SUSTAINABLE URBAN MOBILITY AND COMMUNTING IN BALTIC CITIES

COMMUTING MASTER PLANS

PLANNING FOR SUSTAINABLE MOBILITY AND ACCESSIBILITY IN THE URBAN REGION

SUMBA

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1. INTRODUCTION

The aim of this document is to provide guidance and tips for compiling Commuting Master Plans in urban regions, give recommendations on which aspects to include and what to pay special attention to. It will also provide recommendations for possible solutions to the key challenges. The document is recommended to be used hand-in-hand with other relevant SUMBA project outputs: the benchmarking tool for commuting, SWOT analyses of SUMBA partner municipalities, compendium of best practices for addressing challenges of commuting planning, modelling/data collection guidance and the overview of scenarios and proposed solutions in SUMBA partner municipalities (see www.sumba.eu/).

Why we need to plan commuting

Transport demand and mobility patterns are in constant change - globally, regionally, locally, across different user-groups and the personal life-span of an individual. Globalisation, urbanisation, new technologies, environmental hazards, aging of the population and new consumption patterns of the younger generations all influence how much we travel, the way we travel and what the impacts of these changes are in social, environmental and economic terms. Due to administrative borders and institutional "silos" many urban areas face challenges related to changes in travel demand that cannot be solved within a single municipality or by a single public authority. Commuting Master Plan (CMP) and planning for multi-modal and sustainable regional mobility is one way to tackle these challenges.

The purposes of the CMP are:

- to support the functioning of the urban functional area and everyday lives of citizens,
- to secure the sustainability of the urban region, in terms of environment, livability, public health and economic viability,
- to make the best use of existing infrastructure, transport services, available natural and fiscal resources,
- to encourage sustainable travel behavior - walking, cycling, public transport, mobility services and multimodality to minimise car dependency and transport poverty,
- to facilitate the take-up of relevant new mobility services and technologies, and
- to facilitate cooperation between different administrative institutions, stakeholders and mobility service providers.

Commuting Master Plan (CMP) is a policy document that guides the development of daily mobility in an urban region - the whole functional area regardless of administrative or other organisational borders. The aim of the CMP is to facilitate seamless, safe and sustainable access to homes, jobs and schools, reduce public sector, household and private sector costs on mobility, reduce car-dependence and environmental impacts of transport.

Commuting is periodically recurring travel between one's place of residence and place of work (or study) that exceeds the boundary of one's residential community. It refers to any regular or often repeated travelling between locations, even when not work-related. Geographically, the scope of the commuting master plan is the so called functional urban area. Functional urban area consists of a city and its commuting zone. Functional urban areas therefore consist of a densely inhabited city and a less densely populated commuting zone whose labour market is highly integrated with the city. The direction of commuting is not always one-way - it can also involve two-way mobility patterns where certain jobs or educational facilities are located outside the core city.

This document is structured into 3 major sections: chapter 2 describes the key aspects (governance, data analysis, infrastructure, fare systems, mobility services) of developing commuting in the region, explaining the key challenges, possible solutions and ways to measure and monitor performance of these issues; chapter 3 guides you through the main steps of participatory process and chapter 4 gives recommendations for the content and structure of the commuting master plan - how to integrate actions that aim to improve commuting into policy and planning.

There are a number of EU wide initiatives and co-operation projects working on sustainable urban mobility planning and supporting European cities with guidelines and tools. The intention of the SUMBA Commuting Master Plan guidelines is to support the cities specifically in responding to the challenges related to commuting, how to cross the barriers related to administrative borders, intermodality and the takeup of new mobility services.

In addition to the tools and guidelines provided by SUMBA project we recommend using the following resources for sustainable urban mobility planning and preparation of the commuting master plan:

- https://civitas.eu/knowledge-base
- https://www.eltis.org/mobility-plans
- http://sump-network.eu/
- https://civitas.eu/tool-inventory
- https://civitas.eu/learning-centre
- http://www.poly-sump.eu/
- https://www.interregeurope.eu/reform/

2. KEY ASPECTS TO CONSIDER IN CMPS

2.1 Governance, urban and mobility planning in the urban functional areas

MAIN CHALLENGES AND COMMON PROBLEMS

One of the main issues regarding mobility and urban planning processes in today's cities is their fragmentation along administrative as well as departmental borders. Administratively, a functional urban area is usually made up of a number of municipalities and/or other administrative units. This complicates planning a well-functioning transport system within the functional urban area as cooperating with other administrative units can be quite a challenge. When cross-border cooperation is not working well enough, the result is a fragmented transport system where various services and bits of infrastructure are not connected into coherent routes and journeys between relevant destinations throughout the urban area. This is especially true for public transport (PT) and active modes of transport (walking, cycling and micromobility) as the infrastructure and organisational solutions for these modes are still being developed in most cities, whereas car infrastructure is already connected and usually relatively well developed. In addition, the status of active modes as modes of transport relevant to commuting (as opposed to a recreational activity) is very recent and, at times, still contested. As such, the political will and administrative capacity to develop these modes (across municipal borders or as means of access to public transport) is often lacking when compared to motorised transport. Thus, poor cooperation between neighbouring municipalities within the same functional urban area is a significant issue for developing a well-functioning transport system for PT and active modes of transport.

Organisationally, land use planning and mobility planning are often carried out by separate departments without much coordination. This is an issue for planning a well-functioning transport system because land use and transport systems have profound influences on each other.

Land use dictates the distribution and overall quantity of demand for mobility, which directs the development of transport systems and travel behaviour, at least in the long term. At the same time, the existence of transport systems is a necessary prerequisite for enabling new development. Additionally, changes in existing transport systems are often necessary to support changes in land use patterns in existing neighbourhoods. Due to paying too little attention to this relationship between these two fields, single use neighbourhoods far from the existing PT lines are allowed to emerge in many cities. As a result, commuting distances and car dependency are increasing. Thus, insufficient coordination between land use planning and mobility planning is currently a widespread barrier for developing a sustainable and well-functioning transport network.

POSSIBLE SOLUTIONS

One way to address both challenges outlined above, is to adopt a specific regional planning concept for increasing accessibility as well as mobility by PT and active modes of transport, that incorporates specific land use and transport system configurations into a unified strategy. Drawing on this concept, a strategy and action plan should be developed for the whole functional urban area. Of course, this requires extensive cooperation and coordination on the part of relevant administrative units and departments. However, it is easier to cooperate if a common direction is set out first.

A good example of a regional planning concept is the concept of decentralised spatial concentration (Dezentrale räumliche Konzentration). The general principle for the development of the concept of decentralised spatial concentration is that it consists of a polycentric net. In order to disburden the core centre, it is surrounded by other (smaller) high performance centres. Additional tangential transport connections complete the radial transport structures to strengthen not only the connection between the smaller centres but also to enable the core centre to develop itself. Such a concept provides specific directions for land use as well as mobility planning. In both areas, it aims to increase accessibility by PT and active modes of transport. In terms of land use, a pattern is introduced where there are more jobs and services close to residential areas. At the same time, people's mobility is improved by the fast PT connections between centres.

Administratively, to set up and carry out a regional planning concept, a regional body needs to be established that brings together all the relevant departments from relevant administrative units (and other relevant actors if necessary). The level of integration depends on the specific type of body chosen. On the less integrated end of the spectrum is a regularly convened council where joint decisions are made, actions planned, and responsibilities allocated by independent members. On the more integrated end is a regional land use and mobility planning organisation with the capacity to plan and carry out activities on its own. Both ends of the spectrum can work if they fit well with the local context. However, it is important to make sure that cooperation between relevant agents is regular and consistent.

INDICATORS FOR SUCCESS

The following indicators should be measured to gauge the city region's performance in solving the problem of fragmented mobility and land use planning:

- *Plan*: existence of a regional plan directing mobility and land use planning
- *Sustainability*: inclusion of sustainability principles in land use as well as mobility planning within the regional plan.
- *Integration*: organisational integration between land use and mobility planning. Can be assessed by reviewing the organisational structure of the city administration for managing mobility and land use planning (is it done in one department or separately) and by verifying the existence and extent of institutionalised procedures for coordinating the activities of the two departments/areas

- *Cooperation*: consistent cooperation between municipalities (e.g. how often parties meet to coordinate their activities)
- *Compliance*: compliance of municipalities' activities with the regional plan. Can be assessed by reviewing the activities carried out by municipalities and comparing them to the activities prescribed in the plan or by measuring progress towards the goals set in the regional plan, e.g. by measuring changes in modal share and accessibility measures for PT and active modes of transport.

2.2 Developing indicators and capacity for analysing the transport system

MAIN CHALLENGES AND COMMON PROBLEMS

Data collection and sharing in multi-governance structure

One of the main challenges in contemporary cities and towns is obtaining sufficient data on people's movements and transport habits for evidence-based transport planning. Without relevant data, it is difficult to strategically and consistently direct a city's transport system towards the goals and targets set (or indeed even set these targets). This issue is highlighted in the context of the increasing need to transition to sustainable transport systems. Considering the urgency of the issue and the availability of various new technologies that make data collection a lot easier than it has been previously, there is really no good excuse for failure to gather relevant and sufficient transport data. While many cities do have data collection systems in place, these systems are often very car centric as it is easier to measure and monitor vehicular traffic, while pedestrian, cyclist and public transport (PT) user patterns are more complex. This is an issue because it prevents evidence-based planning of sustainable modes of transport while developing further the already prioritised conditions for driving. Thus, perhaps even more important than setting up ambitious and innovative data collection systems, is making sure that these systems do not support the further prioritisation of vehicular traffic over PT and active modes of transport (walking, cycling and other micromobility).

Regional transport models. The data collected on people's transport needs and behaviour must be analysed to provide guidance to transport planners. Perhaps the best way to do this is by using transport models. Models enable analysing the current state of transport systems as well as predicting future developments in various scenarios. The latter use is especially important as it allows planners to estimate the effects of various potential interventions and choose/prioritise the most effective and/or cost-effective ones. Transport models have been in use for a while, but their accuracy and utility has been fairly limited when it comes to modelling public transport demand, active modes of transport and multimodal trips. While today there exist some models that are very good in that respect, their use in practice is still not nearly as widespread as that of motorised transport models. This has greatly contributed to the prioritisation of vehicular traffic in cities and towns as models have provided great insights and some measure of certainty in the case of motorised private modes, while leaving transport planners in the dark when it comes to planning systems for sustainable transport modes.

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POSSIBLE SOLUTIONS

Data collection and sharing in multi-governance structure

The type and amount of data that needs to be collected for effective transport planning depends to a large extent on the specific (types of) models chosen. As such, data gathering activities should be closely coordinated with transport and land use modelling activities. The easiest way to make sure enough relevant data on PT and active modes of transport is gathered, is to first choose models that enable high quality modelling of PT and active modes (see next paragraph) and then plan data gathering activities according to the requirements of these models. For macromodels including many modes of transport, the main types of data needed include, among others, distribution of population, jobs, schools and other main functions, origin-destination and modal split trips, routes used, topography (for active modes) and journey times. There are various sources from which these data can be collected (see the 'SUMBA Guidance for modelling and data collection' document) and often it is beneficial to gather the same data from multiple sources for validation. An increasingly popular method is using mobile positioning data because it offers a lot of useful information about people's movement. However, even mobile positioning data is usually complemented by more traditional data sources like travel surveys.

When planning transport modelling and data collection activities, it is important that this be done in close cooperation between the municipalities making up the functional urban area to ensure that data on the whole area is included and concistently used. Otherwise, modelling will be of limited use as it will not be able to accurately predict transport patterns without all the relevant data. Similarly, the results of modelling and the activities based on these, should be shared and coordinated between the municipalities to ensure the effectiveness of transport planning in the functional urban area (see chapter 2.1 for more).

For a more detailed overview on the types of data necessary for specific types of transport and land use models, please refer to the document 'Guidance for modelling and data collection' compiled under the SUMBA project.

Regional transport models

There are many different types of models that are used for analysing different scales/aspects of transport systems. A set of models should be chosen that cover the relevant scales and fit well with each other. However, the main priority when choosing these models should be their ability to model PT, active modes of transport and multimodal journeys at a high level. While it is necessary to also model motorised transport, this capacity is present in most any general traffic modelling tool anyway. Focusing on PT and active modes of transport is essential for being able to plan a healthy, sustainable and well-functioning transport system in an urban functional area.

For an overview of the different types of models as well as descriptions of specific modelling tools, please refer to the document 'Guidance for modelling and data collection' compiled under the SUMBA project.

Measuring accessibility

One method that has been recognised as crucial for developing a sustainable transport system is modelling accessibility. Accessibility is often defined as the property of a location that

shows the number of relevant places/activities that can be accessed from this location in a given time period by a given mode of transport. For example, measuring accessibility by PT for commuting shows how many workplaces can be reached from a certain point in, say, 30 minutes using PT. Accessibility is perhaps the most important criterion (although certainly not the only one) for assessing the performance of a mode of transport or the overall transport system because it measures the opportunities people have access to, which is arguably the main goal of transport planning. As such, accessibility for various uses and modes of transport should be modelled. However, measuring (and improving) accessibility by PT, active modes of transport and multimodal solutions should be prioritised as these modes can be used by more groups of people (e.g. children, elderly, the less wealthy) when compared to driving due to low costs and lower physical/mental capacity requirements. These modes of transport are also much cheaper to develop and much less disruptive for other activities and modes of transport (when compared to driving).

Specific modelling tools for computing accessibility include

- ArcGIS Network Analyst by ESRI,
- Sugar Access by Citilabs,
- UrMoAC by German Aerospace Centre.

As accessibility is affected by both land use patterns and available mobility, it is also a necessary piece of data for most Land Use Transport Interaction (LUTI) models. For more information about specific accessibility and LUTI models, please refer to the document 'Guidance for modelling and data collection' compiled under the SUMBA project.

INDICATORS FOR SUCCESS

In order to measure progress on addressing the above mentioned challenges, these indicators should be measured:

- *Data*: historically consistent (comparable) basic transport data collection on PT and active modes. Can be measured by the period for which basic data are available.
- *Modelling*: use of models in planning for PT and active modes. Can be measured by how many different types/scales of models are used in planning.
- *Accessibility*: modelling accessibility scores for PT and active modes.

2.3 Infrastructure

MAIN CHALLENGES AND COMMON PROBLEMS

The general issue with commuting infrastructure is that conditions for using sustainable modes are not good enough, especially when compared to car infrastructure. This makes sustainable modes unattractive for commuting purposes. More specifically, the infrastructure for changing modes as well as the more basic road/track infrastructure is lacking. The first of these is important because using sustainable modes for commuting often requires the use of a number of different modes of transport during the same trip. This is inconvenient in itself as car can usually take one from door to door. It is made even more inconvenient if the changing points are missing relevant amenities. Broadly speaking, two types of relevant amenities can be distinguished: those needed for continuing one's journey and those needed to make the stopping/waiting period more comfortable. The first sort includes, for example, sheltered bicycle parking, hubs where many transport modes meet, availability of bike and car share systems. The second sort includes seating, shelter from weather in the waiting area and facilities offering food and drink. Currently, these amenities are often lacking in many cities. The more basic road/track infrastructure is obviously necessary for enabling the use of sustainable transport modes. This includes good PT connections as well as good road infrastructure for non-motorised transport. Currently, cycling infrastructure is severely under-developed in many cities and, more relevant to commuting, connections between the city centre and sub-

urbs are often lacking. In general, the shortcomings of sustainable transport modes' infrastructure create a situation where the general transport infrastructure is still largely geared towards enabling driving with sustainable modes not offering a viable alternative to the majority of the population.

POSSIBLE SOLUTIONS

To improve interchanges between various modes of transport, it is essential that all transport networks for all modes in the region are planned together so that the intersections of these networks could be created and located where they are needed most for commuting journeys. This requires extensive cooperation between relevant departments and probably some form of unified body for transport planning in the region.

For improved waiting amenities in interchanges and multimodal hubs, it is useful to devise and enact quality standards. Such standards should include adequate shelter, seating, food places, possible recreational facilities and other amenities deemed necessary for creating convenient multimodal hubs. By implementing these standards, an evenly good level of comfort can be guaranteed in interchanges and multimodal hubs. A complementary approach would be to reduce the need for interchanges altogether by using public transport that can transition from regional line to an urban one. This would be suitable for interchanges where the main interchange is between regional and urban modes of PT, e.g. regional train and urban tram.

To enable the use of active, non-motorised modes, suitable infrastructure networks need to be developed. A good solution is bicycle highways that connect suburbs directly to the city centre. The idea behind such highways is to provide direct and interrupted connections ideal for high speeds and long distances. Combined with the growing use of e-bikes, such highways provide a very real alternative to car-based commuting.

INDICATORS FOR SUCCESS

- *Hubs*: Number of good quality intermodal hubs.
- *Standards*: Existence of quality standards for transport interchanges and intermodal hubs.
- *Connections*: Availability of commuting opportunities using active modes. Can be measured by share of suburban areas well connected to the city centre for active travel (e.g. with bicycle highways).
- *Changes*: How many mode changes people need to make when commuting. Can be measured by the average number of necessary changes of transport mode during a commute for suburban residents.

2.4 Fare schemes and integrated public transport operating systems

MAIN CHALLENGES AND COMMON PROBLEMS

The commuting patterns and travel demand in urban functional often run across administrative borders of different municipalities, with their separate public transport network and fare systems. Commuting patterns are often changing quicker than governance and institutional structures in the region. Having different public transport modes and operators, ownership, tendering cycles and funding schemes often result in several ticketing and management systems which may result in less attractive, slower and more costly PT service for cross-border and intermodal trips in the region. Integration of ticketing and zoning needs new agreements and negotiations between all municipalities/operators in the region. This usually also involves the need for changing laws, creating new institutions, operation management and funding procedures.

Lack of common and integrated fare systems may cause several problems in regional mobility:

- the PT service is attractive or affordable only when using one operator´s service or using the service within one administrative unit (municipality, city, region).
- cross-border services do not have monthly passes, higher costs for users.
- lack of motivation for using interchanges for optimal PT connections, due to the need to buy a new ticket - cost is higher, service is slower or not covering the needs of customers.
- customers sticking to only one operator leads to inefficient line network and duplication of services, higher costs of operation.
- slower connection speeds due to multiple ticket sales.
- different payment and ticketing systems make the system unattractive and unreadable, confusing, not customer friendly, too much hassle.
- driving becomes more attractive.

POSSIBLE SOLUTIONS

There are different levels for integrating the ticketing systems:

- common ticketing and tariffs for all PT services in the municipality.
- common payment system (one card, but different tickets).
- common zoning and ticketing for regional PT service, regarding administrative borders (the zones are defined with administrative borders).
- common ticketing and zoning across all modes of regional and local PT with distance based zoning (Helsinki Region).
- nation-wide common ticketing (Switzerland).

INDICATORS FOR SUCCESS

- *Cross border trips*: estimating the popularity of PT for trips crossing municipal borders. Can be estimated by measuring the percentage share of cross border PT trips of all cross border trips in the functional zone.
- *Systems*: counting the number of different ticketing systems in the region - single fares as well as period fares.
- *Integration*: measuring the share of PT services integrated into common ticket system.
- *Trip cost*: cost of single trip when combining 2-3 different PT lines.
- *Monthly cost*: cost of monthly pass within e.g one hour commuting trip in the region.
- Modal share: measuring PT modal share trend in the region.
- *Revenue*: measuring ticket revenue in the region

2.5 Mobility Services and integration of different transport modes

An intermodal journey is only as effective as the transport modes available, the interconnectivity and reliability of these modes and the availability of information to commuters and travellers that is necessary for planning their journey.

MAIN CHALLENGES AND COMMON PROBLEMS

The easier it is to access public transit, the higher the likelihood people will use it. Travelling between a transit stop and place of residence or destination can be a challenge, however, particularly in rural and urban areas with long distances to transit stops and/or low frequency of service. While larger cities have introduced systems such as station-based bicycle hire to com-

plement public transit, these often involve high cost and are unsuitable for smaller cities and rural areas that lack population density. With multiple mobility actors in a single city or region, navigating the options and connections within a journey can be a challenge. In addition, such diversity of mobility actors often requires the use of several different digital platforms (for example mobile applications), making trip planning even more complicated.

POSSIBLE SOLUTIONS

Hire systems of various forms of micro mobility (bicycle, e-scooter, e-moped etc) have become more common in cities and provide solutions for first and last mile travel. More recently, dockless systems have replaced station-based systems allowing greater flexibility for the user with lower infrastructure cost to the operator and city. However, these systems have also presented new challenges related to parking, vehicle misuse (driving on sidewalks) and vandalism, underdeveloped regulation and policy and abandonment (if a company goes bankrupt). Uncertainties related to policy and management of dockless vehicle hire systems can have a negative effect on their utilisation and a negative view of them among the public and policy-makers.

Demand-responsive transport (DRT) used as flexible public transit service for people with special needs (elderly, disabled), could be expanded for commuters in both rural and urban areas with otherwise low demand and/or poor access. Door-to-door services can use a combination of booking methods including by telephone, SMS, web-based, app-based and integration in an existing public transit journey planner.

Journey planners exist as web-based and mobile applications to give convenient access to transit information such as timetables, ticket information and even real-time vehicle (e.g. bus) location. However, these applications may be operator and/or region specific and typically do not offer information on intermodal travel options, combining multiple trips and options for cross-operator and cross-border travel. A desirable approach to information and journey planning would be to connect mobility solutions on a common, intermodal platform that could eventually contribute to Mobility as a Service (MaaS) common ticketing functionality.

Technological advancements in information and communication industry along with innovative schemes in the vehicular and mobility field have resulted in the emergence of various new services of shared mobility such as **car-sharing, bike-sharing** and many others (Miramontes et al 2017). By investing in and encouraging these shared modes, having quality PT, and adequate pedestrian as well as cycling infrastructure, cities can successfully provide attractive and efficient alternatives to private car use, thus promoting multimodality among citizens[1].

INDICATORS TO MEASURE PERFORMANCE

Services that improve access to mobility in both urban and rural areas can be in the form of new or updated modes of transportation and digital tools, such as mobile applications, that inform on how these modes are connected. Indicators of success for such services can include:

- *Awareness*: knowledge that a service exists. Can be tracked for example by survey information and the number of application downloads.
- *Number of available mobility solutions*: increase in mobility options improves access to mobility and creates new opportunities for intermodal journeys.
- *Usage statistics*: can be in the form of trip numbers and/or ticket purchases (via app, when available): indicates that the service is useful for planning and ticketing.
- *Improved access to mobility*: including rural areas and people with special needs (ex: old-age, families with children and disabled). This can be measured using GIS analysis, survey data and employment data.
- *Geographical region*: as this expands, intermodal journeys become easier over longer distances.
- *Reduced car use / dependence*: measured by survey data.

1 *https://www.cities-multimodal.eu/sites/cmm/files/pais_renita_thesis_2019.pdf*

3. PARTICIPATORY PROCESS

3.1 What is participation and why is it important?

Developing a Commuting Master plan can be a complex process, requiring cooperation and knowledge exchange among planners, politicians, companies, organisations, regional actors and citizens. Involving methods of participation in the development of the CMP is necessary to obtain public legitimacy and create a plan that satisfies the needs of people. When successful the result is a process that considers people's opinions, ideas and concerns while also considering specialists' recommendations. A level of trust between participants and policy-makers can be formed and even ownership on behalf of the citizens and stakeholders.

Arnstein (1969) identifies eight levels of participation with varying extents of citizens' power in determining outcomes of a participatory process, from nonparticipation (ex manipulation) to citizen control. Arbter (2007) simplifies this to three levels of participation:

Information: participants and the public are informed about the project and its effects but have little to no influence on the decision-making process. Examples include:

- Notice-board
- Mailing
- Public meeting to inform
- Opportunity to inspect official documents

Consultation: participants and the public are invited to provide comments on a plan or project which can be taken into account at the final decision stage. Examples include:

- Public meeting with discussion
- Opinion survey
- Citizen panel
- (requests for) comments

Decision-influencing: participants and the public have a say in developing and implementing the project. Examples include:

- Study group
- Round table
- Citizen jury
- Environmental mediation

The degree to which citizens and stakeholders are involved in the CMP process depends on the stage of the process and the desired outcomes. It can be suggested that authorities responsible for writing the CMP should strive to achieve a decision-influencing level of participation.

3.2 Getting started with participation

Creating a participation strategy is recommended to create a common understanding of the participatory process among actors involved, both internal and external. The document is prepared by those in the public authority responsible for the process and typically includes scope, rationale, objectives, procedures for risk management, rules for participation and documentation handling (CH4LLENGE 2016). Specific requirements for participation can be defined in national legal framework or local guidance documents such as a community participation policy. Guidelines and experiences from national and European projects can also serve as points of reference for cities to develop their own strategy.

Description of main actors, their roles and possible influence.Participant groups can be summarized as stakeholders representing positions of organised groups and having a collective interest while citizens are individual members of the public and unaffiliated participants in the involvement process (Kahane et al, 2013). The distinction can be blurred, however, since citizens can be considered a large stakeholder group while members of a stakeholder group are in fact citizens.

In general, three groups need to be involved:

- **Institutional actors**: other departments, political bodies, neighbouring regions and cities.
- **Stakeholders**: neighbourhood associations, cycling organisations, environmental and other relevant NGOs, mobility service providers and business organizations.
- **Public:** with broad demographic and socio-economic diversity.

Participation in the CMP process should be included throughout the planning process, from problem analysis to commenting on the final draft of the document. There are no standards as to how to incorporate participation, but this is rather steered by purpose and desired results from the process with dependence on available resources, knowledge and time of the facilitating organisation. Involvement from the beginning, however, is important to avoid a „decide – announce – defend" approach that includes, for example, citizens late in the process when goals and measures have already been decided, as is such with an information level of participation.

Citizens and stakeholders may be involved at different times in the CMP process, in blended or separate meetings. The table below includes the advantages and disadvantages of the different approaches, adapted from Kahane (2013).

METHOD	PROS +	CONS -
Blended participation of stakeholders and citizens	Citizens and stakeholders are targeted at equal levels. Encourages dialogue and facilitates exchange between the two groups.	Can cause power differentials between stakeholders. Risk that stakeholders dominate the participation process.
Separate but concurrent participation ofstakeholders and citizens	Gives the opportunity to address different levels of expertise, knowledge and interests during participation. Allows for tailoring participation formats to the needs and demands of citizens and targeting certain groups.	Requires careful harmonisation of activities. Results need to be woven together into a common process.
Separate and phased participation of stakeholders and citizens	Implemented due to limited financial, personnel and/or time resources to engage with citizens throughout the process. Could offer more focus and professional development process, strong cooperation structures with key stakeholders.	Limited connection between citizens and stakeholders due to their separate involvement. Citizens might have limited opportunities to reframe the CMP since a large number of decisions have already been made.

A comparison of how cities include methods of citizen and stakeholder involvement at different stages of writing their SUMP are shown in the diagram below (CH4LLENGE 2016). Different formats were applied depending on the local context including blended (Budapest, Ghent), separate but concurrent (Bremen, Ghent) and phased participation (Dresden).

Challenges can arise during the participatory process and these need to be addressed, preferably during the early stages of the project. Institutional challenges that hinder good participation can include lack of understanding for conducting legitimate participation that reflects basic democratic principles. Limitations of financial and personnel resources can hinder successful participation. Lacking interest of the public authority to implement quality participation - particularly early in the planning process - can result in engagement in planning at a stage where measures or proposals have become more concrete. Similarly, the paradox of participation reflects low citizen interest in participation early in the process when scenarios are more flexible and open compared to later in the process when they become more concrete, less flexible but citizens feel more directly affected (CH4LLENGE 2016).

METHODS

Experience has shown that traditional participation methods such as workshops, consultation events and written communication tend to attract the same segment of a city population. The use of digital tools, and combination of digital and traditional tools, can help cities reach different population segments and help broaden outreach.

Online tools can include:

- Interactive discussion forum, idea storming.
- Online commenting of texts (e.g. draft CMP).
- Crowd-mapping (e.g. mobility analysis).
- Voting (e.g. on priorities, scenarios, measure packages).
- Contests (e.g. to develop the best mobility solutions, including voting on proposals) (CH4LLENGE 2016).

Method selection is based on goals and scope of involvement, as outlined in the participation strategy. Example methods and criteria for choosing the optimal method can be found in existing documents (TUW 2018), (CH4LLANGE 2016), (Arbter 2007).

Managing participation

When the participation strategy is completed, and the public authority has defined the participants and plan for including participation in the various parts of the CMP development, it is time to reach out to citizens and stakeholders to inform them that the authority is developing a new strategy and desires to include a participatory process in writing the document. Special attention should be placed on how the authority reaches groups and demographics that can be otherwise hard to reach. Social media and partnership with local NGOs and other organisations can assist with the communications approach. When it is desired to influence mobility behaviour, it is important to gather and understand the different factors that affect modal choice for different social groups including mobility routines, value systems and options for organising daily travel (TUW 2017).

When managing actual activities, it is important to review internal skills, know-how and available resources to carry quality involvement. For example, when internal know-how is lacking, it may be necessary to seek external assistance if internal knowledge building is not an option. The process should also be conflict-sensitive throughout and conflict prevention actions should be taken to reduce the risk of dispute (outlined in strategy document). High level of transparency is one example of reducing conflict - being clear and open about the CMP development process will give participants a better understanding of how their comments contribute to the process.

Depending on the method(s) of participation that are used, comments and feedback at the various stages of the CMP process can come in different forms: verbal, hand-written, digital etc. These must be systematically collected, documented and analysed for relevancy against the CMP framework. It is possible that some comments could be relevant in other planning (detailed, spatial) processes or that comments are not at all relevant/feasible and should be categorized as such.

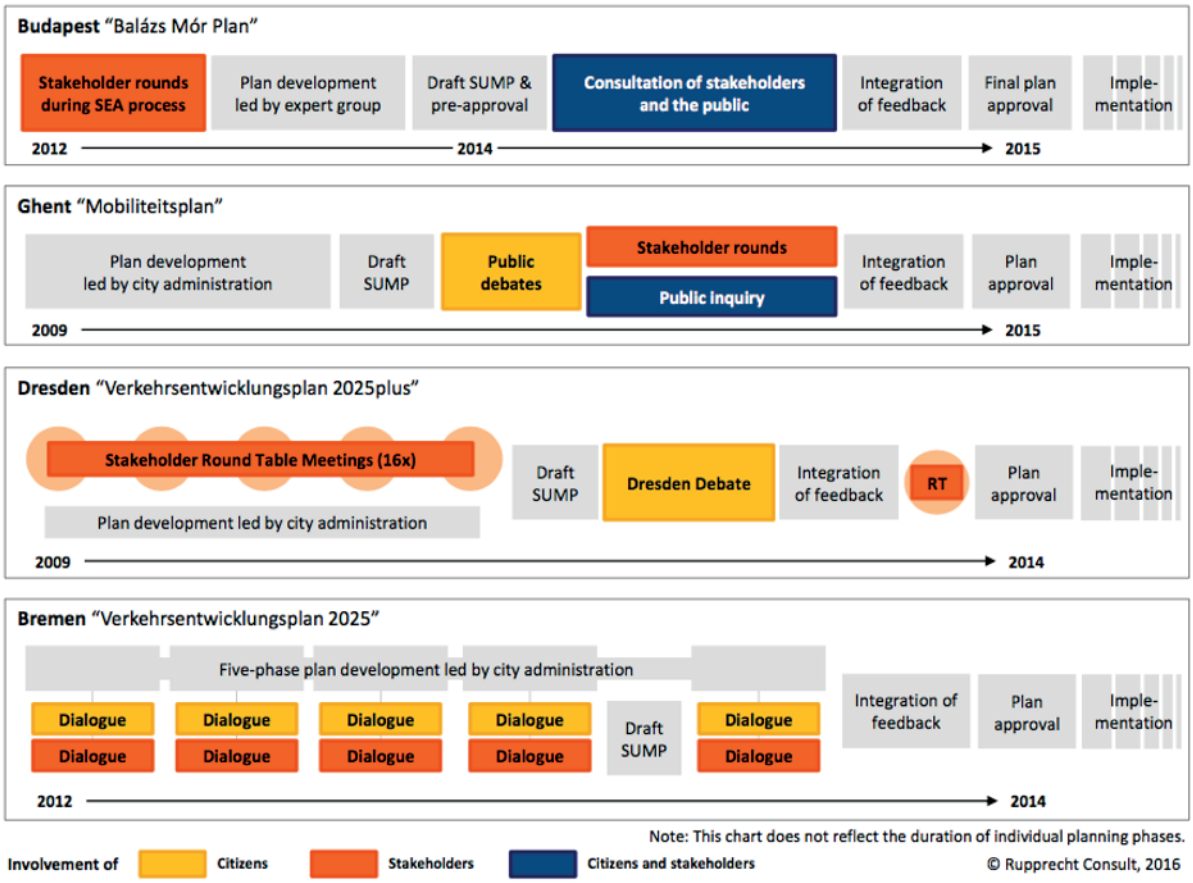

Figure 1. Forms of participatory processes. Source: Rupprecht Consult, 2016.

3.3 Evaluation

Evaluation of the participatory process is crucial to understand if the process succeeded, if there was a diverse enough group of actors involved and if the process and resulting comments and feedback were relevant to the CMP. Monitoring and quality control of engagement activities should be conducted in order to track progress towards reaching the participation objectives and to take corrective actions as needed. Typically, public authorities can carry out evaluation procedures, however, active citizens and stakeholders in the process can also provide feedback on the process via surveys, providing an even more critical review of the effectiveness of the strategy used.

For more information, resources and specific participation tools, please refer to the CIVITAS Tool Inventory: https://civitas.eu/tool-inventory

4. COMMUTING MASTER PLANS: CONTENT TEMPLATE FOR THE POLICY DOCUMENT

In this chapter we are proposing a content structure and short description of the different sections of the Commuting Master Plan.

INTRODUCTION

Explains how this specific CMP supports region's overall principles for growth management, presents a mobility vision, explains how this Plan is applied and how it will be updated, and who has the ownership of the CMP.

1

SECTION 1: DEFINITION OF THE FUNCTIONAL AREA THE CMP COVERS

In this section, the geographical borders of the CMP should be defined – for example a core city with a few defined surrounding municipalities, or entire county/region etc. Data that describes the area can also be added. (Ie. population, employment, commuting patterns, number of commuters to the city and also from the city to suburbs etc.). https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Commuting_zone

2

SECTION 2: DESCRIPTION OF MAIN ACTORS, THEIR ROLES AND POSSIBLE INFLUENCE

In this section, the governance structure, cooperation, institutional set-up, roles etc. are described. More precisely, the agents responsible for local and regional public transport planning, PT operators and ticketing system should be identified. Bring out the EU/national/regional/local funding roles for roads, public transport, ticket revenue from local and regional transport, PT operation costs. Describe the role of national, regional and local administration, co-operation bodies, transport companies or any other relevant institutions.

3

SECTION 3: OVERVIEW OF THE CURRENT STATUS AND TRENDS OF MOBILITY AND COMMUTING IN THE AREA

1) Present an overview of relevant existing strategies and policies (local, regional, national – all relevant areas, e.g. transport, spatial planning, housing), focusing on the most important ones – e.g. the ones that are referred to during national or EU funding.

2) Present information from baseline research - Input from SWOT and Benchmarking exercise including overview of:

- Population and housing patterns in the CMP area.
- Employment and retail location trends.
- Where near-future larger developments are planned/being built (schools, offices, homes, industrial parks, hospitals or any other hotspots that might create travel demand and change commuting patterns).
- Main drivers of travel demand (population, employment, income, retail, housing, tourism, any seasonal issues).
- Trends of transport impact (energy consumption, space consumption, emissions, health, safety).
- Commuting statistics (number of daily trips on the city border, cars, public transport), main trip purposes. Commuting is two-way in many cities – bear in mind people who are regularly moving from the core city to other places
- Ticketing system and public transport integration level in the region – including all PT modes regardless of ownership and administrative borders. Describe the level of integration in local and regional public transport – how large proportion of PT operations are covered by common ticketing system (both monthly pass and single ticket) - are there PT operators that are not in the common system?
- Car ownership in households – spatial distribution of 0-car households (by city district, neighbourhood), 1 car households, 1+ car households.
- Affordability of transport system – are commuting costs increasing (including additional costs when people are shifting to car use, PT price and time competitiveness)?
- Perception of people, satisfaction with current services, main obstacles, who and where are more likely potential new users.

3

3) Overview/analysis of problems in the current mobility system related to cross-border commuting

- Describe any "grey" areas in the mobility system that are currently not supporting seamless and intermodal PT and overall transport system (e.g. regional PT management, integration of different modes, ticketing system, PT network design, housing and real estate development, bike network and PT accessibility, Park-and-Ride).
- Describe connections in the region with highest travel demand/car use and potential for change - look into cross-border commuting trips - where is the car volume the highest, the PT share the lowest?.
- Describe travel time differences by PT and car between e.g. 5 key commuting connections.
- Describe user cost differences of PT vs car use, including the price of single ticket on different trips requiring interchange and fuel/parking costs.
- Describe the public transport level of service and coverage of population and working places with access to 4* public transport (for service level quality you can refer to the SUMI indicators).
- Describe accessibility of cycling network and accessibility of high-capacity and frequent public transport services by bike.

4

SECTION 4: STRATEGIC GOAL OR VISION OF THE CMP

Goals are an end to which efforts are directed, and are generally conceived as an ideal, which in many cases is never fully achieved. Goals are the highest-level statements.

Goal examples:

- Improve accessibility for all people.
- Balanced and sustainable public transportation system.
- Well integrated and seamless intermodal transportation system.
- Decrease in the use of private cars for commuting by 15% by 2030.
- Region to have a CO2 neutral transport system by 2050.

Describe the strategic goal/vision of the CMP agreed upon by the key stakeholders – this can be either qualitative or quantitative. The latter is preferred.

5

SECTION 5: FUTURE DEVELOPMENT SCENARIOS

The aim of the scenario analyses is to show and analyse current trends (so called business-as-usual scenario with current measures) in 10-15 year perspective and propose 2-3 alternative future scenarios in case current trends do not reach the expected mobility vision of the region. If there are already scenarios developed, these can be used as well if they apply to the set goal(s) and they address cross-border commuting.

6

SECTION 6: LIST OF OVERALL PRIORITY AREAS AND KEY OBJECTIVES RELATED TO THESE PRIORITY AREAS

In this chapter, describe what should be achieved, as defined by a set of objectives grouped under priority areas.

Priority areas define themes relevant for achieving the larger goals or vision and organise objectives in a cohesive manner.

Objectives define aims that help achieve strategic goals. An example can be the reduction of car traffic to the city centre. Objective should also contain measurable indicators and targets.

Indicators quantify the objective and can be used as means of tracking progress. In the current example, an indicator would be traffic counts at the city centre boundary.

Targets are defined to allow for monitoring the progress of an objective and should be SMART, specific, measurable, achievable, realistic and timebound. For example, a reduction of 10% of car traffic to the centre in ten years, measured by traffic counts at the city centre boundary. Targets should focus on commuting-related issues and highlight intermodality and cost efficiency.

Lastly, **measures** are defined in the CMP under each objective and function as specific actions or activities implemented in order to reach the objectives. These could be traffic calming measures and/or parking fee increase as a way to make travel to the centre less attractive.

Tip: Identify the low hanging fruits – measures that can reach the most people to reduce private car use for door-to-door commuting and shift to intermodal travel.

6

List of **possible priority areas** to be included (the list is not binding):

1. Infrastructure (including PT, rail, rail stations, bus/tram-priority lanes, cycling, walking, intermodal hubs, regardless of ownership).
2. Integrated public transport ticketing system in the region (how easy to use and affordable is the service of different operators regardless of PT type, administrative borders and ownership?), integrated PT network and service operations.
3. Mobility services, like car and bike sharing, ride sharing, demand responsive solutions.
4. Intermodality (including car+PT, bike+PT, train+bus and PT+transport services like bike rent, car sharing).
5. Mobility management and awareness raising.
6. Data gathering and monitoring systems.
7. Cross-border collaboration – institutional and funding arrangement of PT and mobility management.
8. Social inclusion/accessibility – including elderly, passengers with kids/prams.
9. Taking bicycles/mini scooters on board PT, including buses in regions not covered by train.
10. Sustainability and environmental aspects.
11. New (electric) micromobility and PT integration (el-scooters, foldable bikes, electric boards/skateboards), charging possibilities.
12. Funding - main funding sources and agreements, fiscal measures - car related fees and charges, ticket revenue
13. Integrated transport, spatial planning and housing policies in the region – priority location for new developments (vicinity of existing or potential high quality PT and cycling service).
14. Safety and security related to commuting trips, night services of PT, safety and security of PT hubs (e.g. pickpocketing or activities perceived as disturbing by some user groups, like women, ethnic groups etc), bike-parking safety.

Examples of possible objectives, and related measures

Area: Intermodality

Objective: Improve connectivity between different modes of transport.

Include short explanation of the objective including the current state, future targets and related measurable indicators.

Measure 1: Build intermodal hubs at commonly used tram stations that correspond to set quality standards.

Measure 2: Create a bikeway that connects two city districts along a particular route that has high volumes of car traffic.

Measure 3: Improve connectivity between public transport modes operated under different administrative/governance operators (e.g. municipal buses and national operator trains).

Area: Mobility

Objective: Provide attractive public transport services that are competitive with car use

Measure 1: Build bus priority lanes that allow for buses to drive past high congestion points.

7

SECTION 7: ACTION PLAN OF THE CMP

Breakdown of actions that will be developed and delivered to meet the objectives listed above. For each action, the following information should be provided:

- Brief description of the action
- Institutions responsible for and involved in delivering the action
- Timeframe for realisation
- The planned results of the action
- An indicator used to measure the results of the action
- Potential synergies and conflicts with other actions and/or policy documents
- Potential funding source(s) and the amount of funding required for carrying out the action
- The list of policy documents the action is or will be integrated into

The actions listed in the action plan should be included in a municipal strategy or plan approved by the city council. As an alternative, the action plan on its own or as a part of the CMP could

7

be adopted by the council. It is also appropriate to include actions in the action plan that are already present in other policy documents at local or regional level.

8

SECTION 8: UPTAKE OF THE COMMUTING MASTER PLAN INTO STRATEGIC PLANS AND POLICY

Provide a list of related strategies and policy documents that are related to CMP (regional and local development plans, climate, energy efficiency and environmental policy documents, public health, housing, social infrastructure or other relevant local, regional or national documents. This enables and simplifies the integration of the CMP principles into other relevant documents when updating existing ones or compiling entirely new ones.

9

SECTION 9: MONITORING AND UPDATING THE CMP

Describe how the updating will be organized, how often, whose responsibility it will be etc. Updating the CMP should be carried out periodically, systematically and involving a fairly broad set of stakeholders. The progress towards measurable targets and overall goals should be measured or estimated during each update to enable evidence-based prioritisation of areas with the most room for improvement. This is especially important for determining the focus of the action plan accompanying the updated CMP.

10

SECTION 10: OVERVIEW OF STAKEHOLDER INVOLVEMENT AND MAIN RELATED OUTPUTS

Here a reasonably detailed overview of the stakeholder and public (if applicable) involvement in the development of the CMP should be provided. This is necessary for demonstrating the legitimacy of and practical knowledge incorporated into the CMP. Any relevant outputs should also be included.

11

SECTION 11: STUDIES, ANALYSIS AND SURVEYS USED FOR COMPILING THE COMMUTING MASTER PLAN

List all studies conducted within the SUMBA project as well as any additional studies, analyses or surveys that have provided input for the CMP. This enables readers to explore in more detail the motivation and logic behind the objectives listed in the CMP.

5. REFERENCES

[1] Arbter, K.,Handler, M., Purker, E., Tappeiner, G. & Trattnigg, R. (2007). The Public Participation Manuel. Shaping the future together. Vienna: Austrian Society for Environment and Technology (Ed.).

[2] Arnstein, S. R. (1969). A ladder of citizen participation. Journal of the American Institute of planners, 35(4), 216-224.

[3] CH4LLENGE (2016) Participation Actively engaging citizens and stakeholders in the development of Sustainable Urban Mobility Plans.

[4] Kahane, D. Loptson, K., Herriman, J. & Hardy, M. (2013) Stakeholder and Citizen Roles in Public Deliberation. Journal of Public Deliberation: Vol. 9: Iss. 2, Article 2.

[5] TUW (2017) D2.1 Handbook for Participation Strategies for Mobility Issues in Neighbourhoods. Publication from SUNRISE Civitas project.

6. RECOMMENDED ONLINE RESOURCES FOR MANAGING THE CMP PROCESS

There is a number of EU wide co-operation initiatives and projects that provide tools, resources and training material to support sustainable urban mobility planning.

Here is a list of key websites for further resources and tools supporting the CMP process:

- https://civitas.eu/knowledge-base
- https://www.eltis.org/mobility-plans
- http://sump-network.eu/
- https://civitas.eu/tool-inventory
- https://civitas.eu/learning-centre
- http://www.poly-sump.eu/
- https://www.interregeurope.eu/reform/

ABOUT SUBMA

WHY DO WE NEED SUMBA?

More and more people chose to live in suburbs while they continue to work in cities, resulting in high number of daily commuters. Commuter traffic is still dominated by private cars, resulting in problems such as

- congestion
- air pollution
- high demand of parking spaces
- higher costs of public transport.

SUMBA will address commuter transport and help to mitigate these problems!

OUR ACTIVITIES

The urban transport system can be reshaped to an intermodal network that off ers a combination of various transport modes, including bike and car-sharing. This helps cities to achieve a more attractive and environmentally friendly commuting system. SUMBA will develop and test tools that help urban and transport planners to assess, plan, and integrate intermodal mobility solutions into transport plans and policies of their cities and municipalities.

OUR PARTNERS CITIES

Hamburg (Germany)
Tallinn city, Union of Harju municipalities (Estonia)
Tartu (Estonia)
Riga (Latvia)
Växjö (Sweden)
Šiauliai (Lithuania)
Olsztyn (Poland)
Associated cites Gdynia, Warsaw suburban region, Słupsk municipality (Poland), and Helsinki (Finland)

EXPERT PARTNERS

German Aerospace Center, Institute of Transport Research
Baltic Environmental Forum Latvia, Estonia and Germany
Earth and People Foundation

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WWW.SUMBA.EU