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## **Guidance Note**

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**Subject:** *Preparation of Local and Regional Transport Master Plans - a Supporting JASPERS Guidance Note for Contracting Authorities in the Czech Republic*

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# **1. Introduction and Background**

## **1.1 Objectives of this Document**

The aim of this document is to provide supporting generic guidance for towns/cities and/or regional areas in the Czech Republic which are developing sustainable transport master plans (further referred to as TMPs). It is intended as a complement to available European guidance such as the SUMP (Sustainable Urban Mobility Plan) and Polycentric SUMP guidance and JASPERS methodology guidance such as that on National Transport Plans.

Transport Master Plan is meant here in the widest understood sense as an „umbrella” plan covering a broad range of potential measures (organizational/institutional, operational and infrastructure) with a planning horizon at least into the medium-long term (normally 10-20 years).

Separate narrower or shorter-term plans/strategies might be required to precede/support/follow up a TMP but should be coordinated with it using a compatible methodological approach.

The document provides supporting framework guidance only. The responsible national and local authorities will usually want to provide more structure and detail in their own TMP work plan for example to ensure that national requirements are reflected, already known local key topics are covered in sufficient detail and that consultant terms of reference are sufficiently defined.

Chapter 1 outlines some key principles, parameters and background of TMPs, Chapter 2 provides a brief logical methodological structure and best-practice tips to making a TMP, while Chapter 3 examines in depth some key aspects of making a plan (demand modelling, SEA/consultation, data collection) and some common key issues in JASPERS countries (institutional set-up, sustainable maintenance and operations).

Annex 1 provides a check-list as a basis to examine the current quality and content of existing transport plan(s) of the town/region, which then might provide the basis for a plan update, utilizing work already done.

## **1.2 General Principles of a High Quality TMP**

Any high quality TMP should generally respect the following planning principles:

### **General approach**

- i. Provide an overall plan framework for a sustainable transport system development over the medium-long term which considers wider development objectives and plans.
- ii. Be consistent and complementary to the national level planning instruments and to the other relevant sectoral plans.
- iii. Be transparent and based on a robust and reliable set of data.
- iv. Be part of a continuous transport planning process.
- v. Be based on the relevant expected economic, social and environmental plans and developments.
- vi. Look to identify and select synergetic, proportionate, cost-effective and affordable transport solutions which contribute strongly to the TMP Objectives.
- vii. Be developed/consulted with an appropriate set of stakeholders.
- viii. Be developed in parallel and complementary with the respective SEA and comply with its requirements.

## **Scope**

- ix. Cover all relevant modes and their interaction.
- x. Consider the relevant geographical scope of transport related to the actual transport functionality.
- xi. Consider organisational, operational, and infrastructure aspects of transport provision (including sustainable operations and maintenance).

## **Basic methodology**

- xii. Collect data, develop Analysis and subsequently establish Objectives based on the analysis itself and on the related policy and strategies/plans for the transport system.
- xiii. Develop, assess, select and integrate organisational, operational and infrastructure Measures - supported by evidence highlighted/proven by the Analysis - into a TMP which effectively address the identified Objectives.
- xiv. As a further, final step – which could be undertaken both within the TMP itself or as a programming follow-up, provide a realistic Implementation Plan including a well defined plan monitoring/update process.

## **1.3 National, Regional and Local/Urban Requirements, Interfaces**

A TMP should reflect national planning requirements and properly interface with the Objectives and Measures of any relevant policies, strategies and plans:

- At a higher geographic level than the TMP: (e.g. European, national policy/transport plans and strategies of adjacent municipalities).
- At the urban/local/regional level any local/regional transport policy/strategy, urban development strategy and land-use plans, air quality plans, health plans, education plans, water and waste management plans, waterways plans, tourism/commercial/housing development plans etc.
- At operational level, more specific analysis such as in particular O&M (technical & financial) issues related to Public Transport (see point 3.4).

## **1.4 Geographical Scope and Thematic Focus of a TMP**

This guidance is intended to be sufficiently generic to cover requirements across all locations where a TMP is needed. The level of data and analysis needed will vary based on the complexity of the transport system.

### **Geographical Scope of a TMP**

TMPs generally cover substantial areas and populations, making sense either for cities/larger towns (ideally actively including the regional commuter and commercial attraction zone) and/or for more complex sets of connected municipalities with a high functional interaction within a region.

For practical reasons they are often procured and managed (or required) within administrative boundaries (regions or towns) with inter-border co-operations as required, however, this is not necessarily ideal and in some cases a special functional regional TMP can be defined.

The definition of such functional regions can go beyond administrative borders and be cross-border, they should ideally come from the National Transport Plan, based on identified traffic relations as elaborated with the support of an adequate traffic model (to be established in details in the national strategy, e.g. a functional region is where 80% of origins and destinations of trips for a certain area are

concentrated). See also Step 1.1 in chapter 2 for consideration of geographical scope in the set-up of the TMP.

It is recommended not to develop transport master plans for smaller towns alone (approximately towns of less than 50-100 thousand persons according to the national characteristics and population density) where transport behavior is not dominated by within-town movements. In such cases, plans should ideally be developed at a more aggregated level, e.g. metropolitan area, functional agglomeration of cities, regions/functional regions, as appropriate. This makes more sense from a transport functional planning perspective and from the practical sense of economies of scale in the development and approval of a difficult document.

In a bottom-up approach, the outcomes of local/regional plans which have national relevance should actually be one of the inputs for the preparation of the National Transport Plan, complementing the national sectoral plans/analyses.

### **Thematic Focus of a TMP**

The main focus of the TMP can come naturally out of the TMP development process (see chapter 2), by identifying and then addressing the key Problems, Opportunities and Objectives of the region/town. However, an initial expert analysis will often in practice also be made in Step 1 of the TMP process (see chapter 2) and in the initial phases of analysis to identify already known key issues/areas to be covered in more detail and described in the TMP Work-Plan.

In many JASPERS countries for example, we would expect a high focus on public transport frequency, integration including basic social public transport accessibility as well as organization, financial sustainability of operations and maintenance and an affordable development of the infrastructure. However, many basic higher level policy issues such as environmental objectives should be considered.

Also the size and nature of the region is generally important:

- Larger, densely populated cities/agglomerations will generally have more complex transport systems with multiple travel modes, and modifications to the system in one area can have major impacts across the full system. There will most often be a high emphasis on supporting urban development plans and addressing environmental problems.
- For smaller towns and low population density regional agglomerations, the network may be much simpler, public transport may be limited, and the effects of any investments may be more localised. The challenges of such areas are often different and focused more on delivering sufficient transport accessibility from an economic and social perspective with a limited budget.

## **1.5 EU Policy Background: Transport White Paper**

In 2011, the European Commission adopted the *Transport White Paper*<sup>1</sup>. The document outlines a roadmap of 40 concrete initiatives. By 2050, key goals include:

- No more conventionally-fuelled cars in cities,
- 40% use of sustainable low carbon fuels in aviation; at least 40% cut in shipping emissions,
- a 50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport.
- All of which will contribute to a 60% cut in transport emissions by the middle of the century.

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<sup>1</sup> Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system: European Commission, 2011

In the urban context, the Transport White Paper sets out a mixed strategy involving land-use planning, pricing schemes, efficient public transport services and infrastructure for non-motorised modes. The document recommends that cities above a certain size develop TMPs, bringing all those elements together, and which are fully aligned with Integrated Urban Development Plans.

Under the heading of 'Integrated Urban Mobility', the White Paper sets out the following Objective:

*Establish procedures and financial support mechanisms at European level for preparing Urban Mobility Audits, as well as Urban MPs, and set up a European Urban Mobility Scoreboard based on common targets. Examine the possibility of a mandatory approach for cities of a certain size, according to national standards based on EU guidelines.*

The Objective recognises the influence of urban transport on transport sustainability at a national level, and this ensures a strong link from the Transport White paper into the preparation of Urban MPs.

## **1.6 EU Guidance Background: Guidelines on Developing and Implementing a Sustainable Urban Mobility Plan (SUMP)**

The Guidelines on *Developing and Implementing a Sustainable Urban TMP*<sup>2</sup> were published in January 2014 by the European Commission. They were intended to provide support and guidance to urban transport and mobility practitioners and other stakeholders involved in the development and implementation of a Sustainable Urban Mobility Plan.

The Guidelines define a Sustainable Urban Mobility Plan as a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings in a sustainable way, which helps ensure long-term economic viability while respecting social and environmental needs. They highlight that a SUMP Plan builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles. The Guidelines suggest that a SUMP should be prepared including the following key Objectives:

- Ensure all citizens are offered transport options that enable access to key destinations and services.
- Improve safety and security.
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption.
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods.
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design for the benefits of citizens, the economy and society as a whole.

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<sup>2</sup> *Developing and Implementing a Sustainable Urban MP: European Commission: Jan 2014*

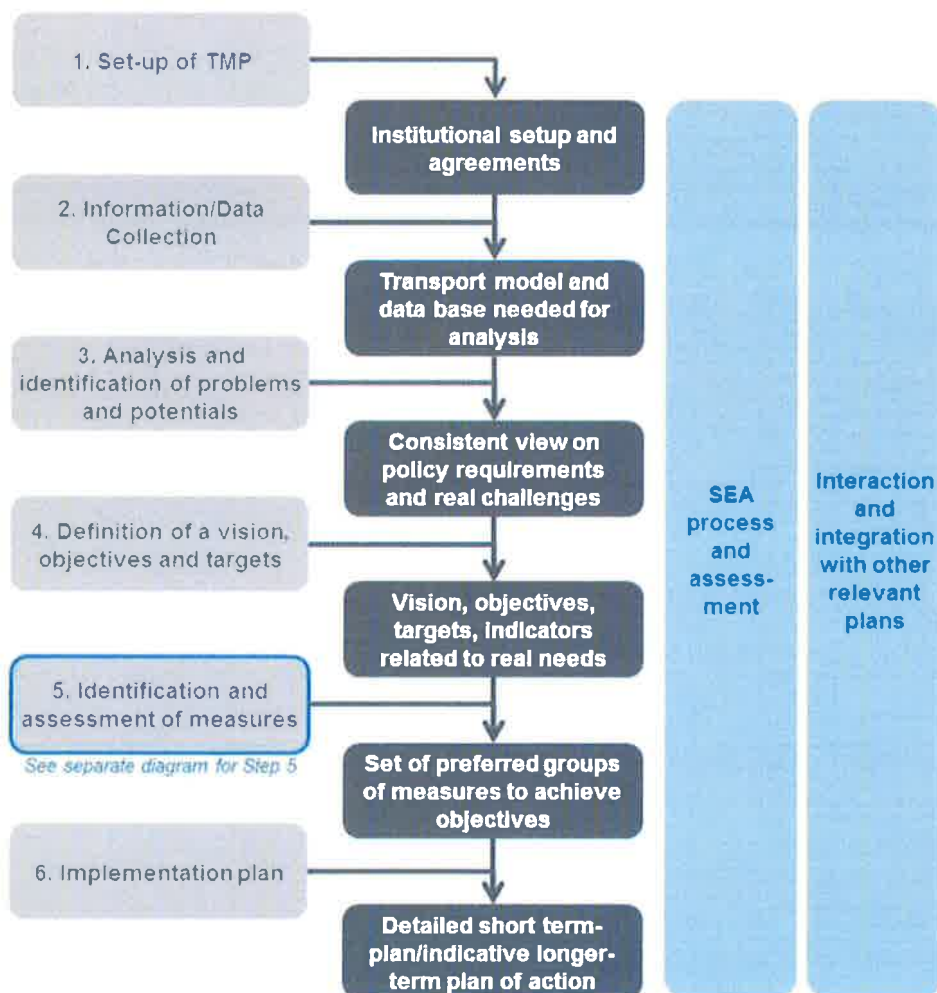
## 2. Steps in Preparing a TMP

This section of the Guidance outlines the procedure recommended to be followed in developing the TMP, and should take into account the more detailed guidance on key issues set out in section 3.

The methodology is based on good international practice in the preparation of Transport Plans, and is consistent with the European SUMP Guidance, complementing them. It is presented below as a schedule of activities to be undertaken when preparing the TMP.

1. Setup of the TMP
2. Information/data collection and development of a transport model
3. Analysis and identification of problems and potentials
4. Definition of a Vision, Objectives and Key Performance Indicators/Targets
5. Identification and assessment of Measures
6. Implementation Plan

The steps are sequential and the output of each step logically helps define the following step as can be seen from the following diagram. However, in practice of course there is always significant iteration between the steps.



## **Step 1: Setup of the TMP**

This step describes the key starting tasks in planning and setting up the TMP such that the work can be carried out in an effective way. It is essential that:

- The correct geographical scope is chosen and the right institutional alliances are set up for the TMP (step 1.1).
- An effective management structure for the TMP needs to be put in place that ensures the right skills sets and institutional ownership (step 1.2).
- The scope and work plan and necessary consultancy ToRs for the TMP are developed based on an initial analysis of requirements (steps 1.3/1.4).

### **Proposed reference methodology:**

#### **1.1 Setting/reviewing the geographical scope:**

As indicated in the introduction of chapter 1.4 above, it is important that when considering the geographical scope of the TMP, transport functionality should be reviewed.

The reference area should ideally represent a homogeneous transport entity, or functional region, characterized by a high level of mobility interactions (ideally, as defined within the context of the National Transport Plan and based on traffic model analysis, e.g. 80% of commuting trips or O/Ds take place within this area).

In some/many cases, the evidence of strong transport functionality overlaps between different administrative entities may arise, e.g. covering a non-institutionalized metropolitan area which comprises more than one administrative city/town or a functional agglomeration of towns etc. In some cases those functional regions may well be cross-border.

According to the situation, the regions around the "core" that are interested in the functional region might be involved only passively (taking account of demand) or preferably more actively by setting up an official Partnership Agreement.

If the geographical scope is extended, then the reference stakeholders should be updated and the working group/steering group should be amended appropriately. It is also common practice to agree upon a "chef de file" organization that would act as an administrative project coordinator and e.g. interface to the national/European level, in particular in case, the TMP is supported by EU/national funds.

Agreements setup at this stage might represent the basis for the further integration of all the transport (or part of) systems and services under a common, integrated "Transport (or Public Transport) Authority".

#### **1.2 Establish core Working Group(s), Steering Committee and appoint a Project Manager**

In order to prepare the TMP, Working Group(s) should be set up, in charge of developing the analysis for the relevant sectors. The Working Group should be formed as far as possible from available in-house experts reflecting the scope of the TMP and the complexity of the institutional set-up (for example from the strategic planning office/city development office, transport planning office, city architects office, roads management/investment department, urban public transport company



operational planners, regional transport planning office/transport authority etc.). Ideally also a representative of the SEA team should be included and once procured, technical consultants may also join the group to strengthen it.

A Steering Committee can also be appointed, which will provide high-level support to the Working Group, steering the process and reviewing/taking decisions on the TMP outputs from each step of the TMP process. The Steering Committee should comprise high-level representatives from the main “owners” of the TMP (e.g. City/Regional political representation, senior officials).

Finally, an individual Project Manager should be appointed to manage the Working Group(s), consultants and the communication with the Steering Committee and other stakeholders. The Project Manager should ideally be an strong in-house communicator and manager experienced in TMP development from the department directly responsible for the TMP elaboration.

A consultant may be procured to support the project manager role if required, but the role should not be fully outsourced unless absolutely unavoidable as this can reduce the level ownership of the TMP by the responsible administration and the capacity to communicate with the Steering Group.

### **1.3 The TMP work plan**

In order to define the TMP scope of work, the following considerations need to be made in particular:

#### **a) The TMP horizon should be specified**

This is normally between 10 and 20 years for the more strategic part of the TMP (outcome of step 5 and longer-term indicative part of step 6) and between 3-5 years for the short-term detailed planning part of the Implementation Plan (step 6).

#### **b) TMP scope of work should be defined**

An initial inventory/analysis should be made of the scope and quality of data/information, analysis, transport models, and any existing transport plan(s) - see chapters 2 and 3 and the check-list in chapter 3.5 for a typical scope of data/information collection required in a regional or local/urban context.

Gaps should be identified based on this initial inventory/analysis process and the work scope requirements for the TMP developed.

The following two tasks are very important at this stage:

*Existing local/regional transport plan review:* an important part of the gap analysis should be a review of the current relevant local/regional mobility/transport plan against the methodology presented in this document to see what can be used in the new TMP (a scope and quality check list for this gap analysis can be found in annex 1). This is also an important task in demonstrating the need for a plan “upgrade”.

*Requirements for transport modelling:* Key initial tasks are to identify the transport model requirements including geographical/network scope, modelling complexity and data/survey inputs and then define the way to obtain the model through in-house or procurement processes. In many cases, partial models already exist and can be built on or full models belong to a third party and might be acquired for the TMP. In-house models may exist in an internal department but the time of the experts needs to be firmly secured (see step 2 and chapter 3.2 for more guidance).

At this point also, known key issues/areas to be addressed in detail in the Plan can be identified through expert assessment.

- c) **Establish the list of Stakeholders** that should be consulted/cooperated with during the preparation of the TMP. This might include residents groups, business groups, NGO's, transport user groups or other internal administrative stakeholders. Ultimately, the stakeholder groups should be identified to allow the full range of necessary opinions to be collected during the preparation of the TMP.
- d) **SEA and consultation planning:** SEA procedure and consultation is an essential part of any TMP and can be quite time consuming. SEA and consultation work needs to be planned for and explicitly included in any ToR (see chapter 1.4 below) for a consultant (see chapter 3.1 for more on SEA and related consultation and on consultation as separate issue).

#### **1.4 ToR for technical assistance**

The Working Group should assess which part of this work needs to be carried out externally by consultants considering the in-house capabilities and available resources. This support work should then be developed into a technical assistance ToR and procured.

#### **Main Outcomes of Step 1:**

- A clear and effective institutional setup and partnership agreement among involved subjects/administrations.
- A clear and effective management structure for the TMP.
- An overall work plan for developing the TMP.
- Tendered technical support for the TMP according to a clear terms of reference.

#### **Step 2: Information/data collection and Development of the Transport Model**

After step 1 is completed, the work plan is clear, the working group is operational and any required technical assistance has been tendered.

In step 2, the real work of the TMP can begins where it is necessary to collect all the remaining required data and develop the current state basis of the transport model, all of which are essential for the analysis phase (step 3).

#### **2.1 Data/information collection**

All relevant data/information about the strategic context (including related superior and parallel strategies of all the other relevant sectors), organization, operations (supply and demand) and infrastructure of the relevant transport system should be collected and documented in a structured inventory and relevant parts will be utilized as a part of the Step 3 analysis. See chapter 3.5 for a typical scope of data/information collection required.

Particular emphasis in this context is also placed on the collection of data and information from other plans/sectors, such as spatial/land development plans, socio-economic development plans, waste management, health, etc.

Within the SEA context, the data about the current state of environment should be collected at this point (information relevant to policy and regulatory context as well as the current status in terms of population, health, biodiversity, fauna, flora, soil, water, air quality, climate, material assets, cultural heritage including architectural and archaeological heritage, landscape value and protected areas).

## **2.2 Develop the Current State Transport Model**

In this step, the transport model of the current situation should be built/updated including the processing of the required data/surveys.

A transport model is an essential part of any TMP, which enables to:

- Map and analyze the existing and future transport supply/demand and related current and future needs, problems and potentials.
- Quantify and test the impacts of proposed future Measures and the TMP as a whole.

The transport model represents the transport system supply and demand, which should cover the area over which the TMP will have significant impact. See chapter 3.2 for more details on the transport model.

### **Main Outcomes of Step 2:**

- A detailed structured inventory of the data/information content serving the analysis phase.
- A functioning Current State Transport Model.
- Establishment of environmental baseline.

## **Step 3: Analysis and Identification of Problems and Potentials**

The analysis for a TMP draws on the information base developed in Step 2 and can be divided into a "Strategic" Analysis and a more Specific Analysis of Problems and Potentials in the local/regional transport system.

### **3.1 The „Strategic” Analysis**

The "Strategic" Analysis makes the link between the TMP and other planning documents or legislation (transport and other sectors) mostly helping develop the Vision and High Level Objectives (see step 4). Planning documents may for example contain relevant principles, strategic objectives, commitments and analysis relevant to the TMP.

The aim is to extract and synthesize the relevant content of the following types of related plan to create an cohesive view on the strategic issues and direction expected related to the development of transport in the town/region: local/regional development strategies, transport policy at various levels, current transport plan(s), land-use plans, health, education, waste management, social inclusion/accessibility, economic efficiency and business/industry/tourism/citizen friendly development, environmental policy, safety, crisis management etc.

The outcome of this strategic analysis can be used to guide the Specific Problems and Potentials Analysis (see below) and develop a Vision and High Level Objectives.

### 3.2 The Specific Problems and Potentials Analysis

The Specific Problems and Potentials Analysis primarily aims to:

- a) Define the base line „business as usual“ transport system development as a reference case for analysis and assessment of the Measures and the plan.

Starting with the Current State Transport Model from Step 2, the Business-as-Usual Future Transport Model should be developed and consist of a “business-as-usual“ network development (i.e. the case where no so far uncommitted transport interventions take place), coupled with different hypotheses for demand evolution (typically subdivided into low/medium/high development scenarios, based on the identified assumptions of future development for the main external factors – such as economic development, forecast creations of new industrial/economic/residential settlements, etc.) See chapter 3.2 for more details on transport models and also JASPERS Guidance on Transport Modelling.

- b) Identify the main specific current and future issues (problems/potentials) of the transport system on the basis of analysis and evidence (related to the overall system, the network, operations, users, or affected third parties).

This may include e.g. the overall organization and operations model, specific issues of infrastructure/rolling stock quality, major capacity bottlenecks, main corridors with poor accessibility/long PT travel times, areas of social isolation due to lack of PT coverage, sensitive areas with high emissions, accident black-spots.

Relevant layers of analysis will thus need to be developed at various appropriate levels of spatial/network aggregation (e.g. overall for the area, for radial corridors, the town centre, key junctions etc.) in order to identify significant/key issues. The transport model is an important tool for much of this task.

An indicative list is shown below (the depth and focus of the analysis in different areas will of course depend on the complexity/nature of the transport system, the outcome of the “strategic“ analysis and the current practical issues of relevance for the town/region):

#### **Demand, operations, organisation and infrastructure**

- i. Demographic/land-use and economic development plans/patterns (related to transport generation), other drivers of transport behaviour.
- ii. Assessment of current and future traffic demand volumes and transport functionality (mainly by purpose/type, mode and O-D structure) by area/corridor for passengers and freight.
- iii. Organisation/Operations of the transport sector overall and per mode (including the institutional setup, principles of integration, financing, sustainable maintenance and operations requirements, PT service offer, passenger and freight traffic/demand management including ITS, parking, urban freight organisation etc.).
- iv. Accessibility per mode (time/cost/service coverage based).
- v. Quantity and quality of infrastructure per mode (including RAMS - Reliability, Availability, Maintainability, Safety - and ERA TSI compliance where relevant).
- vi. Quantity and quality of rolling stock per category per mode (including RAMS).
- vii. Transport capacity, Bottlenecks and Level of Service (quantity and quality – availability and needs).

## **Environment, safety and social issues**

- viii. Safety and security of the transport system.
- ix. Equal access for passengers, especially for people with reduced mobility and for social inclusion reasons.
- x. Emissions, noise/vibrations, energy sources/efficiency.
- xi. Mitigation of impacts on the environment (in generally and more specifically on areas protected under EU environmental legislation, e.g. Natura 2000 sites, areas protected under water, air or noise law).
- xii. Climate change mitigation/adaptation, disaster vulnerability/resilience.

Within the SEA procedure context, the collected environmental data is analyzed at this stage enabling the setting of environmental objectives, the definition of future trends (without the TMP) as well as strengths, weaknesses and opportunities, in particular those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC. This should be linked and consistent with the analysis of environmental issues performed within the TMP.

### **Main Outcomes of Step 3**

- A summary of the assumptions of the „business as usual“ transport system development and a Business-as-Usual Future Transport Model.
- An analysis of the main existing policy/planning basis which the TMP should build on.
- A set of specific main transport system problems/potentials based on analysis.
- Future environmental trends (without TMP), strengths, weaknesses and opportunities and a set of environmental objectives.

### **Step 4: Definition of a Vision, Objectives, Key Performance Indicators (KPIs)**

Based on the analysis (available from step 3) of the current and future problems and potentials for transport and the social, economic and policy conditions in which the transport system is embedded, a set of Objectives for the development of the system should be set up.

Objectives, especially the High Level ones (see below), should be as far as possible independent from specific solutions (Measures), allowing a range of Measures to be proposed/assessed to address them. Objectives are generally more focused on the desired results and impacts of potential actions/measures.

Such a framework will represent the strategic backbone of the TMP as it provides the fundamental guidelines along which the system can develop and set the Targets which will be aimed at by the concrete Measures developed in step 5. To this aim, a Vision and (we recommend) two sets of interlinked Objectives should be developed:

#### **4.1 A Vision and High Level Objectives**

An overall Vision should be defined. The Vision summarizes in a concise but general form the fundamental conditions of the transport system which the responsible institutions want to establish.

A limited number of key High Level Objectives should also be developed in line with the Vision and the outcomes of the analysis of step 3 - reflecting the policy priorities coming out of the „Strategic“ Analysis

but also taking into account the „Specific“ analysis of real issues. *See the introductory chapter of 1.6 to see some main High Level Objectives recommended in the SUMP guidance for example to „Reduce air and noise pollution, greenhouse gas emissions and energy consumption“*

#### **4.2 Specific Objectives**

Specific objectives can also be developed. These will follow mainly from the Specific Problems and Potentials Analysis with a logical link to the High Level Objectives. The definition of Specific Objectives guarantees that the particular needs of the region/city of interest are taken into proper account by establishing a tangible link between higher level policy/problems and real and more specific issues identified through analysis (including modelling work and surveys).

An example of a Specific Objective could be to significantly reduce public transport travel time from a major suburban housing area to the centre of the city *(with demand analysis showing high car modal share on this corridor and accessibility analysis showing poor travel time performance for PT)*.

#### **4.2 TMP Indicators and Targets (KPIs)**

Key Performance Indicators (KPIs) should generally be defined for a limited number of the most important measurable Objectives relevant at the level of the whole plan (usually based on the High Level Objectives), and Targets (or a range) defined for them where feasible (often initially in relation to quantified policy goals such as accident reduction) with an expected time horizon(s) for their achievement (these Targets may be reviewed during steps 5 and 6 after more detailed potential impact analysis).

These KPI Targets can be used for the assessment of the overall TMP itself (see steps 5 and 6). The achievement of these Targets should be monitored as part of an ongoing evaluation process.

Within the SEA context, the consistency between the environmental objectives and the TMP Objectives is assessed (a characterisation, strong/medium/weak/neutral/negative could be used). The environmental characteristics that could be significantly affected should be identified.

#### **Main Outcomes of Step 4**

- A hierarchical structure of interlinked overall Vision, High Level and Specific Objectives.
- A set of defined Key Performance Indicators for selected key Objectives.
- A set of Targets for the Key Performance Indicators.
- Consolidation of the environmental objectives of the SEA with the TMP Objectives (the way the environmental protection objectives and any environmental considerations have been taken into account in the TMP objectives).

## **Step 5: Identification and Assessment of Measures**

This step looks for a justified set of Measures for the Objectives that were identified in Step 4.

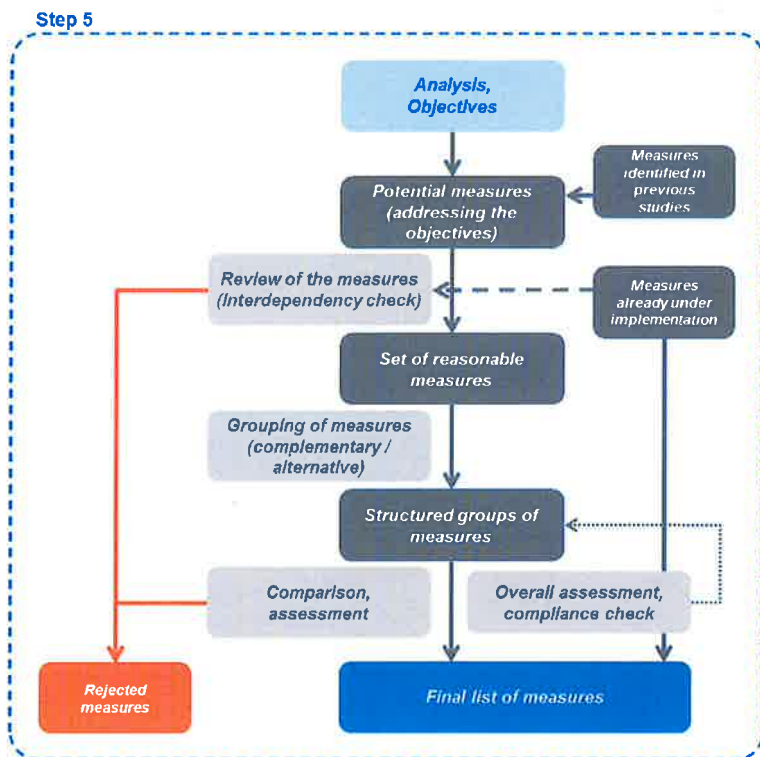
For each Objective, a series of possible solutions (Measures or groups of Measures which address the Objectives themselves) are proposed and tested. In a full TMP, measures should cover the whole transport sector and are expected to address areas such as:

- Organisational/institutional Measures, which involve changes to the structures that oversee the implementation, funding and operation of transport solutions, and may be implemented at institutional level or within specific authorities/agencies.
- Operational Measures, which describe those actions to improve the operation of transport (e.g. PT frequency/coverage/timetable improvements, soft demand management such as work place travel plans, travel information, ticketing integration, tram priority, traffic management, car sharing scheme, restricted access low emission zones, tolls/charging zones, increased maintenance funding).
- Infrastructure Measures (e.g. trolley bus line extension to improve accessibility, rearrangement of stops and stations, new tram line to improve travel time and capacity etc.), which will usually require capital investment in physical works.

In defining Measures, it is important to distinguish between Measures and Projects. Measures can represent a wider concept that has not yet been fully formed pending further specific, more detailed and focused analysis/investigation (e.g. a public transport improvement on a specific corridor).

Measures usually evolve into Projects through more detailed study to define design parameters, detailed alignments/junction strategies, capacity, and charging mechanisms (if appropriate).

### ***Proposed reference methodology***



A realistic set of Measures which can address the identified Objectives should first be identified:

- a) Measures should be identified/developed with clear logical and functionally/solution appropriate linkage to the outcome of the Analysis and the established Objectives. Measures may also include those resulting from previous considerations. Measures/projects already under implementation generally do not need further assessment and can be included in the Business-as-Usual-Scenario.
- b) The Measures can be reviewed and filtered according to how they meet the Objectives and possibly other functional/practical criteria. Those that poorly support the Objectives or conflict significantly with some Objectives or fail on the other criteria can be omitted from subsequent consideration or reconceived.
- c) Further work required to develop Measure concepts should be identified (e.g. required feasibility studies).

The end result of this phase of the process should be a set of confirmed, reasonable Measures. This set of Measures can then undergo further synthesis and analysis:

- d) For each Objective or set of Objectives, Measures can be packaged into Complementary Groups of Measures including Alternative Groups where relevant (i.e. different sets of solutions to address the Objectives). At this stage, it is important that a well-balanced, comprehensive and exhaustive set of structured groups of Measures is achieved.

- e) Those Groups of Measures can then undergo – at least – a qualitative comparison between Alternatives in order to identify the preferred ones. Criteria for assessment should take into account relevance of the Groups of Measures with regard to the Objectives. The chosen alternatives i.e. those that best support the Criteria are then selected for inclusion in the TMP.

*The Working Group can propose and agree a more detailed methodology for this specific assessment.*

- f) The final result of the above process will be a list of potential Groups of Measures which can significantly support the Objectives in an effective and efficient way and can thus be considered for inclusion in the Transport Plan.
- g) The whole set of preferred Groups of Measures can be combined together into a “do-all-scenario” which should be modelled in the Transport Model (or with another type of impact analysis for the measures which cannot be modelled), thus determining the indicative value of the selected group of KPIs for the whole set of preferred Groups of measures. Where these KPIs do not reach the established Target values, either the Targets should be reviewed or different Measures might be included and the preliminary assessment of Alternative Groups of Measures repeated.

*In order to facilitate this step, Measures might be made more concrete if required by following the following main principles:*

- For those Measures that already have an adequate Feasibility Study, characteristics should be consistent with the outcomes of the chosen option that has come out of the study.
- For Measures not yet with an adequate definition from a feasibility study, in the first instance, technical characteristics might correspond to the minimum resulting from a preliminary “engineering” assessment based on available data (e.g. choice of the transport system and main performance based on available data on expected flows, etc.).

Within the SEA context, the proposed TMP (groups of) measures (and alternatives) should be assessed in terms of anticipated impacts of the proposed alternatives including secondary effects, synergistic, cumulative, short-term, medium and long-term, permanent and temporary, positive and negative. According to the outcome of the assessment, the necessary adjustments, mitigation



measures and monitoring plan should be proposed. The results of the consultation process should be embedded in the above.

### **Main Outcomes of Step 5**

- Identification of information gaps where further detailed assessment is required (e.g. feasibility study for a major PT corridor).
- A set of acceptable, preferred Groups of Measures suitable for the TMP.
- Conclusion of SEA procedure/Environmental Measures and Monitoring Plan.

### **Step 6: Implementation Plan**

This final step can be undertaken either within the TMP itself or as a linked follow-up, to provide a realistic Implementation Plan including a well defined plan monitoring/update process.

The Implementation Plan takes the overall set of acceptable measures from step 5 and develops a practical framework for the actual implementation of the preferred Groups of Measures specified in step 5. The near-term of about 5 years should generally be planned in detail, with the following period more indicative.

The Implementation Plan might thus be updated more frequently than the core strategic part of the TMP arising from steps 2 to 5.

The Implementation Plan should at least include:

- a) Measure Implementation Plan (in one or more Scenarios), considering
  - Funding and human/other resource expected availability compared with needs, consideration of possibilities of additional resources (if necessary).
  - Selection of preferred measures, prioritization, assessment of Scenarios (if necessary).
  - Logical dependencies and time required for preparation.
  - Responsibilities for action.
- b) Detailed plans for further development of Measures (e.g. required further detailed studies) with clear responsibilities and timing.
- c) Plans for TMP review/up-date and continuation of the planning process.
- d) A final set of KPIs with Target values refined if necessary.
- e) Plans for monitoring and evaluation of implementation of the TMP including the method of Measurement of indicators. A good practice is to have continuous monitoring (e.g. quarterly/semi-annual/annual brief reports) and a big review/monitoring report every few years.
- f) An analysis of major risks for implementation timing and feasibility with mitigation Measures/contingency Measures.

### ***Proposed reference methodology for selecting a realistic preferred set of Measures for the time period of the TMP (mainly point b above)***

The preparation of the Implementation Plan can define a Plan Implementation Scenario(s) for the period of the TMP, taking into account the actual capacity of implementation of the TMP. In order to define this, the following steps can be taken:

- i. Actual capabilities of the Transport System (from organisational/institutional and operational points of view) of projects preparation and implementation. This can consider technical, legal, market constraints, actual workload capacity, etc.
- ii. Available foreseen realistic CAPEX and OPEX budget per year, subdivided by financing sources, possibly in high/mid/low Scenarios to allow political consideration on the transport budget.
- iii. A selection of priority Preferred Measures for the Scenario(s) for different time horizons can be carried out, mainly based on the principle of identified positive potential and effectiveness as regards meeting the Objectives and then transposed into an implementation timing plan after a consideration of actual measure readiness.

*A transparent process and its principles for identifying Preferred Measures can be discussed by the Working Group.*

- iv. Based on data and information above, the Traffic Model (or other type of impact analysis for measures which cannot be transport modelled) can be elaborated for each of the identified Scenario(s), calculating the expected values of the KPI targets. The degree of achievement of the KPIs is assessed for the Scenario(s).
- v. In case the modelled values of the KPIs do not reach the expected minimum Targets for the Scenario(s), either the Targets should be reviewed or additional work can be undertaken in order to improve the system performance, both from the standpoint of the Measures (return to Step 5) but if possible also identifying improved financial solutions.

#### **Main Outcomes of Step 6**

- An indicative preferred set of Measures/Projects to be realistically implemented under different identified implementation horizons in the period of the TMP.
- Priorities for further Measure/Project preparation.
- Detailed short-term planning.

### **3. Key Elements to be considered in a TMP**

This Section of the Guidance Note sets out more detailed discussion/information on a number of key topics relevant to the TMP which usually deserve a closer examination in the context of countries receiving cohesion funds.

The topics addressed are the following

- 3.1 SEA and public consultation
- 3.2 Transport Modelling
- 3.3 Institutional organisation of transport
- 3.4 Sustainable maintenance and operations
- 3.5 Main data & info to be collected on supply and demand (details on freight are excluded)

#### **3.1 SEA Process and Consultation**

The SEA process is essential, not only to comply with requirements of the EU Directive 2001/42 (e.g. public consultation, etc.), but to support the decision making process and to ensure that environmental aspects (including those on Natura 2000) are considered effectively in the TMP.

To be effective, the SEA needs to begin from the very early stages of developing the TMP (as soon as the TMP work begins), and must be a continuous process, being developed in parallel with development of the TMP, and should be regarded as part of interdisciplinary assessment performed throughout its development. It is noted that according to the SEA Directive, for plans that determine the use of small areas at a local level a screening procedure is possible, in order to determine the likelihood of significant impacts and the need of further environmental assessment.

In order to better consider the criteria of Annex II of the SEA Directive, the screening procedure, if the case, should be launched after step 4 and once a rough outline of the envisaged measures is available.

The Environmental report should reflect the requirements of Annex I of the EIA Directive as well as the National legislation. The step by step actions through which the environmental report is put together are described in section 2.

The results of the SEA and the opinions expressed during the consultation period must be reflected in the final version of the TMP as well as in the decision for adopting the TMP.

The actual implementation of the TMP will have to be monitored and its outcomes/impacts will have to be measured in order to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action.

Specific attention should be given to the following:

- Requirements of art. 6 (3) of the Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive).
- Requirements of art. 7 of the SEA Directive applicable for those strategies for which the implementation is likely to have significant transboundary effects.
- Considerations of impacts of the TMP on climate and climate change, and also the impact of a changing climate on the TMP and its implementation.

#### **SEA Consultation**

The draft TMP and the environmental report must be available to the public and to the authorities designated according to the art.6, paragraph 3 of the SEA Directive (e.g. the environmental authorities).

All Member States have established in their national legislation the arrangements for the information and consultation of the authorities and public, in accordance with art. 6 paragraph 5 of the SEA Directive.

### **Other Consultation**

An appropriate level of other public and stakeholder consultation, not directly linked to the SEA process, may also take place at different points of the plan development, based on assessed need and corresponding to national requirements. Such consultation can for example serve both to identify issues and get opinions on proposed solutions.

### **3.2 Transport Model**

The complexity and scope of a Transport Model will depend on the complexity of the transport network that is being assessed, and also on the nature of the Measures that will be considered in the TMP. More comprehensive guidance on Transport Modelling is provided with a separate JASPERS Guidance document<sup>3</sup>.

It is important that the appropriate specialists are contracted to provide assistance in the development of the model, to ensure that the final product is suited to its purpose, and that unnecessary over-or under-elaboration of the transport models can be avoided.

**The main actions** are as follows:

1. Undertake a scoping exercise in **Step 1 of the TMP** to define the Study Area, the level of detail within the model, how travel demand is represented, and what years the model is intended to represent. The scoping requires some thought on what solutions will be considered such that their impacts can be assessed in the model that is being developed. The input of a specialist will normally be required to assist in the scoping exercise.
2. Undertake the data collection that is defined in the scoping stage (Step 2). This can include collection of information on traffic flows, public transport demand, the layout and condition of the transport network and existing transport models where they are available. This data can also include population and economic forecasts for the area.
3. Construct and Calibrate the **Current State Transport Model**. This uses the data collected to provide a holistic picture of the current conditions on the transport network and is therefore an input to the Data Collection and Analysis (in Steps 2 and 3).
4. Build the **Business-as-Usual Future Transport Model** (in step 3), for different time horizons, based on a do-nothing/do-minimum evolution of the supply network, and on different assumptions on demand growth/modification (typically low/medium/high demand growth including the already confirmed modification in the socio-economic/productive and land use context).
5. The model can then be modified (in steps 5 and 6) to represent and test future scenarios in terms of supply network modifications/improvements and the related impacts (including modal share, accessibility gains etc.) .

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<sup>3</sup> *The Use of Transport Models in Transport Planning and Project Appraisal: JASPERS: 2014*

## Different Transport Model Requirements

The typical minimal expectations with regard to transport modelling for different types of TMP are described below but should be elaborated in the scoping in Step 1 based on the specifics of the situation.

| Level 1 - TMPs including large urban areas with more complex transport networks (usually with towns above 100 000 persons) | Level 2 - Other TMPs   |
|--|--|
| Variable Demand Model (dynamic 4 stage)  | Assignment Model + Simple Mode Share   |
| <b>MODEL CONTENT:</b>  | <b>MODEL CONTENT:</b>  |
| ROAD NETWORK   | ROAD NETWORK   |
| PUBLIC TRANSPORT NETWORK +TRANSPORT SERVICES   | PUBLIC TRANSPORT NETWORK +TRANSPORT SERVICES   |
| GENERALISED COST MODEL FOR UTILITY/IMPEDANCE FUNCTION  | GC or TRAVEL TIME BASED UTILITY FUNCTION   |
| TRIP GENERATION/DISTRIBUTION MODEL – DEMAND SEGMENTED  | MATRICES PER MODE SUPPORTED BY EMPIRICAL DATA  |
| OVERALL (GENERATED) DEMAND MATRICES  | ASSIGNMENT MODELS FOR CAR/PT SEPARATELY  |
| MODE SHARE STAGE APPLIED TO OVERALL MATRICES   | SIMPLE MODE SHARE/INDUCED DEMAND MODEL FOR TESTING MEASURES  |
| INTER-LINKED MODAL ASSIGNMENT MODELS   |  |
| <b>TYPICAL MINIMAL DATA REQUIREMENTS</b>   | <b>TYPICAL MINIMAL DATA REQUIREMENTS</b>   |
| Counts covering all relevant modes   | Counts covering all relevant modes   |
| Statistical data on population and business  | Statistical data on population and business  |
| O-D surveys including detailed behaviour questionnaires  | O-D surveys – simple, done on the network (e.g. stopping cars, brief interviews at train stations)               |
| Population growth and spatial distribution forecast, area activity structural changes, economic growth forecasts           | Population growth and spatial distribution forecast, area activity structural changes, economic growth forecasts |

### 3.3 Institutional Organization of Transport

The institutional organization of the transport sector regards the rules which govern the different institutional bodies responsible for planning, managing and delivering transport infrastructure, transport services and transport related measures to the public. The institutional set up thus influences the fundamental functioning of the entire sector and is of great importance in enabling a sustainable, efficient and reliable transport system.

The following chapter expresses an ideal which some best practice cases have come close to and it is understood that this will not be immediately feasible in most of the JASPERS countries.

The rules governing the transport sector cover operational, organizational, financial and economic issues and stretches over a wide range of domains: administrative law, budget law, regulation, competition law, etc.. It follows that the institutional organization first of all has to follow principles of

efficiency and effectiveness, but has also to comply with a large number of legislative requirements, many of which are common to EU countries, while others are specific to the country (or even specific to the region/city) in question. Moreover, the set-up has to take into account a large number of practical constraints arising from the specific circumstances in the area under consideration.

The main consequence of this is that the organization of the transport system is a complex, wide-reaching, multi- and inter-disciplinary task which has to be tackled with appropriate resources and a long-sighted time horizon as well as on the basis of solid political and public consensus. It is thus important to find tailored solutions but at the same time to follow general recommendations:

- An effective, independent and technically sound Transport Authority should be set up, in charge of planning and managing the transport system in the reference area. This should ideally be determined on the basis of mobility analyses carried out in the context of the national and local/regional transport plans. This independent Transport Authority should be responsible for implementing the transport policy, via an integrated planning process and the management/coordination of the different transport modes<sup>4</sup>. It should be in charge of all the mobility sectors, from the local/regional roads to the parking system – and the related fare/tolling system, down to the public transport supply and ticketing/fare system. This authority should also be in charge of planning and awarding the public transport services in the reference area under a PSC, in compliance with Reg. 1370/2007 and with principles of effectiveness, efficiency, transparency, etc. Among others, the Authority should also be specifically able to cope with the issues arising from public procurement.
- The availability of a long-term reliable and stable financial basis for the provision of transport services, the construction, maintenance and renewal of transport infrastructure and the provision/implementation of other transport related Measures should be ensured. This includes among others an appropriate ownership model for the transport infrastructure. In this context of sound financial management and promotion of sustainable transport solutions and policies, a strong role is played by the parking system and the related fare policy. In the best case the Transport Authority should be in charge also of the entire parking system planning and management, possibly on the entire reference area. This said, financial flows from all the managed activities should be kept transparent and independent.
- Concerning public transport, a clear separation of roles concerning managing/coordinating the services (Public Transport Authority) and implementing the services (operators) should be sought; in particular:
  - The Authority should be responsible for defining the quantity and quality of services following the established policy objectives and principles and in accordance with available funding and for monitoring/steering the service provision.
  - The operators have to carry the technical and economic responsibility for the delivery of the services and to be incentivized to increase their performance.
  - The delivery of the services has to be regulated by a Public Service Obligation contract – in compliance with Reg. 1370/2007/EC (and its updates), which does not simply reflect the Status Quo but increase cost effectiveness and quality. For example, compensations have to be calculated on the basis of a sound economic analysis, not simply perpetuating historical values.

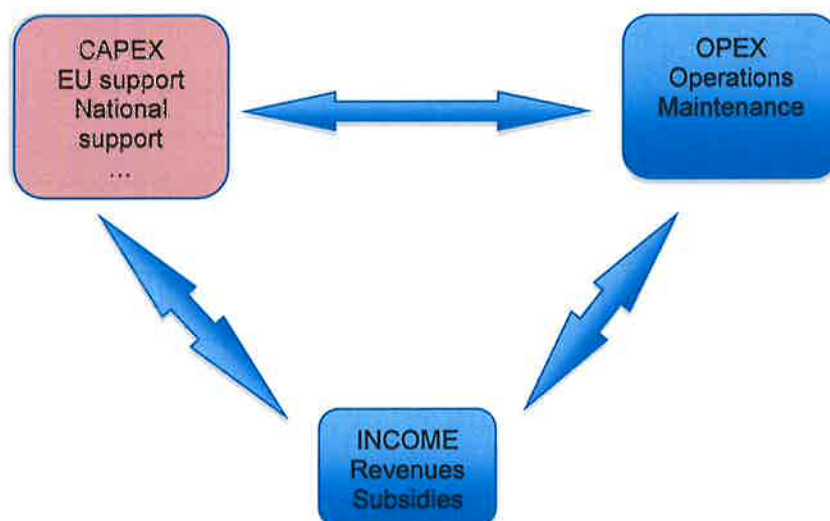
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<sup>4</sup> "Independent" means for example that the authority is not controlled by the same entity which owns the in-house operator of public transport.

- Finally, the interrelations between the involved parties have to be structured taking into particular account some aspects:
  - Exact, credible and solid contractual agreements have to be put in place. At the same time, a sufficient level of flexibility to foster performance and counteract malfunctions (bonus/malus regulations, penalties, termination options, etc.) has to be included. Any relation including those between administrative bodies should be backed up by appropriate verifiable agreements.
  - The relevance of State aid issues should be carefully investigated when designing organizational structures. Even if the potential incompatibility with State aid regulation should be identified early enough so that such issues are avoided a priori (or be manageable by means of notification), some institutional set-up are more prone to rise State aid issues than others.

### **3.4 Sustainable Maintenance and Operations**

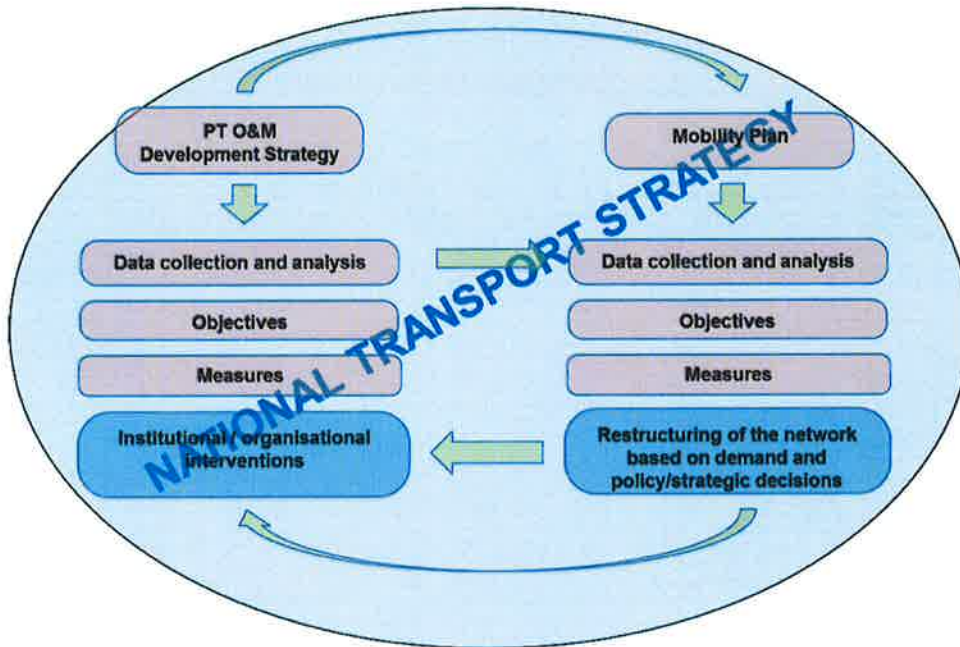
As mentioned several already in the document, one of the main purposes of the TMP is to provide the basis for financially sustainable transport sector development - CAPEX / OPEX - over the medium to long term.



This should include also sustainability in terms of environment, social acceptability, climate change, etc.

From a technical and financial standpoint, this means to setup an adequate planning and management structure for the entire transport system, which is guaranteed an adequate level of funding, on the basis of commonly agreed Objective data and Objectives.

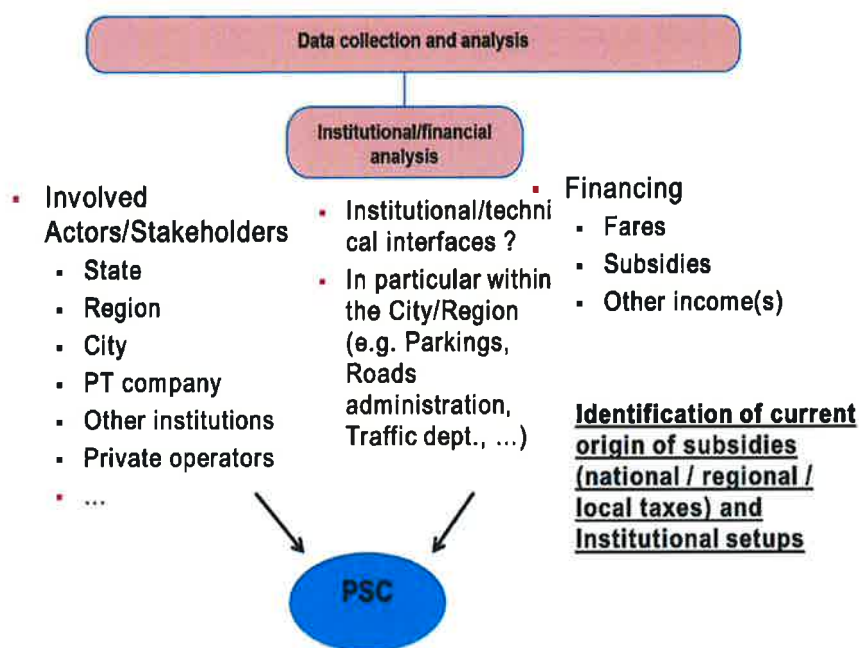
In particular, it is advisable that the analysis goes also more into the details of the actual public transport services provision/operation, both in the context of the Mobility Plan or under a parallel, complementary study:



The scheme above highlights the importance of having the possibility to undertake such an analysis: this should, on the one side assure a better organisation and efficiency/effectiveness of PT O&M, and on the other side provide the City/Region/Transport Authority with solid and transparent data and information in order to understand the impact on its yearly budget from the potential investments in the transport system. These data would represent a clear Objective basis also for the negotiation of the PSC. This would represent a big step forward in the decision-making process and in the awareness of Public Administration of the system sustainability.

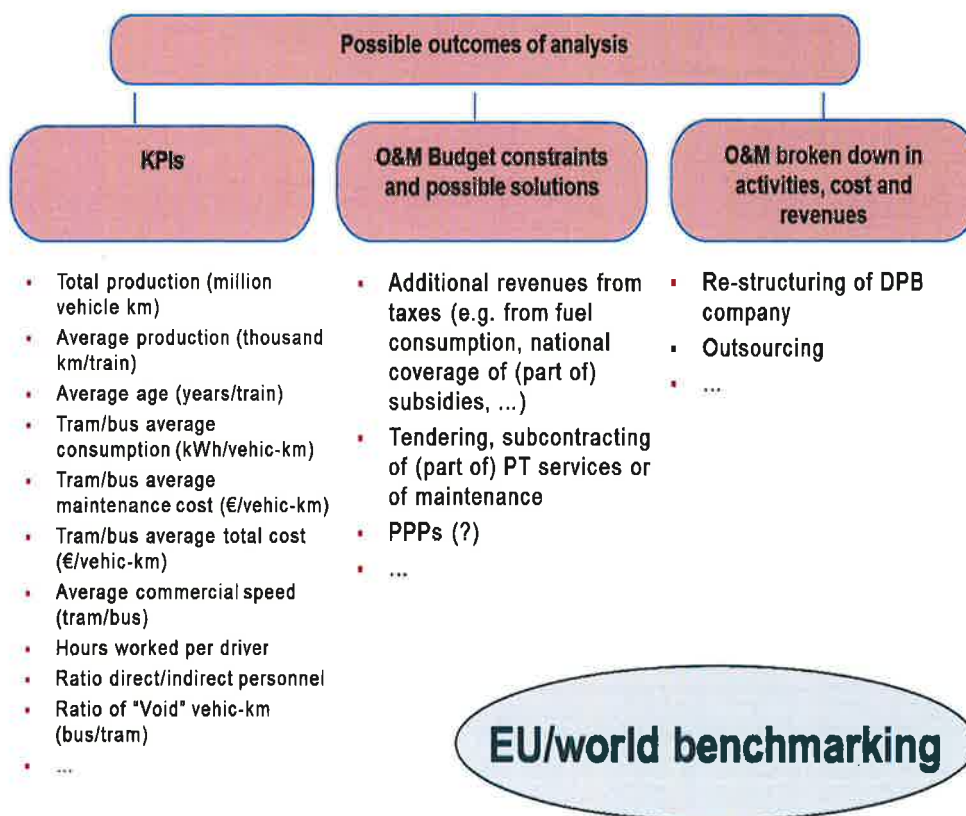
In detail, such PT O&M analysis would be based on the following steps:

1. Collection of relevant data on technical and institutional organization of the PT system in the area, and of the main sources of costs/incomes/subsidies.



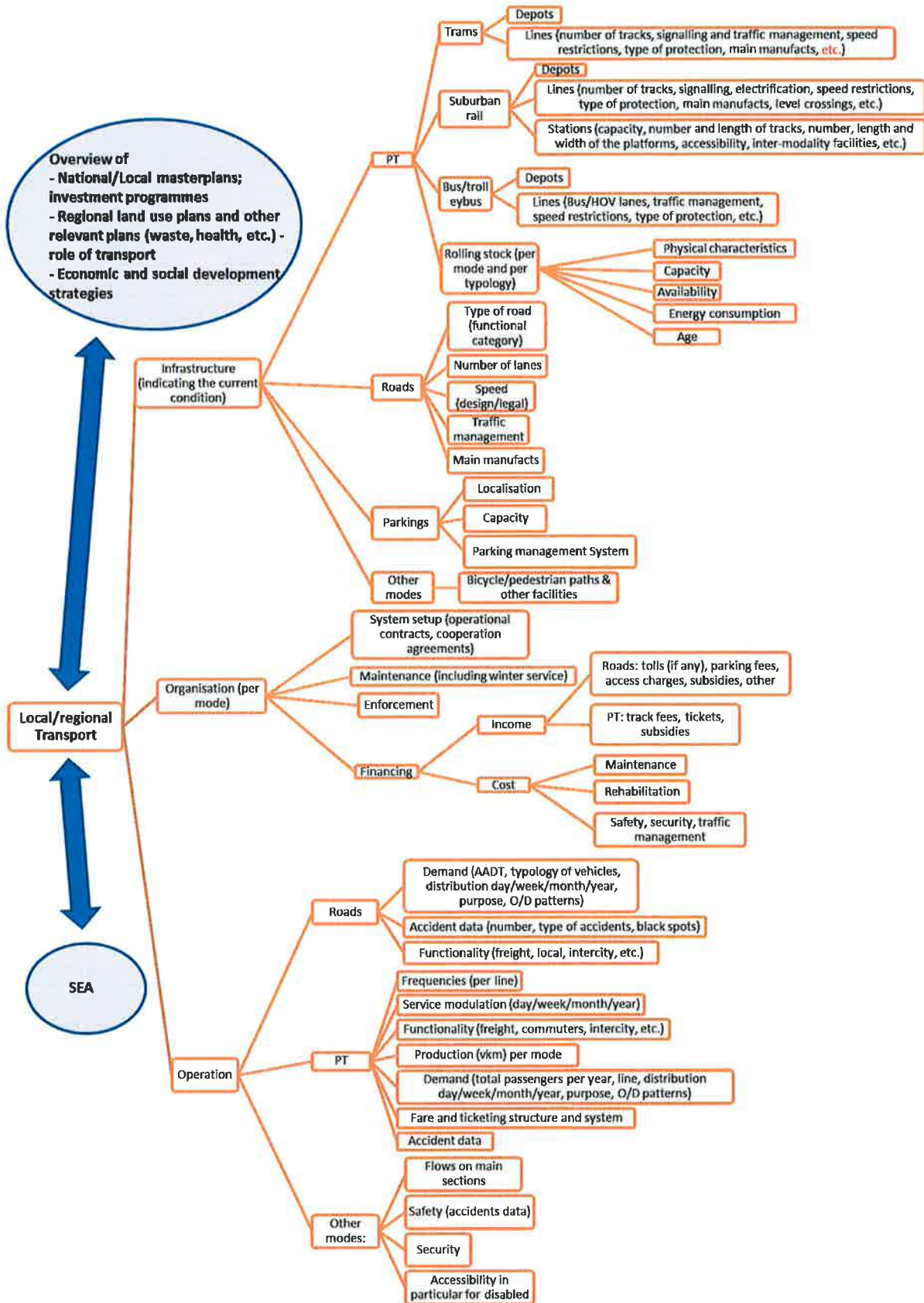


Elaboration of the collected data and production of synthesis KPIs. These would be used for a national/international benchmarking, as a supporting tool to identify areas for improvement in the system (e.g. level of subsidies, need for PT prioritization, etc.), the operator (e.g. need to modify work shifts, improvement in rolling stock, etc.), and in other external factors (such as interfaces with other PT systems such as extra-urban/rail, etc.).



2. The data from the activities above should ideally represent a specific chapter of the TMP, representing one of the main parts of the organizational analysis, and the main source of data and information for the determination of the Plan's O&M cost under different time horizons and its sustainability / need for additional financing for operations and subsidies.

### 3.5. Typical Main Data & Info to be Collected



## Annex 1 – Gap Analysis Checklist for Existing Local and Regional Transport Plans

|  |  | Y/N | Comment |
|--|--|-----|---------|
| <b>General</b>   |  |     |         |
| <i>Approach</i>  |  |     |         |
|  | Consistency and complementarity to the national level planning instruments and to the other relevant sectorial plans considering wider development goals and plans |     |         |
|  | Inclusion of sufficient set of stakeholders and inclusive working group  |     |         |
|  | Compliance and complementary with SEA process as required  |     |         |
|  | Compliance with relevant national and EU policies  |     |         |
|  | Appropriate geographical scope   |     |         |
| <i>Scope</i>   |  |     |         |
|  | Coverage of all relevant modes and their interaction   |     |         |
|  | Appropriateness of temporal and geographical scope (set on a functional basis)   |     |         |
|  | Sufficient consideration of organisational, operational, and infrastructure aspects of transport provision (including sustainable ops and maintenance)             |     |         |
| <b>2. Information/data collection and Development of the Transport Model</b> |  |     |         |
| <i>Data Collection</i>   |  |     |         |
|  | Sufficient data relevant to Infrastructure available (quality, quantity of infrastructure, etc.)   |     |         |
|  | Sufficient data relevant to organisation and operations/maintenance available (quantity and quality of PT services per mode, etc.)                                 |     |         |
|  | Sufficient transport/mobility demand data available from surveys/counts  |     |         |
|  | Sufficient demographic and economic data (incl. forecasts) available   |     |         |
| <i>Development of model</i>  |  |     |         |
|  | Model of sufficient geographical and modal scope and quality (structure, underlying data and calibration)  |     |         |
| <b>3. Analysis and Identification of Problems and Potentials</b>             |  |     |         |
|  | Sufficient "Strategic" analysis carried out  |     |         |
|  | Sufficient analysis of problems and potentials carried out, addressing (at least):   |     |         |
|  | - <i>Organisation, demand, operations, infrastructure and maintenance</i>  |     |         |
|  | - <i>Demand, capacity and level of service (across modes) for both passengers and freight</i>  |     |         |
|  | - <i>Environment, safety and social issues</i>   |     |         |
| <b>4: Definition of a Vision, Objectives and Targets</b>                     |  |     |         |
|  | Clearly formulated and unambiguous Objectives identified:  |     |         |
|  | - <i>Multimodal</i>  |     |         |
|  | - <i>Linked to analyses</i>  |     |         |
|  | KPIs (key performance indicators) for selected Objectives defined with Target values   |     |         |
| <b>5. Identification and Assessment of Measures</b>                          |  |     |         |
| <i>Characteristics</i>   |  |     |         |
|  | Measures clearly linked to Objectives/Analysis   |     |         |
|  | Structuring/Packaging of measures into Complementary and Alternative groups of Measures  |     |         |
|  | Measures assessed at least against the Objectives  |     |         |
| <i>Fields of action</i>  |  |     |         |
|  | Sufficient coverage of Organizational measures   |     |         |
|  | Sufficient coverage of Operational measures  |     |         |
|  | Sufficient coverage of Infrastructure measures   |     |         |
| <b>6. Implementation Plan</b>  |  |     |         |
|  | Plan for further development of Measures   |     |         |
|  | Measure implementation plan & timing   |     |         |
|  | Monitoring and evaluation plan   |     |         |
|  | Analysis of major risks for implementation timing and feasibility with mitigation plan   |     |         |