

Objectives of the measure

- **At measure level**
 - Improve accessibility of PT users.
 - Improve the efficiency of the PT network operations.
 - Offer better solutions for rural areas.
- **Contributing to city level objectives of:**
 - Develop the existing decision-making tools for strategic transport network planning of the Budapest
 - Optimize capacity and maintenance cost of public transport services
 - Improve the service level of the public transport in suburbs and newly built residential areas

Description of the measure

- **Situation before:**

In general, data-based decision-making process based on measured passenger number is not a requirement of the process for public transport service planning on a regular basis. The BKK already has a macroscopic strategic transport model, but it is not capable of supporting the operation validation/optimalization of the public transport services.

- **General description:**

The BKK operates the Unified Transport Model of Budapest, which is a macroscopic model for the city and its surroundings. The Model contains public transport services as well, but it is capable only for headway-based assignment. In this pilot the BKK will investigate the possible development solution of the model, which can strengthen the reliability of the model in the aspect of operational public transport planning.

Within the scope of this measure, BKK will define the appropriate spatial and temporal optimum capacities and frequencies of public transport services by using modelling tools.

- **Measure outputs:**

This measure will deliver:

- Improved decision-making tool, for planning the PT network
- At least 5 public transport network line will be modified (improvements in the capacity or frequency of the service).

- **Supporting activities:**

This measure will benefit from the use of U-SIM.plan to maximise its impact.

- **Interaction with other city measures: UPPER and non-UPPER measures**

The BKK is working on the Public Transport Network Strategy of Budapest, which is a sub-strategy of the SUMP of the city. This UPPER measure is supporting the goals of this sub-strategy.

Target groups and/or geographical impact areas

- **Target groups:** Citizens of Budapest and its functional areas
- **Geographic implementation area:** Budapest and its functional urban area

Stakeholders

The following stakeholders will be required for the implementation of this measure.

- **BKK:** public transport authority
- **Municipality of Budapest:** city authority
- **Public Transport Operators** (BKV, Arriva Bus, Volán): there are different bus operators in the City of Budapest

U-tools support

This measure will be actively supported by two IT tools from the UPPER toolkit:

- **U-NEED:** full support to find the spatial and temporal optimum capacities and frequencies of the PT system
- **U-SIM.plan:** planning capacities and frequency of PT system and evaluating impacts (it should be possible to use data from U-NEED to complete the already existing model)

Link to other UPPER measures

This measure is similar to UPPER measures implemented in other cities, especially:

- **VAL_03:** To optimise public transport offer based on advanced technology
- **IDF_06:** Advanced technology to optimise the PT offer in line with users' needs and patterns
- **OSL_03:** Develop a roadmap for new mobility alternatives and operating models to reduce the private car ownership
- **MAN_03:** Data-driven platform for supporting PT planning and operations based on the concept of Mobility as a Right

Process of implementation of the measure

Stages	Description	Intermediate milestones
Design	Definition of the function of the Macroscopic Transport Model of Budapest, which can help the decision-making process for the PT network planning	<ul style="list-style-type: none"> - Identify the different possible developments of the model - Define the most useful development
Preparation	Validating the transport model	<ul style="list-style-type: none"> - Creating studies, about the reliability of the existing modelling tool
Implementation	Identify and implement route improvements	<ul style="list-style-type: none"> - Data collection - Potential improvement of the defined functionalities of the Model - Implement changes in the public transport network based on the improved model
Operations	Monitoring the effects of the modified public transport network in a dedicated area	<ul style="list-style-type: none"> - Monitoring the changes of the PT users and the actual operational costs.

Sub-measures and preliminary indicators

Measure	Sub-measure (if applicable)	Impact indicators
BUD_01	Modified public transport network in a dedicated area	<ul style="list-style-type: none"> - Number of public transport users in dedicated areas (TBD) - Number of modified PT lines - Share of population with access to transport services - Cost of operations of particular lines
BUD_01	Improved decision-making tool	<ul style="list-style-type: none"> - Number of data sources integrated