



ATtractive Urban Public Transport
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SUMP of Miskolc

Partner

Miskolc Holding Plc.

Version

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Sustainable Urban Mobility Plan

Executive Summary

With the leadership of Miskolc Holding Plc. and MVK Plc., a Sustainable Urban Mobility Plan (SUMP) has been elaborated for Miskolc in the frame of an international project called ATTAC.

The SUMP has deep significance for Miskolc since transport has always been a major aspect in the development of the city. Due to its convenient geographical location, the development of rail and public road networks transformed Miskolc into an important transport node. In today's fast-moving world, however, mobility needs are growing, the limitation of which is almost impossible. Increasing traffic leads to congestions which have an increasing environmental impact and in the absence of interventions it can further deteriorate.

The transport development concept approved in 2004 provided solutions on the short, medium and long term for the transport issues in Miskolc. Due to the remarks, modifications and implemented measures collected since its elaboration, the concept has been reviewed in 2009, following which in 2012 the opportunity to develop a new public transport development strategy focusing on sustainability in the frame of an international project called ATTAC has arisen.

It is an important factor that the elaboration of the SUMP is being carried out with the involvement of the local stakeholders (the citizens of Miskolc, politicians, PT service providers, authorities, companies, organizations and educational institutions) which largely assists in the support of local transport problems with local solutions, the identification of local transport demands and the creation of productive partnership between the stakeholders. In accordance to the afore-mentioned, with the development of the SUMP, the accessibility of Miskolc can increase in a sustainable way.

The elaboration of the SUMP has commenced in 2012 with the involvement of the local stakeholders during the so-called Mobility Forums.

Forums	Date
1 st Mobility Forum	19 January 2012
2 nd Mobility Forum	26 April 2012
3 rd Mobility Forum	31 January 2013
4 th Mobility Forum	9 July 2013
5 th Mobility Forum	4 October 2013
6 th Mobility Forum	31 October 2013

At the first two Mobility Forums, the relevant plans in force and the projects which have been planned or under implementation were presented. The participants of the Forum were able to get acquainted with the transport development plans of other cities (Debrecen, Wien). In the frame of the 3rd Mobility Forum, consultation have been carried out with the representatives of the Municipality of the City of Miskolc where the public transport aspects and ideas of the Municipality has been introduced which serve as one of the basis of the Plan being elaborated. Subsequently, at the fourth Forum, the direction and the contents of the Plan to be developed has been negotiated with the participants and the most significant objectives necessary for the implementation of sustainable public transport have been determined which are as follows:

- Development of transport system for the enhanced protection of the city
- Development of public transport network with the least environmental impact
- Facilitating environmental friendly transport modes, preventing the rise of car usage – mainly within the city
- Providing transport corresponding to the function of the area
- Enhancing the accessibility of the city and the concentrated commercial and industrial areas

The stakeholders participating in the 5th forum fine-tuned and finalized the draft plan which was presented in the 6th forum.

The Miskolc SUMP presents and evaluates the actual status as well as the characteristics, connections and infrastructures of the city's transport which can be connected to the branches of the transportation sector.

The development strategy, the proposed measures and developments of the sustainable urban transport system of the city has been determined for the implementation of the sustainable urban mobility plan of Miskolc. In addition to the above, the priority development tasks and their respective timetable has been specified for the long, medium and short term.

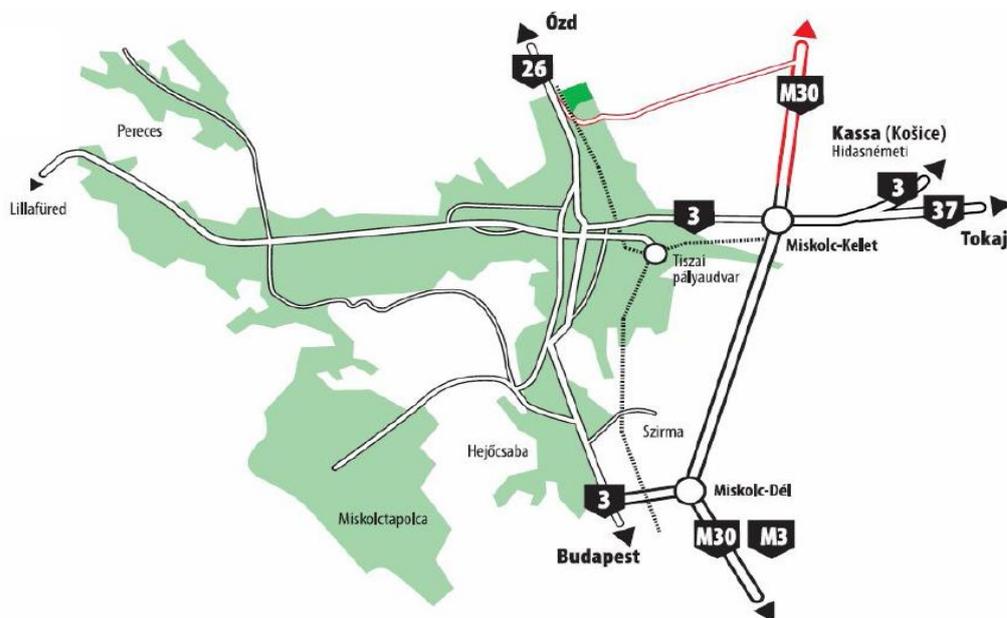
General Context

The city is located from 180 kms from Budapest, lies in the north-east corner of the Great Plain surrounded by the Bükk Mountains which is the most significant public road node of the North-Hungarian region. The 'M30' Motorway runs in the edge of the city almost like a bypass which connects the city into the country's circulation via the 'M3' Motorway lying approx. 25 km from Miskolc. The closest border crossing (Bánréve) is located 45 km from the city, roads of national importance meet here absorbing significant transit traffic.

Miskolc has a unique geographical situation and opportunities within the Hungarian cities. The city lies in the meeting point of the Northern-hills and the Great Plain. The length of the unique cross-like structure of the city is about 10 km from north to south and 30 km from east to west. "It expands from the foot of the Bükk Mountains to the River Sajo." It is mountainous in the valley of Garadna and the Szinva Creek where small settlements with a few hundred inhabitants were formed separately from Miskolc (Ómassa, Lillafüred, Felső-Hámor, Alsó- Hámor, Bükkszentlászló). The valley of the Szinva Creek starts to widen in the

Paper Factory area which can be characterised by the changes of housing estate and block of flat coverage along the city. Coverage by block of flats is getting thicker towards the inner city.

Old mining settlements, Pereces and Lyukóhánya (Lyuko Mine) are located to the north from the core of the city. These settlements can be reached via single ingoing road which can be characterised by housing coverage. Upper-and Smaller-Majláth Diósgyőr, Újdiósgyőr (New Diósgyőr), Hejőcsaba, Görömböly, the Avas városész and Komlóstető are integrated parts of Miskolc. The industrial history of the city, however, means several problems and challenges to Miskolc. The uniform city structure is divided by the old steel factory, almost as an inclusion. There are various initiatives to break-up this inclusion. (Europe Center)



In the east part of the city, Martin-kertváros and Szirma districts are separated from the other parts of Miskolc by the Budapest – Hatvan – Miskolc– Szerencs – Nyíregyháza railway line, the Gömöri railway line starting from Miskolc (Ózd, Kazincbarcika, Tornaádaska) and the Railroad Yard. This railway delta is located approx. 1 km from the city centre. Hejőcsaba, Görömböly, Martin-kertváros és Szirma districts are built to the side of the Great Plain almost to a level area.

Due to the more than 166 thousand inhabitants of Miskolc, its scope and regional role, significant mobility needs emerge in the city and its vicinity. The city traffic is mostly concentrated on public main roads (their sections within the city) and the network of secondary roads connecting them. The remaining roads merely serve the local traffic of residential areas.

Public main roads are united in the heart of the city, causing significant transit load for the city centre in addition to its originally high local traffic. Heavy vehicle transit has already been banned from the city centre due to which the traffic situation is still bearable. Cycling traffic is not attractive due to the insufficient infrastructure.

The city is not only integral part of the public road network, but also the national railway system with the largest regional role of railway line no. 80 (Budapest – Hatvan – Miskolc – Sátoraljaújhely). In addition to the above, the city is also the meeting point of 4 lines of smaller significance (no. 89, 90, 92, 94 and no. 330 and 331. narrow gauge). In accordance to this, Miskolc has excellent railway connections, being one of the best supplied nodes in the city. Miskolc has regular InterCity connections with Budapest, Debrecen and Nyíregyháza and also Szolnok due to the circle IC.

The total length of the road network of Miskolc City with County Rights is: 755 km. 490 km out of this is paved (covered with solid surface), the remaining is un-built metalled or dirt roads within and outside the city boundary.

The Municipality provides the control and maintenance of a 448 km long solid surface road within the city administrative border, the maintenance of the additional 48 km is the duty of the Miskolc Operations Center of the Magyar Közút Nonprofit Zrt (Hungarian Public Road Nonprofit Private Limited Company). In accordance to the above, traffic management is also separated. The management of more than 100 traffic light intersections in the city are also divided.

The local public transport is fulfilled by the operation of 2 tramlines and 35 bus lines operated by MVK Plc, which is owned by the holding established and owned fully by the Municipality. Inter-urban transport is conducted by state-owned companies (Volán, MÁV). Utilisation of the synergies is not even facilitated by the legislations besides the different owners.

	Bus	Tram
No. of lines (Sept 2013)	35	2
Line network length	152.9 km	13.0 km
No. of vehicles	150	32
No. of passengers in 2012 (thousand persons)	60 663	29 954
Performance per available seat km in 2012 (thousand seat km)	867 407	357 967
Performance per passenger km in 2012 (thousand passenger km)	233 095	75 653
Occupancy of seats in 2012:	26.87%	21.13%

The primary objective of the city is to reduce or even stop migration and to reach and maintain 200,000 citizens on the longer term by creating jobs and bearing in mind sustainable development.

The Vision

The development of an urban transport system in Miskolc by the coordination of the opportunities of the technical conditions, the environmental aspects and the needs of the stakeholders, which is sustainable in the long run as regards to its effectiveness and thereby contributes to the enhancement of the city's livability.

Goal

In order to achieve the long term sustainable development, it is vital that all developments to be implemented in the future must be based on an integrated approach. This means that the development of certain parts or functions of the city should not only lead to the development of the given streets and districts, but having a positive effect onto the whole city. In other words, the sectors that can be connected to each other, by strengthening each other should provide complex solutions maintaining the "engine of development" which are viable in the long term.

On the basis of the current situation and the land-use planning and development concepts, in accordance with the principles for a more livable city, the general aim of the urban transport development is **to establish a sustainable transport system**.

For this purpose, the most significant objectives of the development concept are as follows:

- a) Development of transport system for the enhanced protection of the city
- b) Development of public transport network with the least environmental impact
- c) Facilitating environmental friendly transport modes, preventing the rise of car usage – mainly within the city
- d) Providing transport corresponding to the function of the area
- e) Enhancing the accessibility of the city and the concentrated commercial and industrial areas

Appearance and the enhancement of the typical metropolitan problems are also expected in Miskolc. The slow development of motorisation and the strengthening of the current trends of the economy and society should be envisaged. Due to the increase of the incomes, cars will be available for everyday usage for a wider layer of society, although the gap between the wealthy and the poor will keep growing causing enhanced social distinction.

In parallel with the raise of the standard of living of the wealthier class, the level of needs and expectations of the prosperous class will also increase. Therefore, the individual convenience aspects will be more and more highlighted and the change of lifestyle will potentially lead to the increase of individually conducted mobility needs and for many people the current public transport system will not become a real and competitive

alternative. The popularity of services promising health-conscious lifestyle increase, the quality of the recreational activities for the better-off class becomes more and more important. Therefore the direction of processes will turn towards increasing transport needs.

As tourism will expectedly rise, mobility needs will also increase putting significant burden on the transport network. Elimination of such problems though can be an important aspect of attractiveness for the city in the future. Besides tourism, the higher education centre role and the university town function of the city also generates significant mobility needs (at weekdays in the collage-university-city centre “triangle”, at the weekends on the long-distance and regional lines), primarily increasing the need for public transportation. The youth can be a favourable starting point for the promotion of non-motorized methods and for the foundation of awareness raising. The geographical position of the city provides great opportunities for economic growth.

Providing quality living conditions require that the development takes place without the interruption of the city and citizens. Increased transport needs should be fulfilled far from the city centre; environment friendly transport should be enhanced for the protection of the inner city area.

Stakeholder involvement

For the elaboration of the SUMP, the various ideas were discussed at 6 Mobility Forums.

The representatives of the local civil organisations, the Cyclist Miskolc Association, the local organisation of the Urban and Suburban Transit Association, the Hungarian Federation of the Blind and Partially Sighted and the County Forum for Equal Opportunity participated in these forums. Green organisations and citizens willing to develop the city also attended.

In addition to the civil organisations, the local public transport company, the Municipality of the City of Miskolc, the affiliated public transport companies (Debrecen Public Transport Plc, Borsod Volán Plc.) and even the Ministry of Environment was also represented.

At the first two Mobility Forums, the relevant plans in force and the projects which have been planned or under implementation were presented. The participants of the Forum were able to get acquainted with the current transport development plans of other cities (Debrecen, Wien). In the frame of the 3rd Mobility Forum, consultation have been carried out with the representatives of the Municipality of the City of Miskolc where the public transport aspects and ideas of the Municipality has been introduced which serve as one of the basis of the Plan being elaborated. Subsequently, at the fourth Forum, the direction and the contents of the Plan to be developed has been negotiated with the participants and the most significant objectives necessary for the implementation of sustainable public transport have been determined. The stakeholders participating in the 5th forum fine-tuned and finalized the draft plan which was presented in the 6th forum.

The content of the SUMP and the objectives necessary for the implementation of sustainable public transport were determined with the stakeholder in the frame of a lecture and also in round-table discussions.

The ATTAC project was represented in several city events (European Mobility Week, City Day, Earth Day etc.).

The Mobility Forums were productive and cheerful but big debates arose in the theme of development of public road network whether it needed any development or a solution should be found for fulfilling the mobility needs within the current boundaries. There were major arguments about how to hinder individual motorized transport and promote public transport and about the basic expectations towards bicycle network development. These debates were closed with regard to their periodic priority.

Additionally to the Mobility Forums, the SUMP was also promoted in various associated events such as the European Mobility Week (16-22 September 2013) where a brochure was distributed in 2,500 copies requesting the opinions of the stakeholders about the draft plan (substantive proposal was not received). The 4th Mobility Forum was organised back-to-back with the MobiLAB2 meeting of the DRT pilot project in which the representatives of Task Force 1 (Burgas and ITL) participated.

Additional improvement and fine-tuning of the SUMP is expected at the end of 2014 and beginning of 2015. Several research and study strategy is under development which will be finalised in 2014 having effect on the transport strategy, development and future of the city of Miskolc. Following the elaboration of such documents, the SUMP will have to be supplemented accordingly, therefore the SUMP v2 is expected at the end of 2014 and beginning of 2015.

Tools and strategies

During the elaboration of the SUMP, the three strategic principles of sustainable transport in addition to the SUMP Methodology have also been taken into account.

- **I. principle: reduction** = prevention of certain travel needs. Increased mobility is often deemed as the pre-condition of economic growth, however this relationship can be challenged. It is possible to reduce the urban transport demand of certain areas which is the basis of numerous city development plans which concentrate on the concentrated development of built-in corridors properly serviced by high capacity public transport (railway etc.).
- **II. principle: substitution** = equipment fulfilling (passenger or freight) transport needs to be replaced with alternatives which have a lower impact on the environment. The official strategy in most countries can be described with the mixture of „rewarding” and „punishing” measures (public transport development and hindering personal car usage) – maintaining a wide balance between them.
- **III. principle: efficiency** = transport development tools – lower resource utilisation for production, lower energy consumption during operation and lower „emission” in the widest possible sense (air pollution, noise etc.). This can be reached on one hand by the development of the current technologies (evolutionary road), and by the development and distribution of entirely new engines and fuels (revolutionary road).

The major strategic elements with the most influence on transport development are as follows:

- National Transport Strategy
- Integrated City Development Strategy
- Sustainable Development Strategy of the City of Miskolc
- Transport Development Strategy of the City of Miskolc

The Demand Responsive Transport system has been tested by the City of Miskolc in the frame of the pilot project. The experiences show that significant energy and cost savings can be realised by the operation of such system. Therefore the wider promotion of this system has been included in the SUMP as a proposal.

SMART targets and packages of measures

In the course of the project, 5 SMART targets have been determined which are the followings:

- Development of transport system for the enhanced protection of the city
- Development of public transport network with the least environmental impact
- Facilitating environmental friendly transport modes,
- Providing transport corresponding to the function of the area
- Providing accessibility to the city and new development areas

The primary target for the development of a transport system for the enhanced protection of the city are the mitigation of environmental impacts caused by transportation and the protection of the inner city center, for the fulfillment of which the following package of measures are also required:

- The inner public road network and traffic order shall be designed in such a way that private car traffic is – potentially only - limited to the incoming and outgoing destination traffic. (Such limitation of private car traffic can only be implemented gradually and with great attention bearing in mind the city functions and the commercial and service needs). The ratio of sustainable public transport needs to be increased (maintaining or increasing the level of public transport in a small extent), the ratio of cycling traffic to be increased
- Maintaining an adequate level of inner city traffic needs the limitation of parking spaces, however the number of parking spaces must meet the inner city functions. Lack of parking capacity can be reduced by easily accessible parking houses, and by the re-design of the tariff system (besides the maximisation of available revenue) the intended traffic mitigation effect can also be achieved.
- As an alternative to individual transport, the accessibility to the city as well as the transit through the city must be ensured by good quality public transport and the increase of the quality of public transport services.
- In the City Core, safe traffic for the cyclists and pedestrians must be facilitated by the expansion of cycling and walking areas.
- The uniform (time and weight) limit of freight traffic which can be and must be monitored and the promotion of environment friendly tools/equipment are necessary for the mitigation of environmental impact caused by freight transport.
- Feasibility review of new types of freight (distribution) logistic systems. This is especially important for the major reduction of inner city freight traffic and not negligible in relation to container transport methods necessarily appearing during the tram line development

The aim of the transport network development in the design of public road transport network with the least environmental impact is to get the various traffic layers to their destinations by the route most convenient for themselves and for the city – having the least transport costs and environmental impact. This can be achieved by the different but coordinated management and control of the various layers. The concentrated management of transport needs shall be sought wherever possible. The time devoted to travel for the growing number of passengers is not “wasted time”, since they can make good use of this time (conducting business, purchases etc.) by using various info-communication tools (laptop, WIFI, smart phones).

The functions of traffic ROADS and residential STREETS must be distinguished.

- Long-distance and transit traffic must be guided from the city road network to the bypass main roads to the extent possible. The released capacity can be used by the city traffic.
- On the congested road network elements with capacity constraints, the mitigation of congestions is also possible by the traffic control and information tools and the expansion of capacity, leading to reduced travel time and environmental impacts caused by transport.

- By the expansion of paved byroad network, new routes can be integrated into transport reducing the traffic of main road network.
- The railway lines crossing the city have a strong separation effect. The crossings with higher traffic need crossings on separate levels, while in most cases the refurbishment of the existing crossings and the establishment of new crossings according to the needs are necessary.
- Regular freight traffic causing the major part of city traffic can be concentrated by the development of the fixed rail and CITY logistics systems. A so-called CARGO-TRAM system based on public railway can be established by the utilisation of existing infrastructure and its necessary development where dispatch of goods would also be fulfilled by so-called freight trams.
- In order to reduce the number of traffic accidents, the detailed traffic safety review of the hubs determined on the basis of accident analysis is required. Another task is the improvement of traffic morals.

Facilitating environmental friendly transport modes, preventing the rise of car usage – mainly within the city. Decelerate or even stop the further popularization of individual mobility by the promotion of other travel modes (primarily public transport) and by the upgrade of their services.

- A unified transport thematic management must be established for the enhancement of local public transport efficiency. The establishment of the flexible ability for public transport to adapt to the economic environment the development of demand responsive transport
- Improvement of suburban public transport services (both rail and bus) in order to reduce motor vehicle traffic incoming and outgoing the city. Ensuring the availability and free combination of transport modes.
- Public transport network must be expanded at the developing areas, the basic condition of which is the existence of adequate infrastructure.
- A new multimodal public transport and logistics centre to be established in the vicinity of the railway station with the relocation of the out of date urban inter-urban bus terminal currently operating in a bad and tight location (Búza Square), providing modern transport services and connections for the passengers using urban and inter-urban public transport.
- For the users of public transport, its ratio (modalsplit) can be increased by the promotion of public transport.
- P+R type traffic is expected and necessary in the vicinity of the railway stations and certain public transport hubs in the outskirts areas of the city. The establishment of an adequate number of parking spaces and storage facilities shall be sought.
- Public traffic services must be competitive compared to travel by personal car. Therefore infrastructure and vehicle fleet must be upgraded (by taking into consideration the aspects of equal opportunity), reliable service must be assisted by modern telematics applications.
- Cycling can be made safer and thereof more popular by the improvement of bicycle infrastructure. Setting up Bicycle Public Transport System as the new branch of public transport,

Providing transport corresponding to the function of the area

- In the areas mainly functioning as residential areas and in the natural environment to be protected (if numerous other conditions are met), inappropriate traffic – primarily transit and freight traffic – can be restricted with establishing speed limit zones.

When providing accessibility to the city and new development areas, care should be taken to the followings:

- Increase of the capacity of the national main roads and railways leading to the city – however this is in the scope of the government.
- The existing and new development areas can only be attractive with appropriate quality transport connections.

Action investment plan

Attribution of costs and resources to the measures was not possible due to the ongoing elaboration of the afore-mentioned National Transport Strategy and the revision of the city's Integrated City Development Strategy.

Implementing the plan

Following the initial hindrances, the pilot project run smoothly and closed with great results, due to which the proposal for the continued operation of the system has been included in the SUMP. During the course of the pilot project, several branches of the DRT system has been tested and the achievements are also indicated by the fact that the operation of the service is maintained on the line with the best results (ZOO line) even following the closure of the testing period.

Conclusions

The largest advantage was the elaboration of the documents in accordance with a well-founded methodology. The biggest obstacles were faced during the collection of data and the lack of basic documents (NTS, ICDS) and their revisions which would be the basis of the SUMP also caused problems.

The SUMP elaborated hereto shall be updated following the elaboration of the afore-mentioned documents, in accordance with the city's concepts and the best possible utilisation of available EU funds.