

TEACHING MATERIAL GUIDANCE

1. Title of the material

Evaluation of influence of mobility management instruments implemented in separated areas in the city on the changes in modal split

<https://aot.publisherspanel.com/resources/html/article/details?id=149447>

2. Which section of the SUMP it is relevant to?

The material presents a method of evaluating of influence of mobility management instruments implemented in separated areas in the city on the changes in modal split. Material characteristics are in accordance with section 12.1.

3. Problem approached and content overview

Because of the growing size of negative occurrences related to the mobility different measures in order to reduce its scale are undertaken. These activities are most often associated with restrictions on car traffic. Meanwhile exceptionally significant is cooperation of companies with transport managers and operators also in the scope of improvement of quality of public transport services and improvement of transport accessibility to workplaces. Special case are selected areas of the city, such as: business, industrial or other zones which everyday generate and absorb many trips related to work, including private cars. Implementation of mobility management instruments in those zones may be a chance to convince drivers to resign of use of cars and gradually raising of competitiveness of other transport means may encourage current users to continuing.

The article presents results of research aimed at construction of the model for evaluation of potential impact of sets of mobility management instruments implemented in areas (transportation zones) of high volume of trips related to work to decrease share of car trips. Prepared model has been used to evaluate of potential impact of implementation of sets of mobility management instruments on changes in modal split in selected transport zones in Cracow as well as in trips on relations "Home-Work" in the urban area.

Estimation of the number of persons who resign to travel by car to work in the scale of the area gains a particular importance, especially because of growing interest in the application of mobility management instruments to ease the negative impact of mobility.

To determine unknown volumes of decreases results achieved during implementation of mobility plans in the European workplaces with high number of employees have been taken under consideration in this material. In the material was elaborated mathematical functions of input data and given output. The final adoption of those functions has been enabled by results of sensitivity analysis not revealing significant differences in the case of modification of shape function.



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Application of accepted model on the example of Cracow has confirmed the influence of sets of mobility management instruments on the changes in modal split in zones where they are implemented as well as in trips in the city. Results of the research prove that mobility management instruments have multidimensional effectiveness and contribute with improvement of accessibility of urban areas with public transport means and confirm legitimacy its application by public and private sector entities. Although construction of the model has been based on Cracow data, it is possible to apply it in conditions of different cities using suitable healing indicators, created by the authors but not described in the article due to its size.

4. Who could be interested in this material?

Students who are looking for:

- the impact of accessibility by various means of transport on the modal split
- modal split modeling methods,
- recognizing the approach to building analysis scenarios based on quantified values,
- use of fuzzy modeling to analyze practical issues related to the formation of SUMP assumptions,
- application of engineering methods to estimate transport behaviour with the use of hard-to-measure factors.

5. What is worth mentioning as an innovative factor for the reader?

The material presents an innovative approach to modal split modeling for work-related travel depending on the availability of the destination by various means of transport. This innovation consists in applying fuzzy modelling for evaluation of implemented sets of instruments impact in the selected areas in Cracow on changes in modal split.

6. Limitations

The article is limited to the study of changes in the transport behaviour of residents related to travel to work. These trips typically account for around 25% of all trips in the city. In addition, in order to fully understand the issue of the impact of individual activities on the choice of means of transport, the student should get acquainted with other, alternative and at the same time more basic models, methods of modeling this phenomenon..

