure, such as pedestrian crossings or pavements fulfilling the norms for barrier-free access, but there are still numerous barriers present on the existing access routes to main points of interest in the city.

These access routes were surveyed, the main barriers on these routes were identified and data about the shortcomings were submitted to city authorities for removal. The access routes were also processed for the website application allowing to view these routes with all their characteristics, including videos, photo gallery and downloadable information for mobile phones. The city is currently working on paper version of maps of barrier-free access routes in the city.

The measure was aimed at improving awareness about opportunities people with mobility restrictions have in the city.

Baseline was set in the year 2010. Evaluation data for the state before were gathered by the survey of the public realised by online questioners among residents between July and November 2010.

## **C1.3 Building the Business-as-Usual scenario**

The scenario business as usually reflects the current state with no additional actions towards improving the current state of access routes in the city and can be enumerated as the scenario BEFORE.

## **C2 Measure results**

**BEFORE:** The city conducted a mobility survey of awareness level, acceptance level and perception of accessibility for its citizens from July to November 2010. People were incentivised to participate in the survey by the chance to win prizes. The survey was distributed online on the city website and promoted via local media. The results of the survey were utilised for mobility improvements in the city. From the total of 22 questions, 6 were related to this measure and answered by 137 residents. Results of the survey were electronically presented in the PDF format on the city website available for download.

**AFTER:** Instead of the online survey, data after launching the mobility website dedicated to access routes in the city were gathered by questionnaires distributed to residents during public campaigns realised by CIVITAS Archimedes on public space in Ústí nad Labem during spring and summer in 2011. 142 respondents took part in the survey.

The results are presented for indicators of transport and society.

## **C2.1 Economy**

No indicators.

## **C2.2 Energy**

No indicators.

## **C2.3 Environment**

No indicators.

## **C2.4 Transport**

### **Quality of service (no. 19)**

Residents in the city were asked how they perceive quality of existing pedestrian routes in the city and accessibility of public places, which they visit regularly.

**BEFORE:** 84 respondents (61.3 %) answered that they are moderately satisfied and 53 respondents (38.7 %) answered that they are not satisfied with the current state of access routes to major destinations in the city. This means that at least 38,7 % respondents find deficits in the existing state.

**AFTER:** 76 respondents (53,5 %) answered that they are moderately satisfied and 66 respondents (46,5 %) that they are not satisfied with the current state of access routes to major destinations in the city. This means that at least 46,5 % respondents find deficits in the existing state.

The most frequently identified deficits of access routes involved the following:

	<b>Before (online 2010)</b>	<b>After (questioners 2011)</b>
<b>Issues of access routes in the city</b>	<b>No. of answers</b>	<b>No. of answers</b>
bad state of the surface of pavements/walking paths/underpasses/overpasses and neglected maintenance of greenery and surroundings	14	12
parked vehicles on inappropriate places restraining passage and reducing view, by pedestrian crossings or pavement ramps, on pavements, near pavement ramps	10	5
insufficient access for disabled people and lack of palpable elements	10	17
need for more low-floor buses in operation, marked in timetables	7	2
missing pedestrian crossings near PT stops	4	6
poor condition of a pedestrian route in the direction from the city centre to Větruše castle	3	0
inappropriately implemented parking places for disabled drivers (far away from disabled access entrances or from pavement ramps, near guardrails and other barriers)	3	0
uneven stone block paving on main squares in the city centre restrict	2	2
insufficient number of pedestrian crossings or their bad conditions	2	1
poor state of walking path in direction city centre - quay	1	0
high volume of road traffic in the city centre	1	2
transport of bicycles in PT	1	0
poor accessibility of the residential area Severní Terasa	0	3
pedestrian routes are often also used by other users, such as drivers and cyclists	0	2
NO ANSWER	84	76
absolute, relative frequency	61,3 %	53,5 %

**Table 1: Deficits in accessibility detected through the surveys between 2010- 2011**

<b>Indicator</b>	<b>Before (2010)</b>	<b>B-a-U</b>	<b>After (2011)</b>	<b>Difference: After –Before</b>	<b>Difference: After – B-a-U</b>
<b>19 – Quality of service</b>	61,3 % satisfied	-	53,5 % satisfied	-7,79 % satisfied	-

Due to measure implementation, awareness about barrier-free access routes in the city was increased but also about deficits of the access routes and barriers identified by the field survey realised in the city. According to the sample questionnaire, city residents can be more aware about the deficits and therefore more dissatisfied with the existing state.

## C2.5 Society

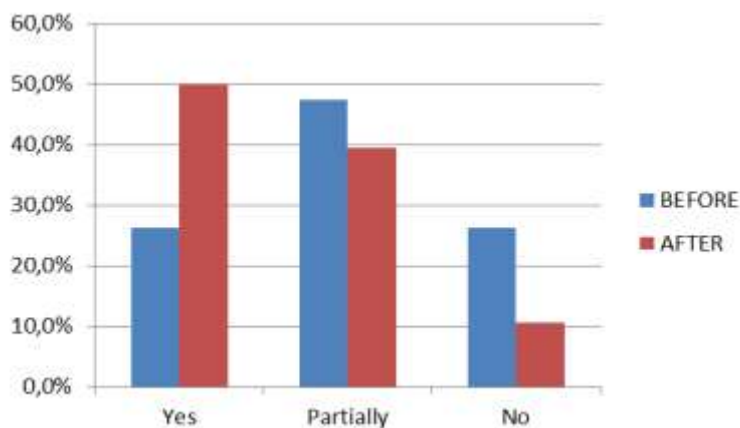
### Awareness level (no. 13)

Residents in the city were asked how aware they are about barrier-free access routes existing in the city:

*“Are you aware about barrier-free access routes in the city?”*

Answers	BEFORE		AFTER	
	No.	Percentage	No.	Percentage
Yes	36	26,3%	71	50,0%
Partially	65	47,4%	56	39,4%
No	36	26,3%	15	10,6%
<b>TOTAL</b>	<b>137</b>	<b>100,0%</b>	<b>142</b>	<b>100,0%</b>

**Figure 2: Awareness level - data from the two implemented surveys between 2010- 2011**



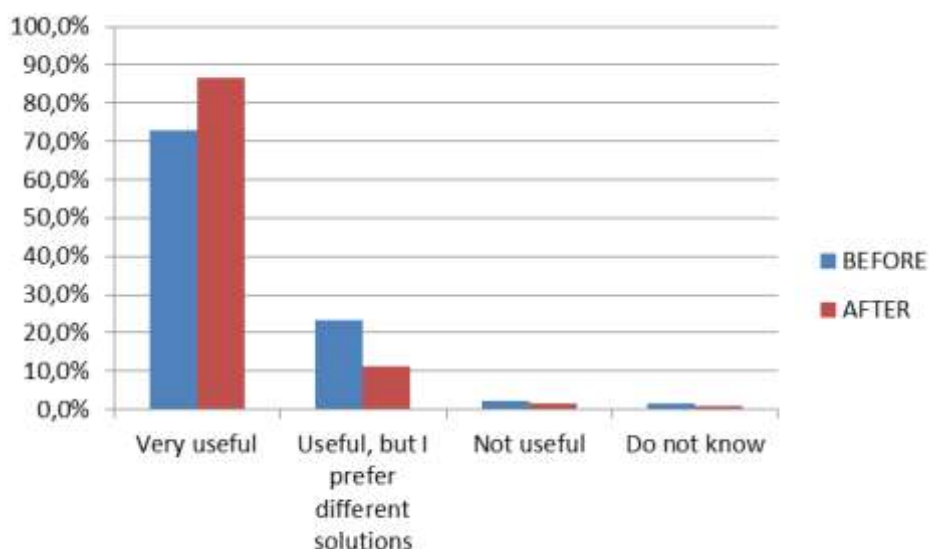
**Acceptance level (no. 14)**

Residents in the city were asked how they are satisfied with activities realised in the city towards barrier-free access to major points of interest in the city:

*“Do you find useful the new measures currently being implemented on the transport infrastructure for people with reduced mobility (such as adequate pedestrian crossings, low-floor boarding areas at PT stations, ramps, etc.)?”*

Answers	BEFORE		AFTER	
	No.	Percentage	No.	Percentage
Very useful	100	73,0%	123	86,6%
Useful, but I prefer different solutions	32	23,4%	16	11,3%
Not useful	3	2,2%	2	1,4%
Do not know	2	1,5%	1	0,7%
<b>TOTAL</b>	<b>137</b>	<b>100%</b>	<b>142</b>	<b>100%</b>

**Figure 3: Acceptance level - data from the two implemented surveys between 2010- 2011**



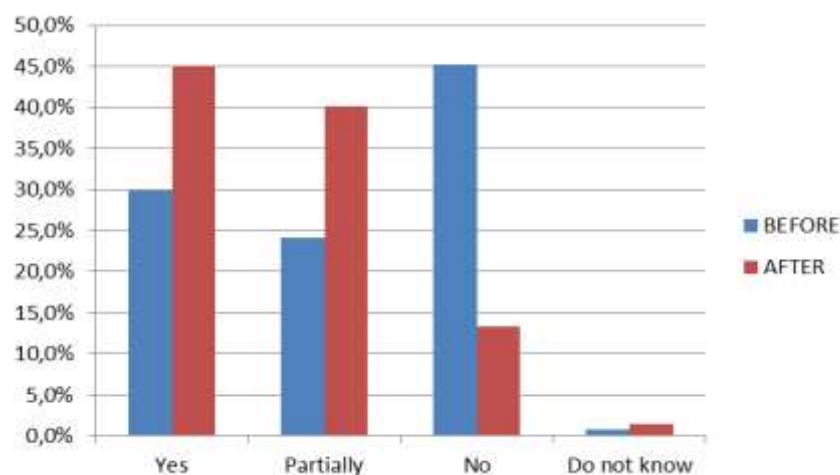
### Perception of accessibility (no. 15)

Residents in the city were asked how they perceive accessibility of major points of interest in the city:

*“Within the Civitas Archimedes, access routes in the city were surveyed and barriers on the routes were identified for improvements. Do you perceive the city as accessible by barrier-free access routes?”*

Answers	BEFORE		AFTER	
	No.	Percentage	No.	Percentage
Yes	41	29,9%	64	45,1%
Partially	33	24,1%	57	40,1%
No	62	45,3%	19	13,4%
Do not know	1	0,7%	2	1,4%
<b>TOTAL</b>	<b>137</b>	<b>100,0%</b>	<b>142</b>	<b>100,0%</b>

**Figure 4: Perception of accessibility – data gathered through the surveys between 2010-2011**



**Table C2.5.1**

Indicator	Before (2010)	B-a-U (date)	After (2010)	Difference: After – Before	Difference: After – B-a-U
13 - Awareness level	26,3+47,4=73,7%	-	50,0+39,4=89,4%	15,7 %	-
14 - Acceptance level	73,0%	-	86,6%	13,6 %	-
15 - Perception of accessibility	24,1+29,9=54,0%	-	40,1+45,1=85,2%	31,2 %	-

**C3 Achievement of quantifiable targets and objectives**

No.	Target	Rating
13 – Awareness level	25 %	★
14 – Acceptance level	25 %	★
15 – Perception of accessibility	15 %	★★★
19 – Quality of service	10 %	○
<b>NA = Not Assessed      ○ = Not Achieved      ★ = Substantially achieved (at least 50%)</b> <b>★★ = Achieved in full      ★★★ = Exceeded</b>		

**C4 Up-scaling of results**

The measure is suitable for up-scaling. Based on the performed methodology, additional places in the city might be surveyed in terms of their accessibility by barrier-free routes. The situation in the city requires gradual removal of the identified deficits on all locations in the city to allow barrier-free access to all important locations in the city on order to improve mobility of pedestrians with mobility restrictions, but also cyclists and other vulnerable road users.

**C5 Appraisal of evaluation approach**

Data for indicators of the state before were gathered by means of an online survey of public opinion realised through the city official website in in the year 2010.

Data for indicators of the state after were collected directly among residents during public campaigns organised by the CIVITAS team in Ústí nad Labem at public premises. The goal was to approach the participants directly and gather relevant and objective data, comparable with the state before, and motivate the participants to take part in the survey by CIVITAS promotional gifts. The campaign was also used to raise awareness about city efforts to improve possibilities of residents with mobility restrictions.

**C6 Summary of evaluation results**

The key results are as follows:

- **Key result 1** – the measure helped to improve awareness about mobility options for people with reduced mobility and about barriers on major access routes in the city.
- **Key result 2** – deficits identified on these access routes were submitted to city authorities for removal and gradual implementation of improvements.
- **Key result 3** – recommendation for mobility improvements were included in the SUTP of Ústí nad Labem and processed into the action plan describing individual steps required for implementation.

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

Most of the access routes in the city centre are already barrier free, but many citizens deemed to be vulnerable pedestrians are not aware of these alternative options. People with limited mobility are often not able to seek suitable access routes by themselves. The web portal is aimed at improving this situation by providing the access routes online to a much wider public.

It is necessary to continue constructing and improving quality of pedestrian routes and conditions for development of non-motorised transport interlinked with the services of local public transport to help initiate change of the modal split in the city (along with implementation of other measures).

Activities should include adjustments of public spaces, pedestrian sidewalks and trails, pedestrian crossings and especially all PT stations to fulfil the conditions of barrier free routes, based on the findings of the mobility field survey and the safety audit performed within the project CIVITAS ARCHIMEDES. Furthermore, the issues of access routes in the city are discussed with associations of disabled people in the Ústí region, with local schools and other representatives of the public.

Based on the collected data, the web portal for people with mobility restrictions will be gradually further improved. Findings are progressively utilised to seek the appropriate solution. New access routes are being added to the web portal along with other related information required by local people deemed to be vulnerable pedestrians (such as data on local cultural and free time activities, etc.).



## D Process Evaluation Findings

### D.0 Focused measure

X	0	No focussed measure
2*	1	Most important reason
3*	2	Second most important reason
1*	3	Third most important reason

\*) Reasons from checklist in Guidelines for the Completion of the MERT

### D.1 Deviations from the original plan

There were no significant deviations related to the measure.

### D.2 Barriers and drivers

#### D.2.1 Barriers

##### Preparation phase

- **Barrier 7 (planning)** – large amount of access routes is difficult to fully survey and map and process to provide complex information on the website (including videos, photos, GPS, characteristics, etc.)
- **Barrier 1 (strategic)** – improving accessibility for people with reduced mobility is a complex problem, which requires long-term gradual implementation of specific improvements and significant investments into the existing infrastructure

##### Implementation phase

- **Barrier 4 (problem related)** – time-consuming processing of large amount of gathered data into the website application

##### Operation phase

- **Barrier 4 (problem related)** – operation of the web portal presents difficulties in functioning as it contains large amount of data
- **Barrier 10 (technological)** – requires user-friendly website application to allow the users to easily work with all the available information

## D.2.2 Drivers

### Preparation phase

- **Driver 5 (involvement)** – Political support and involvement of citizens in development of improved mobility solutions for vulnerable road users
- **Driver 8 (organizational)** – Cooperation with the public transport company in improving services towards barrier-free public transportation in the city
- **Driver 7 (planning)** – Efficient cooperation with the local association of handicapped people allowing to address specific requirements of people with reduced mobility

### Implementation phase

- **Driver 4 (problem related)** – urgency of the solution to transfer useful data to those who need it the most in order to improve mobility of vulnerable citizens with mobility limitations

### Operation phase

- **Driver 10 (technological)** – the website application is a useful tool for people with reduced mobility, but still requires improvements and extension of covered areas

## D.2.3 Activities

### Preparation phase

- **Activities 7 (planning)** – continual extensive field surveys of all important access routes in the city
- **Activities 5 (involvement)** – ongoing discussions with representatives of handicapped people in the city about recommended solutions

### Implementation phase

- **Activities 5 (involvement)** – interconnection of the website application with the official city website in order to allow easy accessibility for all residents, promotion on the website
- **Activities 10 (technological)** – gathering feedback from website users about usage issues and possible improvements of the application

### Operation phase

- **Activities 5 (communication)** – distribution of leaflets and electronic information about functioning of the website application of access routes and barriers in the city
- **Activities 5 (involvement)** – preparation of paper maps of the access routes to support greater usage of the available information

## **D.3 Participation**

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

- **Statutory City of Ústí nad Labem, Department of Transport** - partner of the project

### **D.3.2 Stakeholders**

- **Public Transport Operator** – Improvements required in terms of barrier free services were submitted to the PT Company of Ústí nad Labem
- **People with mobility restrictions and handicapped people** – Primary target group of the measure, involved in measure development
- **Parents with strollers** – require barrier-free access to the city centre and other important locations
- **Senior citizens** – need to be provided with barrier-free access options
- **Other vulnerable road users** – barrier-free access routes required for development of non-motorised transport in the city

## **D.4 Recommendations**

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

The interactive website with maps, videos and detailed characteristics of access routes in the city is a useful tool, appreciated especially by people with reduced mobility and other vulnerable road users and, therefore, it is suitable for replication.

- **Recommendation 1** – discuss the issues directly with the target group continuously
- **Recommendation 2** – expert good quality IT services are required to process large amount of data and provide easy to work with website application, which would be attractive and reliable

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

- **Recommendation 1** – extensive field survey in the city is required
- **Recommendation 2** – skilled processing of large amount of data for the website is required