



EU Recommendations for Sustainable Development of Cities

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Abstract: The paper presents EU recommendations in the concept of plans for the sustainable development of transport in cities, which was created as a result of extensive dialogue between stakeholders and planning experts from all over the EU, supported by the initiatives of the European Commission through the development of a number of projects. The European Commission has been actively promoting the concept of sustainable urban mobility planning for several years. Through the funding of a series of projects related to this topic, stakeholders and experts were brought together to analyze existing approaches, discuss problem areas and identify best practices. Public urban and suburban passenger transport systems (JGTP), according to the principles of the European Commission, play a key role in achieving the goal of sustainable development and sustainable transport in cities. In this way, plans can help cities in the efficient use of existing transport infrastructure and services, and ensure economical implementation proposed measures.

Key words: sustainable development, urban mobility, public city transport.

INTRODUCTION

Strategies for sustainable development of transport in cities is a balanced development of economic, ecological and sociological goals. Negative transport impacts are numerous and diverse and require continuous monitoring (Gladović et al. 2023). The current strategic document for the development of traffic in the EU entered into force in 2011. The white paper from 2011 entitled “Guidelines towards a single European transport area - Towards a competitive and energy-efficient transport system” [1] represents the global aspect of development in the transport sector, presents future challenges and difficulties of development and provides guidelines for the creation of transport policy until 2050. The key challenges of future traffic development are:

- reduction of dependence on the use of fossil fuels;
- construction of modern infrastructure and greater multimodality of the system by applying the methods of „smart management“ and information systems.

The strategic document was adopted together with other documents directly related to the reduction of en-

ergy dependence until 2050 [2] and forms an integral part of the European Commission’s policy aimed at reducing dependence on the use of non-renewable energy sources.

The importance of the transport policy for the overall energy efficiency of the EU is underlined once again in the announcement of the latest date, which is based on the goals until 2030 regarding the reduction of energy dependence [1]. It was established that results are being achieved in accordance with the set goal of reducing fossil fuel consumption by 20% by 2020, and a new goal was set - reducing consumption by 30% by 2030.

Public urban and suburban passenger transport systems (JGTP), according to the principles of the European Commission, play a key role in achieving the goal of sustainable development and sustainable transport in cities.

Generally, it can be concluded that in accordance with the large number of demands of the environment, the quality and sustainability of the urban traffic system must be evaluated from the aspect of all modes of transportation and the demands of all users of the system. The full effectiveness of the system could be achieved through:

1. 1. Integration of different modes of transportation;
2. 2. By redistributing modes of travel from cars to public transport by applying traffic demand management measures (mobility plans, parking policy, tariff policy in public transport, increasing the quality of public transport services);
3. 3. Technological innovations in the sector of motor vehicles and
4. 4. More effective management of traffic flows through intelligent transport systems.

SUSTAINABLE URBAN MOBILITY PLANS (POUM)

Transport demand management strategies aim to optimally use the available transport infrastructure of the urban environment and to rationalize and reduce the number of trips by private car when the use of a private vehicle is not necessarily required. Therefore, the transport demand management approach translated into Sustainable Urban Mobility Plans (POUM) is a response to the growing transport problems of cities. By combining strategies aimed at reducing the use of private cars and strategies aimed at increasing the attractiveness of using other modes of travel (public urban passenger transport and non-motorized traffic), the improvement of the transport system as a whole is achieved.

Sustainable urban mobility can be achieved by applying an integrated approach to planning that takes into account all types of traffic in cities and their surrounding areas. Such an approach is enabled by Sustainable Urban Mobility Plans (POUMs), which form a set of interrelated measures that gradually lead to meeting the mobility needs of citizens and businesses. At the same time, POUM aims to improve the quality of life in cities and strive to balance the quality of the environment, economic development and social justice. In order to accelerate the implementation of this approach in Europe, the European Commission adopted the Action Plan on Urban Mobility [3]. This document assists local authorities in the development of POUM by providing them with guidelines for action, promoting the exchange of best practices, identifying reference points, and supporting educational activities for experts in the field of urban mobility.

POUM is a strategic plan that builds on the existing practice in traffic planning and is based on the principle of integration, participation and evaluation in order to satisfy the existing and future mobility needs of city residents, thus ensuring a higher quality of life in cities and their surroundings. A sustainable traffic system in cities, as the main goal of POUM, is achieved by increasing the accessibility of administrative and commercial content while simultaneously reducing the negative external effects of traffic development such as traffic accidents,

noise, air pollution, climate change and energy dependence.

The main characteristics of POUM are as follows:

- Participatory approach that includes citizens and actors from the beginning to the end of the planning process.
- Commitment to sustainability that will balance economic development, social justice and environmental quality.
- An integral approach that takes into account the practices and policies of different sectors, levels of administration and neighboring institutions.
- A clear vision, purpose and focus on the achievement of measurable goals are embedded in a comprehensive sustainable development strategy.
- Review of transport costs and benefits, taking into account wider social costs and benefits.

The development and implementation of the POUM is a continuous process consisting of eleven main steps (Figure 1). In practice, these activities may be performed partially parallel or may contain feedback links. A detailed description of all steps and activities can be found in the guidelines «Development and implementation of the Sustainable Urban Mobility Plan»[4].

Previous experiences have shown that the implementation of POUM can provide a number of advantages for cities and their residents. Namely, the implementation of the plans affects the improvement of the image of the city because the city involved in the planning of sustainable urban mobility can leave the impression of an innovative city facing the future. People-oriented urban mobility planning ultimately results in improved citizen mobility and better access to urban areas and their services. One of the basic starting assumptions in the development of plans is that the plan is made for people, not for cars and traffic, and work on improving air quality, reducing noise and mitigating climate change leads to positive effects on health and significant savings in healthcare. Planning for people means planning with people. With the help of citizens and other actors, decisions regarding urban mobility measures can achieve a significant level of «public legitimacy». All prepared plans should be harmonized with various European directives that are adopted at the global level, so that sustainable urban mobility planning provides an efficient way of fulfilling the legal obligations prescribed by the EU.

In cities across Europe, there are different approaches to planning of sustainable urban mobility. Namely, while some countries such as France and Great Britain are considered forerunners in this area, in other European countries POUM is still a new or unknown planning tool. Examples of good practice and instruments that illustrate the development and implementation of POUM form a database that provides valuable material for cities



Figure 1. Planning of sustainable urban mobility

across Europe, and at the same time the database provides inspiration for work on any new POUM.

One of the first projects to support a sustainable urban transport system in our country is a UNDP (United Nations Development Program Serbia) project which goal is to reduce metropolitan emissions in Belgrade by improving the public transport system, promoting the participation of cyclists in traffic and providing a political framework for the development of sustainable traffic. The four-year project ends in 2014 and the final result is the creation of a POUM that will ensure the harmonization of Belgrade’s traffic systems with economic, social and environmental protection needs, while minimizing unwanted consequences on the economy, society and the environment.

MOBILITY MANAGEMENT AND TRAVEL PLANS

Mobility management is a concept that promotes sustainable transport and manages the demand for passenger car use by changing the attitudes and behavior of users. Mobility management is based on the so-called «soft» measures, such as informing passengers, communication, organizing different types of services and coordinating the activities of different users. «Soft» measures most often increase the efficiency of «hard» measures

within the framework of urban transport (e.g. new tram lines, new roads and new bicycle paths), they do not necessarily require large financial investments, and the relationship between invested funds and benefits can be significant.

The main goal to be achieved with the concept of mobility management is to achieve a greater degree of sustainable mobility, with the following objectives:

- to encourage a change in users’ attitudes and behavior towards greater use of environmentally friendly modes of transport (EMFT),
- to improve access to all people and organizations by strengthening the conditions for sustainable development,
- integrated and more efficient comprehensive land use and traffic planning,
- reduction of traffic growth by limiting the number of vehicles, driving length and the need to use passenger cars,
- integration of different modes of transportation i
- increasing the economic efficiency of the entire transport system.

Mobility management consists of a large number of measures, as shown in Table 1.

Table 1. Classification of mobility management measures

CATEGORY	EXAMPLE
Information	Information obtained before and during the travel, information centers, websites, applications
Promotion	Promotional campaigns, travel tips, measures aimed at specific user groups (employees, elderly, students, pupils, residents), individual marketing, discount campaigns
Organization and coordination	Car sharing, car pooling, bike & ride system, park & ride system, tickets for all types of transport
Education and training	Eco driving, employee training, cycling courses
Measures targeting certain locations	Mobility management in companies, schools, shopping centers, hospitals, government agencies, at various events, in residential areas
Time and space flexibility	Work from home, reducing hospital visits, avoiding rush hour driving, flexible working hours
Support measures	Parking management, installation of new parking lots for bicycles, financial measures, charging for driving

In many countries, mobility management is mostly related to places where trips are made, such as companies, schools, administrations, etc. In these cases, mobility management means managing the way users travel to a specific location and a large number of measures fall into this category. One of possible measures is a travel plan that aims to manage and change the habits and behavior of users in the transport system who travel from and to a specific location (e.g. employees of companies, students and teachers in schools, customers in shopping centers, etc.). The travel plan usually combines measures that promote walking, cycling, public transport and car sharing, as well as measures that reduce the need to travel.

Travel plans can be extremely useful for large companies that have a large number of trips per day, for the reason that employees have to travel to and from work every day, and this type of travel usually takes place during peak load periods, i.e. in the morning and in the afternoon. The management of these trips, which would lead to their reduction, redistribution to other modes of transportation or redistribution in terms of the time during the working day when the trips take place, can have great benefits in terms of environmental protection, but also economic and economic benefits for the company.

The purpose of travel plans is to streamline travel within the company. It is a comprehensive planning policy, which can be voluntary or binding, but always agreed. All initiatives within travel plans are aimed at limiting the use of passenger cars by developing alternative solutions: walking, use of bicycles, public passenger transport, car sharing, group ride services, etc. Travel plans include a number of different measures that lead to:

- reducing the number of trips by passenger car to and from the workplace,

- increasing the number of people who share a car for commuting,
- reducing the need for travel, especially during peak load periods, and
- enabling employees to use alternative modes of transportation.

In line with circumstances, each company sets goals that are specific to its business. However, the main goal of all the measures applied within travel plans must be aimed at reducing the use of passenger cars in favor of other modes of transport. The impact of the applied measures can be measured in various ways, such as the distribution of traffic on modes of transport, the average occupancy of vehicles, the number of trips by passenger car during the peak hour, etc.

There are a number of examples of good practice that show the positive effects of implementing travel plans [5] [6] [7]. At the Institut Gustave Roussy (Villejuif, France), which has around 2,200 employees, after the introduction of measures such as group driving services by car and the introduction of a bus line that connects the Institute with the public urban passenger transport network (JGTP), the number of passenger car users decreased by 17%. The software company Oracle Corporation (Berkshire, Great Britain) recorded a 13% reduction in car users, which also affected the reduction of parking requirements, and monthly savings amounted to approximately 13,000 liters of fuel. The high participation of private vehicles (72%) in work trips was a problem of Coimbra Hospital (Coimbra, Portugal). The key results of the implemented measures were a reduction in the number of car trips in favor of JGTP by over 10%, as well as a reduction in fuel consumption by 15%. In the area of Brussels (Belgium), travel plans are implemented in about 280 institutions with over 240,000 employees. Measures aimed at promoting alternative modes of transport reduced the use of cars for business trips by 5%, while the use of JGTP increased by around 4%. A similar experience was had by 120 companies in the area of the city of Toulouse (France), where there was also a decline in the use of cars to go to work in favor of trips made by public transport, bicycles or car sharing.

CHALLENGES AND OBSTACLES IN DEVELOPMENT OF URBAN MOBILITY IN THE CITIES OF SOUTH EAST EUROPE (SEE)

The Green Paper on Urban Mobility - Towards a New Culture for Urban Mobility identified five challenges that cities face and must overcome in order to move towards "free-flowing cities and municipalities", namely:

- congestion
- dependence on fossil fuels
- increasing the flow of cargo and passengers

- accessibility of the urban mobility system
- security.

Congestion creates negative economic, health, environmental and social impacts, and affects mobility not only at the city level, but also on intercity transport routes that pass through urban areas. Possible solutions include a multimodal approach, encouraging cycling and walking, appropriate parking policies, online work and online trade, car-pulling/car-sharing), etc. Dependence on fossil fuels which cause emissions of CO₂ and other pollutants, as well as noise pollution, significantly contribute to climate change and worsen air quality and human health. Possible ways to overcome this challenge include: developing cleaner combustion engines and setting minimum standards for vehicle performance; research and introduction of alternative fuels and support for the development of infrastructure for supplying them in urban areas; and ultimately restricting or banning transportation in certain urban areas. The increase in the flow of cargo and passengers need to be viewed in combination with limited possibilities of expanding the traffic infrastructure, i.e. from the point of view of limited space, inadequate finances and from the position of advocating sustainable development. Possible ways to overcome this challenge include improving the efficiency of intelligent transport systems (ITS), integrating the JGTP tariff structure of all types of JGTP and a quality information system to achieve better fleet management, accessibility of the urban mobility system.

The existing systems, which include public passenger transport system (JGTP), pedestrian and bicycle paths, roads, etc., should be of good quality, which means that, depending on the case, they should be efficient, fast, frequent, comfortable, reliable, safe, flexible, affordable and accessible to vulnerable groups (elderly people, children, citizens with disabilities, pregnant women, etc.). In addition, the phenomenon of uncontrolled urban sprawl makes this challenge more complex. Possible ways to overcome this challenge include providing collective transportation options for citizens' needs, establishing an appropriate legal framework (e.g. by establishing appropriate public procurement standards), developing fast and frequent JGTP solutions, such as "Bus rapid transport systems - BUS rapid transport" and, as a comprehensive measure, the development and implementation of plans for sustainable urban mobility. Safety is a key aspect of a high-quality urban mobility system that includes the safety of infrastructure and vehicle fleet, as well as the safety of citizens accessing the system (e.g. walking from home to the bus stop). An unsafe system can discourage the use of JGTP and result in isolation of citizens and greater use of private vehicles. Possible ways to overcome this challenge include investing in safer infrastructure (e.g. installing lighting on pedestrian and bicycle paths), introducing a vehicle fleet accessible

to citizens with reduced mobility and implementing education and information campaigns. In this sense, it is also important to mention the macro and micro economic challenges that need to be faced in order to improve the sustainability of the JGTP system and improve the sustainability of the cities served by those systems. Macroeconomic challenges relate primarily to declining urban productivity growth rates and differential productivity outcomes between different parts of cities, where it is important to identify the links between urban productivity growth and investment in transportation and other community infrastructure.

CONCLUSION

The design and implementation of timely, effective and sustainable transport solutions in many cities, including in the cities of Southeast Europe (SEE) are often hampered by institutional and administrative deficiencies. Although institutional reform does not necessarily lead to a single institution that will manage multiple aspects and functions of sustainable urban transport, interdepartmental coordination or interdepartmental integration is necessary for comprehensive addressing of the issue of sustainable urban transport. Actions to overcome these obstacles should be adapted to different stakeholders and should include, accordingly, a series of measures jointly implemented by all stakeholders (city/municipal authorities and administrations, associations of cities and municipalities, national authorities, companies dealing with public city passenger transport, companies dealing with communal services, investors, development institutions, scientific institutions, etc.) [8].

Solutions for improving sustainable urban mobility are available and proven but the lack of necessary capacities at all levels of government - from national to municipal - slows down their successful implementation. One of important preconditions for the development of sustainable urban mobility in SEE countries is strengthening of capacities at two different levels: at the state level and at the local level (city/municipality).

We can say that development of sustainable urban mobility (OUM) requires a strong, city/municipal administration oriented towards environmental issues based on the efficient organizational structure which includes multidisciplinary experts. The main objectives of the unit for sustainable urban mobility should be the following:

- Significant increase in road safety in the city/municipality
- Development of the city/municipality based on the principles of sustainable urban mobility
- Economic development of the city/municipality through general improvement, increased investment and new green jobs in the transport sector

- Significant reduction of fuel consumption and related CO₂ emissions from the transport sector
- Successful transformation of the city/municipality into an environmentally sustainable city/municipality.

In the long term, it is necessary to establish integrated urban planning, with a special focus on traffic demand indicators, the establishment of an efficient process of public urban passenger transportation and sustainable urban mobility of citizens so that the development of cities is sustainable and the quality of life continuous and achievable (Drašković et al. 2023).

LITERATURE

- [1] D. Drašković, V. Bogdanović, P. Gladović, S. Davidović, V. Jeličanin. *Savremeni modeli organizovanja javnog gradskog transporta putnika*, XII međunarodna konferencija bezbjednost saobraćaja u lokalnoj zajednici, Banja Luka 26-27 oktobar 2023., BiH, str. 55 – 64
- [2] P. Gladović, B. Ilić, M. Stanković, J. Mišić. *Strategija i mere za održiv javni gradski transport putnika*, 27 Međunarodna Konferencija "Ekonomska; pravna i medijska transformacija kroz zelenu ekonomija zemalja zapadnog balkana sa posebnim osvrtom na bosnu i hercegovinu", 15.-16. decembar 2023. Travnik, Bosna i Hercegovina, str. 170-179
- [3] Commission of the European Communities, 2011., Transport 2050: Commission outlines ambitious plan to increase mobility and reduce emissions, Brussels.
- [4] Communication from the Commission to the European Parliament, the Council, the European Economic and Social
- [5] Commission of the European Communities: "Action Plan on Urban Mobility", Brussels, 2009
- [6] Rupprecht Consult: Sebastian Bührmann, Frank Wefering, Siegfried Rupprecht: "Guidelines: Developing and implementing a sustainable urban mobility plan", 2011
- [7] CO2MMERCE: „Mobility Plan Guide Book“, www.londoncouncils.gov.uk
- [8] EPOMM - European Platform on Mobility Management: „Mobility management: The smart way to sustainable mobility in European countries, regions and cities, 2013.
- [9] ELTIS - The Urban Mobility Portal: „Case Studies“, www.eltis.org
- [10] https://ec.europa.eu/transport/themes/urban/urban_mobility/green_paper_en 29.03.2024.