COMBINED DELIVERABLE D.T1.5.1–4: PART 2/4

Report on pilot area selection and mobility related challenges, low-carbon mobility scenarios, stakeholder involvement and action plan development for the FUA Brno

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Executive Summary

The current document reports on the Action Plans for integrated low-carbon public transport services and on the process conducted towards the development of these plans in pilot areas Leipzig, Brno, Koprivnica and Szeged. The report covers four different steps part of the Action Plan development, which were initially proposed as four separate reports for each of the four FUAs (Leipzig, Brno, Koprivnica and Szeged). The separate deliverables are listed as follows:

1. **D.T1.5.1** Report on **pilot area selection and analysis of mobility related challenges** for public transport: Identification of pilot areas according to mobility related challenges for PT in FUAs Leipzig, Brno, Koprivnica and Szeged. Planning of stakeholder involvement, low-carbon performance objectives, expected outcomes and goals, based on LOW-CARB's strategies (section 2).
2. **D.T1.5.2 Low-carbon mobility scenarios** for pilot areas in functional urban areas: Collection of relevant data about mobility patterns, transport infrastructure and PT services supply in pilot areas to develop low-carbon mobility scenarios for these pilot areas. Szeged will focus on companies as the main target group of the action plan (section 3).
3. **D.T1.5.3** Report on **stakeholder dialogue** and prioritisation of low-carbon mobility measures in pilot areas: Report on stakeholder and citizens/companies' involvement (at least two workshops or events per pilot area) to create a common ground for integrated mobility planning, and feedback/prioritisation of presented scenarios and planned low-carbon mobility measures for pilot areas (section 4).
4. **D.T1.5.4** Definition of **"packages" of low-carbon mobility measures related to public transport**, based on stakeholder feedback and on the overall assessment of economic and environmental impacts. The action plans will include timeline, financing plans and responsibilities and lay at the basis of pilot actions implemented in WP T3 (section 5).

The decision to compile the four steps in the Action Plan development was based on the real situation in the respective FUAs showing that the steps are actually strongly linked one to another and the process not always follows the proposed structure. In addition, each FUA has its own characteristics and framework, thus it was decided to split the deliverable D.T1.5.1-4 into four parts, each referring to one of the respective FUAs. The current part of D.T1.5.1-4 refers to FUA Brno Action Plan (Part1/4).

NUTS region(s) concerned by the strategy (relevant NUTS level)

1. **Functional urban area of Brno**

Country (NUTS 0)	CZ
Region (NUTS 2)	CZ06, Jihovýchod
Sub-region (NUTS 3)	CZ064, Jihomoravský kraj

1. Introduction

The present report includes the characteristics of the pilot area part of FUA Brno, its issues and challenges related to mobility (corresponding to D.T1.5.1), development of low-carbon mobility scenarios for the pilot area (corresponding to D.T1.5.2), discussions around ideas, measures and prioritisation of measures together with the most relevant stakeholders at the FUA level (corresponding to D.T1.5.3), and finally the development of an action plan comprising packages of measures related to public transport improvement in the pilot area, time-line for implementation, budget, responsibilities and any challenges or risks related to implementation (D.T1.5.4).

2. Pilot area selection and analysis of mobility related challenges for public transport

✓ Description of the pilot area, mobility challenges in relation to public transport, goals and next steps towards action plan development

The Brno Metropolitan Area (BMA) or FUA Brno as it is referred to in the context of LOW-CARB project, is not an artificially created area, but an organic functional unit containing the City of Brno and its natural hinterland that functions with intensive daily links (commuting and accessibility). For this purpose, a definition of the territory of the Brno Metropolitan Area that includes 167 municipalities, and more than 600 000 inhabitants was created.

City of Brno and DPMB (Brno public transport company) are part of the Integrated Transport System of South Moravian Region (IDS JMK). IDS JMK (managed by KORDIS JMK) is a public company owned by South Moravian Region (51%) and by the City of Brno (49%). KORDIS JMK is preparing a yearly transport plan at the regional level (the so-called Regional Transport Plan). This document analyses the needs of all municipalities integrated in IDS JMK and role of the all PT operators from the region and it is updated on a yearly basis.

The recommendations included in the Transport Plan are being reflected in the SUMP Action Plan preparation, a strategic document that forms the basis for financial support of any proposed measure. Since KORDIS JMK is also one of the key stakeholders involved in preparing the Action Plan, they are the ones bringing the regional and functional urban area perspective into the strategy. Through regular meetings conducted in the preparation process, and by directly using the SUMP monitoring tool developed by the City of Brno (deliverable D.T1.6.3), they have a very close view and a hands-on approach on the Action Plan measure selection and implementation.

Public transport is the major transport mode in Brno. SUMP is expecting 80% of sustainable transport use in 2050 with 56% for PT, because one of the strategic mobility goals is focused on improvement of the

quality of the PT service.

Figure 1: Map of the public transport system in Brno

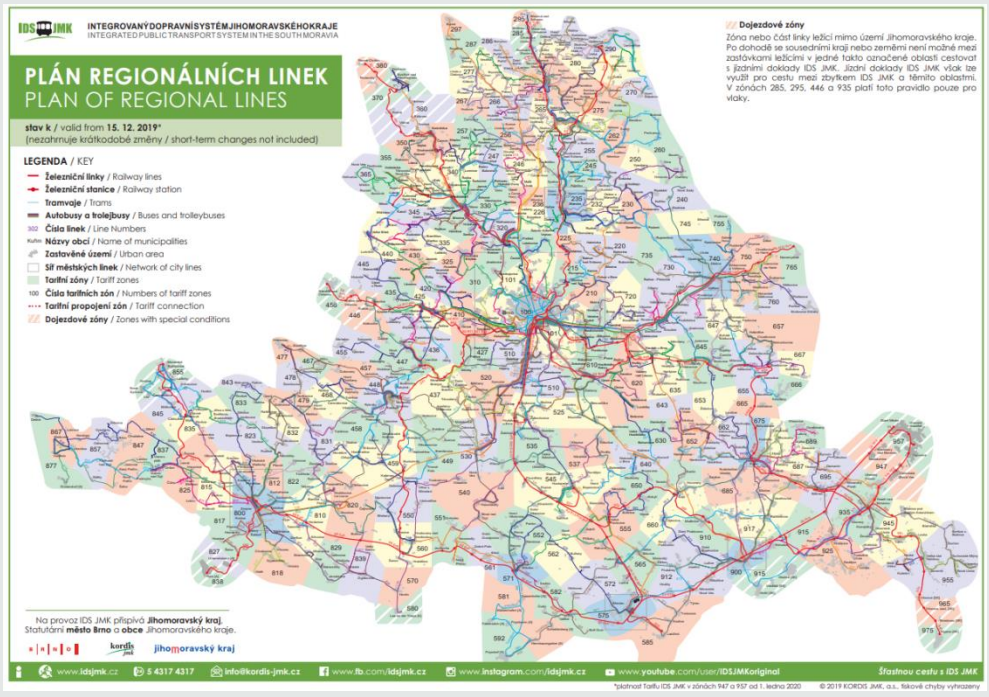


Figure 2: Map of the public transport system in South Moravian region

The four visions from FUA Brno SUMP are:

1. **MODAL SPLIT BETWEEN SUSTAINABLE MODES OF TRANSPORT (PUBLIC TRANSPORTATION, CYCLING AND PEDESTRIAN TRAFFIC)**

   STRATEGIC OBJECTIVES

   - Increase the share of public transport, cycling and pedestrian traffic in the modal split
   - Increase the integration of sustainable modes of transport (share of multimodal routes) and accelerate public transportation (travel speed on reference journeys taken by public transportation higher by 15% in 2030)
   - Increase the number of households not in possession of a car (by 20% by the year 2050)

2. **ROAD COMMUNICATION NETWORK OF THE CITY AND QUALITY OF PUBLIC SPACES**

   STRATEGIC OBJECTIVES

   - Not to increase the capacity of the road communication network for individual motor car traffic in the central part inside the city after completion of the construction of the protective transport system (maintaining of the total number of parking places in the broader centre of the city on the level of the actual need)
   - Increase accessibility and attractiveness of sustainable modes of transport in the city and its hinterland (for example suburban railways), (the share of suburban railways on reference journeys will grow by 20% by the year 2030 to the detriment of individual motor car traffic)
   - Increase the number and quality of public spaces (increase in the percentage of inhabitants of the city satisfied with public spaces by 30% by the year 2030)

3. **ORGANISATION AND CONTROL OF TRAFFIC AND OF THE DEMAND FOR TRANSPORT**

   STRATEGIC OBJECTIVES

   - Combine traffic and spatial planning, implement principles of integrated traffic planning including strengthening of the importance of telematic systems
   - Implement comprehensive planning of the transport of employees and visitors to big enterprises and institutions, including projects generating traffic (for example plans of mobility for shopping centres, compulsory corporate plans of mobility for organisations with more than 100 employees by the year 2020, and with more than 50 employees by the year 2025)
   - Implementing education, training, raising awareness in urban mobility topic and information of traffic participants

4. **PROTECTION OF INHABITANTS AGAINST NEGATIVE IMPACTS OF TRAFFIC, HIGH ENERGY CONSUMPTION OF TRAFFIC**

   STRATEGIC OBJECTIVES

   - Reduce the number of traffic accidents (fulfil national objectives, for example reduction of the number of victims of traffic accidents to one half compared to the year 2015 by the year 2025)
   - Reduce the number of inhabitants suffering from above-the-limit noise from traffic (by the year 2025, less than 5% of the population of the city should suffer from above-limit noise from traffic)

- Reduce emissions of greenhouse gases and reduce the energy consumption of transport per passenger (a fourfold reduction in greenhouse gas emissions by the year 2050 compared to the year 2010, or: 1 tonne equivalent of CO2 per person per year by the year 2050); decrease in total energy consumption in transport per passenger by 20% by the year 2050)
- Ensure reliability of the transport system in case of emergency situations • Minimise the negative impacts of city logistics.

3. Development of scenarios for low-carbon mobility in pilot areas of the FUA Brno

One of the major milestones in the Brno SUMP Action Plan development was the organization of a thematic workshop dedicated to collecting ideas and co-creating the draft vision for mobility at the FUA level together with the most important experts from the local, regional, and national levels. The expert workshop entitled "**Mobility in Brno - Vision 2050**" was organized on 3 September 2015. More than 50 experts participated in the event, not only from the transport field but also other fields connected to mobility planning (such as economics, architecture, land use, environment, and social sciences). They worked together on vision proposals, areas of change and strategic objectives of the Mobility Plan.

The five visions, which were discussed during the expert workshop, were also presented to the City Council on 11 September 2015 in the framework of the Brno Sounding Board high-level meeting. A discussion of the working group on the vision proposals, areas of change and strategic objectives took place on 21 September 2015.

The suggestions collected during these discussions and the topics that were positively evaluated in the proposals arisen from the expert workshop were summarized in a vision proposal prepared by the Department of Transport in cooperation with the City Strategy Office. These six proposals were presented at a joint meeting of the Commission on Transport of the Council of the City of Brno and the Smart City Brno Commission held on 30 September 2015. At this meeting it was decided that the six vision proposals submitted to the joint meeting of the Council of the City of Brno will be sent to the companies Brněnské komunikace (BKOM) [Brno Road Management and Maintenance Company], Dopravní podnik města Brna (DPMB) [Public Transportation Company of the City of Brno], KORDIS JMK [Integrated Transport System Coordinator of the South Moravian Region], and the Department of Transport of the Brno City Municipality and the City Strategy Office.

The evaluations, which were subsequently elaborated, were presented, together with the seven visions, to the next joint meeting of the Commission on Transport of the Council of the City of Brno and the Commission on Smart City of the Council of the City of Brno, which took place on 18 November 2015. The Commission on Transport of the Council of the City of Brno did not adopt the resolution. The Commission on Smart City of the Council of the City of Brno recommended the Council of the City of Brno the following ranking of the vision proposals evaluated: 1st Vision Proposal – Zbyněk Sperat.

On 15 December 2015, the Council of the City of Brno took note of the opinions provided by the company Brněnské komunikace [Road Management and Maintenance Company], Dopravní podnik města Brna (DPMB) [Public Transportation Company of the City of Brno], KORDIS JMK [Integrated Transport

System Co-ordinator of the South Moravian Region], and the Department of Transport of the Brno City Municipality and the City Strategy Office. • At its meeting held on 22 December 2015, the Council of the City of Brno chose the vision submitted by Zbyněk Sperat. This vision, complemented by the modal split proposals Brno na kole [Brno by Bike] and Dejchej Brno [Breathe Brno], will form the basis for the processing of the proposal part of the Mobility Plan.

On 11 February 2016, a draft of the proposal part of the Mobility Plan was delivered and discussions on it commenced. By the end of May 2016, which had been set as a deadline for submitting comments, almost 700 comments and suggestions from the public as well as professionals were gathered concerning the concept of the proposal part of the Mobility Plan. The Council of the City of Brno, at its meeting held on 19 July 2016, took note of the settlement of suggestions and comments on the concept of the proposal part of the Sustainable Urban Mobility Plan of the city of Brno and the finalisation of the proposal part of the Mobility Plan was commenced.

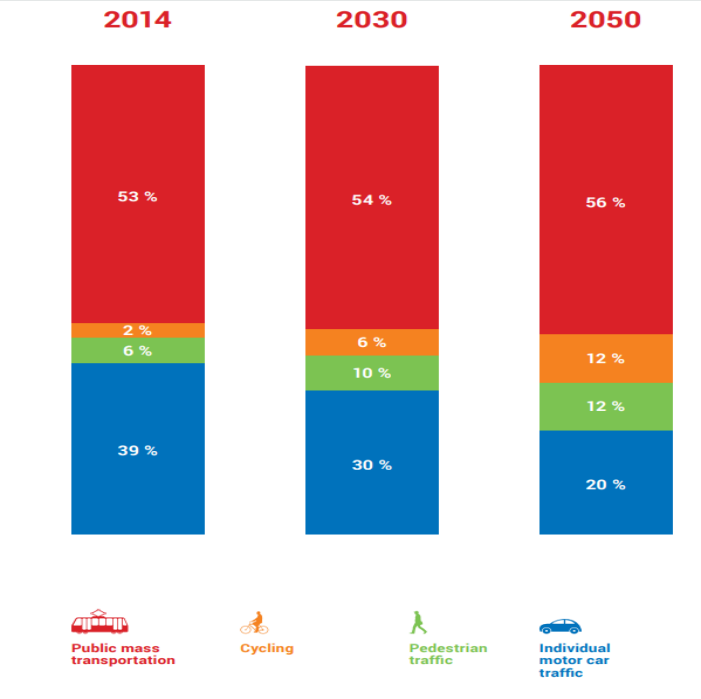
The concept of the Action Plan started to take shape in 2017. By that time, the concept was well enough developed to be published and enter the public consultation phase. Discussions with experts, city district representatives, public administrations outside Brno took place throughout 2017. On 7 and 9 March 2017, a public discussion and respectively meetings of the working groups (were held. The concept of the proposal part was also presented to city districts and municipalities of the Brno Metropolitan Area (on 14 March and 22 March 2017).

The South Moravian Regional Authority, as the legally competent administrative authority, issued a conclusion on 26 April 2017 in the sense that the conception of the "Sustainable Urban Mobility Plan of the City of Brno" concept will be assessed in accordance with Act No. 100/2001 Coll., On Environmental Impact Assessment, as amended. Therefore, a SEA process was kicked off.

During LOW-CARB, numerous consultations among the stakeholders were organized to transform the concept into a concrete SUMP Action Plan that is the basis for the measure implementation. In parallel, the SUMP monitoring tool was developed to offer stakeholders a collaborative platform for monitoring the progress of measure implementation. The vision, objectives, packages of measures and priorities have been finalized. The public consultation phase continued, and the feedback received was taken up in the Action Plan development. The Brno city council approved proposal part of SUMP on 4 October 2018.

Brno SUMP Vision for 2050:

"In 2050, Brno ranks first in the chart rating the quality of life in cities. 480 thousand satisfied citizens live in there; they are not forced to leave the city for clean air even on their days off. Brno is a city where it is easy to live without a car. It is a city of short trips with interconnected and consistent modes of transport. Mobility is the main political issue as a foundation stone of the quality of life in the city, and for 35 years already, the city residents have been actively involved in the topic of urban mobility with creative suggestions. Being a senior or handicapped in Brno does not mean any limitation of travel habits. In the long term, the city has been making the transport system more efficient in a conceptual and coordinated manner. The ease, possibility and speed of travel are the main objectives of transport planning. At the same time, the city is capable, on the basis of a broad data basis, to respond flexibly in the area of mobility to trends not only in transport but also in demography, economy and migration of population."



Modal split in Brno according to medium- and long-term mobility scenarios

Increase the share of public transport – to stop the outflow of passengers from public transportation by 1% compared to the current state (from 53% to 54%) by the year 2030.

Improving the perception of public transportation on the part of the public

- cooperation of all participating authorities in marketing campaigns. The objective of these campaigns is to raise awareness and supply information about urban public transport, as well as suburban public transport.

A clear and visible message that will act motivationally and convincingly on the passengers seems to an essential issue. It would be appropriate to focus the message on the advantages of urban public transport, specifically its speed, cleanliness of the environment, ecology, financial burden (lower than in the case of individual motor car traffic – prices of fuel should be compared), emphasise the benefits of new prepaid annual season tickets (even for those passengers who are already using them) and options of using the time off during the journey – reading, listening to music, etc.

- it is advisable to provide additional benefits also to passengers with single journey tickets – such as a free public transportation ticket for P+R users

Enhancing the quality of infrastructure and rolling stock for public transport

- the quality of public transportation vehicles – in particular, this means the quality of the environment inside the vehicles, as well as services that will improve the standards of travel (such as Wi-Fi)
- technical and operational parameters – this means parameters of the vehicles that must meet the requirements for sufficient passenger comfort while at the same time they must meet the requirements for making their operation more environmentally friendly
- intelligent stops with information for passengers – this mean equipping a majority of the stop signposts with displays providing up-to-date information on the time of arrival of the next vehicles as well as information on service irregularities or extraordinary measures

- increasing the frequency of services (or optimisation of the traffic) so that public transportation may provide a competitive alternative option, of course in response to transport demand

Improving the provision of information to passengers on public transport

- unified provision of information about all transport in Brno and the Brno Metropolitan Area – information about the events on the mass public transportation network in the area in question must be unified and up to date. Passengers need relatively accurate information to decide on the method of travel. Failure to receive this information means a potential loss of mass public transportation passengers
- information centres – stationary points in places with high numbers of passengers – such as interchange hubs, busy stops and the transport company's facilities.
- smart stops – traffic irregularities on the public transportation network will be displayed at stops, possibly also information about diverted routes or suspended services
- mobile application support – smartphone development makes it possible to develop applications that can transmit updated traffic information via data transmission to mobile phones (such as the IRIS system)
- development of information systems inside the vehicles – visualisation of updated information on the status of the mass public transportation network, in particular traffic incidents or scheduled service disruptions.

Based on that, a number of 21 measures out of a total of 53 mobility measures were included in the Action Plan for short-term implementation time frame (until 2023), a number of 31 measures out of a total of 65 mobility measures were included in the Action Plan for medium-term implementation time frame (until 2030), and a number of 14 measures out of a total of 38 mobility measures were included in the Action Plan for long-term perspective for implementation (until 2050).

4. Report on stakeholder involvement process and priorisation of low-carbon mobility measures in pilot areas

- ✓ How and against which background were the priorities set?
- ✓ What was the rationalle behind choosing these stakeholders?

In Brno, the working structures for updating the previous version of the city SUMP were already set up in the framework of the CH4LLENGE project[1], during which the first SUMP was developed. Based on the lesson learnt in CH4LLENGE, and on the existing collaboration of main stakeholders at city and FUA levels, the institutional cooperation framework was defined. It focused on strengthening and continuing regular collaboration among the different levels of government – local, regional, and national - through exchange in meetings and workshops. The stakeholders involved were:

- SMB (City of Brno)- key influence
- KORDIS JMK (transport operators in the region of South Moravia)- high influence
- JMK (Regional Authority of South Moravian Region)- high influence

[1] http://www.sump-challenges.eu/

- SÚS JMK (responsible for regional road infrastructure) – high influence
- DPMB (Public transport company)– medium influence
- BKOM (Owner of infrastructure in the City of Brno) – medium influence
- Cities in BMA – medium influence
- ČD (Czech Railways)– medium influence
- Transport operators (buses) in the region of South Moravia – medium influence
- SŽDC (responsible for railway infrastructure)– medium influence
- ŘSD (responsible for national road infrastructure)– medium influence
- CDV (Transport Research Centre) – low influence

Building on the SUMP concept, the work at the SUMP Action Plan started from strengthening the cooperation with municipalities in the FUA and the South Moravian Region.

Brno city hack for SUMP development, 03.2017 and 04.2019

The aim of this open event was to involve the public and collect feedback and ideas on how to improve mobility in Brno. Participants were able to submit their ideas online. In total, more than 100 ideas related to various areas of mobility have been submitted. The ideas collected were assessed by experts from the City of Brno, DPMB and BKOM. A selection of the most interesting ideas was then introduced at the subsequent event, the Cityhack, organised in April 2019.


Photos taken during the Cityhack organised in Brno

The authors of the selected ideas from "Day of Ideas" (13.10.2016), alongside mobility experts, city companies and Brno City Municipality, participated at the City hack. The main output of this event was the selection of 40 mobility measures, described in the form of project fiches with a detailed description of each proposal. These measures were a basis for discussions on SUMP Action Plan that was processed during the fall 2017.

SUMP training, 04.04.2019

The aim of the training was to involve the relevant stakeholders in preparation of SUMP Action Plan and to introduce them to the newly developed SUMP monitoring tool, which will be used for monitoring the implementation status of the measures listed in the Action Plan. This training was the kick-off for beginning the work on the SUMP Action Plan 2020.

Photos taken during the SUMP traning organised in Brno on 4 April 2019

It was decided to invite relevant stakeholders that will be involved in the development and the implementation of the SUMP Action Plan.

As a conclusion following the discussions with stakeholders and the assessment of different scenarios and measures, the ultimate objective of the SUMP Action Plan is to increase the share of public transport by stopping the outflow of passengers from public transportation by 1% compared to the current state (from 53% to 54%) by the year 2030.

The strategic goals are set:

- ✓ Improving the perception of public transportation on the part of the public
- ✓ Enhancing the quality of infrastructure and rolling stock for public transport
- ✓ Improving the provision of information to passengers on public transport

Next steps towards Action Plan development:

- ✓ Scenario development will be used according to SUMP.

In addition, the year 2019 when the City of Brno celebrated 150 years of public transport, was used as an opportunity to draw even more attention to public transport-related measures and priorities at the city and at the metropolitan levels. A series of awareness-raising public events and street festivals organized by the City of Brno and DPMB in Spring - Summer 2019 contributed to creating a very positive perception towards collective transport and especially towards sustainable electric public transport (tram system) among citizens, that leads to a higher public acceptance of further investments in PT system through measures prioritized in the SUMP Action Plan.

5.1. Introduction

The core part of the Action Plan relates to the policies and measures that will allow reaching the objectives that have been set in steps 1 to 3. The action plan elaboration is only one step in the overall process, and it should not be considered as an objective, but rather as a tool that allows to:

- Outline how the pilot area will look like in the future, in terms of economic development leading to a more dynamic and challenging traffic, and of sustainable mobility services;
- Analyse current action in the field of low-carbon mobility and build a systematic action plan starting from the existing situation but with a view to an ambitious vision
- Communicate actively and systematically with the stakeholders at the FUA level
- Translate the pilot area vision into practical actions assigning deadlines and a budget for each of them
- Serve as a reference during the implementation and monitoring process.

Also, it was clear that the work does not finish after drafting the Action Plan and after its formal approval. On the contrary, this moment should be the start of the concrete work of transforming the planned actions into reality. A clear and well-structured Action Plan is essential for this (i.e. all actions have been carefully assessed and described with timing, budget, sources of financing and responsibilities, etc.)

5.2. Formal approval of measures in the SUMP Action Plan

The development of the first SUMP Action Plan for year 2020 took about six months. During this period, two stakeholder consultations, chaired by the SUMP leader, were organised to discuss what measures to be included in Action Plan. Action Plan 2020 was completed in September 2019 and was approved by City Council Assembly in October 2019.

5.3. SUMP Action Plan

Once the actions have been selected, it is necessary to plan them carefully so that they can become a reality. For each action, specify:

- **Timing (start date - end date)**
- **Body responsible for implementation**
- **Stakeholders involved**
- **Risk and /or vulnerability** tackled
- **Estimated cost**
- **Modality of financing:** as municipality resources are scarce, there will always be competition for available human and financial resources. Therefore, efforts should be continuously made to find alternative sources of human and financial resources
- **Estimated impacts** in terms of energy savings, CO2 emission reduction (for mitigation actions)
- **Monitoring & evaluation**: identify data and indicators to monitor progress and results of each action, the methods for data gathering and timing (how often they will be collected). Specify how and by whom the data will be collected, and who will compile it. To facilitate implementation, complex actions could be broken down into simple steps, each of them having its own timing, budget, person responsible, etc.

Measures included in FUA Brno SUMP Action plan:

Measure	Description of measure	Responsibility	Activities within a measure	Implementation period	Resources needed	Cost	Stakeholder-involvement
Modernization of tram depot	**Modernization and extension of tram depot Pisárky etapa II**	DPMB	realization	1 year		16 mil. EUR	DPMB
	Modernization and extension of tram depot Pisárky etapa III - tram turning loop	DPMB	Preparation of realization	1 year		16 mil. EUR	DPMB
New tram line or extension of tram line	**Cable car Pisárky - Kampus**	DPMB	Preparation of realization	5 years		10 mil. EUR	
	Reconstruction of tram lines	DPMB	realization	1 year		10 mil. EUR	
	Extension of tram lines from Osová to Kampus MU in Bohunice	DPMB	realization	3 years		58 mil. EUR	
	Extension of tram lines Merhautova - Lesná Propojení Connection tram lines generála Píky - Merhautova	DPMB	Preparation of realization	4 years		28 mil. EUR	
	Extension of tram lines Bystrc - Kamechy	City of Brno	Preparation of realization	6 years		60 mil. EUR	BKOM, DPMB
	Tram line Plotní	City of Brno	Realization	1 year		87 mil. EUR	BKOM

5.4. What measures are planned or most likely to be realized?

The extension of tram lines is important from the reason of improvement of quality of public transport. If we want to maintain high percentage of people that are using public transport, we need to offer them better connectivity and comfort for travelling by public transport.

Therefore, there are planed three tram extension. Two of them (Merhautova-Lesná, Bystrc-Kamechy) are in preparation process and extension of Osová to Kampus is in process of excavation of tunnel for

tram line. Transport will be easier without necessity to switch to another means of transport, speeds up traffic. Modernization of tram depot is in realization and should be finish during in the second half of the year 2020.

Reconstruction of tram lines is action that is planned for every year. In this year is planned reconstruction of tram lines in street Merhautova and Veveří and also is planned to do reconstruction of Nové sady where "green belt" - meadow lawn with flowers will be built for less noise and dust. Moving tram lines Plotní from one street to other street is in process of realization and it is for better passability in this area.

5.5. Monitoring & evaluation

Identify data and indicators to monitor progress and results of each action, the methods for data gathering and timing (how often they will be collected). Specify how and by whom the data will be collected, and who will compile it. To facilitate implementation, complex actions could be broken down into simple steps, each of them having its own timing, budget, person responsible, etc.

Monitoring of measures that are in Action Plan will be done every year because Action Plan must be updated every year. Therefore, we will know what was done or what is delayed and had to be postponed. Also, there will be automatic function that send a notification e.g. measure preparation should finish in year 2020 but there is no change in information about actual state.

Indicators selected have been clustered based on strategic and specific goals corresponding to the chosen areas of change. Some of the main indicators chosen are the following:

I. *the share of buses in mass public transportation with an alternative drive or fuel*
II. *the number of environmentally friendly vehicles*
III. *the number of inhabitants suffering from above-the-limit noise from traffic*
IV. *number of users of mass public transportation (modal split)*
V. *change in the perception of public transportation on the part of the public*
VI. *number of kilometres of segregated routes for mass public transportation*

Example of selected indicators from Brno SUMP Action Plan linked to public transport:

Area of change: The modal split between sustainable modes of transport (public transport, cycling and pedestrian traffic)				
Strategic goal	***Specific goal***	***Indicator(s)***	***Method of finding/ source***	***Target value (2030)***
INCREASE THE INTEGRATION OF SUSTAINABLE MODES OF TRANSPORT (SHARE OF MULTIMODAL ROUTES) AND ACCELERATE PUBLIC TRANSPORTATION (TRAVEL SPEED ON REFERENCE JOURNEYS TAKEN BY PUBLIC TRANSPORTATION HIGHER BY 15% IN 2030)	Attractive offer of connections, seamless tariff and transport connections between Brno and its hinterland in the Brno Metropolitan Area and broader surroundings (beyond the existing integrated transport system of the South Moravian Region)	1. percentage of journeys undertaken by means of mass public transportation. 2. number of municipalities/towns newly integrated into the Integrated Transport System	• survey of the modal split • DPMB, KORDIS and BKOM annual reports	• increase in the share of passengers on mass public transportation > 54% of modal split; • increase in the number of municipalities integrated into the Integrated Transport System >80% localities in question

A detailed overview on the indicators selected for the monitoring process is part of the Brno Action Plan brochure[2], which is submitted as a separate Annex to the current report. These indicators are constantly monitored through the GIS-based monitoring tool developed by the City of Brno in LOW-CARB (for more details on the tool please check the deliverables submitted as part of the Activity A.T1.6: D.T1.6.1 – D.T1.6.4, including D.C.3.4 SUMP Monitoring Tool Fact Sheet and the SUMP Monitoring Tool brochure translated in all CE languages).

5.6. Risks associated to planning and implementation of measures

The SUMP Action Plan was the first experience the city had together with a large group of stakeholders at the FUA level. Based on the experience gathered throughout this process it is expected that the annual updates of the Action Plan will assess even more realistically the priorities and the progress of measure implementation, especially for the large multi-annual investments. The SUMP Action Plan will be updated and approved by the City Council every year in autumn.

The selection of actions and measures in the Action Plan should be based on the careful estimation of risks associated with their implementation (especially when significant investments are planned):

- How likely is it that an action fails or does not bring the expected results?
- What will be the impact on the objectives?
- And what are the possible mitigation measures?

There are different types of risks that can hinder the smooth implementation of measures:

[2] http://www.mobilitabrno.cz/data_files/ostatni/brno-mobility-plan-eng.pdf

- project-related risks (e.g. delays in tendering and selection procedures, or cost overrun)
- administrative risks (e.g. inadequate approved project budgets, delays in obtaining permissions, changes in government regulations and laws)
- technical risks (e.g. inadequate design or technical specifications, higher than expected operation costs)
- contractor-related risks (e.g. inadequate estimates, financial difficulties, delays)
- market-related risks (e.g. pay cuts, shortages of technical personnel, shortage of materials or equipment).

Due to the actual situation with COVID-19 pandemic, the risk is that the financial investments will be planned more carefully. Those measures that are in construction will have higher chances to be finalised, but the measures that are in the preparation phase might face postponements in the implementation phase for financial reasons. Also the EU funds dependency is a risk factor that was taken into account when planning the investments.

6. Conclusions

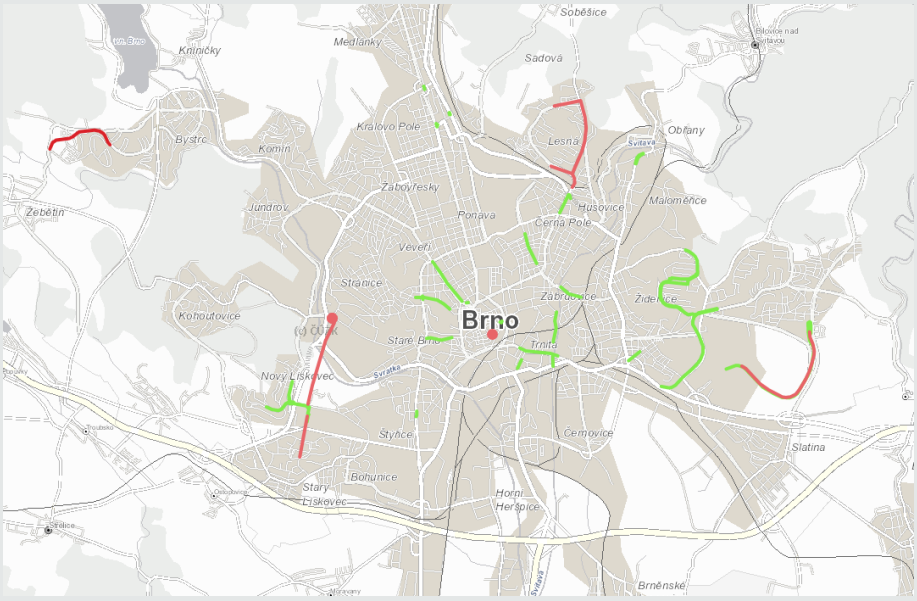
Development of action plans for implementation of integrated low-carbon public transport services in FUAs Leipzig, Brno, Koprivnica and Szeged is an ongoing process that has been taken up in the framework of LOW-CARB project by following a model structure comprising steps:

1. Analysis of mobility related challenges in relation to public transport
2. Development of different low-carbon scenarios and comparison against “do-nothing” and “business-as-usual” scenarios
3. Stakeholder involvement in the identification and prioritisation of low-carbon mobility measures
4. SUMP Action Plan development

These four steps that are described in this document are necessary steps in the process of development of Action Plans for low-carbon mobility measures focusing on enhancing public transport services at the FUA level.

Referring to FUA Brno, the SUMP Action Plan comprises a list of integrated measures that refer to the entire FUA. The SUMP Action Plan, prepared by the municipality together with regional stakeholders, will be updated on a yearly basis. The approved draft Action Plan is open to an online public consultation using the mobile app that is developed based on the SUMP monitoring tool created within LOW-CARB (for more details on the SUMP monitoring tool[3] design, functionalities and testing phase please refer to deliverables D.T1.6.1 and D.T1.6.2).

[3] https://gis.brno.cz/portal



Map of Brno FUA highlighting the most important measures selected in the SUMP Action Plan 2020

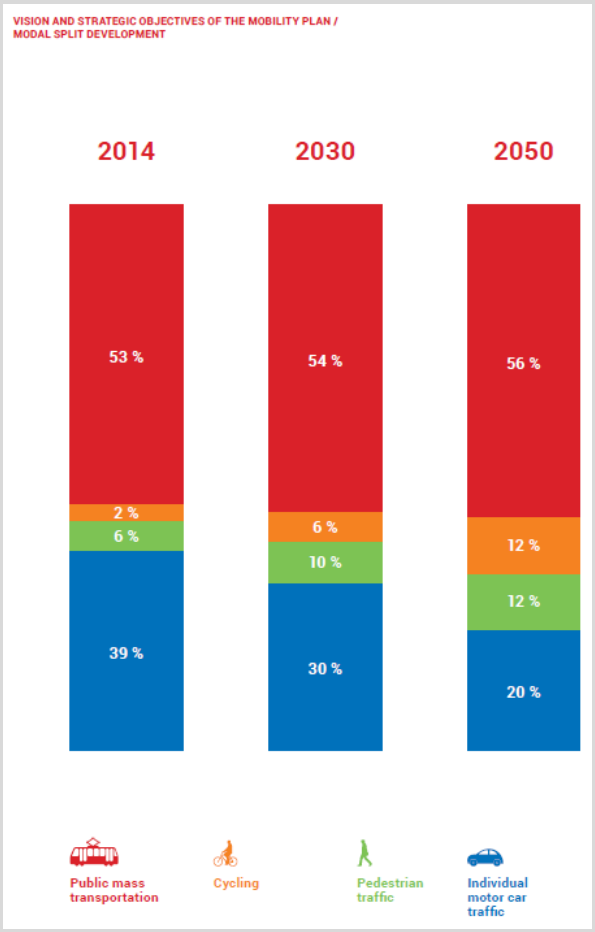
The SUMP monitoring tool helps better monitoring what measures are planned not only from public transport but from all kind of transport. Citizens can use monitoring tool and get information in map what it is planned from Action plan to do in their neighborhood.

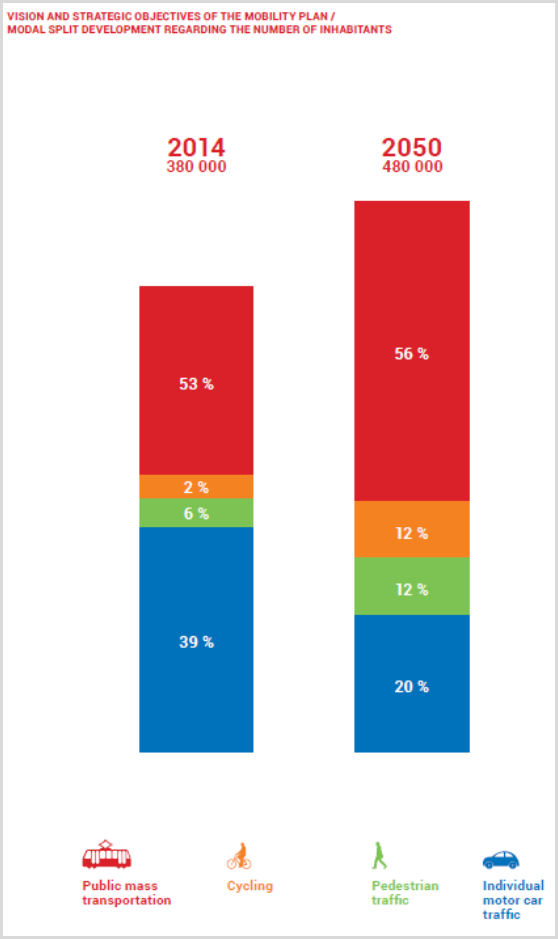
7. **Annexes** (if applicable, images or maps to be provided as annex)

The horse-drawn tram entered operation in Brno on 17 August 1869 and thus Brno became the first Czech city that had a public transport system at that time. Therefore 100 years of public transport in Brno were publicly celebrated throughout the year 2019 in a series of public events and festivals:

- April 2019: opening of the ship season
- May 2019: open day at the tram depot
- June 2019: open day at the trolleybus depot + “transport nostalgia” – events with historical public transport cars in the city center
- 17 August 2019: ride with horse-drawn tram
- 31 August 2019: large street party with transport public cars parade.

Photos taken during public events and street festivals organised in Brno in 2019 with the occasion of celebrating 100 years of public transport in Brno





Vision and strategic objectives of the mobility plan: modal split development (left) and modal split development linked to nr. of inhabitants (right). Source: SUMP Action Plan brochure available at http://www.mobilitabrno.cz/data_files/ostatni/brno-mobility-plan-eng.pdf

Vizualization of tram lines rom Osová to Kampus that is in process of realization and should be in operation in 2022. Photos from – salinounakampus.dpmb.cz

Vizualization of tram lines Plotní where tram lines was moved from one street to second street form better passability of area. The end of realization is this year 2020. Source: FB – Tramvaj Plotní

Visualization of reconstruction of tram lines Nové sady where "green belt" - meadow lawn with flowers will be built for less noise and dust. Photos from www.dpmb.cz